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ENSURING COMPETITION ON THE INTERNET: NET NEUTRALITY AND ANTITRUST (PART II), FCC PANEL

HEARING

BEFORE THE

SUBCOMMITTEE ON
INTELLECTUAL PROPERTY,
COMPETITION, AND THE INTERNET

OF THE

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HOUSE OF REPRESENTATIVES

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ENSURING COMPETITION ON THE INTERNET: NET NEUTRALITY AND ANTITRUST (PART II), FCC PANEL

THURSDAY, MAY 5, 2011

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON INTELLECTUAL PROPERTY,
COMPETITION, AND THE INTERNET,
COMMITTEE ON THE JUDICIARY,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:03 a.m., in room 2141, Rayburn Office Building, the Honorable Bob Goodlatte (Chairman of the Subcommittee) presiding.

Present: Representatives Goodlatte, Quayle, Smith, Coble, Chabot, Issa, Jordan, Chaffetz, Griffin, Watt, Conyers, Berman, Chu, Sánchez, Lofgren, Jackson Lee, Waters.

Staff present: (Majority) Holt Lackey, Counsel; Olivia Lee, Clerk; and Stephanie Moore, Minority Counsel.

Mr. GOODLATTE. Good morning. The Subcommittee on Intellectual Property, Competition and the Internet will come to order.

I have an opening statement. Today's hearing is the second part of the Subcommittee's inquiry into "Ensuring Competition on the Internet: Net Neutrality and Antitrust." This hearing, like the Subcommittee's February 15, 2011 hearing, will explore the FCC's Open Internet Order, whether the FCC had the authority to issue it and how it will affect Internet competition and innovation. Our previous hearing only reinforced my belief that the widely criticized order circumvents Congress' lawmaking authority and will stifle innovation in a morass of bureaucratic rules.

I conducted our previous hearing at a first—as a first step in reasserting that under our constitutional system it is the role of Congress, the people's elected representatives, to make the laws. Congress has taken several additional steps since then. One important step was the passage, early last month, of House Joint Resolution 37 which disapproves of the Open Internet Order pursuant to the Congressional Review Act.

However, Congress' effort to protect the Internet and its constitutional role in making the laws of the land, did not end with the passage of H.J. Res. 37. Congress will continue, through hearings like today's, to reassert its rightful authority to determine the FCC's jurisdiction and to make the laws that will best protect the Internet as an open, innovative and relatively unregulated environment. The constitution provides that all legislative power is vested

in Congress. The FCC can only exercise legislative power that Congress has delegated to it and the FCC acts unconstitutionally when it exceeds its limited power.

And make no mistake, the Open Internet Order exceeds the FCC's power. Congress has never given the FCC the authority to impose this sort of top down regulation of Internet services. That is why the D.C. Circuit in the *Comcast* case correctly held that the FCC's previous effort to regulate Comcast's network management practices was not tied to any statutorily mandated responsibility of the FCC. Instead of accepting the limits of its power the FCC responded to the *Comcast* decision by inventing an entirely new legal theory to justify its desire to regulate broadband network practices.

According to this new theory, the FCC has to impose regulations on broadband in order to encourage development and expansion of broadband access. The FCC undoubtedly has authority to encourage broadband deployment, but the open Internet order bears no rational relationship to that policy goal.

The FCC argues that by preventing broadband networks from unreasonably discriminating against applications, it can encourage the development of new applications which will in turn spur consumer demand for broadband access and then Internet service providers will react to this increased demand by deploying additional broadband networks. We must reject this Rube Goldberg theory of regulation in which the FCC may impose an otherwise unauthorized regulation in the hope that it will spur a long chain of events that may at some point advance an authorized policy. Allowing such a creative and attenuated theory would effective remove any limits on the agency's power.

As the evidence from our early hearing and many of the comments that the FCC made clear, imposing these new regulations are likely to discourage broadband deployment. Common sense tells us that the way to encourage broadband deployment is to decrease, not increase, broadband providers regulatory costs and burdens. You don't grow an industry by regulating it. The way to encourage growth and innovation in broadband and the Internet economy as a whole is to maintain the relatively unregulated environment in which the Internet was conceived, grew and continues to thrive today.

Rather than a heavy-handed regulatory approach crafted by the FCC, I believe a light-touch antitrust based approach will best protect a competitive, innovative and open Internet. Antitrust law provides a time tested and predictable system for preventing providers from engaging in anti-competitive blocking or discrimination. Unfortunately, by overstepping its authority and imposing its regulatory regime, the FCC has begun to take the country down a regulatory direction rather than a flexible, fair antitrust-based response to this threat, as this Committee has recommended in the past.

When an agency oversteps the powers that Congress has given it, and takes for itself Congress' exclusive power to make the laws of the United States, Congress must hold the agency to account. Hearings like today's are an important tool for ensuring agency accountability. I look forward to this opportunity to take statement from our two distinguished FCC witnesses and to demand a public explanation for the commission's overreach.

At this time it is my pleasure to recognize the Ranking Member of the Committee, the gentleman from North Carolina, Mr. Watt.

Mr. WATT. Thank you, Mr. Chairman and I thank the Chair for convening this hearing, although I would have to say I have some reservations, some ambivalence about both the jurisdictional questions that we are dealing with and the timing of this.

In any event, I do want to welcome Chairman Genachowski and Commissioner McDowell to the Subcommittee. They seem to, from everything I have read, be on the different tracks that perhaps the Chair and I are on, so at least we will get balanced views about this issue.

The debate about net neutrality is far from new. It started over a decade ago as broadband network providers became increasingly vertically integrated. For example, cable companies began to expand from the provision of television services to start deploying high-speed Internet, landline telephone and even wireless cellular services. Questions quickly emerged by how the stratified communications legal regime would apply to new conglomerate companies offering services that crisscross services and a wealth of regulatory laws. At issue then and now is the very architecture of the Internet and how to ensure that it remains open to all lawful content, information, applications and equipment. Large innovative, U.S. based companies like Amazon, E-bay, Facebook and Google urged the FCC to act to establish some baseline rules that would promote and protect commerce, creativity and global competitiveness. Fulfilling that task has been easier said than done.

On the other side of the issue, some Internet service providers or advocacy groups fear burdensome restrictions will operate to choke off innovation, free speech and commerce. In addition, some, like the Chairman, make the process claim that antitrust laws are adequate to ensure that the Internet remains a viable engine of economic growth.

Now that the order has issued and the courts have cleared the pathway for publication, the intensity has grown here in Congress to determine one, whether the FCC had the authority to act; two, whether the antitrust laws provide the appropriate legal framework to ensure competitiveness on the Internet and three, whether the substantive rules embodied by the Open Internet Order, transparency, no blocking, no unreasonable discrimination, will provide the necessary safeguards to ensure—to the entire Internet community, including consumers, rights holders and service providers.

There are no doubt a variety of opinions on this Subcommittee, indeed in Congress, as to the FCC's authority to police the Internet and to the effectiveness of the antitrust regime. Attorney General Holder was just here Tuesday and was asked a number of questions about the effectiveness of his antitrust division and policies. While these are legitimate inquiries I dare predict the same form of net neutrality or open Internet rules will ultimately monitor and regulate functions to access the Internet, whether through voluntary agreements or Federal laws or regulations. I would like to see it—see to it that such rules ban illegal conduct, including child pornography and online theft, and strike the right balance with lawful commerce that stimulates creativity, preserves open social

discourse and yet has the capacity to raise the necessary capital for first rate network management.

In short, I think whether the rules will protect consumers and promote growth in the—is the most important inquiry and the repeal efforts are an unfortunate distraction. So I am happy that we have the commissioners before us today who studied the submissions and have the expertise to assess the probable effect of the open Internet rules on its users and I look forward to their statement.

I would just say, outside my notes, as a Member of the Financial Services Committee, I think I probably have a much, much different perspective on the value of the regulatory framework that we have in our system than from my service on the Judiciary Committee. I am one that believes that the more we dictate these things, as opposed to establishing the broad principles, the more we dictate them legislatively, the more likely we are to get them wrong and that we ought, quite often, defer to regulators to make more reasoned judgments about these things, listen to the experts, listen to the consumers and business advocates and try to balance their interests within the general framework that we have established legislatively. So I expose my bias on that. It comes from long service on a different Committee, but I think it applies here with equal force.

And with that, Mr. Chairman, I yield back.

Mr. GOODLATTE. I thank the gentleman.

And the Chair is now pleased to recognize the Ranking Member of the full Committee, the gentleman from Michigan, Mr. Conyers.

Mr. CONYERS. What a rare opportunity this is this morning to have these two excellent public servants before us and I am indebted to all of you here. It is rare that—didn't Mr. Goodlatte make the opening statement? And it is so unusual when I find myself more in agreement with him than the Ranking Member of the Subcommittee, especially—yeah, democracy is great, isn't it? The reason is because it was Chairman Goodlatte that mentioned that there are antitrust remedies that this Committee has and I think that is very important. And I hope that Mel Watt will agree with both of us in that regard.

What I was doing since I have had the chance to talk with both of you, is that in summary I have to dismiss the view that there is irreparable harm being done, that there is nothing broken and that the—there is ample protection to consumers that is sufficient as it exists now. I wish I could see things that way. I don't.

And then the court, in terms of Mr. McDowell's very excellent presentation, in terms of whether the FCC has rulemaking authority, we better hope that it does because I don't know what else they would do if this commission existed and couldn't make rules as a result of the good work that you two have mostly agreed with each other and the FCC as a whole.

We are in for a, I think a very exciting discussion. But this case is already—that question is already in the Federal judiciary now being resolved. And I—of course our opinions are always maybe worth something to them, and whether they are or not we give them anyway. So I think this is an excellent opportunity that rarely comes.

We have all worked together on telecommunications issues. I, as a long time supporter of net neutrality, was not unhappy with the December order of the Federal Communication Commission. As a matter of fact, I don't think it went far enough to ensure consumer protection and a competitive marketplace. The House of Representatives have already voted twice to defund and undo the FCC's work and I would like to just review some of the arguments that have made—that have been made to undermine this net neutrality argument, the net neutrality order of the FCC, which the congressional product I did not have much sympathy for.

First, the regulations will cause irreparable harm. Well, great. That nothing is broken that needs fixing. That existing laws already protect consumers sufficiently. Please, give me a break somebody, I mean we are suffering out here. What we need is more effective and more precise regulation, not none or less.

Here is some instances where the Internet service providers have blocked, slowed, censored content on the Internet. That is not a good thing. Verizon Wireless has blocked pro-choice text messages. Comcast has slowed traffic to competing video service providers. These are demonstrable, uncontrovertible harms that will only worsen if this commission is prevented from acting as is now being proposed in the House of Representatives.

Unfortunately ISPs disclose little information to the public about how they manage their networks. There is little transparency. We have no readily available way to tell if and how they could be censoring or slowing content.

And I conclude with this. The high-speed market is highly consolidated and anti-competitive. Most of the people in this country have only two choices for high speed Internet. Thirteen percent of the—about 90 percent of our citizens live in either a monopoly or duopoly. Now let's not start this conversation off this morning with everything is okay. It is far from okay.

And so with that modest opening I thank the Chairman for his generosity and time and I turn back the rest of it to Chairman Goodlatte.

Mr. ISSA. Mr. Chairman?

Mr. GOODLATTE. I thank the Ranking Member. The custom of the Committee is to recognize the Chairman and Ranking Member of the Subcommittee and the full Committee and ask other Members to submit their statements for the record. Since we have had two on that side, we will defer to the gentleman from California for an——

Mr. ISSA. Thank you, Mr. Chairman. And I am going to be——

Mr. WATT. I have no objection to that.

Mr. ISSA. Thank you.

And I will be brief. I know that the Ranking Member of the full Committee is more knowledgeable on all things of this Committee, however I know a monopoly when I see one and there is no place in America that I know of in which you could say 90 percent of any state or 90 percent of any region and certainly not 90 percent of America, live under a monopoly or a duopoly, because ultimately if you have satellite and you have cellular, you already have two before you get into any of the well known broadband.

I would like to take exception though, at the onset. In order to assert authority one needs to have it. I believe what we're seeing here today is an assertion of authority that was not granted, a claim of antitrust behavior by monopolies that has not been proven. The FCC did not determine that they had it, nor are they continuing to study. Instead of asking for whether they are were right to make a decision, instead of coming to Congress for limited authority, they chose, in a quiet period, while Congress was not watching, to do this. Clearly, we were at home, we got the word. Clearly, the question was not before them, the history of harm was not available to them, the finding of a monopoly or duopoly certainly does not exist, had it, it would have long ago gone through the courts.

More importantly, if we allow this to stand then we must make the presumption that we can regulate gasoline at the gas stations so that all grades of gas sell for the same price. We can regulate the railroad so that all freight and passengers are carried by the same rate per pound.

Let me not belittle the fact that there were a few isolated instances that need to be looked at. Let me not limit the question to whether or not there should be some sort of guidance available as to fairness and equality. I for one believe that if you sell a product and you block a competitor's product then you have no claim of any, any right to say you serve the public trust. So although I find some things which needed to be acted on, I find it completely unacceptable that an agency took it on itself to do so.

I will disagree, just one more time, with the Ranking Member of the full Committee, just because something is before the courts doesn't mean that it belongs before the courts if in fact the only thing the court can essentially say is that the FCC had—ceded authority that we as Congress know we did not give them.

I thank the Chairman for the indulgence on this and yield back.

Mr. GOODLATTE. I thank the gentleman for his comments and without objection other Members' opening statements will be made a part of the record.

And it is now my pleasure to welcome our two witnesses. As is the custom in this Committee, we would ask that they stand and be sworn.

[Witnesses sworn.]

Mr. GOODLATTE. Thank you, gentleman.

Our first witness, Federal Communications Commission Chairman Julius Genachowski was nominated to that position by President Barack Obama on March 3, 2009 and was sworn into office on June 29, 2009.

Prior to his nomination Chairman Genachowski had spent over a decade in the private sector, first as a senior executive with the IAC Interactive Corporation and since 2005 at firms that he founded to invest in early and mid-stage technology companies. Before entering the private sector, Chairman Genachowski served as chief counsel to the FCC from 1994 to 1997, as an advisor to then Representative Charles Schumer of New York, and at that time a Member of this Committee, and as a law clerk to D.C. Circuit Court of Appeals Chief Judge Abner Mikva and Supreme Court Justices William Brennan and David Souter.

Our second witness, Federal Communications Commissioner Robert McDowell was originally appointed by President George W. Bush and confirmed by the Senate in 2006. Commissioner McDowell was reappointed to the commission on June 2, 2009 by President Barack Obama. This made him the first Republican appointed to an independent agency by President Obama. He was confirmed by the Senate for a second time on June 25, 2009.

Prior to joining the FCC Commissioner McDowell was senior vice president for the Competitive Telecommunications Association or CompTel, an association representing competitive facilities based telecommunication service providers and their supplier partners. Over his career he has worked in various public policy and private sector positions with a consistent focus on telecommunications policy.

Welcome to both of you and Chairman Genachowski, we will ask that you begin.

TESTIMONY OF THE HONORABLE JULIUS GENACHOWSKI, CHAIRMAN, FEDERAL COMMUNICATIONS COMMISSION

Mr. GENACHOWSKI. Thank you, Chairman Goodlatte. Sorry, Chairman Goodlatte. I apologize. Ranking Member Watt, Ranking Member Conyers, Members of the Subcommittee, thank you for the opportunity to be here. This is my first time testifying before this Subcommittee since becoming chair of the FCC.

Prior to my appointment, Chairman Goodlatte thank you for mentioning this, I spent more than a decade in the private sector as an executive and as an investor. I saw in the private sector the importance of high-speed Internet, of wired and wireless broadband to our country's economic success and to addressing so many challenges our Nation faces from education to public safety. The importance of communications to our economy and to all Americans is why the Communications Act has long given the FCC authority in this area.

So we are working hard at the FCC, on a bipartisan basis, and I thank my colleague, Commissioner McDowell for his service and cooperation, on a series of issues including universal service for broadband, on reducing barriers to private sector broadband buildout, on promoting competition, on promoting next generation 911 and public safety networks and on unleashing spectrum so that we can lead the world in mobile and address the looming spectrum crunch.

I also saw, in the private sector, the importance of the Internet's freedom and openness to its powerful success as a platform for innovation and economic growth, as well as for free expression. I learned that no central authority, public or private, should have the power to pick which companies or which ideas win or lose on the Internet. And I learned that certainty and predictability are critical to encouraging private sector investment and innovation, as is flexibility for companies and sectors characterized by fast moving technologies and markets.

When I arrived at the FCC the agency had, on a bipartisan basis, taken steps to enforce Internet freedom and openness in response to incidents in which Internet service providers had blocked or degraded lawful online content. This occurs in a market where more

than 70 percent of Americans live in areas with only one or two fixed, terrestrial broadband providers.

Unfortunately, what some have called the ad hoc process by which the prior FCC sought to protect Internet openness, generated uncertainty among Internet stakeholders. That's why, in 2009, we launched a fair and open Administrative Procedures Act process with the goal of establishing a framework that would be good for all parts of the broadband economy, for consumers of Internet services, for innovators and entrepreneurs building new products and services on the Internet and for Internet service providers building and operating networks. That was our goal and I believe we achieved it.

Our sensible, high-level framework to preserve Internet freedom has increased certainty and generated support from a very broad array of stakeholders who in the past could not find common ground.

The light-touch rules of the road are built on the commissions prior bipartisan steps in this area and rooted in the Communications Act. The rules fit on one page and boil down to four things.

First, transparency so that consumers and innovators can have basic information to make smart choices about broadband networks. Empowering them with information will reduce the need for government involvement.

Second, no blocking of lawful Internet content or services so that consumers can be free to access such content or services and so startup and other Internet companies can be free to reach Internet consumers.

Third, a level playing field, a fair non-discrimination principle so that consumers and markets, not the government, are picking winners and losers online.

And fourth, flexibility for Internet service providers. Flexibility to manage broadband networks, to deal with congestion or harmful or unlawful traffic, to pursue innovation in business models and to earn a meaningful return on investment so that we can have a fast and robust broadband set of networks in the United States.

Some people think the framework we adopted doesn't go far enough, others thing it goes too far. I believe it gets it right. One of the Nation's leading venture capitalists described our framework in terms used by many other investors and companies throughout the broadband economy, quote, this effort is a pragmatic balance of innovation, economic growth and crucial investment in the Internet.

It promotes competition in the marketplace and increases certainty. It is not regulation of the Internet, it is a light-touch framework to preserve the dynamic, free and open nature of the Internet. Virtually all major investment analysts agreed that our framework was good news for the broadband economy.

We completed the Internet freedom order in December and I believe that undoing the framework would increase uncertainty, decrease investment and hurt job creation.

Some argue that rather than acting the FCC should have allowed antitrust laws to be the sole remedy for violations of Internet freedom. In my view, while vitally important, antitrust laws alone would not adequately preserve the freedom and openness of the

Internet or provide enough certainty and confidence to drive investment in our innovation future.

As we heard during our FCC proceeding, antitrust enforcement is expensive to pursue, takes a long time and kicks in only after damage is done, especially for startups, in a fast-moving area like the Internet, that is not a practical solution.

The Supreme Court decision in Trinko also raises uncertainty about relying solely on antitrust laws as a remedy in the context of communication services.

To conclude, while the FCC was divided on the particular issue of open Internet rules, the issue has a bipartisan foundation at the FCC and the fact is that even at the FCC today we resolve more than 95 percent of our votes on a bipartisan basis. We are now focused together on promoting universal access to broadband and unleashing spectrum, initiatives of vital importance to our 21st century economy, to our global competitiveness and to expanding opportunity broadly.

I look forward to working with my commission colleagues and with Congress and the Subcommittee to harness the opportunities of communications technologies for our economy and for all Americans.

Thank you and I look forward to your questions.

[The prepared statement of Mr. Genachowski follows:]

Statement of

Chairman Julius Genachowski

Federal Communications Commission

Hearing on "Ensuring Competition on the Internet: Network Neutrality and Antitrust Law"

Before the Subcommittee on Intellectual Property, Competition, and the Internet

Committee on the Judiciary

U.S. House of Representatives

May 5, 2011

Chairman Goodlatte, Ranking Member Watt and members of the subcommittee. Thank you for the opportunity to be here.

This is my first time testifying before this subcommittee since becoming Federal Communications Commission Chairman in 2009.

Prior to my appointment, I spent more than a decade in the private sector, working as an executive at Fortune 100 company, and also as an investor.

I saw in the private sector the importance of high-speed Internet – of wired and wireless broadband – to our country's economic success, and to addressing so many challenges our nation faces, from education to public safety.

The importance of communications to our economy and to all Americans is why the Communications Act has long given the FCC authority in this area.

So we are working hard at the FCC on universal service for broadband, on reducing barriers to private sector broadband buildout, and on unleashing spectrum so that we can lead the world in mobile and address the looming spectrum crunch.

I also saw in the private sector the importance of the Internet's freedom and openness to its powerful success as a platform for innovation and economic growth, as well as for free expression.

I learned that no central authority, public or private, should have the power to pick which companies or which ideas win or lose on the Internet.

I also learned in the private sector that certainty and predictability are critical to encouraging private investment and innovation, as is flexibility for companies in sectors characterized by fast-moving technologies and markets.

When I arrived at the FCC, the agency had – on a bipartisan basis – adopted measures to ensure Internet freedom and openness, and enforced those measures.

But unfortunately, the ad hoc process by which the prior FCC sought to protect Internet openness generated uncertainty among Internet stakeholders.

This uncertainty and other issues created a real schism within the broadband economy between Internet content and application entrepreneurs on one hand, and broadband providers on the other, a battle that was counterproductive for our economy and global competitiveness.

Meanwhile, there were incidents in which Internet service providers blocked or degraded lawful online content, and FCC action was required to bring these practices to a stop.

This occurs in a market where more than 70 percent of Americans live in areas with only one or two fixed broadband providers.

That's why, in 2009, we launched a fair and open Administrative Procedures Act process, with the goal of establishing a framework that would be good for all parts of the broadband economy – for consumers of Internet services, for innovators and entrepreneurs building new products and services on the Internet, and for Internet service providers. A framework that would increase certainty and predictability in this important but historically contentious area.

That was our goal, and I believe we achieved it. Our sensible, high-level framework to preserve Internet freedom has generated broad support from stakeholders who, in the past, couldn't find common ground.

The rules of the road are strong and balanced, built on the Commission's prior steps in this area, and rooted in the Communications Act.

The rules fit on one page, and boil down to four things.

First, transparency, so that consumers and innovators can have basic information to make smart choices about broadband networks and how to develop and launch the next killer apps. Empowering them with information will reduce the need for government involvement.

Second, no blocking of lawful Internet content or services, so that consumers can be free to access lawful content or services, and so startup and other Internet companies can be free to reach Internet consumers. Our framework makes clear that it does not protect unlawful content that violates, for example, intellectual property or child pornography laws.

Third, a level playing field – a fair non-discrimination principle, so that consumers and markets are picking winners and losers online.

And fourth, flexibility for Internet service providers —flexibility to manage broadband networks, recognizing legitimate differences between wired and wireless technologies; flexibility to deal with congestion or harmful traffic, to pursue innovation in business models, and, of course, to earn a meaningful return on investment.

Some people think the framework we adopted doesn't go far enough, and others think it goes too far. I believe it gets it right.

One of the nation's leading venture capitalists described our framework in terms used by many other investors and companies in the broadband economy: "This effort is a pragmatic balance of innovation, economic growth, and crucial investment in the Internet."

It's not regulation of the Internet; it's a light-touch framework to preserve the dynamic, free and open nature of the Internet.

Virtually all major investment analysts agreed that our framework was good news for the broadband economy. Since our action, investment has accelerated in both early-stage companies and in broadband networks.

And that's what we want to see – massive private investment throughout the broadband economy – in startups creating online products and applications, and in the companies building broadband network infrastructure.

And we want to see the open Internet grow and strengthen as a platform for small businesses to seize the opportunities of cloud computing, lowering their costs and expanding to new markets. That's what our framework

achieves.

We completed the Internet freedom order in December, and to undo our framework would increase uncertainty, decrease investment, and hurt job creation.

Some argue that, rather than acting, the FCC should have allowed antitrust laws to be the sole remedy for violations of Internet freedom.

In my view, while critically important, antitrust laws alone would not adequately preserve the freedom and openness of the Internet or provide enough certainty and confidence to drive investment in our innovation future.

As we heard during our FCC proceeding, antitrust enforcement is expensive to pursue, takes a long time, and kicks in only after damage is done. Especially for start-ups in a fast-moving area like the Internet, that's not a practical solution.

Some have suggested that Congress adopt new antitrust laws addressing Internet openness. But that too would be a problematic approach, ill-suited to the fast-changing nature of Internet technology. As the Supreme Court has pointed out, while statutes are hard to change in light of new developments in network technology or markets, expert administrative agencies have flexible processes for dealing with the unexpected and are, accordingly, better suited for handling this particular issue.

The Supreme Court decision in *Trinko* raises additional uncertainty about relying solely on antitrust laws as a remedy in the context of communications services. Indeed, writing for the Court, Justice Scalia observed that antitrust laws can be particularly difficult to apply to technical communications issues and emphasized the comparative advantages of the FCC as an expert agency on communications issues.

To conclude, while the FCC was divided on the particular issue of open Internet rules, the fact is that we resolve more than 95 percent of our votes on a bipartisan basis.

We are now focused on promoting universal access to broadband and unleashing spectrum – initiatives of critical importance to our 21st century economy and our global competitiveness, to expanding opportunity broadly,

and to addressing major issues from education to public safety.

I look forward to working with my Commission colleagues and with Congress to harness the opportunities of communications technologies for our economy and all Americans.

Thank you, and I look forward to your questions.

Mr. GOODLATTE. Thank you, Chairman Genachowski. Commissioner McDowell, welcome.

TESTIMONY OF THE HONORABLE ROBERT M. McDOWELL, COMMISSIONER, FEDERAL COMMUNICATIONS COMMISSION

Mr. MCDOWELL. Thank you, Mr. Chairman, Ranking Member Watt and Ranking Member of the full Committee, Mr. Conyers. It is terrific to be here today. This too is my first time testifying before your Subcommittee and it is an honor to be here. So thank you for having me.

The Federal Communications Commission was created by Congress almost 77 years ago. Today its influence reaches far beyond the radios, telephones and telegraphs of 1934. By some estimates the FCC holds sway over one-sixth of the American economy, or a slice of the economic pie that is the same size as the healthcare sector. For better or for worse, our actions touch the daily lives of all Americans.

During my 5 years as a commissioner my focus has been to support policies that promote consumer choice offered through abundance rather than regulation and its unintended consequences, whenever possible. In the absence of market failure, unnecessary regulations in the name of serving the public interest can have the perverse effect of harming consumers by inhibiting the constructive risk-taking that promotes investment, innovation, competition, lower prices and jobs.

Competition obviates the need for government intervention. With that in mind I have made increased competition in the so-called "last mile" of our country's communications infrastructure a top priority. These facilities serve as the vital on and off ramps to the Internet, the greatest deregulatory success story of all time.

Since my arrival at the commission in 2006 the FCC has taken several historic steps to spur the construction of broadband facilities. Our video franchising order of 2006 removed local barriers to entry into the video market and helped spark the largest private investment in fiber to the home in American history.

In early 2007, in the wake of the Supreme Court's Brand X decision, without dissent, the FCC finished a deregulatory project, started by Clinton-era chairman Bill Kennard, by classifying wireless broadband Internet access service as an information service. And please keep in mind that broadband Internet access services were never regulated as common carrier phone services. The FCC's orders after the Brand X decision merely formalized its consistent light-touch treatment of information services.

Our bipartisan actions provided the deregulatory certainty for entrepreneurs to launch the smartphone revolution which has made the United States the world leader in adoption of fourth generation devices and networks.

In one of its finest moments, the commission voted unanimously, in 2008, to approve the unlicensed use of vacant TV channels, known as white spaces. Under Chairman Genachowski's leadership we took that action a step further in an additional five to nothing vote last September. Unlicensed use of these airwaves offers the promise of greater consumer empowerment. I am eager for the FCC to finish its work in this area, as soon as possible. Combining the

spectral power of white spaces with the constructive chaos of an unregulated and unlicensed market will act as an antidote for potential anti-competitive conduct in the last mile thus negating the need for additional rules.

Chairman Genachowski also deserves credit for bringing to a vote many other initiatives that may seem unimportant at first blush, but actually have a profound effect on promoting competition in the last mile. Among them are: Creating a shot clock to ensure faster decisions by local authorities affecting placement of wireless towers; ensuring resolution of pole attachment approvals with reduce rental rates for broadband providers and repurposing some satellite spectrum for terrestrial broadband use.

One frequently forgotten fact about the FCC, that the Chairman just reminded us all about, is that roughly 95 percent of our votes are not only bipartisan but they are unanimous. Certainly we have had our differences of opinion, including over the topic of this hearing, the regulation of Internet network management. For the convenience of the Subcommittee's Members, I have attached a copy of my dissent, which is rather long, sorry about that, in that proceeding and I respectfully request it be included in the record.

In a nutshell, however, I dissented from last December's order precisely because, number one, nothing is broken in the broadband Internet access market that needs fixing and the government is not the best tool to fix it if something had been broken. Number two, as Chairman Goodlatte said, Congress never gave the FCC the legal authority to act as it did. Number three, the order is likely to cause more harm than good. And number four, sufficient antitrust and other consumer protection laws exist to prevent and cure any of the contemplated harms outlined in the order.

So thank you again for inviting me to appear before you and I look forward to your questions.

[The prepared statement of Mr. McDowell follows:]

STATEMENT
OF
COMMISSIONER ROBERT M. MCDOWELL
FEDERAL COMMUNICATIONS COMMISSION

BEFORE THE
SUBCOMMITTEE ON INTELLECTUAL PROPERTY, COMPETITION
AND THE INTERNET
COMMITTEE ON THE JUDICIARY
UNITED STATES HOUSE OF REPRESENTATIVES

MAY 5, 2011

Thank you, Chairman Goodlatte, Ranking Member Watt and Members of the Subcommittee. This is the first opportunity I have had to testify before your Subcommittee, and I am honored to be here.

The Federal Communications Commission (FCC) was created by Congress almost 77 years ago. Today, its influence reaches far beyond the radios, telephones and telegraphs of 1934. By some estimates, the FCC holds sway over one-sixth of the American economy – or a slice of the economic pie that is the same size as the health care sector. For better or for worse, our actions touch the daily lives of all Americans.

During my five years as a commissioner, my focus has been to support policies that promote consumer choice offered through abundance rather than regulation and its unintended consequences, whenever possible. In the absence of market failure, unnecessary regulations in the name of serving the public interest can have the perverse effect of harming consumers by inhibiting the constructive risk-taking that produces investment, innovation, competition, lower prices and jobs.

Competition obviates the need for government intervention. With that in mind, I have made increased competition in the so-called "last mile" of our country's communications infrastructure a priority. These facilities serve as the vital "on and off ramps" to the Internet, the greatest deregulatory success story of all time. Since my arrival at the Commission in 2006, the FCC has taken several historic steps to spur the construction of broadband facilities.

- Our Video Franchising Order of 2006 removed local barriers to entry into the video market and helped spark the largest private investment in fiber to the home in American history.

- In early 2007, in the wake of the Supreme Court's *Brand X* decision, without dissent the FCC finished a deregulatory project started by Clinton-era Chairman Bill Kennard by classifying wireless broadband Internet access service as an information service. Please keep in mind that broadband Internet access services were *never* regulated as common carrier phone services. The FCC's orders after the *Brand X* decision merely formalized its consistent light-touch treatment of information services. (*See* Exhibit A.) Our bipartisan actions provided the deregulatory certainty for entrepreneurs to launch the smartphone revolution, which has made the United States the world leader in adoption of fourth generation advanced devices and networks.
- A few months later, we helped millions of American consumers living in apartments and other multiple dwelling units by liberating them from exclusivity clauses in contracts between video providers and building owners. These contracts typically gave consumers a "choice" of only one video provider preferred by the building owner. As a result, new entrants are now able to offer millions of consumers new choices in bundled video, voice and high-speed Internet services.
- In one of its finest moments, the Commission voted unanimously in 2008 to approve the unlicensed use of vacant TV channels, known as "white spaces." Under Chairman Genachowski's leadership, we took that action a step further in an additional 5-0 vote last September. Unlicensed use of these airwaves offers the promise of great consumer empowerment. I am eager for the FCC to finish its work in this area as soon as possible. Combining the spectral power of white spaces with the constructive chaos of an unregulated and unlicensed market will act as an antidote to potential anticompetitive conduct in the last mile, thus negating any need for additional rules.

Chairman Genachowski also deserves credit for bringing to a vote many other initiatives that may seem unimportant at first blush, but actually have a profound effect on promoting competition in the last mile. Among them are:

- Creating a shot clock to ensure faster decisions by local authorities affecting the placement of wireless towers;
- Ensuring timely resolution of pole attachment approvals with reduced rental rates for broadband providers; and
- Repurposing some satellite spectrum for terrestrial broadband use.

One frequently forgotten fact about the FCC is that roughly 95 percent of our votes are not only bipartisan, but unanimous. Certainly, we have had our differences of opinion, including over the topic of this hearing: the regulation of Internet network management. For the convenience of the Subcommittee's Members, I have attached a copy of my dissent in that proceeding and I respectfully request that it be included in the record. In a nutshell, however, I dissented from last December's order because:

- Nothing is broken in the broadband Internet access market that needs fixing;
- Congress never gave the FCC the legal authority to act as it did;
- The order is likely to cause more harm than good; and
- Sufficient antitrust and consumer protection laws exist to prevent and cure any of the contemplated harms outlined in the order.

Thank you again for inviting me to appear before you today, and I look forward to your questions.

Exhibit A

Dissenting Statement of Commissioner Robert M. McDowell, *Preserving the Open Internet,* GN Docket No. 09-191*; Broadband Industry Practices,* WC Docket No. 07-52; Report & Order, FCC 10-201 (rel. Dec. 23, 2010).

STATEMENT OF COMMISSIONER
ROBERT M. McDOWELL

RE: *Preserving the Open Internet, et al.*, Report and Order (Dec. 21, 2010)

Thank you, Mr. Chairman. And thank you for your solicitousness throughout this proceeding. In the spirit of the holidays, with good will toward all, I will present a condensed version of a more in-depth statement, the entirety of which I respectfully request be included in this Report and Order.

At the outset, I would like to thank the selfless and tireless work of all of the career public servants here at the Commission who have worked long hours on this project. Although I strongly disagree with this Order, all of us should recognize and appreciate that you have spent time away from your families as you have worked through weekends, the holidays of Thanksgiving and Chanukah, as well as deep into the Christmas season. Such hours take their toll on family life, and I thank you for the sacrifices made by you and your loved ones.

For those who might be tuning in to the FCC for the first time, please know that over 90 percent of our actions are not only bipartisan, but unanimous. I challenge anyone to find another policy making body in Washington with a more consistent record of consensus. We agree that the Internet is, and should remain, open and freedom enhancing. It is, and always has been so, under existing law. Beyond that, we disagree. The contrasts between our perspectives could not be sharper. My colleagues and I will deliver our statements and cast our votes. Then I am confident that we will move on to other issues where we can find common ground once again. I look forward to working on public policy that is more positive and constructive for American economic growth and consumer choice.

William Shakespeare taught us in *The Tempest*, "What's past is prologue." That time-tested axiom applies to today's Commission action. In 2008, the FCC tried to reach beyond its legal authority to regulate the Internet, and it was slapped back by an appellate court only eight short months ago. Today, the Commission is choosing to ignore the recent past as it attempts the same act. In so doing, the FCC is not only defying a court, but it is circumventing the will of a large, bipartisan majority of Congress as well. More than 300 Members have warned the agency against exceeding its legal authority. The FCC is not Congress. We cannot make laws. Legislating is the sole domain of the directly *elected* representatives of the American people. Yet the majority is determined to ignore the growing chorus of voices emanating from Capitol Hill in what appears to some as an obsessive quest to regulate at all costs. Some are saying that, instead of acting as a "cop on the beat," the FCC looks more like a regulatory vigilante. Moreover, the agency is further angering Congress by ignoring increasing calls for a cessation of its actions and choosing, instead, to move ahead just as Members leave town. As a result, the FCC has provocatively charted a collision course with the legislative branch.

Furthermore, on the night of Friday, December 10, just two business days before the public would be prohibited by law from communicating further with us about this proceeding, the Commission dumped nearly 2,000 pages of documents into the record. As if that weren't enough, the FCC unloaded an additional 1,000 pages into the record less than 24 hours before the end of the public comment period. All of these extreme measures, defying the D.C. Circuit, Congress, and undermining the public comment process, have been deployed to deliver on a misguided campaign promise.

Not only is today the winter solstice, the darkest day of the year, but it marks one of the darkest days in recent FCC history. I am disappointed in these "ends-justify-the-means" tactics and the doubts they have created about this agency. The FCC is capable of better. Today is not its finest hour.

Using these new rules as a weapon, politically favored companies will be able to pressure three political appointees to regulate their rivals to gain competitive advantages. Litigation will supplant innovation. Instead of investing in tomorrow's technologies, precious capital will be diverted to pay lawyers' fees. The era of Internet regulatory arbitrage has dawned.

And to say that today's rules don't regulate the Internet is like saying that regulating highway on-ramps, off-ramps, and its pavement doesn't equate to regulating the highways themselves.

What had been bottom-up, non-governmental, and grassroots based Internet governance will become politicized. Today, the United States is abandoning the long-standing bipartisan and international consensus to insulate the Internet from state meddling in favor of a preference for top-down control by unelected political appointees, three of whom will decide what constitutes "reasonable" behavior. Through its actions, the majority is inviting countries around the globe to do the same thing. "Reasonable" is a subjective term. Not only is it perhaps the most litigated word in American history, its definition varies radically from country to country. The precedent has now been set for the Internet to be subjected to state interpretations of "reasonable" by governments of all stripes. In fact, at the United Nations just last Wednesday, a renewed effort by representatives from countries such as China and Saudi Arabia is calling for what one press account says is, "an international body made up of Government representatives that would attempt to create global standards for policing the internet."[1] By not just sanctioning, but *encouraging* more state intrusion into the Internet's affairs, the majority is fueling a global Internet regulatory pandemic. Internet freedom will not be enhanced, it will suffer.

My dissent is based on four primary concerns:

1) Nothing is broken in the Internet access market that needs fixing;

[1] John Hilvert, *UN Mulls Internet Regulation Options*, ITNEWS, Dec. 17, 2010, http://www.itnews.com.au/News/242051.un-mulls-internet-regulation-options.aspx.

2) The FCC does not have the legal authority to issue these rules;

3) The proposed rules are likely to cause irreparable harm; and

4) Existing law and Internet governance structures provide ample consumer protection in the event a systemic market failure occurs.

Before I go further, however, I apologize if my statement does not address some important issues raised by the Order, but we received the current draft at 11:42 p.m. last night and my team is still combing through it.

I. Nothing Is Broken in the Internet Access Market That Needs Fixing.

All levels of the Internet supply chain are thriving due to robust competition and low market entry barriers. The Internet has flourished because it was privatized in 1994.[2] Since then, it has migrated further away from government control. Its success was the result of bottom-up collaboration, not top-down regulation. No one needs permission to start a website or navigate the Web freely. To suggest otherwise is nothing short of fear mongering.

Myriad suppliers of Internet related devices, applications, online services and connectivity are driving productivity and job growth in our country. About eighty percent of Americans own a personal computer.[3] Most are connected to the Internet. In the meantime, the Internet is going mobile. By this time next year, consumers will see more smartphones in the U.S. market than feature phones.[4] In addition to countless applications used on PCs, growth in the number of mobile applications available to consumers has gone from nearly zero in 2007 to half a million just three years later.[5] Mobile app downloads are growing at an annual rate of 92 percent, with an estimated 50 billion applications expected to be downloaded in 2012.[6]

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[2] And at this juncture, I need to dispel a pervasive myth that broadband was once regulated like a phone company. The FCC's 2002 cable modem order did not move broadband from Title II. It formalized an effort to insulate broadband from antiquated regulations, like those adopted today, that started under then-FCC Chairman Bill Kennard. Furthermore, after the Supreme Court's *Brand X* decision, all of the FCC votes to classify broadband technologies as information services were bipartisan. A more thorough history is attached to this dissent as "Attachment A".

[3] *See* Aaron Smith, Pew Internet & American Life Project, *Americans and their gadgets* (Oct. 14, 2010) at 2, 5, 9 (76 percent of Americans own either a desktop or laptop computer; 4 percent of Americans have "tablet computers").

[4] Roger Entner, Nielsenwire, *Smartphones to Overtake Feature Phones in U.S. by 2011* (Mar. 26, 2010).

[5] *See* Distimo, GigaOm, Softpedia (links at: http://www.distimo.com/appstores/stores/index/country:226; http://gigaom.com/2010/10/25/android-market-clears-100000-apps-milestone/; and http://news.softpedia.com/news/4-000-Apps-in-Windows-Phone-Marketplace-171764.shtml).

[6] *See* Chetan Sharma, *Sizing Up the Global Mobile Apps Market* (2010) at 3, 9.

Fixed and mobile broadband Internet access is the fastest penetrating disruptive technology in history. In 2003, only 15 percent of Americans had access to broadband. Just seven years later, 95 percent do.[7] Eight announced national broadband providers are building out facilities in addition to the construction work of scores more local and regional providers. More competition is on the way as providers light up recently auctioned spectrum. Furthermore, the Commission's work to make unlicensed use of the television "white spaces" available to consumers will create even more competition and consumer choice.

In short, competition, investment, innovation, productivity, and job growth are healthy and dynamic in the Internet sector thanks to bipartisan, deregulatory policies that have spanned four decades. The Internet has blossomed under *current law*.

Policies that promote abundance and competition, rather than the rationing and unintended consequences that come with regulation, are the best antidotes to the potential anticompetitive behavior feared by the rules' proponents. But don't take my word for it. Every time the government has examined the broadband market, its experts have concluded that no evidence of concentrations or abuses of market power exists. The Federal Trade Commission (FTC), one of the premier antitrust authorities in government, not only concluded that the broadband market was competitive, but it also warned that regulators should be "wary" of network management rules because of the unknown "net effects … on consumers."[8] The FTC rendered that unanimous and bipartisan conclusion in 2007. As I discussed earlier, the broadband market has become only more competitive since then.

More recently, the Department of Justice's Antitrust Division reached a similar conclusion when it filed comments with us earlier this year.[9] While it sounded optimistic regarding the prospects for broadband competition, it also warned against the temptation to regulate "to avoid stifling the infrastructure investments needed to expand broadband access."[10]

Disturbingly, the Commission is taking its radical step today without conducting even a rudimentary market analysis. Perhaps that is because a market study would not support the Order's predetermined conclusion.

II. The FCC Does Not Have the Legal Authority to Issue These Rules.

Time does not allow me to refute all of the legal arguments in the Order used to justify its claim of authority to regulate the Internet. I have included a more thorough

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[7] Federal Communications Commission, *Connecting America: The National Broadband Plan* at 20 (rel. Mar. 16, 2010) (*National Broadband Plan*).

[8] Federal Trade Commission, Internet Access Task Force, Broadband Connectivity Competition Policy FTC Staff Report (rel. June 27, 2007) at 157.

[9] *See Ex Parte* Submission of the U.S. Dept. of Justice, GN Docket No. 09-51 (dated Jan. 4, 2010).

[10] *Id.* at 28.

analysis in the supplemental section of this statement, however. Nonetheless, I will touch on a few of the legal arguments endorsed by the majority.

Overall, the Order is designed to circumvent the D.C. Circuit's *Comcast* decision,[11] but this new effort will fail in court as well. The Order makes a first-time claim that somehow, through the *de*regulatory bent of Section 706, in 1996 Congress gave the Commission *direct* authority to regulate the Internet. The Order admits that its rationale requires the Commission to reverse its longstanding interpretation that this section conveys no additional authority beyond what is already provided elsewhere in the Act.[12] This new conclusion, however, is suddenly convenient for the majority while it grasps for a foundation for its predetermined outcome. Instead of "*remov*[*ing*] barriers to infrastructure investment," as Section 706 encourages, the Order fashions a legal fiction to construct *additional* barriers. This move is arbitrary and capricious and is not supported by the evidence in the record or a change of law.[13] The Commission's gamesmanship with Section 706 throughout the year is reminiscent of what was attempted with the contortions of the so-called "70/70 rule" three years ago. I objected to such factual and legal manipulations then, and I object to them now.

Furthermore, the Order desperately scours the Act to find a tether to moor its alleged Title I ancillary authority. As expected, the Order's legal analysis ignores the fundamental teaching of the *Comcast* case: Titles II, III, and VI of the Communications Act give the FCC the power to regulate specific, recognized classes of electronic communications services, which consist of common carriage telephony, broadcasting and other licensed wireless services, and multichannel video programming services.[14]

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[11] *Comcast Corp. v. FCC*, 600 F.3d 642 (D.C. Cir. 2010).

[12] Order, ¶ 118.

[13] While it is true that an agency may reverse its position, "the agency must show that there are good reasons." *FCC v. Fox Television Stations, Inc.*, 129 S. Ct. 1800, 1811 (2009). Moreover, while *Fox* held that "[t]he agency need not always provide a more detailed justification than what would suffice for a new policy created on a blank slate," the Court noted that "[s]ometimes it must – when, for example, its new policy rests upon factual findings that contradict those which underlay its prior policy; or when its prior policy has engendered serious reliance interest that must be taken into account." *Id.* (internal citations omitted).

[14] The D.C. Circuit in *Comcast* set forth this framework in very plain English:

> Through the Communications Act of 1934, ch. 652, 48 Stat. 1064, as amended over the decades, 47 U.S.C. § 151 *et seq.*, Congress has given the Commission express and expansive authority to regulate common carrier services, including landline telephony, *id.* § 201 *et seq.* (Title II of the Act); radio transmissions, including broadcast television, radio, and cellular telephony, *id.* § 301 *et seq.* (Title III); and "cable services," including cable television, *id.* § 521 *et seq.* (Title VI). In this case, the Commission does not claim that Congress has given it express authority to regulate Comcast's Internet service. Indeed, in its still-binding 2002 *Cable Modem Order*, the Commission ruled that cable Internet service is neither a "telecommunications service" covered by Title II of the Communications Act nor a "cable service" covered by Title VI. *In re High-Speed Access to the Internet Over Cable and Other Facilities*, 17 F.C.C.R. 4798, 4802, P 7 (2002), *aff'd Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 125 S. Ct. 2688, 162 L. Ed. 2d 820 (2005).

600 F.3d at 645.

Despite the desires of some, Congress has *not* established a new title of the Act to police Internet network management, not even implicitly. The absence of statutory authority is perhaps why Members of Congress introduced legislation to give the FCC such powers. In other words, if the Act already gave the Commission the legal tether it seeks, why was legislation needed in the first place? I'm afraid that this leaky ship of an Order is attempting to sail through a regulatory fog without the necessary ballast of factual or legal substance. The courts will easily sink it.

In another act of legal sleight of hand, the Order claims that it does not attempt to classify broadband services as Title II common carrier services. Yet functionally, that is precisely what the majority is attempting to do to Title I information services, Title III licensed wireless services, and Title VI video services by subjecting them to nondiscrimination obligations in the absence of a congressional mandate. What we have before us today is a Title II Order dressed in a threadbare Title I disguise. Thankfully, the courts have seen this bait-and-switch maneuver by the FCC before – and they have struck it down each time.[15]

The Order's expansive grasp for jurisdictional power here is likely to alarm any reviewing court because the effort appears to have no limiting principle.[16] If we were to accept the Order's argument, "it would virtually free the Commission from its congressional tether."[17] "As the [Supreme] Court explained in *Midwest Video II*, 'without reference to the provisions of the Act' expressly granting regulatory authority, 'the Commission's [ancillary] jurisdiction … would be unbounded.'"[18] I am relieved, however, that in the Order, the Commission is explicitly refraining from regulating coffee shops.[19]

In short, if this Order stands, there is no end in sight to the Commission's powers.

I also have concerns regarding the constitutional implications of the Order, especially its trampling on the First and Fifth Amendments. But in the observance of time, those thoughts are contained in my extended written remarks.

III. <u>The Commission's Rules Will Cause Irreparable Harm to Broadband Investment and Consumers</u>.

DOJ's cogent observation from last January regarding the competitive nature of the broadband market raises the important issue of the likely irreparable harm to be brought about by these new rules. In addition to government agencies, investors,

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[15] *See, e.g., id.; FCC v. Midwest Video Corp*, 440 U.S. 689 (1979) (*Midwest II*).

[16] For example, in the *Comcast* case, FCC counsel conceded at oral argument that the ancillary jurisdiction argument there could even encompass rate regulation, if the Commission chose to pursue that path. *Id.* at 655 (referring to Oral Arg. Tr. 58-59).

[17] *Id.*

[18] *Id.* (quoting *Midwest Video II*, 440 U.S. at 706).

[19] Order, ¶ 52.

investment analysts, and broadband companies themselves have told us that network management rules would create uncertainty to the point where crucial investment capital will become harder to find. This point was made over and over again at the FCC's Capital Formation Workshop on October 1, 2009. A diverse gathering of investors and analysts told us that even rules emanating from Title I would create uncertainty. Other evidence suggests that Internet management rules could not only make it difficult for companies to "predict their revenues and cash flow," but a new regime could "have the perverse effect of raising prices to all users" as well.[20]

Additionally, today's Order implies that the FCC has price regulation authority over broadband. In fact, the D.C. Circuit noted in its *Comcast* decision last spring that the Commission's attorneys openly asserted at January's oral argument that "the Commission could someday subject [broadband] service to pervasive rate regulation to ensure that … [a broadband] company provides the service at 'reasonable charges.'"[21] Nothing indicates that the Commission has changed its mind since then. In fact, the Order appears to support both indirect and direct price regulation of broadband services.[22]

Moreover, as lobbying groups accept this Order's invitation to file complaints asking the government to distort the market further the Commission will be under increasing pressure from political interest groups to expand its power and influence over the broadband Internet market. In fact, some of my colleagues today are complaining that the Order doesn't go far enough. Each complaint filed will create more uncertainty as the enforcement process becomes a *de facto* rulemaking circus, just as the Commission attempted in the ill-fated *Comcast/BitTorrent* case.[23] How does this framework create regulatory certainty?[24] Even the European Commission recognized the harm such rules could cause to the capital markets when it decided last month *not* to impose measures similar to these.[25]

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[20] Howard Buskirk, *Investors, Analysts Uneasy About FCC Direction on Net Neutrality*, COMM. DAILY, Oct. 2, 2009, at 2; *see also* National Cable & Telecommunications Association Comments at 19; Verizon and Verizon Wireless Reply Comments at 17–18.

[21] *Comcast*, 600 F.3d at 655 (referring to Oral Arg. Tr. 58-59).

[22] *See, e.g.*, Order, ¶ 76.

[23] *See Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer Applications*, File No. EB-08-IH-1518, Memorandum Opinion and Order, 23 FCC Rcd. 13,028 (2008) (*Comcast Order*). Comcast and BitTorrent settled their dispute, in the absence of net neutrality rules, four months before the Commission issued its legally flawed order. *See, e.g.*, David Kirkpatrick, *Comcast-BitTorrent: The Net's Finally Growing Up*, CNN.COM, Mar. 28, 2008, at http://money.cnn.com/2008/03/27/technology/comcast.fortune/index.htm

[24] Furthermore, as Commissioner Baker has noted, with this Order the Commission is inviting parties to file petitions for declaratory rulings, which will likely result in competitors asking the government to regulate their rivals in advance of market action. I am hard pressed to find a better example of a "mother-may-I" paternalistic industrial policy making apparatus.

[25] Neelie Kroes, Vice President for the Digital Age, European Commission, Net Neutrality – The Way Forward: European Commission and European Parliament Summit on "The Open Internet and Net Neutrality in Europe" (Nov. 11, 2010).

Part of the argument in favor of new rules alleges that "giant corporations" will serve as hostile "gatekeepers" to the Internet. First, in the almost nine years since those fears were first sewn, net regulation lobbyists can point to fewer than a handful of cases of alleged misconduct, out of an infinite number of Internet communications. *All* of those cases were resolved in favor of consumers under *current* law.

More importantly, however, many broadband providers are not large companies. Many are small businesses. Take, for example, LARIAT, a fixed wireless Internet service provider serving rural communities in Wyoming. LARIAT has told the Commission that the imposition of network management rules will impede its ability to obtain investment capital and will limit the company's "ability to deploy new service to currently unserved and underserved areas."[26] Furthermore, LARIAT echoes the views of many others by asserting that, "[t]he imposition of regulations that would drive up costs or hamper innovation would further deter future outside investment in our company and others like it."[27] Additionally, "[t]o mandate overly [burdensome] network management policies would foster lower quality of service, raise operating costs (which in turn would raise prices for all subscribers), and/or create a large backlog of adjudicative proceedings at the Commission (in which it would be prohibitively expensive for *small and competitive ISPs* to participate)".[28] LARIAT also notes that the imposition of net neutrality rules would cause immediate harm such that "[d]ue to immediate deleterious impacts upon investment, these damaging effects would be likely to occur even if the Commission's Order was later invalidated, nullified, or effectively modified by a court challenge or Congressional action."[29] Other small businesses have echoed these concerns.[30]

Less investment. Less innovation. Increased business costs. Increased prices for consumers. Disadvantages to smaller ISPs. Jobs lost. And all of this is in the name of promoting the exact opposite? The evidence in the record simply does not support the majority's outcome driven conclusions.

In short, the Commission's action today runs directly counter to the laudable broadband deployment and adoption goals of the National Broadband Plan. No government has ever succeeded in mandating investment and innovation. And nothing has been holding back Internet investment and innovation, until now.

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[26] LARIAT Comments at 2-3.

[27] *Id.* at 3.

[28] *Id.* at 5 (emphasis added).

[29] Letter from Brett Glass, d/b/a LARIAT, to Julius Genachowski, Chairman, FCC, *et al.*, at 2 (Dec. 9, 2010) (LARIAT Dec. 9 Letter).

[30] *See, e.g.*, Letter from Paul Conlin, President, Blaze Broadband, to Marlene H. Dortch, Secretary (Dec. 14, 2010) (Blaze Broadband Dec. 14 Letter).

IV. Existing Law Provides Ample Consumer Protection.

To reiterate, the Order fails to put forth either a factual or legal basis for regulatory intervention. Repeated government economic analyses have reached the same conclusion: no concentrations or abuses of market power exist in the broadband space. If market failure were to occur, however, America's antitrust and consumer protection laws stand at the ready. Both the Department of Justice and the Federal Trade Commission are well equipped to cure any market ills.[31] In fact, the Antitrust Law Section of the American Bar Association agrees.[32] Nowhere does the Order attempt to explain why these laws are insufficient in its quest for more regulation.

Moreover, for several years now, I have been advocating a potentially effective approach that won't get overturned on appeal. In lieu of new rules, which will be tied up in court for years, the FCC could create a new role for itself by partnering with already established, non-governmental Internet governance groups, engineers, consumer groups, academics, economists, antitrust experts, consumer protection agencies, industry associations, and others to spotlight allegations of anticompetitive conduct in the broadband market, and work *together* to resolve them. Since it was privatized, Internet governance has always been based on a foundation of bottom-up collaboration and cooperation rather than top-down regulation. This truly "light touch" approach has created a near-perfect track record of resolving Internet management conflicts without government intervention.

Unfortunately, the majority has not even considered this idea for a moment. But once today's Order is overturned in court, it is still my hope that the FCC will consider and adopt this constructive proposal.

In sum, what's past is indeed prologue. Where we left the saga of the FCC's last net neutrality order before was with a spectacular failure in the appellate courts. Today, the FCC seems determined to make the same mistake instead of learning from it. The

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[31] Section 2 of the Sherman Act, 15 U.S.C. § 2, prohibits conduct that would lead to monopolization. In the event of abuse of market power, this is the main statute that enforcers would use. In the context of potential abuses by broadband Internet access service providers, this statute would forbid: (1) Exclusive dealing – for example, the only way a consumer could obtain streaming video is from a broadband provider's preferred partner site; (2) Refusals to deal (the other side of the exclusive dealing coin) – *i.e.*, if a cable company were to assert that the only way a content delivery network could interconnect with it to stream unaffiliated video content to its customers would be to pay $1 million/port/month, such action could constitute a "constructive" refusal to deal if any other content delivery network could deliver any other traffic for a $1,000/port/month price; and (3) Raising rivals' costs – achieving essentially the same results using different techniques.

Section 5 of the Federal Trade Commission Act, 15 U.S.C. § 45, essentially accomplishes the same curative result, only through the FTC. It generally forbids "unfair competition." This is an effective statute to empower FTC enforcement as long as Internet access service is considered an "information service." The FTC Act explicitly does not apply to "common carriers."

See also, 15 U.S.C. §13(a), *et seq.*

[32] ABA Comment on Federal Trade Commission Workshop: Broadband Connectivity Competition Policy, 195 Project No. V070000 (2007).

only illness apparent from this Order is regulatory hubris. Fortunately, cures for this malady are obtainable in court. For all of the foregoing reasons, I respectfully dissent.

* * *

Extended Legal Analysis:
The Commission Lacks Authority to Impose Network Management Mandates on Broadband Networks.

The Order is designed to circumvent the effect of the D.C. Circuit's *Comcast* decision,[33] but that effort will fail. Careful consideration of the Order shows that its legal analysis ignores the fundamental teaching of *Comcast*: Titles II, III, and VI of the Communications Act regulate specific, recognized classes of electronic communications services, which consist of common carriage telephony, broadcasting and other licensed wireless services, and multichannel video programming services.[34] Despite any policy desires to the contrary, Congress has not yet established a new title of the Act to govern some or all parts of the Internet – which includes the operation, or "management," of the networks that support the Internet's functioning as a new and highly complex communications platform for diverse and interactive data, voice, and video services. Until such time as lawmakers may act, the Commission has no power to regulate Internet network management.

As detailed below, the provisions of existing law upon which the Order relies afford the Commission neither direct nor ancillary authority here. The tortured logic needed to support the Order's conclusion requires that the agency either reverse its own interpretation of its statutorily granted express powers or rely on sweeping pronunciations of ancillary authority that lack any "congressional tether" to specific provisions of the Act.[35] Either path will fail in court.

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[33] *Comcast Corp. v. FCC*, 600 F.3d 642 (D.C. Cir. 2010).

[34] The D.C. Circuit in *Comcast* set forth this framework in very plain English:

> Through the Communications Act of 1934, ch. 652, 48 Stat. 1064, as amended over the decades, 47 U.S.C. § 151 *et seq.*, Congress has given the Commission express and expansive authority to regulate common carrier services, including landline telephony, *id.* § 201 *et seq.* (Title II of the Act); radio transmissions, including broadcast television, radio, and cellular telephony, *id.* § 301 *et seq.* (Title III); and "cable services," including cable television, *id.* § 521 *et seq.* (Title VI). In this case, the Commission does not claim that Congress has given it express authority to regulate Comcast's Internet service. Indeed, in its still-binding 2002 *Cable Modem Order*, the Commission ruled that cable Internet service is neither a "telecommunications service" covered by Title II of the Communications Act nor a "cable service" covered by Title VI. *In re High-Speed Access to the Internet Over Cable and Other Facilities*, 17 F.C.C.R. 4798, 4802, P 7 (2002), *aff'd Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 125 S. Ct. 2688, 162 L. Ed. 2d 820 (2005).

600 F.3d at 645.

[35] *Id.* at 655.

Instead, the judicial panel that ends up reviewing the inevitable challenges is highly likely to recognize this effort for what it is. While ostensibly eschewing reclassification of broadband networks as Title II platforms, the Order imposes the most basic of all common carriage mandates: nondiscrimination, albeit with a vague "we'll know it when we see it" caveat for "reasonable" network management. This may be only a pale version of common carriage (at least for now), but it is still quite discernible even to the untrained eye.

A. Reversal of the Commission's Interpretation of Section 706 Cannot Provide Direct Authority for Network Management Rules.

Less than one year ago, the Commission in attempting to defend its *Comcast/BitTorrent* decision at the D.C. Circuit "[a]cknowledged that it has no express statutory authority over [an Internet service provider's network management] practices."[36] The Commission was right then, and the Order is wrong now. Congress has never contemplated, much less enacted, a regulatory scheme for broadband network management, notwithstanding the significant revision of the Communications Act undertaken through the Telecommunications Act of 1996 (1996 Act).[37] It is an exercise in legal fiction to contend otherwise.

Any analysis of an arguable basis for the Commission's power to act in this area must begin with the recognition that broadband Internet access service remains an unregulated "information service" under Title I of the Communications Act.[38] Overtly, the Order does not purport to change this legal classification.[39] Yet a reviewing court will look beyond the Order's characterization of the Commission's action to scrutinize what the new codified rules – and the directives and warnings set forth in the text – actually do.[40] Dispassionate analysis will lead to the conclusion that the Order attempts

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[36] *Id.* at 644.

[37] The scattered references to the Internet and advanced services in a few provisions of the 1996 Act, *see, e.g.*, 47 U.S.C. §§ 230, 254, do not constitute a congressional effort to systemically regulate the management of the new medium. A better reading of the 1996 Act in this regard is that Congress recognized that the emergence of the Internet meant that something new, exciting, and yet still amorphous was coming. Rather than act prematurely by establishing a detailed new regulatory scheme for the Net, Congress chose to leave the Net unregulated at that time.

[38] *Inquiry Concerning High-Speed Access to the Internet Over Cable & Other Facilities; Internet Over Cable Declaratory Ruling; Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities*, GN Docket No. 00-185, CS Docket No. 02-52, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd. 4,798 (2002) (*Cable Modem Declaratory Ruling*); *Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities et al.*, CC Docket Nos. 02-33, 01-337, 95-20, 98-10, WC Docket Nos. 04-242, 05-271, Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd. 14,853 (2005) (*Wireline Broadband Order*); *Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks*, WT Docket No. 07-53, Declaratory Ruling, 22 FCC Rcd. 5,901 (2007) (*Wireless Broadband Order*).

[39] Order, ¶¶ 121-23.

[40] *See, e.g.*, *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 378 (1989) ("in the context of reviewing a decision ... courts should not automatically defer to the agency's express reliance on an interest in finality without carefully reviewing the record and satisfying themselves that the agency has made a reasoned decision based on its evaluation of the significance – or lack of significance – of the new information.").

to relegate this type of information service to common carriage by effectively applying major Title II obligations to it. The Title I disguise will not be convincing.

The threadbare nature of the disguise becomes clear with scrutiny of the Order's claims for a legal basis for the new regulations. The Order's only serious effort to assert direct authority is based on Section 706.[41] The Order glosses over the key point that no language within Section 706 – or anywhere else in the Act, for that matter – bestows the FCC with explicit authority to regulate Internet network management. Rather, Section 706's explicit focus is on "deployment" and "availability" of broadband network facilities.[42] So what precisely is the nexus between Section 706's focus on broadband deployment and availability and the Order's focus on network management once the facilities *have been* deployed and the service *is* available? The Order seems to imply that Section 706 somehow provides the Commission with network management authority because if the government lacks such power, some American might have less access to the Internet. This rationale is contrary to the provision's language and illogical on its face. Imposing new regulations on network providers in the business of deploying broadband[43] will have the opposite effect of what Section 706 seeks to do. Instead, the imposition of network management rules will likely depress investment in deployment of broadband throughout our nation.[44] This outcome will prove true not simply for the large providers tracked by Wall Street analysts but for the small businesses that supply vital and competitive broadband options to consumers in many locales across the nation.[45]

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[41] To the degree that the Order suggests that other sections in the Act provide it with direct authority to impose new Internet network management rules, such arguments are not legally sustainable. For the reasons set forth in Section B of this extended legal analysis, *infra*, the claimed bases for extending even ancillary authority are unconvincing, which renders contentions about direct authority untenable.

[42] 47 U.S.C. §§ 1302 (a), (b).

[43] The National Broadband Plan even noted that, "[d]ue in large part to private investment and market-driven innovation, broadband in America has improved considerably in the last decade." Federal Communications Commission, *Connecting America: The National Broadband Plan* at 3 (rel. Mar. 16, 2010) (*National Broadband Plan*). Note that during this same time period of investment, no network management rules existed.

[44] The Commission has been warned about this consequence many times in the recent past. For example, during the Commission's October 2009 Capital Formation Workshop, several investment professionals raised red flags about a Title I approach to Internet regulation. Trade press accounts reported Chris King, an analyst at Stifel Nicolaus, as saying that "[w]hen you look at the telecom sector or cable sector, one of the things that scares them to death is net neutrality.... Any regulation that would limit severely [Verizon's and AT&T's] ability to control their own networks to manage traffic of their own networks could certainly have a negative role in their levels of investment going forward." Howard Buskirk, *Investors, Analysts Uneasy About FCC Direction on Net Neutrality*, COMM. DAILY, Oct. 2, 2009, at 1. Similarly, Tom Aust, a senior analyst at GE Asset Management, stated that regulatory risk is "ultimately unknowable because it's so broad and it can be so quick. For a company it means that they can't predict their revenues and cash flows as well, near or long term." *Id.* at 2.

[45] Network management regulations will affect the investment outlook for transmission providers large and small. In the latter category, Brett Glass, the sole proprietor of LARIAT, a wireless Internet service provider in Wyoming, has filed comments expressing concern that the imposition of network management rules will impede his ability to obtain investment and will limit his "ability to deploy new service to currently unserved and underserved areas." LARIAT Comments at 2–3. He stated that "[t]he imposition

A closer reading of the statutory text bears out this assessment. Turning specifically to the language of Section 706(a), the provision opens with a policy pronouncement that the Commission "shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans."[46] As *Comcast* already has pointed out, "under Supreme Court and D.C. Circuit case law statements of policy, by themselves, do not create 'statutorily mandated responsibilities.'"[47] Rather, "[p]olicy statements are just that – statements of policy. They are not delegations of regulatory authority."[48] The same holds true for congressional statements of policy, such as the opening of Section 706, as it does for any agency's policy pronouncements.

The Order makes a strenuous effort to argue that Section 706 is not limited to deregulatory actions, a herculean task taken on because the Order rests nearly all of its heavy weight on this thin foundation.[49] Section 706 does refer to one specific regulatory

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of regulations that would drive up costs or hamper innovation would further deter future outside investment in our company and others like it." *Id.* at 3. Specifically, he argues that "[t]o mandate overly [burdensome] network management policies would foster lower quality of service, raise operating costs (which in turn would raise prices for all subscribers), and/or create a large backlog of adjudicative proceedings at the Commission (in which it would be prohibitively expensive for small and competitive ISPs to participate). *Id.* at 5. "Due to immediate deleterious impacts upon investment, these damaging effects would be likely to occur even if the Commission's Order was later invalidated, nullified, or effectively modified by a court challenge or Congressional action." Letter from Brett Glass, d/b/a LARIAT, to Julius Genachowski, Chairman, FCC, *et al.*, at 2 (Dec. 9, 2010) (Glass Dec. 9 Letter). *See also* Letter from Paul Conlin, President, Blaze Broadband, to Marlene H. Dortch, Secretary (Dec. 14, 2010) (Blaze Broadband Dec. 14 Letter).

[46] 47 U.S.C. § 1302(a).

[47] *Comcast,* 600 F.3d at 644.

[48] *Id.* at 654.

[49] In support of its jurisdictional arguments, the Order cites to language in *Ad Hoc Telecomms. Users Comm. v. FCC*, 572 F.3d 903 (D.C. Cir. 2009). In that case, the D.C. Circuit does, in fact, state that "[t]he general and generous phrasing of § 706 means that the FCC possesses significant albeit not unfettered, authority and discretion to settle on the best regulatory or deregulatory approach to broadband – a statutory reality that assumes great importance when parties implore courts to overrule FCC decisions on this topic." *Ad Hoc Telecomms.*, 572 F.3d at 906–07. But, there are several reasons why that statement in *Ad Hoc Telecomms.* cannot be used for the proposition that Section 706 provides the FCC with the authority to impose network management rules. First, it is notable that the petitioners in *Ad Hoc Telecomms.* were challenging one of the FCC's forbearance decisions. As such, the FCC was not relying on Section 706 authority *alone* in that case, it was also relying on it's forbearance authority which is specifically delegated to the FCC pursuant to Section 10. The D.C. Circuit made this point in *Comcast,* when it rejected the FCC's use of *Ad Hoc Telecomms.* for its Section 706 authority arguments. *Comcast*, 600 F.3d at 659 ("In [*Ad Hoc Telecomms.*], however, we cited section 706 merely to support the Commission's choice between regulatory approaches clearly within its *statutory authority under other sections of the Act.*") (emphasis added). Second, the text of Section 706(a) actually lists "regulatory forbearance" as an example of one of the tools that the FCC may employ in order to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans." 47 U.S.C. § 1302(a). By contrast, network management regulations are not listed in Section 706 or anywhere else in the Act. Finally, as the D.C. Court reiterated in *Comcast,* 600 F.3d at 659, the central issue that it focused on in *Ad Hoc Telecomms.* was not jurisdictional; rather it was whether the FCC's underlying forbearance decision had been arbitrary and capricious, specifically "when and how much" can the FCC forbear from Title II obligations. *Ad Hoc*

provision – price cap regulation.[50] Readers should keep in mind, however, that at the time Section 706 was enacted, 1996, price cap regulation of incumbent local exchange carriers was considered to be *deregulatory* when compared to the legacy alternative: rate-of-return regulation. The provision's remaining language is even more broad and deregulatory. For instance, the end of section 706(a) states that the FCC should explore "*other* regulating methods that *remove barriers to infrastructure investment*."[51] Additionally, its counterpart subsection, Section 706(b), states that if the FCC's annual inquiry determines that advanced telecommunications is not "being deployed to all Americans in a reasonable and timely fashion" the FCC shall take action to "*remove[e] barriers to infrastructure investment* and ... promot[e] competition in the telecommunications market."[52] As discussed above, the Order's actions will have the opposite effect.

Moreover, the Order's new interpretation of Section 706(a) is self serving and outcome determinative. The Order admits that its rationale requires reversing the Commission's longstanding interpretation of that subsection as conveying no authority beyond that already provided elsewhere in the Act.[53] This arbitrary and capricious move is not supported by evidence in the record or a change in law.[54] The Order offers the excuse that "[i]n the particular proceedings prior to *Comcast*, setting out the understanding of Section 706(a) that we articulate in this Order would not meaningfully have increased the authority that we understood the Commission already to possess."[55]

Telecomms., 572 F.3d at 904. Moreover, the court was very clear in noting that such authority was "not unfettered." *Id.* at 907.

[50] On that note, the Order even highlights the fact that "706(a) expressly contemplates the use of "regulating methods" such as price regulation." *See* Order, n. 381. This aside is an unsettling foreshadow of how these rules could be used to regulate broadband rates in the future, through either *ad hoc* enforcement cases or declaratory rulings.

[51] 47 U.S.C. § 1302(a) (emphasis added). This focus on infrastructure investment makes sense in light of Congress' express concern that broadband facilities quickly reach "elementary and secondary schools and classrooms," *id.*, which in 1996 may have lacked the economic appeal of business and residential districts as early targets for infrastructure upgrades.

[52] 47 U.S.C. § 1302(b).

[53] Order, ¶ 120.

[54] While it is true that an agency may reverse its position, "the agency must show that there are good reasons." *FCC v. Fox Television Stations, Inc.*, 129 S. Ct. 1800, 1811 (2009). Moreover, while *Fox* held that "[t]he agency need not always provide a more detailed justification than what would suffice for a new policy created on a blank slate," the Court noted that "[s]ometimes it must – when, for example, its new policy rests upon factual findings that contradict those which underlay its prior policy; or when its prior policy has engendered serious reliance interest that must be taken into account." *Id.* (internal citations omitted). This warning is thrown into sharp focus by the billions of dollars invested in broadband infrastructure since the Commission first began enunciating its decisions against Title II classification of broadband Internet networks. *See, e.g.*, AT&T Comments at 19; Verizon Comments at 22.

[55] *See* Order, ¶ 122; *see also Comcast Corp. v. FCC*, 600 F.3d 642, 658 (D.C. Cir. 2010) (noting that "[i]n an earlier, still binding order, however, the Commission ruled that section 706 'does not constitute an independent grant of authority.'" (quoting *Deployment of Wireline Servs. Offering Advanced Telecomms. Capability*, CC Docket No. 98-147, Memorandum Opinion and Order, 13 FCC Rcd. 24,012, 24,047 ¶ 77 (1988)).

In other words, apparently, the agency's confused understanding of the limits of its ancillary authority meant that the Commission then did not have to rest on Section 706(a) in order to overreach by "pursu[ing] a stand-alone policy objective" not moored to "a specifically delegated power."[56]

The Order's reliance on Section 706(b) as providing a statutory foundation for network management regulations is similarly flawed. That subsection requires that the FCC determine on an annual basis whether "advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion."[57] Congress then further directed the Commission, if the agency's determination were negative, to "take immediate action to accelerate deployment of such capability by *removing barriers to infrastructure investment* and by promoting competition in the telecommunications market" (emphasis added).[58]

To justify its use of this trigger, the Order points to the fact that approximately six months ago, the Commission on a divided 3-2 vote issued a report finding – for the first time in history – that "broadband deployment to all Americans is not reasonable and timely."[59] This determination, in conflict with all previous reports dating back to 1999, was both perplexing and unsettling. It ignored the impressive strides the nation has made in developing and deploying broadband infrastructure and services since issuance of the first 706 Report. Amazingly enough, the most recent 706 Report managed to find failure even while pointing to data (first made public in the National Broadband Plan) showing that "95% of the U.S. population lives in housing units with access to terrestrial, fixed broadband infrastructure capable of supporting actual download speeds of at least 4 Mbps."[60] In fact, only 15 percent of Americans had access to residential broadband services in 2003.[61] Only seven years later, 95 percent enjoyed access, making broadband the fastest penetrating disruptive technology in history.[62] At the time that I dissented from the 706 Report, I expressed concern that its findings could be a pretext for justifying additional regulation, rather than "removing barriers to infrastructure investment."[63] Unfortunately, this Order reveals that my fears were well founded.

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[56] *Comcast*, 600 F.3d at 659.

[57] 47 U.S.C. § 1302(b).

[58] *Id.*

[59] *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, GN Docket No. 09-137, Sixth Broadband Deployment Report, 25 FCC Rcd. 9,556, 9,558 ¶¶ 2–3 (2010). Commissioner Baker and I dissented from the July 2010 adoption of the latest Section 706 Report.

[60] *National Broadband Plan* at 20.

[61] *See* John Horrigan, Pew Internet and American Life Project, *Home Broadband Adoption 2009*, 11 (2009).

[62] *National Broadband Plan* at 20.

[63] 47 U.S.C. § 1302(b).

One is left to wonder where this assertion of power, if left unchecked, may lead next.[64] As for the Order itself, the short-term path is clear: It will be challenged in court. Once there, the Commission must struggle with the fact that the empirical evidence in this docket demonstrates "no relationship whatever" between the plain meaning of Section 706 and the network management rules being adopted.[65]

B. Efforts to Advance New Arguments for Exercising Ancillary Authority Will Not Survive Court Review.

In spite of the D.C. Circuit's decision in *Comcast*, the Order attempts to continue to assert ancillary authority as another basis for its imposition of network management rules. To bolster the Commission's case this time, the Order points to some provisions of the Act that it failed to cite the first time around. Its arguments for new and putatively better bases for network management rules fall victim largely to the same weaknesses the court identified before.

Efforts to defend a valid exercise of the agency's ancillary powers are subject to a two-part test – and the "central issue," as the D.C. Circuit already has explained, is whether the Commission can satisfy the second prong of the test.[66] Under it, "[t]he Commission may exercise this 'ancillary' authority only if it demonstrates that its action ... is 'reasonably ancillary to the ... effective performance of its statutorily mandated responsibilities.'"[67]

Those "statutorily mandated responsibilities" must be concrete and readily identifiable. As the Supreme Court instructed in *NARUC II* and the D.C. Circuit reiterated in *Comcast*, "the Commission's ancillary authority 'is really incidental to, and contingent upon, *specifically delegated powers under the Act*.'"[68] For the ancillary authority arguments to prevail here, the Order must identify specific subsections within Title II, III or VI that provide the ancillary hook, and then show how the Commission's assertion of power will advance the regulated services directly subject to those particular

[64] If the Commission is successful with this assertion of authority, the agency could use Section 706 as an essentially unfettered mandate to impose not only new regulations but to pick winners and losers – all without any grant of authority from Congress to intervene in the marketplace in such a comprehensive manner. In fact, this Order has already done so. For example, it decides that these new network management rules will apply to broadband Internet service providers but not to edge providers. *See* Order, ¶ 50. The Order makes an interesting attempt to justify this line-drawing. It rationalizes, *inter alia*, that because the new regulatory scheme is putatively an outgrowth of the Commission's *Internet Policy Statement*, which was not aimed at edge providers, the Order's new mandates should not apply to those entities either. This argument is irrationally selective at best and arbitrary and capricious at worst. If the Commission's *Internet Policy Statement* was the "template" for the rules, why isn't the substance of the rules the same as the previous principles? In particular, why does the Order add nondiscrimination to the regulations when that concept was never part of the previous principles?

[65] *Comcast*, 600 F.3d at 654.

[66] *Id.* at 647.

[67] *Id.* at 644 (citing *Library Ass'n v. FCC*, 406 F.3d 689, 692 (D.C. Cir. 2005).

[68] *Id.* at 653 (emphasis in original) (citing *Nat'l Ass'n of Regulatory Util. Comm'rs v. FCC*, 533 F.2d 601, 612 (D.C. Cir. 1976) (*NARUC II*)).

provisions. Existing court precedent shows that sweeping generalizations are not sufficient.[69] Nor may the general framework of one title of the Act – such as common carriage obligations – be grafted upon services subject to another title that does not include the same obligations.[70] And long descriptions of services delivered via broadband networks do not substitute for hard legal analysis.[71]

Moreover, arguments must be advanced on "a case-by-case basis" for each specific assertion of jurisdiction.[72] *Comcast* explains that the Commission must "independently justif[y]" any action resting on ancillary authority by demonstrating in each and every instance how the action at issue advances the services actually regulated by specific provisions of the Act.[73] The D.C. Circuit apparently was concerned about the Commission's ability to grasp this point, for the opinion makes it repeatedly.[74] In doing

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[69] *Compare* Order, ¶ 133 (opining that Open Internet rules for wireless services are supported by Title III of the Communications Act pursuant to the Commission's authority "to protect the public interest through spectrum licensing") *with Comcast*, 600 F.3d at 651 ("each and every assertion of jurisdiction ... must be *independently justified* as reasonably ancillary to the Commission's power") (emphasis in original).

[70] *See Comcast*, 600 F.3d. at 653 (discussing how the *NARUC II* court "found it 'difficult to see how any action which the Commission might take concerning *two-way cable* communications could have as its primary impact the furtherance of any *broadcast* purpose.'") (emphasis added); *id* at 654 (discussing the *Midwest Video II* court's recognition that the Communications Act bars common carrier regulation of broadcasting and therefore rejecting the imposition of public access obligations on cable because the rules would "relegate[ ] cable systems ... to common-carrier status.").

[71] The fact that some regulated services may be mixed on the same transmission platform with unregulated traffic does not afford the Commission scope to impose legal obligations on all data streams being distributed via that system. For example, the D.C. Circuit also has rejected other past Commission efforts to extend its ancillary reach over all services offered via a transmission platform merely because the platform provider uses it to provide one type of regulated service along with other services not subject to the same regulatory framework. *See id.* at 653 (citing *NARUC II*, 533 F.2d at 615–16, that overturned a series of Commission orders that preempted state regulation of non-video uses of cable systems, including precursors to modern cable modem service); *NARUC II*, 533 F.2d at 616 ("[T]he point-to-point communications ... involve one computer talking to another...."). The Order appears to be silent on this issue.

[72] *Comcast*, 600 F.3d at 651. As the Comcast decision explained, although "the Commission's ancillary authority may allow it to impose some kinds of obligations on cable Internet providers," it does not follow that the agency may claim "plenary authority over such providers." *Id.* at 650. To do so, would "run[ ] afoul" of the Supreme Court precedent set forth in *Southwestern Cable* and *Midwest Video I*." *Id. See also id.* ("Nothing in *Midwest Video I* even hints that *Southwestern Cable*'s recognition of ancillary authority over one aspect of cable television meant that the Commission had plenary authority over all aspects of cable.").

[73] *Id.* at 651. It follows that the potential for years of litigation over individual enforcement cases is high, thereby leading to a period of prolonged uncertainty that likely will discourage further investment in broadband infrastructure, contrary to the directives of Sec. 706.

[74] *See, e.g., id.* at 651, 653. For example, the court untangled the Commission's arguments about the implications of language in *Brand X* for the agency's assertion of authority over Internet network management by explaining that:

> [n]othing in *Brand X*, however, suggests that the Court was abandoning the fundamental approach to ancillary authority set forth in *Southwestern Cable*, *Midwest Video I*, and *Midwest Video II*. Accordingly, the Commission cannot justify regulating the network management practices of cable Internet providers simply by citing *Brand X's* recognition

so, the court directed the Commission to more closely study the agency's failures in *NARUC II* and *Midwest Video II* to comprehend the limits of its ancillary reach.[75]

The Order's claim of ancillary jurisdiction is not convincing with respect to Title II because, *inter alia*, it invokes only Section 201 in support of its nondiscrimination mandate.[76] Yet in a glaring omission, Section 201 does not reference nondiscrimination – that concept is under the purview of Section 202, which appears not to be invoked in the Order.[77] (By this omission, it appears that the Order may be attempting an end run around the most explicit Title II mandates because of other considerations.) Nor are the arguments successful with respect to the Title III and VI provisions cited in the Order because those statutory mandates address services that are not subject to common

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> that it may have ancillary authority to require such providers to unbundle the components of their services. These are altogether different regulatory requirements. *Brand X* no more dictates the result of this case than *Southwestern Cable* dictated the results of *Midwest Video I*, *NARUC II*, and *Midwest Video II*. The Commission's exercise of ancillary authority over Comcast's network management practices must, *to repeat*, "be independently justified." (emphasis added) (internal citation omitted).

[75] *Id.* at 653–54.

[76] It is curious that in reciting several provisions of Title II as potential bases for ancillary jurisdiction, the Order avoids the most obvious one: Section 202(a), which explicitly authorizes the nondiscrimination mandate imposed on Title II common carriers. This oversight is especially curious given the Order's reliance on the statutory canon of "the specific trumps the general" in revising the agency's interpretation of Section 706. *See* Order, ¶¶ 117-23 (distinguishing *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, Memorandum Opinion and Order and Notice of Proposed Rulemaking, 13 FCC Rcd. 24,012 (1998) (*Advanced Services Order*) as limited only to the determination that the general provisions of Section 706 did not control the specific forbearance provisions of Section 10). That canon would seem to apply here as well, given that Section 202(a) certainly is more specific about nondiscrimination than is Section 706. Perhaps reliance on Section 202(a) as a basis for ancillary authority was omitted here in order to avoid reopening divisions over potential Title II reclassification? Of course, any effort to classify broadband Internet access as a common carrier service would confront a different set of serious legal and policy problems, see, *e.g.*, *Cable Modem Declaratory Ruling*, GN Docket No. 00-185, CS Docket No. 02-52, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd. 4,798 (2002); *Wireline Broadband Order*, CC Docket Nos. 02-33, 01-337, 95-20, 98-10, WC Docket Nos. 04-242, 05-271, Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd. 14,853 (2005); *Wireless Broadband Order*, WT Docket No. 07-53, Declaratory Ruling, 22 FCC Rcd. 5,901 (2007), but violation of this basic canon of statutory construction would not be among them.

[77] Section 202(a)'s prohibition against "unjust or unreasonable discrimination" carries with it decades of agency and court interpretation which is much different from the Order's "nondiscrimination" mandate. For instance, the Order questions the reasonableness of tiered pricing and paid prioritization. Under the case history of Section 202, tiered pricing and concepts similar to paid prioritization are not presumed to constitute "unjust or unreasonable discrimination." *See, e.g.*, *Nat'l Ass'n of Regulatory Util. Comm'rs v. FCC*, 737 F.2d 1095, 1133 (D.C. Cir. 1984) ("But when there is a neutral, rational basis underlying apparently disparate charges, the rates need not be unlawful. For instance, when charges are grounded in relative use, a single rate can produce a wide variety of charges for a single service, depending on the amount of the service used. Yet there is no discrimination among customers, since each pays equally according to the volume of service used."); *Competitive Telecomm. Ass'n v. FCC*, 998 F.2d 1058, 1064 (D.C. Cir. 1993) ("By its nature, § 202(a) is not concerned with the price differentials between qualitatively different services or service packages. In other words, so far as 'unreasonable discrimination' is concerned, an apple does not have to be priced the same as an orange.'").

carriage-style nondiscrimination obligations absent explicit application of statutory directives.[78]

In addition, the Order's expansive grasp for jurisdictional power here is likely to alarm any reviewing court because the effort appears to have no limiting principle.[79] The D.C. Circuit's warning in *Comcast* against one form of overreaching – the misreading of policy statements as blanket extensions of power – applies here as well:

> Not only is this argument flatly inconsistent with *Southwestern Cable*, *Midwest Video I*, *Midwest Video II*, and *NARUC II*, but if accepted it would virtually free the Commission from its congressional tether. As the Court explained in *Midwest Video II*, "without reference to the provisions of the Act" expressly granting regulatory authority, "the Commission's [ancillary] jurisdiction ... would be unbounded." Indeed, Commission counsel told us at oral argument that just as the Order seeks to make Comcast's Internet service more "rapid" and "efficient," the Commission could someday subject Comcast's Internet service to pervasive rate regulation to ensure that the company provides the service at "reasonable charges." *Were we to accept that theory of ancillary authority, we see no reason why the Commission would have to stop there, for we can think of few examples of regulations that apply to Title II common carrier services, Title III broadcast services, or Title VI cable services that the Commission, relying on the broad policies articulated in section 230(b) and section 1, would be unable to impose upon Internet service providers.* If in *Midwest Video I* the Commission "strain[ed] the outer limits of even the open-ended and pervasive jurisdiction that has evolved by decisions of the Commission and the courts," and if in *NARUC II* and *Midwest Video II* it exceeded those limits, then here it seeks to shatter them entirely.[80]

Some of the Order's most noteworthy flaws are addressed below.

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[78] *See, e.g.*, 47 U.S.C. § 153(11); *FCC v. Midwest Video Corp*, 440 U.S. 689, 705 (1979) (*Midwest II*) (construing the statute to prohibit treating broadcasters – and, by extension, cable operators – as common carriers). *See also infra* pp. 21-25. With respect to those Title III services that are subject to some common carriage regulation, mobile voice service providers bear obligations pursuant to explicit provisions of Title II of the Act, including but not limited to the provision of automatic voice roaming (Sections 201 and 202); maintainance of privacy of customer information, including call location information explicitly (Section 222); interconnection directly or indirectly with the facilities and equipment of other telecommunications carriers (Section 251); contribution to universal service subsidies (Section 254); and obligation to ensure that service is accessible to and usable by persons with disabilities (Section 255).

[79] For example, in the *Comcast* case, the FCC counsel conceded at oral argument that the ancillary jurisdiction argument there could even encompass rate regulation, if the Commission chose to pursue that path. *Comcast*, 600 F.3d at 655.

[80] *Id.* at 655 (emphasis added).

1. The Order's patchwork citation of Title II provisions does not provide the necessary support for extending common carriage obligations to broadband Internet access providers.

Comcast instructs the Commission that the invocation of any Title II citation as a basis for ancillary jurisdiction must be shown to be "integral to telephone communication."[81] The Order's efforts to meet this legal requirement are thin and unconvincing – and in some instances downright perplexing. For example, it points to Section 201 in arguing that it provides the Commission with "express and expansive authority"[82] to ensure that the "charges [and] practices in connection with"[83] telecommunications services are "just and reasonable".[84] The Order contends that the use of interconnected VoIP services via broadband is becoming a substitute service for traditional telephone service and therefore certain broadband service providers might have an incentive to block VoIP calls originating on competitors' networks. The Order then stretches Section 201's language concerning "charges" and "practices" to try to bolster the claim that it provides a sufficient nexus for ancillary jurisdiction over potential behavior by nonregulated service providers that conceptually would best be characterized as "discrimination."[85] There are at least two obvious weaknesses in this rationale. First, the Order ignores the D.C. Circuit's instruction that the Commission has "expansive authority" only when it is "regulating common carrier services, including landline telephony."[86] Yet broadband Internet access providers are not common carriers and the Order purposely avoids declaring them to be so. Second, the Order seems to pretend that the plain meaning of Section 201's text is synonymous with that of Section 202, which does address "discrimination" but is not directly invoked here.

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[81] *Id.* at 657–58 (discussing *Nat'l Ass'n of Regulatory Util. Comm'rs v. FCC*, 880 F.2d 422, 425 (D.C. Cir. 1989) (*NARUC III*) and noting that "the Commission had emphasized that '[o]ur prior preemption decisions have generally been limited to activities that are closely related to the provision of services and which affect the provision of interstate services.' The term 'services' referred to 'common carrier communication services' within the scope of the Commission's Title II jurisdiction. 'In short,' the Commission explained, 'the interstate telephone network will not function as efficiently as possible without the preemptive detariffing of inside wiring installation and maintenance.' The Commission's pre-emption of state regulation of inside wiring was thus ancillary to its regulation of interstate phone service, precisely the kind of link to express delegated authority that is absent in this case." (quoting *Detariffing the Installation and Maintenance of Inside Wiring*, CC Docket No. 79-105, Memorandum Opinion and Order, 1 FCC Rcd. 1,190, 1,192, ¶ 17 (1986)).

[82] Order, ¶ 125 (quoting *Comcast,* 600 F.3d at 645).

[83] 47 U.S.C. § 201(b).

[84] *Id.*

[85] The term "discrimination" in the context of communications networks is not a synonym for "anticompetitive behavior." While the word "discriminate" has carried negative connotations, network engineers consider it "network management" – because in the real world the Internet is able to function only if engineers may discriminate among different types of traffic. For example, in order to ensure a consumer can view online video without distortion or interruption, certain bits need to be given priority over other bits, such as individual emails. This type of activity is not necessarily anticompetitive.

[86] *Comcast*, 600 F.3d at 645 (citing to Section 201).

The Order's reliance on Section 251(a)(1) is flawed for similar reasons. That provision imposes a duty on telecommunications carriers "to interconnect directly or indirectly with the facilities of other telecommunications carriers."[87] The Order notes that an increasing number of customers use VoIP services and posits that if a broadband Internet service provider were to block certain calls via VoIP, it would ultimately harm users of the public switched telephone network. All policy aspirations aside, this jurisdictional argument fails as a legal matter. As the Order admits, VoIP services have never been classified as "telecommunications services," *i.e.*, common carriage services, under Title II of the Act.[88] Therefore, as a corollary matter, broadband Internet service providers are not "telecommunications carriers" – or at least the Commission has never declared them to be so. The effect of the Order is to do indirectly what the Commission is reluctant to do explicitly.

2. The language of Title III and VI provisions cannot be wrenched out of context to impose common carriage obligations on non-common carriage services.

The Order makes a rather breathtaking attempt to find a basis for ancillary authority to impose nondiscrimination and other common carriage mandates in statutory schemes that since their inception have been distinguished from common carriage. This effort, too, will fail in court, for it flouts Supreme Court precedent on valid exercises of ancillary authority, as reviewed in detail in *Comcast*. If the "derivative nature of ancillary jurisdiction"[89] has any objectively discernible boundaries, it must bar the Commission from taking obligations explicitly set forth in one statutory scheme established in the Act – such as the nondiscrimination mandates of Title II – and grafting them into different statutory schemes set forth in other sections of Act, such as Title III and Title VI, that either directly or indirectly *eschew* such obligations. Here, the Act itself explicitly distinguishes between broadcasting and common carriage.[90] And the Supreme Court long ago drew the line between Title VI video services and Title II-style mandates by forbidding the Commission to "relegate[] cable systems ... to common-carrier status".[91]

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[87] 47 U.S.C. 251(a)(1).

[88] *See Vonage Holdings Corporation Petition for Declaratory Ruling Concerning an Order of the Minnesota Public Utilities Commission*, WC Docket No. 03-211, Memorandum Opinion and Order, 27 FCC Rcd. 22,404 ¶¶ 14, 20–22 (2004).

[89] *See Comcast*, 600 F.3d at 654.

[90] 47 U.S.C. § 153(11).

[91] *See Comcast*, 600 F.3d at 654 (citing *Midwest Video II*, 440 U.S. 689, 700–01) (Commission could not "relegate[ ] cable systems ... to common-carrier status"). Although the *Midwest Video II* case predated congressional enactment of cable regulation, none of the statutory amendments of the Communications Act since that time – the 1984 Cable Act, the Cable Consumer Protection and Competition Act of 1992, and the Telecommunications Act of 1996 – have imposed any form of Title II-style nondiscrimination mandates on the multichannel video services regulated pursuant to Title VI. To the contrary, the court has recognized that by its nature MVPD service involves a degree of editorial discretion that places it outside the Title II orbit. *See, e.g.*, *Denver Area Educ. Telecomm. Consortium, Inc., v. FCC*, 518 U.S. 727 (1996) (*DAETC*)

The Order's effort to search high and low through provisions of the Communications Act to find hooks for ancillary jurisdiction may be at its most risible in the broadcasting context. The attempt here seems hardly serious, given that the legal discussion is limited to a one-paragraph discussion that cites to no specific section within Title III.[92] Rather, it stands its ground on the observation that TV and radio broadcasters now distribute content through their own websites – coupled with the hypothetical contention that some possible future "self-interested" act by broadband providers could potentially have a negative effect on the emerging business models that may provide important support for the broadcast of local news and other programming.[93]

This is far from the kind of tight ancillary nexus that the Supreme Court upheld in *Southwestern Cable* and *Midwest Video I*,[94] and it is even more attenuated than the jurisdictional stretch that the Court rejected in *Midwest Video II*.[95] One wonders how far this new theory for an ancillary reach could possibly extend. Many broadcasters for years have benefitted through the sales of tapes and DVDs of their programming marketed through paper catalogs. Does the rationale here mean that the Commission has power to regulate the management of that communications platform, too?

The equally generalized Title III arguments based on "spectrum licensing" apparently are intended to support jurisdiction over the many point-to-point wireless services that are not point-to-multipoint broadcasting. They, too, appear off-point.[96] For example, the Order's recitation of a long array of Title III provisions (*e.g.*, maintenance of control over radio transmissions in the U.S., imposition of conditions on the use of spectrum) seems misplaced. If this overview is intended to serve as analysis, it contains a

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(upholding § 10(a) of the 1992 Cable Act, which permitted cable operators to restrict indecency on leased access channels).

[92] Order, ¶ 128.

[93] *Id.*

[94] *United States v. Southwestern Cable*, 392 U.S. 157 (1968) (upholding a limit on cable operators' importation of out-of-market broadcast signals); *United States v. Midwest Video Corp.*, 406 U.S. 649 (1972) (*Midwest Video I*) (plurality opinion upholding FCC rule requiring cable provision of local origination programming); *id.* at 676 (Burger, C.J., concurring) ("Candor requires acknowledgment, for me, at least, that the Commission's position strains the outer limits of even the open-ended and pervasive jurisdiction that has evolved by decisions of the Commission and the courts."). With respect to the local origination programming mandate at issue in *Midwest Video I*, the Commission reportedly "stepped back from its position during the course of the ... litigation" by "suspend[ing] the ... rule and never reinstat[ing] it." T. BARRON CARTER, JULIET L. DEE & HARVEY L. ZUCKMAN, MASS COMMUNICATIONS LAW 522–23 (West Group 2000).

[95] *Midwest Video II*, 440 U.S. at 694–95 (rejecting rules mandating cable provision of public access channels, which the FCC claimed were justified by "longstanding communications regulatory objectives" to "increas[e] outlets for local self-expression and augment[ ] the public's choice of programs").

[96] One therefore must wonder whether by this argument the Order seeks to pave the way for future regulation of mobile broadband Internet services. The Order has taken great pains to explain that today's treatment of mobile broadband Internet access service providers is in consumers' best interest. History suggests that the Order may merely be postponing the inevitable. In fact, the new rule (Section 8.7) need only be amended by omitting one word: "fixed." The Commission will be poised to do just that when it reviews the new regulations in two years.

logical flaw: Most of the rules adopted today are not being applied – yet – to mobile broadband Internet access service.[97] Certainly the Commission need not depend on the full sweep of Title III authority to impose the "transparency" rule; it need only act in our pending "Truth-in-Billing" docket.[98] Similarly, with regard to the "no blocking" rule, the Order need only rest on the provisions of Title III discussed in the *700 MHz Second Report and Order*, where this rule was originally adopted.[99]

With respect to the asserted Title VI bases for ancillary jurisdiction, the Order actually does point to three specific provisions, but none provides a firm foundation for extending the Commission's authority to encompass Internet network management. The Order first cites Section 628, which is designed to promote competition among the multichannel video programming distributors (MVPDs) regulated under Title VI, such as cable operators and satellite TV providers. The best-known elements of this provision authorize our program access rules, but the Commission recently has strayed – over my dissent – beyond the plain meaning of the statutory language to read away explicit constraints on our power in this area.[100] Apparently the Commission is about to make a bad habit of doing this.

Of course, Section 628 does not explicitly refer to the Internet, much less the management of its operation. The Congressional framers of the Cable Consumer Protection and Competition Act of 1992, of which Section 628 was a part, were concerned about, and specifically referenced, video services regulated under Title VI.[101] Yet the Order employs a general statutory reference to "unfair methods of competition or unfair or deceptive acts or practices" as a hook for a broad exercise of ancillary jurisdiction over an unregulated network of networks.[102] This time the theory rests

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[97] Taking the Order at its apparent word that it is not (yet) applying all new mandates on wireless broadband Internet service providers, it must be that the Order invokes the Commission's Title III licensing authority to impose the rules on fixed broadband Internet access service providers – that is, cable service providers, common carriers, or both. If so, this is curious on its face because these services are regulated under Titles VI and II, respectively, and as a legal matter the Commission does not "license" either cable service providers or common carriers.

[98] *See Truth-in-Billing and Billing Format*, CC Docket No. 98-170, Notice of Inquiry, 24 FCC Rcd. 11,380 (rel Aug. 28, 2009) (*Aug. 2009 Truth-in-Billing NOI*).

[99] *See* Service *Rules for the 698-746, 747-762 and 777-792 MHz Bands*, WT Docket No. 06-150, Report & Order, 22 FCC Rcd 15289 (2007).

[100] *See Review of the Commission's Program Access Rules and Examination of Programming Tying Arrangements*, MB Docket No. 07-198, First Report and Order, 25 FCC Rcd. 746 (2010) (*Terrestrial Loophole Order*); *id.* at 822 (McDowell, Comm'r dissenting) ("Section 628 refers to 'satellite'-delivered programming 36 times throughout the length of the provision, including 14 references in the subsections most at issue here. The plain language of Section 628 bars the FCC from establishing rules governing disputes involving terrestrially delivered programming, whether we like that outcome or not."). This FCC decision currently is under challenge before the D.C. Circuit. *See Cablevision Systems Corporation v. FCC*, No. 10-1062 (D.C. Cir. filed March 15, 2010).

[101] *See* 47 U.S.C. § 522(13) (defining "multichannel video programming distributor"). Some of the transmission systems used by such distributors, such as satellites, also are regulated under Title III.

[102] Order, ¶ 130 (citing 47 U.S.C. § 548(b)).

largely on the contention that, absent network management regulation, network providers might improperly interfere with the delivery of "over the top" (OTT) video programming that may compete for viewer attention with the platform providers' own MVPD services.[103] The Order cites to no actual instances of such behavior, however, nor does it grapple with the implications of the market forces that are driving MVPDs in the opposite direction – to add Internet connectivity to their multichannel video offerings.[104]

The second Title VI provision upon which the Order stakes a claim for ancillary jurisdiction is Section 616, which regulates the terms of program carriage agreements.[105] The specific text and statutory design of this provision make plain that it addresses independently produced content carried by contract as part of a transmission platform provider's Title VI MVPD service, and not a situation in which there is no privity of contract and the service is Internet access. The Order attempts to make much of Section 616's rather broad definition "video programming vendor" without grappling with the incongruities created when one tries to shove the provision's explicit directives about carriage contract terms into the Internet context.[106] In fact, the application of Section 616

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[103] The D.C. Circuit has upheld the Commission's reliance on Section 628(b) to help drive the provision of competitive Title VI multichannel video programming services into apartment buildings and similar "multi-dwelling unit" developments, *see Nat'l Cable & Telcoms. Ass'n v. FCC*, 567 F.3d 659 (D.C. Cir. 2009), but the policy thrust of that case unquestionably concerned Title VI video services. As the Order acknowledges, it is an open question as to whether OTT video providers might someday be made subject to Title VI, with all of the attendant legal rights and obligations that come with that classification. Order at n. 417. But it is misleading in suggesting that the regulatory classification of OTT video providers has been pending only since 2007. *Id.* On the contrary, it has been pending before the Commission since at least 2004 in the IP Enabled Services docket, WCB Docket 04-36, and the agency has consistently avoided answering the question ever since. While I do not prejudge the outcome of that issue, I question the selective invocation of sections of Title VI here as a basis for ancillary jurisdiction. Such overreaching seems to operate as a way of prolonging our avoidance of an increasingly important, albeit complex, matter.

[104] *See, e.g.*, Letter from William M. Wiltshire, Counsel for DIRECTV, to Marlene H. Dortch, Secretary, FCC, at 1 (Oct. 1, 2010) (DIRECTV Oct. 1 *Ex Parte* Letter) (outlining the wealth of innovative devices currently available in the market, including AppleTV, Boxee, and Roku); Adam Satariano & Andy Fixmer, *ESPN to Web Simulcast, Make Pay TV Online Gatekeeper*, BLOOMBERG, Oct. 15, 2010, at http://www.bloomberg.com/news/2010-10-15/espn-to-stream-channels-to-time-warner-cable-users-to-combat-web-rivals.html (explaining ESPN's plan to begin streaming its sports channels online to Time Warner Cable Inc. customers as part of the pay-TV industry's strategy to fend off Internet competitors); Walter S. Mossberg, *Google TV: No Need To Tune In Just Yet*, WALL ST. J., Nov. 18, 2010, at D1 (comparing Google TV technology to its rivals Apple TV and Roku); Louis Trager, *Netflix Plans Rapid World Spread of Streaming Service*, COMM. DAILY, Nov. 19, 2010, at 7 (examining Netflix's plans to offer a streaming-only service in competition with Hulu Plus, as well as its plans for expansion worldwide).

[105] 47 U.S.C. § 536.

[106] For example, Section 616(a)(1) bars cable operators from linking carriage to the acquisition of a financial interest in the independent programmers' channel – a restraint borrowed from antitrust principles that is readily understandable in the context of a traditional cable system with a limited amount of so-called "linear channel" space. The construct does not conform easily to the Internet setting, which is characterized by a considerably more flexible network architecture that allows end users to make the content choices – and which affords them access to literally millions of choices that do not resemble "video programming" as it is defined in Title VI, *see* 47 U.S.C. §522(20), including but not limited to simple, text-heavy websites, video shorts and all manner of personalized exchanges of data.

here is only comprehensible if one conceives of it as a new flavor of common carriage, with all the key contract terms supplied by statute.[107] Such a reading, however, would be in considerable conflict with the rationale of *Midwest Video II*,[108] as the D.C. Circuit in *Comcast* already has noted.[109]

In short, the Order's efforts to find a solid grounding for exercising ancillary power here – and thereby imposing sweeping new common carriage-style obligations on an unregulated service – strain credulity. Policy concerns cannot overcome the limits of the agency's current statutory authority. The Commission should heed the closing admonition of *Comcast*:

> [N]otwithstanding the "difficult regulatory problem of rapid technological change" posed by the communications industry, "the allowance of wide latitude in the exercise of delegated powers is not the equivalent of untrammeled freedom to regulate activities over which the statute fails to confer ... Commission authority." Because the Commission has failed to tie its assertion of ancillary authority over Comcast's Internet service to any "statutorily mandated responsibility," we ... vacate the Order.[110]

The same fate awaits this new rulemaking decision.

C. The Order Will Face Serious Constitutional Challenges.

It is reasonable to assume that broadband Internet service providers will challenge the FCC ruling on constitutional grounds as well.[111] Contrary to the Order's thinly

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[107] The federal government first involved itself in setting basic rates, terms, and conditions in the context of service agreements between railroads and their customers, but at least one historian (and former FCC commissioner) traced the "'ancient law' of common carriers" back to the development of stage coaches and canal boats. *See* GLEN O. ROBINSON, "THE FEDERAL COMMUNICATIONS ACT: AN ESSAY ON ORIGINS AND REGULATORY PURPOSE," IN A LEGISLATIVE HISTORY OF THE COMMUNICATIONS ACT OF 1934, 26 (Max D. Paglin, ed. 1989) (noting that a 19th Century Supreme Court case identified the concept emerging as far back as the reign of William and Mary).

[108] In *Midwest Video II*, the Supreme Court invalidated FCC rules that would have required cable operators to provide public access channels. The Court reasoned that, in the absence of explicit statutory authority for such mandates, the public access rules amounted to an indirect effort to impose Title II common carriage obligations – and that, in turn, conflicted with the Title III basis for the agency's ancillary jurisdiction claim. *See* 440 U.S. at 699-02.

[109] *Comcast*, 600 F.3d at 654.

[110] *Comcast*, 600 F.3d at 661 (internal citations omitted).

[111] The Order incorrectly asserts that the new network management rules raise no serious questions about a Fifth Amendment taking of an Internet transmission platform provider's property. At the outset, the Order too quickly dismisses the possibility that these rules may constitute a *per se* permanent occupation of broadband networks. Under *Loretto v. Teleprompter Manhattan CATV Corp.*, a taking occurs when the government authorizes a "permanent physical occupation" of property "even if they occupy only relatively insubstantial amounts of space and do not seriously interfere with the [owner's] use of the rest of his [property]." 458 U.S. 419, 430 (1982). Here, the new regulatory regime effectively authorizes third-party occupation of some portion of a broadband ISP's transmission facilities by constraining the facility owner's ability to decide how to best manage the traffic running over the broadband platform. The new strictures

supported assertions, broadband ISPs are speakers for First Amendment purposes – and therefore challenges on that basis should not be so lightly dismissed. There are several reasons for being concerned about legal infirmities here.

First, the Order is too quick to rely on simplistic service labels of the past in brushing off First Amendment arguments. For example, while it ostensibly avoids classifying broadband providers as Title II common carriers, it still indirectly alludes to old case law concerning the speech rights of common carriers by dismissing broadband ISPs as mere "conduits for speech" undeserving of First Amendment consideration.[112] There is good reason today to call into question well-worn conventional wisdom dating from the era of government-sanctioned monopolies about common carriers' freedom of speech, particularly in the context of a competitive marketplace.[113] Indeed, at least two

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have parallels to the Commission's decision to grant competitive access providers the right to the exclusive use of a portion of local telephone company's central office facilities – an action which the D.C. Circuit held constituted a physical taking. *Bell Atlantic Tel. Cos. v. FCC*, 24 F.3d 1441, 1445 (D.C. Cir. 1994).

But even assuming *arguendo* that the regulations may not constitute a physical taking, they still trigger serious "regulatory takings" concerns. Today's situation differs from the one at issue in *Cablevision Systems Corp. v FCC*, where the court held that Cablevision had failed "to show that the regulation had an economic impact that interfered with 'distinct investment backed expectations.'" 570 F.3d 83, 98–99 (2d Cir. 2009). Here, many obvious investment-backed expectations are at stake: Network operators have raised, borrowed, and spent billions of dollars to build, maintain, and modernize their broadband plant – based at least in part on the expectation that they would recoup their investment over future years under the deregulatory approach to broadband that the Commission first adopted for cable in 2002 and quickly extended to other types of facilities. Moreover, today's action could result in significant economic hardships for platform providers even if they have no debt load to pay off. For example, the Order announces the government's "expectation" that platform providers will build-out additional capacity for Internet access service before or in tandem with expanding capacity to accommodate specialized services. Order, ¶ 114. Although property owners may not be able to expect existing legal requirements regarding their property to remain *entirely* unchanged, today's vague "expectation" places a notable burden on platform providers – heavy enough, given their legitimate investment-backed expectations since 2002, to amount to a regulatory taking under *Penn Central Transp. Co. v. City of New York*, 438 U.S. 104 (1978).

[112] Order, ¶ 144 (citing CWA Reply at 13-14, which cites to *Turner Broadcasting System, Inc. v. FCC*, 512 U.S. 622 (1994) and *Time Warner Entertainment, L.P. v. FCC*, 93 F.3d 957 (D.C. Cir. 1996)).

[113] The Supreme Court has never directly addressed the First Amendment issues that would be associated with a government compulsion to serve as a common carrier in a marketplace that offers consumers alternatives to a monopoly provider. This is not surprising, for the courts have had no opportunity to pass on the issue; the FCC in the modern era has found that it served the public interest to waive common carrier status on numerous occasions. *See, e.g., In re Australia-Japan Cable (Guam) Limited*, 15 FCC Rcd. 24,057 (2000) (finding that the public interest would be served by allowing a submarine cable operator to offer services on a non-common carrier basis because AJC Guam was unable to exercise market power in light of ample alternative facilities); *In re Tycom Networks Inc., et al.*, 15 FCC Rcd, 24,078 (2000) (examining the public interest prong of the *NARUC I* test, and determining that TyCom US and TyCom Pacific lacked sufficient market power given the abundant alternative facilities present). In fact, in the more than 85 reported cases in which the FCC has addressed common carrier waivers in the past 30 years, it has only imposed common carriage on an unwilling carrier once – and in that instance the agency later reversed course and granted the requested non-common carrier status upon receiving the required information that the applicant previously omitted. *In re Applications of Martin Marietta Communications Systems, Inc.; For Authority to Construct, Launch and Operate Space Stations in the Domestic Fixed-Satellite Service*, 60 Rad. Reg. 2d (P & F) 779 (1986).

sitting Justices have signaled a willingness to wrestle with the implications of the issue of common carriers' First Amendment protections.[114]

Similarly, the Order offhandedly rejects the analogies drawn to First Amendment precedent concerning cable operators and broadcasters, based only on the unremarkable observation that cable operators and broadcasters exercise a noteworthy degree of editorial control over the content they transmit via their legacy services.[115] In so doing, the Order disregards the fact that at least two federal district courts have concluded that broadband providers, whether they originated as telephone companies or cable companies, have speech rights.[116] Although the Order acknowledges the cases in today's Order, it makes no effort to distinguish or challenge them. Instead, the Order simply "disagree[s] with the reasoning of those decisions."[117]

Second, I question the Order's breezy assertion that broadband ISPs perform no editorial function worthy of constitutional recognition. The Order rests the weight of its argument here on the fact that broadband ISPs voluntarily devote the vast majority of their capacity to uses by independent speakers with very little editorial invention by the platform provider beyond "network management practices designed to protect their Internet services against spam and malicious content."[118] But what are acts such as providing quality of service (QoS) management and content filters if not editorial functions?[119]

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[114] The Order is flatly wrong in asserting that "no court has ever *suggested* that regulation of common carriage arrangements triggers First Amendment scrutiny." Order, ¶ 144 (emphasis added). In *Midwest Video II*, the Court stated that the question of whether the imposition of common carriage would violate the First Amendment rights of cable operators was "not frivolous." 440 U.S. 689 (1979), 709 n.19. In *DAETC*, 518 U.S. 727 (1996), the plurality opinion appeared split on, among other things, the constitutional validity of mandated leased access channels. Justice Kennedy reasoned that mandating common carriage would be "functional[ly] equivalent[t]" to designating a public forum and that both government acts therefore should be subject to the same level of First Amendment scrutiny. *Id.* at 798 (Kennedy, J., concurring in part, concurring in the judgment in part, and dissenting in part). Justice Thomas' analysis went even further in questioning the old [dicta] about common carriers' speech rights. *See id.* at 824–26 (Thomas, J., concurring in the judgment in part and dissenting in part) (stating that "Common carriers are private entities and may, consistent with the First Amendment, exercise editorial discretion in the absence of a specific statutory prohibition").

[115] Order, ¶ 140 (citing, *e.g.*, *Turner Broadcast Systems, Inc v. FCC*, 512 U.S. 622, 636 (1994) (*Turner I*)).

[116] *Illinois Bell Telephone Co. v. Village of Itasca*, 503 F. Supp. 2d 928 (N.D. Ill. 2007) (analogizing broadband network providers to cable and DBS providers); *Comcast Cablevision of Broward County, Inc. v. Broward County*, 124 F. Supp. 2d 685 (S.D. Fla. 2000) (relying on Supreme Court precedent in *Ex parte Jackson*, 96 U.S. 727, 733 (1878) and *Lovell v. Griffin*, 303 U.S. 444, 452 (1938), the court concluded that the message, as well as the messenger, receives constitutional protection because the transmission function provided by broadband services could not be separated from the content of the speech being transmitted).

[117] Order, n. 458.

[118] Order, ¶ 143.

[119] In addition, the Order's citation to a Copyright Act provision, U.S.C. § 230(c)(1), to support the proposition that broadband providers serve no editorial function, see Order, ¶ 142, ignores the fact that broadband ISPs engage in editorial discretion – as permitted under another provision of the Copyright Act, 17 U.S.C. § 230(c)(2) – to block malicious content and to restrict pornography. *See Batzel v. Smith*, 333

And the mere act of opening one's platform to a large multiplicity of independent voices does not divest the platform owner of its First Amendment rights.[120] The Order cites no legal precedent for determining how much "editorial discretion" must be exercised before a speaker can merit First Amendment protection. Newspapers provide other speakers access to their print "platforms" in the form of classified and display advertising, letters to the editor, and, more recently, reader comments posted in response to online news stories. Advertising historically has filled 60 percent or more of the space in daily newspapers,[121] and publishers rarely turn away ads in these difficult economic times[122] – though they still may exercise some minor degree of "editorial discretion" to screen out "malicious" content deemed inappropriate for family consumption. Under the Order's rationale, would newspaper publishers therefore be deemed to have relinquished rights to free speech protection?

Third, it is undisputed that broadband ISPs merit First Amendment protection when using their own platforms to provide multichannel video programming services and similar offerings. The Order acknowledges as much but simply asserts that the new regulations will leave broadband ISPs sufficient room to speak in this fashion[123] – unless, of course, hints elsewhere in the document concerning capacity usage come to pass.[124] So while the Order concedes, as it must, that network management regulation could well be subject to heightened First Amendment review, it disregards the most significant hurdle posed by even the intermediate scrutiny standard.[125] The Order devotes all of its

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F.3d 1018, 1030 n.14 (9th Cir. 2003) (noting that § 230(c)(2) "encourages good Samaritans by protecting service providers and users from liability for claims arising out of the removal of potentially 'objectionable' material from their services.... This provision insulates service providers from claims premised on the taking down of a customer's posting such as breach of contract or unfair business practices.").

[120] Nor does the availability of alternative venues for speech undercut the platform owner's First Amendment rights to be able to effectively use its own regulated platform for the speech it wishes to disseminate. *See, e.g.*, *Nat'l Cable Television Ass'n v. FCC*, 33 F.3d 66 (D.C. Cir. 1994).

[121] *See, e.g.*, McInnis & Associates, "The Basics of Selling Newspaper Advertising," Newspaper Print and Online ad Sales Training, at http://www.ads-on-line.com/samples/Your_Publication/chapterone2.html (visited 12/7/10). This ratio has remained relatively constant for decades. *See* Robert L. Jones & Roy E. Carter Jr., "Some Procedures for Estimating 'News Hole' in Content Analysis," The Public Opinion Quarterly, Vol. 23, No. 3 (Autumn, 1959), pp. 399-403, pin cite to p. 400 (noting measurements of non-advertising newsholes as low as 30 percent, with an average around 40 percent) (available at http://www.jstor.org/stable/2746391?seq=2) (visited 12/7/10).

[122] Alan Mutter, "Robust ad recovery bypassed newspapers," Reflections of a Newsosaur (Dec. 3, 2010) (available at http://newsosaur.blogspot.com/) (visited 12/7/10).

[123] Order, ¶¶ 145-46.

[124] Order, ¶¶ 112-14.

[125] Although the Order addresses only intermediate scrutiny, the potential for application of strict scrutiny should not be disregarded completely. Although the Court in *Turner I* declined to apply strict scrutiny to the statutorily mandated must-carry rules, the network management mandates established by today's Order may be distinguishable. For example, while rules governing the act of routing data packets might arguably be content neutral regulations, application of the rules in the real world may effectively dictate antecedent speaker-based and content-based choices about which data packets to carry and how best to present the speech that they embody.

[125] *American Library Ass'n v. Reno*, 33 F.3d 78 (D.C. Cir. 1994).

sparse discussion to the first prong of the intermediate scrutiny test, the "substantial" government interest,[126] while wholly failing to address the second and typically most difficult prong for the government to satisfy: demonstrating that the regulatory means chosen does not "burden substantially more speech than is necessary."[127] And what is the burden here? One need look no further than the Order's discussion of specialized services to find it. It announces an "expectation" that network providers will limit their use of their own capacity for speech in order to make room for others – an expectation that may rise to the level of effectively requiring the platform provider to pay extra, in the form of capacity build-outs, before exercising its own right to speak.[128] Such a vague expectation creates a chilling effect of the type that courts are well placed to recognize.[129]

Yet the Order makes *no* effort, as First Amendment precedent requires, to weigh this burden against the putative benefit.[130] Instead, Broadband ISP speakers are left in the dark to grope their way through this regulatory fog. Before speaking via their own broadband platforms, they must either: (1) guess and hope that they have left enough capacity for third party speech, or (2) go hat in hand to the government for pre-clearance of their speech plans.

Finally, it should be noted one of the underlying policy rationales for imposing Internet network management regulations effectively turns the First Amendment on its head. The Founders crafted the Bill of Rights, and the First Amendment in particular, to act as a bulwark against state attempts to trample on the rights of individuals. (Given that they had just won a war against government tyranny, they were wary of recreating the very ills that had sparked the Revolution – and which so many new Americans had sacrificed much to overcome.) More than 200 years later, our daily challenges may be different but the constitutional principles remain the same. The First Amendment begins

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[126] Under First Amendment jurisprudence, it typically is not difficult for the government to convince a court that the agency's interest is important or substantial. *See, e.g., Carey v. Brown*, 447 U.S. 455, 464–65 (1980) ("even the most legitimate goal may not be advanced in a constitutionally impermissible manner"); *Simon & Schuster, Inc. v. Members of the N.Y. State Crime Victims Bd.*, 502 U.S. 105 (1991) (finding that the state interest was compelling, but the Son of Sam law was not narrowly tailored to advance that objective). But I question whether the Order will survive even this prong of the test because the Commission lacks evidence of a real problem here to be solved. Two examples plus some economic theorizing may be insufficient to demonstrate that the asserted harms to be addressed are, in fact, real and systemic. *See Century Communications Corp. v. FCC*, 835 F.2d 292, 300 (D.C. Cir. 1987) (suggesting that to establish a real harm the Commission has the burden of producing empirical evidence such as studies or surveys). The Commission's most recent Section 706 Report, which – over the dissent of Commissioner Baker and me – reversed course on 11 years' worth of consistent findings that advanced services are being deployed on a timely basis, is no foundation on which this part of the argument can securely rest. *See supra* Section A.

[127] *Turner I*, 512 U.S. at 662.

[128] *See* Order, ¶ 114 ("We fully expect that broadband providers will increase capacity offered for broadband Internet access service if they expand network capacity to accommodate specialized services. We would be concerned if capacity for broadband Internet access service did not keep pace.").

[129] *See Fox v. FCC*, 613 F.3d 317 (2d Cir. 2010) (holding that the FCC's indecency policy "violates the First Amendment because it is unconstitutionally vague, creating a chilling effect").

[130] *See, e.g.*, Order, ¶¶ 146-48.

with the phrase "Congress shall make no law" for a reason. Its restraint on government power ensures that we continue to enjoy all of the vigorous discourse, conversation and debate that we, along with the rest of the world, now think of as quintessentially American.

Conclusion

For the foregoing reasons, I respectfully dissent.

ATTACHMENT A

Letter of FCC Commissioner Robert M. McDowell to the Hon. Henry A. Waxman, Chairman, Committee on Energy and Commerce, U.S. House of Representatives (May 5, 2010)

Office of Commissioner Robert M. McDowell
Federal Communications Commission
Washington, D.C. 20554

May 5, 2010

The Honorable Henry A. Waxman
Chairman
Committee on Energy and Commerce
United States House of Representatives
Washington, DC 20515

Dear Chairman Waxman:

Thank you for the opportunity to testify before you and your colleagues on the Subcommittee on Communications, Technology and the Internet on March 25 regarding the National Broadband Plan.[1] As I testified at the hearing, the Commission has never classified broadband Internet access services as "telecommunications services" under Title II of the Communications Act. In support of that assertion, I respectfully submit to you the instant summary of the history of the regulatory classification of broadband Internet access services.

In the wake of the privatization of the Internet in 1994, Congress overwhelmingly passed the landmark Telecommunications Act of 1996 (1996 Act) and President Clinton signed it into law. Prior to this time, the Commission had never regulated "information services" or "Internet access services" as common carriage under Title II. Instead, such services were classified as "enhanced services" under Title I. To the extent that regulated common carriers offered their own enhanced services, using their own transmission facilities, the FCC required the underlying, local transmission component to be offered on a common carrier basis.[2] No provider of retail information services was ever required to tariff such service. With the 1996 Act, Congress had the opportunity to reverse the Commission and regulate information services, including Internet access services, as traditional common carriers, but chose not to do so. Instead, Congress codified the Commission's existing classification of "enhanced sevices" as "information services" under Title I.

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[1] *Oversight of the Federal Communications Commission: The National Broadband Plan: Hearing Before the Subcomm. on Communications, Technology, and the Internet of the House Comm. on Energy and Commerce*, 111th Cong., 2d Sess. (March 25, 2010).

[2] Some who are advocating that broadband Internet access service should be regulated under Title II cite to the Commission's 1998 *GTEADSL Order* to support their assertion. *See GTE Telephone Operating Cos.*, CC Docket No. 98-79, Memorandum Opinion and Order, 13 FCC Rcd. 22,466 (1998) *(GTEADSL Order)*. The *GTEADSL Order*, however, is not on point, because in that order the Commission determined that GTE-ADSL service was an interstate service for the purpose of resolving a tariff question.

Two years after the 1996 Act was signed into law, Congress directed the Commission to report on its interpretation of various parts of the statute, including the definition of "information service."[3] In response, on April 10,1998, under the Clinton-era leadership of Chairman William Kennard, the Commission issued a *Report to Congress* finding that "Internet access services are appropriately classed as information, rather than telecommunications, services."[4] The Commission reasoned as follows:

> The provision of Internet access service ... offers end users *information-service capabilities inextricably intertwined with data transport.* As such, *we conclude that it is appropriately classed as an "information service"*[5]

In reaching this conclusion, the Commission reasoned that treating Internet access services as telecommunications services would lead to "negative policy consequences."[6]

To be clear, the FCC consistently held that any provider of information services could do so pursuant to Title I.[7] No distinction was made in the way that retail providers of Internet access service offered that information service to the public. The only distinction of note was under the Commission's *Computer Inquiry* rules, which required common carriers that were also providing information services to offer the transmission component of the information service as a separate, tariffed telecommunications service. But again, this requirement had no effect on the classification of retail Internet access service as an information service.

In the meantime, during the waning days of the Clinton Administration in 2000, the Commission initiated a Notice of Inquiry (NOI) to examine formalizing the regulatory classification of cable modem services as information services.[8] As a result of the *Cable Modem NOI,* on March 14, 2002, the Commission issued a declaratory ruling

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[3] Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 1998, Pub. L. No. 105-119,111 Stat. 2440,2521-2522, § 623.

[4] *Federal-State Board on Universal Service,* CC Docket No. 96-45, Report to Congress, 13 FCC Red. 11501, K 73 (1998) *(Report to Congress).*

[5] *Id.* at 180 (emphasis added).

[6] *Id.* at Tj 82 ("Our findings in this regard are reinforced by the negative policy consequences of a conclusion that Internet access services should be classed as 'telecommunications.'").

[7] As Seth P. Waxman, former Solicitor General under President Clinton, wrote in an April 28,2010 letter to the Commission, "[t]he Commission has *never* classified any form of broadband Internet access as a Title II 'telecommunications service* in whole or in part, and it has classified all forms of that retail service as integrated 'information services' subject only to a light-touch regulatory approach under Title I. These statutory determinations are one reason why the Clinton Administration rejected proposals to impose 'open access' obligations on cable companies when they began providing broadband Internet access in the late 1990s, even though they then held a commanding share of the market. The Internet has thrived under this approach." (Emphasis in the original.)

[8] *Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities,* GN Docket No. 00-185, Notice of Inquiry, 15 FCC Red 19287 (2000) *(Cable Modem NOI).*

classifying cable modem service as an information service.[9] In the Commission's *Cable Modem Declaratory Ruling,* it pointed out that "[t]o date ... the Commission has declined to determine a regulatory classification for, or to regulate, cable modem service on an industry-wide basis."[10] Only one month earlier, on February 14, 2002, in its Notice of Proposed Rulemaking[11] regarding the classification of broadband Internet access services provided over wireline facilities, the Commission underscored its view that information services integrated with telecommunications services cannot simultaneously be deemed to contain a telecommunications service, even though the combined offering has telecommunications components.

On June 27,2005, the Supreme Court upheld the Commission's determination that cable modem services should be classified as information services.[12] The Court, in upholding the Commission's *Cable Modem Order,* explained the Commission's historical regulatory treatment of "enhanced" or "information" services:

> By contrast to basic service, the Commission decided not to subject providers of enhanced service, *even enhanced service offered* ***via*** *transmission wires,* to Title II common-carrier regulation. The Commission explained that it was unwise to subject enhanced service to common-carrier regulation given the "fast-moving, competitive market" in which they were offered.[13]

Subsequent to the Supreme Court upholding the Commission's classification of cable modem service as an information service in its *Brand X*decision, the Commission *without dissent* issued a series of orders classifying all broadband services as information services: wireline (2005)[14], powerline (2006)[1*] and wireless (2007).[16] Consistent with

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[9] *Inquiry Concerning High- Speed Access to the Internet Over Cable and Other Facilities; Internet Over Cable Declaratory Ruling; Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities,* GN Docket No. 00-185, CS Docket No. 02-52, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd 4798 (2002) *(Cable Modem Declaratory Ruling). aff'd. Nat'I. Cable & Telecomms. Ass'n* v. *Brand X Internet Servs.,* 545 U.S. 967 (2005) *(Brand X).*

[10] *Id.* at H 2.

[11] *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, Universal Service Obligations of Broadband Providers,* CC Docket No. 02-33, Notice of Proposed Rulemaking, 17 FCC Rcd 3019 (2002) (*Wireline Broadband NPRM).*

[12] *Brand X.* 545 U.S. 967.

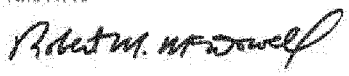
[13] *Id.* at 977 (emphasis added, internal citations to the Commission's *Computer Inquiry II* decision omitted).

14 *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities; Universal Service Obligations of Broadband Providers; Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services; Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review—Review of Computer III and ONA Safeguards and Requirements; Conditional Petition of the Verizon Telephone Companies for Forbearance Under 47 U.S.C. § I60(c)with Regard to Broadband Services Provided Via Fiber to the Premises; Petition of the Verizon Telephone Companies for Declaratory Ruling or, Alternatively, for Interim Waiver with Regard to Broadband Services Provided Via Fiber to the Premises; Consumer Protection in the Broadband Era,* CC Docket Nos. 02-33, 95-20, 98-10,01-337, WC Docket Nos. 04-242,

the Court's characterization, the Commission made these classifications to catch up to market developments, to treat similar services alike and to provide certainty to those entities provisioning broadband services, or contemplating doing so. Prior to these rulings, however, such services were never classified as telecommunications services under Title II.

Again, I thank you for providing the opportunity to testify before your Committee and to provide this analysis regarding the regulatory classification of broadband Internet access services. I look forward to working with you and your colleagues as we continue to find ways to encourage broadband deployment and adoption throughout our nation.

Sincerely,



Robert M. McDowell

cc: The Honorable Joe Barton
The Honorable Rick Boucher The Honorable Cliff Steams

05-271, Report and Order and Notice of Proposed Rulemaking, 20 FCC Red 14853 (2005) *(Wireline Broadband Order), affd. Time Warner Telecom. Inc. v. FCC,* 507 F.3d 205 (3d Cir. 2007).

[15] *United Power Line Council's Petition for Declaratory Ruling Regarding the Classification of Broadband over Power Line Internet Access Service as an Information Service,* WC Docket No. 06-10, Memorandum Opinion and Order, 21 FCC Red 13281 (2006).

[16] *Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks,* WT Docket No. 07-53, Declaratory Ruling, 22 FCC Red 5901 (2007).

Mr. GOODLATTE. Thank you, Commissioner McDowell. And without objection your, I'm sure, cogently written dissenting opinion will be made a part of the record.

I'm pleased to note that the Chairman of the full Committee, Congressman Lamar Smith of Texas is present. I don't believe he has a statement to make and these buzzers are going off a second time indicate that we have votes on the floor. So the Committee will stand in recess and we will begin the questioning as soon as we return.

Thank you, gentlemen.

[Recess.]

Mr. QUAYLE [presiding]. Welcome back to the hearing on Ensuring Competition on the Internet and Net Neutrality and Antitrust.

I want to thank the witnesses for being patient with the votes and we will just start getting right into the questions.

And I am going to recognize myself for 5 minutes. The first question is for you, Chairman Genachowski. There has been reports, just last month, that the newest 706 Report is going to be coming out and within that report you—the FCC is going to be giving broadband deployment a failing grade. That is according to the reports, I don't know if that is accurate.

But, looking at the statistics, you have 95 percent of households have access to at least one broadband service and about 200 million people have signed up in the last 10 years. Now if you have 95 percent deployment in access to broadband services and that is a failing grade, I find it a little troubling and a little confusing. But I am kind of new to Washington here and when you use that and contrast with a GAO report that came out in 2011, in February, not on the FCC but on another agency in Homeland Security, when they said that they only had 15 percent control of the southern border and 44 percent operational control and they were saying—the secretary was saying that, you know, this is the best it has ever been, and from my understanding that could be a B+ to an A.

So I am trying to understand the sliding scale that we have here in Washington where 95 percent could be an F and 15 percent could be a B+ to an A. So if you could just tell me how does the deployment get an F or failing grade, if that is true, in the reports that are coming out.

Mr. GENACHOWSKI. So thank you for the question. We are working on a 706 Report, it hasn't been released yet and so let me not address what it might say specifically. But I can answer your question in the following way. I think that there is broad agreement that broadband access, high-speed Internet access is a service that should be universal. It is so essential to our economy, it is essential to education, it is essential to small businesses, it is essential to public safety. The numbers that—I will just talk about last year's report, that stood out for me and that stand out for me in general on this issue is that over 20 million Americans live in areas that have no broadband infrastructure. And so if they want to be part of the online world, if they want to start a small business in their area, these are rural communities all over the country, but over 20 million, I think that is a significant number. And the second significant number are the number of Americans who could have—who could subscribe to broadband but don't, for various reasons. That number is about 33 percent. So that is about 100 million Americans who aren't part of our online world, because practically broadband isn't available to them.

My view is that we need for our economy to be moving to true universal broadband very, very quickly. Our global competitors are. And I think that while we are making progress as a country, in a variety of ways, Congress asked us to determine whether broadband availability is moving in a reasonable and timely manner. Last year we concluded that it was not. And I will tell you that based on these kinds of numbers and based on what we seeing happening around the world and their focus, I think any spur we can give to ourselves to get broadband to every part of rural America, to increase our adoption rates from 67 percent to, you know, to 90 percent to 100 percent, it is a very important issue.

Mr. QUAYLE. Okay. Thank you. And I would shift topics to the order that came out. And I was just looking at it and the order argues that broadband providers have the incentive to limit Internet openness. But, if the order is correct the Internet openness creates a virtuous cycle that drives consumer demand for broadband access. Wouldn't broadband access providers have every incentive to preserve openness and increase demand for their product?

Mr. GENACHOWSKI. Well, there is a history here, of course. And the FCC has enforced Internet freedom and openness going back to at least 2005. And it found that there were instances where Internet service providers blocked or degraded or slowed down content. In one case it was voice over Internet content, in another case it was lawful video. And the incentives to block a competitor I think are there.

From a global perspective I agree with your point, we benefit from preserving a baseline free and open Internet because it will trigger the virtuous cycle that I—that you spoke about and Commissioner McDowell spoke about and that I completely agree with. But I don't think there is any real doubt that in a market that isn't characterized by vibrant competition that there are incentives to, if you are controlling a consumer's Internet access to the home, incentives to harm a competitor. And as I said in my opening statement, in this context where many of these competitors are early-stage startups, the option of waiting to be blocked, hiring a lawyer, filing an antitrust lawsuit I think is not practical. Having high-level, light-touch, baseline rules that say, look no blocking, let's move on, I think benefits the entire ecosystem.

Mr. QUAYLE. All right. Thank you, Mr. Chairman.

The Chair now recognizes the Ranking Member of the Subcommittee, the gentleman from North Carolina, Mr. Watt.

Mr. WATT. Mr. Chairman, with the recognition that I have to be here for the rest of the hearing anyway, as the Ranking Member, I think I am going to defer and let my other Members go in front of me.

Mr. Berman, I think, would be next.

Mr. BERMAN. I appreciate that. I thank the gentleman and I probably should be here for the rest of the hearing too, but I don't have to be. [Laughter.]

Chairman Genachowski, I wanted to ask you a more elaborate question but I am just wondering, is it possible, right at the outset real quickly, because of my 5 minute time limit, to establish, I hope the answer to this is yes, that net neutrality doesn't mean neutrality between lawful and unlawful content.

Mr. GENACHOWSKI. Correct. Yes.

Mr. BERMAN. Because that has been one fear of mine. And I think the FCC and your open Internet order addressed that question, I just wanted to make sure I understand it right.

Mr. GENACHOWSKI. You understand correctly. Our open Internet framework is only about lawful contact—content. We make clear in our order that it doesn't interfere with enforcement of laws against—relating to unlawful content, whether it is theft of intellectual property, whether it is child pornography, those are outside our rules.

Mr. BERMAN. Great. And in fact I think in addition to what you referred to the Administration has specifically endorsed the policy of promoting voluntary marketplace initiatives to address cooperative efforts among ISPs and rights holders regarding online copyright infringement and then what the FCC has done.

So I—my question I guess is this, given these statements and the clarifying language in the FCC open Internet order, what can the FCC give assurances—what assurances can the FCC give to ISPs that they can enter into voluntary agreements with copyright owners to try to address or mitigate copyright infringement online without running afoul of net neutrality principles? I have been hearing reports for a couple years that ISPs and copyright owners are trying to agree on some kind of graduated response program to address the peer-to-peer infringement online, but assuming that they reach an agreement, how are they to know that the program is lawful under FCC rules?

Put another way, can we—how do we get—how can we ensure that voluntary practices undertaken solely for the purpose of mitigating the occurrence of copyright infringement aren't stymied by the fear that people will use the net neutrality principles as a sword to prevent such practices from being implemented?

The net neutrality rules aren't completely clear on what—how or when an ISP can make reasonable efforts to address unlawful activity or when and how it is determined that their practices constitute reasonable network management. And I don't think the FCC wants to be the arbiter of copyright infringement issues online, but you do determine whether efforts to mitigate infringement are reasonable.

Is there any way to give these companies comfort that they have some discretion to implement those kinds of initiatives which are truly targeted at addressing or mitigating the occurrence of copyright infringement?

Mr. GENACHOWSKI. An intention of the framework we adopted was to provide that confidence. We made it clear that only lawful content falls within the range of the framework. We made it clear that our framework doesn't inhibit sensible, voluntary efforts to protect intellectual property. Certainly our doors at the FCC are open and we have been encouraging voluntary efforts that are sensible and that protect intellectual property.

Mr. BERMAN. So is there a way for a person to talk about a possible way to deal with that issue and get some indication of whether they are going down the right track?

Mr. GENACHOWSKI. I image that there is, but I would say the first step would be to do what I believe is already occurring, the

discussions with staff of the FCC and our doors are open for that and they will continue to be.

Mr. BERMAN. Thank you very much.

I yield.

Mr. QUAYLE. Thank you very much. The Chair now recognizes the gentlelady from California, Miss Lofgren, for 5 minutes.

Ms. LOFGREN. Thank you, Mr. Chairman and thanks to both of our witnesses.

I think as I listened to the various opening statements, I couldn't help remembering the 1996 proceedings on the Telecom Reform Act. At one point Henry Hyde, then the Chairman, said the Republicans and Democrats are adversaries but the Commerce Committee is our enemy. [Laughter.]

And I think to some extent, if we look at our differing approaches to this issue, it does relate to our jurisdictional spread. And I was one of the, with Mr. Conyers, introduced the bill just about 3 years ago with an antitrust approach to this effort. But I must say I am completely satisfied with what the FCC has done in this regard.

While I thought the antitrust approach had merit, clearly the FCC is in a position to move more nimbly and, you know, I think of the years that Judge Greene had the antitrust breakup here in D.C. So I think that the approach you have taken is a solid one.

I would note as well, that although not every Member of this Committee, apparently, is enthusiastic about your efforts, the business community is enormously enthusiastic about your efforts, all the way from TechNet which represents about $2 trillion in market cap out in—primarily in—well, the technology sector, even the big telecoms, AT&T and Sprint and Dish were supportive of this. So the fight is inexplicably here in the Committee even though the commercial world has moved on.

And I think there is a very good reason for it. I want to give credit, certainly, to the commission for bringing content—consensus for what had been, you know, a contentious issue. But it is enormously important that we have these rules in place. I know sometimes people will say, well isn't this really a fight between Google and AT&T. I don't worry about Goggle, they have got plenty of money, they can, you know, pay for whatever. But I worry about the startup that could be squashed, you know, killed in the cradle before there is an opportunity, if we don't have a free and open Internet.

So, I just wanted—I thought it was necessary to say that clearly. Although we had had this antitrust effort, I am not sure that there have been successful efforts in remedying ongoing practices in the telegong industry as opposed to stopping mergers or doing breakups of companies.

Mr. Chairman, do you have any instances where we had success using antitrust on an ongoing basis?

Mr. GENACHOWSKI. Well, we certainly heard, during our proceedings, from startup companies, early-stage companies, small businesses, investors putting risk capital to work in early-stage companies was that as important as they believe antitrust laws are, and I share that, that they didn't see it as a practical solution for the, you know, entrepreneur in the great American tradition, in their garage or in their dorm room taking advantage of an open

Internet to put a new product, a new service, a new idea in front of consumers.

So it wasn't—no insult to antitrust law, but not something that early-stage investors and companies thought was a realistic solution. And in fact what we heard overwhelmingly was that in the absence of basic high level rules of the road, the investors in the early-stage companies who had to devote their capital, whether it was time or money, would feel much less confident, much less willing to do it, not being certain whether if they started an Internet business it could be blocked from reaching the broad Internet audience.

Ms. LOFGREN. Now one of the measures of whether this serves entrenched interests or challengers is what does the venture capital world say about it, because they are funding the disrupters. In terms of angel investors in the VC world, are they supportive of what the commission has done?

Mr. GENACHOWSKI. They have been very supportive. A series of prominent leading venture capitalists have been supportive as have investors who are investing in the infrastructure itself, because what we really need as a country is both incredible vibrancy and dynamism in the startup world——

Ms. LOFGREN. Right.

Mr. GENACHOWSKI [continuing]. So that we continue to lead the world in that kind of innovation, we also need fast, robust wired and wireless networks. The government is not going to build those, we need private sector investment to build it. And over the course of the proceeding we were able to craft an approach that met our goal of increasing the incentives across the board to grow the pie.

I agree with Mr. Quayle on the idea of all working together to get a virtuous cycle of investment in early-stage companies and infrastructure. And honestly, the early reports on what we did is that we—well there was—as I said, there were some people who thought we went too far and some people thought we didn't go far enough, but the general view was that this was a positive for investment throughout the broadband economy.

Ms. LOFGREN. Well, my time is up. I would just like to thank you, Mr. Genachowski, for your leadership on this. I think it is important for freedom in America and our economy future.

And I yield back.

Mr. QUAYLE. Thank you. The Chair now recognizes the gentleman from California, Mr. Issa, for 5 minutes.

Mr. ISSA. Thank you, Mr. Chairman.

Mr. Genachowski, I pretty much, in the opening statement gave you some of my ideas of you don't have this authority, you have taken it, I disagree. But I will move on past that to a couple of questions that are on another set of subjects.

You are an independent agency. You serve for a term. You don't serve at the pleasure of the President. Is that correct?

Mr. GENACHOWSKI. Correct.

Mr. ISSA. Did you discuss net neutrality with the President and if so, when?

Mr. GENACHOWSKI. Didn't discuss net neutrality with the President. The FCC's——

Mr. ISSA. Were you aware that the President made this an issue in his campaign?

Mr. GENACHOWSKI. I think many people were aware——

Mr. ISSA. No, were you?

Mr. GENACHOWSKI. Yes.

Mr. ISSA. Okay. Did you do it, in any way, shape or form, because you believe that it was a promise made by President Obama that was not being kept by legislative authority? Yes or no, please.

Mr. GENACHOWSKI. No.

Mr. ISSA. Okay. So you made this because you thought that the market outcome you were seeking to achieve was good for America. Fair characterization?

Mr. GENACHOWSKI. Yes.

Mr. ISSA. Well, I commend you for that. Now the question is, do you believe we should do the same thing, make gasoline and diesel the same price? Yes or not?

Mr. GENACHOWSKI. I am not an expert on gas.

Mr. ISSA. No, but you are an expert on what is good for the consumer.

Mr. GENACHOWSKI. I am familiar with——

Mr. ISSA. Do you believe that we should regulate everything so it is good for the consumer?

Mr. GENACHOWSKI. No, I don't.

Mr. ISSA. You don't? So you, for example, would not suggest that you just give all the rest of the spectrum, as quickly as possible, to AT&T, Verizon and Sprint so that they can create more brand—broadband capacity faster, drive down the price to the goal you say you want?

Mr. GENACHOWSKI. I believe we have a serious spectrum opportunity and challenge.

Mr. ISSA. No, no that is—that—spectrum opportunity means you want to sell it and make a lot of money. Right? For the American people.

Mr. GENACHOWSKI. We would like to bring market mechanisms and expand auction authority for the FCC. We——

Mr. ISSA. No, no. You want to make more money for the American people by selling more spectrum. Yes or no? That is not a hard one. I don't need the flowery.

You have been selling spectrum. You have sold spectrum to AT&T, Sprint, Verizon, you didn't sell any to Comcast, Comcast bought their way into cable, for the most part you have been selling it.

You sell it and then you say, I want tell to you how to use it. Is that correct, based on net neutrality?

Mr. GENACHOWSKI. Sorry, I didn't understand the last piece, I didn't hear the last piece.

Mr. ISSA. Well look, you are selling—you are saying you want a better price, it is a value, you are trying to do all this but in fact you start off by selling them a very expensive commodity. The most expensive fundamental delivery system is through the airways, the least expensive fundamental is through a piece of fiber, as far as per terabyte. Right? You can't deliver as much through broadband as you can, today, through a piece of fiber or even copper.

Mr. GENACHOWSKI. Yes.

Mr. ISSA. Okay. Mr. McDowell, you are not completely on the other side of this, but in your opinion, don't we have a fundamental problem saying that you have to charge the same price, effectively, you have to show no preference, when in fact in many cases you have a constrained basic capability? Nothing in the FCC ruling actually gives AT&T, Verizon, Sprint or for that matter the cable companies inherently more bandwidth to—in which to deliver services. Is that correct?

Mr. MCDOWELL. Correct.

Mr. ISSA. So, in addition to the question of whether there was antitrust and so on, where is the benefit to a market that is already growing, I won't say exponentially, that gets overused, but it is growing a pretty feverish rate when we look at where we were 10 years ago versus where we are today? Where is the benefit inherent in this ruling?

Mr. MCDOWELL. It is—I think it is——

Mr. GENACHOWSKI. Sorry. No——

Mr. MCDOWELL [continuing]. Yes, thanks.

Mr. GENACHOWSKI [continuing]. Go ahead. Sorry.

Mr. MCDOWELL. I think it is confusing. I think what this order has done is actually create confusion in the marketplace and actually I disagree with the premise that the business community is uniformly behind this and the investment community. In fact, the evidence in the record is—points to quite the contrary.

We have to look at broadband services in America went from covering 15 percent of Americans in 2003, by the end of 2009, 6 years later, it covered 95 percent of Americans in the absence, in the absence of regulation. Also in the absence of regulation we had a free and open Internet, under existing law. So I think the order was unnecessary and I think it actually creates more questions than answers.

Mr. ISSA. Well, I am going to close by having something I think that will unite the two of you and which I think we all, we should all agree. As we have this fundamental growth, as we try to figure out ways to keep the Internet open, isn't the fundamental part of what you achieved, not everything you sought to achieve, including regulation, the fundamental question that you should not be able to block like services to those which you are already delivering in your package? Is that a fundamental item that the examples that we talked about and the worry that Congress had is the one thing that probably both sides of the dais agree Congress should have dealt with before you did?

Mr. GENACHOWSKI. It was a fundamental piece of our framework.

Mr. MCDOWELL. I think Congress dealt with it through Section 2 of the Sherman Act. Congress dealt with it with Section 5 of the Federal Trade Commission Act and other competition and consumer protection laws. I think there is another way to address these hypothetical harms.

Mr. ISSA. Oh, I didn't say I approved of net neutrality as the FCC did it, but simply that we did have an obligation to ensure that like products were not restricted when they happened to come from the competitor of the carrier themselves.

Mr. MCDOWELL. We want openness and freedom on the Internet.

Mr. ISSA. So do I. Thank you.

I yield back.

Mr. GOODLATTE [presiding]. Thank the gentleman. The gentlewoman from Texas, Ms. Jackson Lee is recognized for 5 minutes.

Ms. JACKSON LEE. Thank you very much and to both the Chairman and the Ranking Member for these ongoing hearings. And I have expressed a continuing theme to both the Chairman and the commission. Let me thank both of you for the quality of work. I know how extensive it is for the different views that you are now espousing. But, my thought on this Committee of competition and intellectual property is how can we protect the genius of America and how can we create jobs.

And certainly the business community is involved in that continuing question and theme. At the same time, for those of us who define the business community is that alone, a positive, small Internet business user, whether they be sitting in rural America or urban America, getting for the first time that access or opportunity, I think that is also part of the business community. And Mr. Chairman, we may not be able to query them, but we have a responsibility to them.

So I want to ask both of you, what do you think is the heart of the net neutrality rule in order—Mr. Chairman the heart, very concisely and that for the commissioner, and I'll go with the chairman first—and give me the basis of your interpretation of the FCC authority to have rended such a rule.

Let me start with the chairman first. And I have follow up questions so if you can be very concise, I would appropriate it.

Mr. GENACHOWSKI. Sure. The heart of the order are four basic propositions: No blocking of lawful content to consumers; transparency so that network management practices are available to consumers, reducing the need for government involvement; third, reasonable network management permitted and fourth, flexibility to deal with network congestion and to invest in networks.

The authority comes from Title I of the Communications Act, provisions in Title II, Title III, Title VI and Sections 706. And I would be happy to discuss any of those.

Ms. JACKSON LEE. Just give me Title I in particular.

Mr. GENACHOWSKI. Well, Title I, for a very long time, going back to Chairman Powell in the early 2000's confirmed by the Supreme Court in Brand X made it clear that the FCC, under Title I, has the ancillary authority to adopt measures, policies with respect to advanced services like high-speed Internet. And again, I could go on but I want to respect your time.

Ms. JACKSON LEE. Thank you very much.

Commissioner?

Mr. MCDOWELL. Well, I let the chairman speak for himself on what the heart of the order was.

Ms. JACKSON LEE. Yeah, I'm asking you.

Mr. MCDOWELL. You asked—well——

Ms. JACKSON LEE. You can either answer it and as they say, I——

Mr. MCDOWELL. Sure.

Ms. JACKSON LEE [continuing]. Asked the question, you can give me the answer as you so desire.

Mr. MCDOWELL. But, it is his order, I dissented against it so he knows the heart of it better than I do, because it is his heart.

But in any case——

Ms. JACKSON LEE. But you can interpret the heart, as you saw it, that caused you to vote against it.

Mr. MCDOWELL. I will stipulate to the fact the Chairman has a good heart and that he had the best of intentions with executing this order.

But I do disagree with the legal authority. The Title I portion is the fundamental cornerstone that the majority tried to use to justify its actions. And in a very similar fashion, almost identical fashion in some cases, as to what it tried to do before and that was struck down by the D.C. Circuit last year. So that is one of the many reasons I have concerns about the order.

Ms. JACKSON LEE. All right. And then let me start with you then, your opposition to it was based upon the fact of, I assume, the free market abilities. But let me just ask this question to you. In the alternative of what the chairman and the commissioners voted on, what is your answer to the unfettered access of the small, minority, women-owned and businesses and others who are trying to access this huge phenomenon?

Mr. MCDOWELL. Excellent question. For years, long before Chairman Genachowski came to the FCC, I have been advocating a different approach all together, which is to use the non-governmental Internet governance model that the Internet was built upon and that is what made it so great. So that is to gather together, the FCC could find a new role for itself, gather together all the non-governmental entities that help run the Internet, the Internet Society, the Internet Engineering Task Force, you could have consumer protection agencies, government, academics, engineers, bring them all together to spotlight allegations of anti-competitive conduct and use existing antitrust and consumer protection laws to cure that.

Sometimes, as we found with the Comcast/Bit Torrent matter, that merely shining the sunlight makes the infection go away.

Ms. JACKSON LEE. But——

Mr. MCDOWELL. And that is adequate. All of the allegations that were made earlier of what has gone wrong here, first of all were—just a tiny amount of what—of each—of the quadrillions of Internet communications each day but also were rectified under existing law.

Ms. JACKSON LEE. My time is short and I——

Mr. MCDOWELL. Sorry.

Ms. JACKSON LEE [continuing]. Appreciate that interpretation.

Chairman, respond to that. And I will lay my premise again, I am concerned on the premise of net neutrality, is the unfettered access, which I believe you were going after, how do you respond to——

Mr. GENACHOWSKI. We share that concern.

Ms. JACKSON LEE [continuing]. The commissioner's point?

Mr. GENACHOWSKI. I think it is fundamental to our economy, to the genius of America, as you said.

A couple of points. One is, the FCC, going back to at least 2005 has enforced protections for early-stage innovators, small busi-

nesses, others who want to access an open Internet. And that was deemed necessary, number one.

Number two, I agree with Commissioner McDowell on the importance of transparency and that is why we made it one of the hearts of the order.

And the third point that I would make is while we heard, very loudly, from the communities that you mentioned and from others that baseline rules of the road were necessary to provide confidence for investment and for startup activities, nothing in our order, in fact we specifically support private third party entities developing around that baseline, to minimize the need for government involvement. But the core question was, should there be a baseline framework protecting freedom—Internet freedom and openness. On a bipartisan basis the FCC, since 2005 at least agreed to that, I respect Commissioner McDowell for dissenting consistently over that period, but there is a bipartisan foundation to it and our actions were consistent with that bipartisan history and the—our analysis of the record and what we heard from the investment community and from early-stage entrepreneurs.

Ms. JACKSON LEE. And you believe it is squarely founded on antitrust premises of open competition or the non-hindrance of competition?

Mr. GENACHOWSKI. I believe it is—I believe we had ample authority into the Communications Act. Antitrust is available as a remedy as well, but as I said earlier, I believe that that remedy would be insufficient for startups who are blocked or interfered with, given the realities of what it takes to start a company in America.

Mr. GOODLATTE. The time of the gentlewoman has expired.

Ms. JACKSON LEE. I thank the gentleman.

Mr. GOODLATTE. I thank the gentlewoman. And I will ask my questions at this point.

Chairman Genachowski, aren't broadband providers in a competitive market in a better position than the FCC to figure out how to increase demand for their property?

Mr. GENACHOWSKI. I think broadband providers are in a strong position to figure out how to increase demand for their product. They have also told us that they recognize that there are challenges that they have been unable to solve alone.

Mr. GOODLATTE. And what do you mean by that?

Mr. GENACHOWSKI. Well, our work, which was broadly based, found that the adoption gap that we have in this country, 67 percent versus a goal of a hundred, is related to, in some cases affordability, in some cases relevance, people lacking knowledge of the benefits of the Internet, in some cases digital literacy, in some cases trust of the Internet. And we have been working with the broadband industry to develop measures that would be a win-win and increase demand adoption from 67 percent at a faster rate.

Mr. GOODLATTE. In a competitive broadband market wouldn't market forced prevent broadband providers from adopting any practices that actually harm their consumers, lest those consumers switch to a competitor?

Mr. GENACHOWSKI. I think that, you know, the market that we are looking at is one where over 70 percent of the country only has

one or two choices. I would agree that with more competitors and very vibrant competition in place——

Mr. GOODLATTE. But your order specifically says that the FCC didn't conduct a market power analysis.

Mr. GENACHOWSKI. I respectfully—the order spent a lot of time analyzing the markets, there is a section called cost and burdens. We didn't conduct a formal antitrust analysis.

Mr. GOODLATTE. Why not? We like that around here.

Mr. GENACHOWSKI. It wasn't necessary, it hasn't traditionally been thought necessary in the FCC's context. But the important point to emphasize is the order is filled with market analysis, the record is filled with market analysis, the Administrative Procedures Act imposes us on an obligation to analyze all of the costs and issues in the record and we did that in the order.

Mr. GOODLATTE. You note in your statement, and just again stated, that as a justification for the order, that more than 70 percent of Americans live in areas with only one or two fixed broadband providers. Does the reasonableness standard embodied in the order apply in the same way, whether the alleged violation occurred in one of these areas or in the 30 percent of America with a more competitive broadband market?

Mr. GENACHOWSKI. We haven't had to address that question. We heard from the industry that they would, in general, prefer having the ability——

Mr. GOODLATTE. You haven't had to address that question until today and we are asking you today.

Mr. GENACHOWSKI. I wouldn't want to prejudge issues that might come to the commission, but I would agree with you, at a higher level I would agree with your point that the more there is competition the less there is a need for government involvement.

Mr. GOODLATTE. Is it true that the FCC may publish an order in the Federal Register, even before the order has received final approval from OMB?

Mr. GENACHOWSKI. I am not aware of that. There are procedures that are in place involving Paperwork Reduction Act and OMB approval. We are in those procedures now and we will follow the standard procedures.

Mr. GOODLATTE. Given the sense of urgency surrounding adoption of the order in December, why has the FCC chosen to delay publishing the open Internet order until the full Paperwork Reduction Act process is complete?

Mr. GENACHOWSKI. Well, the order has been published in the sense that it is there, everyone knows exactly what it is. Formal publication in the Federal Register is a process that I don't consider myself an expert on. As I mentioned there are Paperwork Reduction Act processes, OMB processes, the Federal Register has its own processes, we are doing our work as quickly as we can in connection with those processes to get to final publication in the Federal Register. But it doesn't change the rules that we adopted and that have been made public already.

Mr. GOODLATTE. The order—Commissioner McDowell, the order explicitly declines to conduct any market power analysis. Do you believe that the a market power analysis is necessary to distin-

guish between benign network management practices and network management practices that actually harm consumers?

Mr. MCDOWELL. Absolutely and you are absolutely right. At footnote 49 of the order it says specifically we are not performing a market power analysis in this proceeding. I think that is very telling.

Mr. GOODLATTE. And do you think that is because they do not have any evidence to substantiate a claim that there is a market power problem that is harming consumers?

Mr. MCDOWELL. Each time the government has looked at the broadband Internet access market, it has not found a concentration of market power or abuse of that power, whether it is the Federal Trade Commission in 2007 or whether it was the Department of Justice just last year filing comments with the FCC. In fact, both of those agencies, in both of those instances warned against just this type of regulation because of the disincentives that it might provide to the buildout of broadband.

And when we are talking about trying to build out broadband to that last 5 percent of Americans who might not have access to it, it is important to provide those incentives as much as we can.

Mr. GOODLATTE. Chairman——

Mr. GENACHOWSKI. I reserve my right, at a later point to——

Mr. GOODLATTE. You are welcome to respond right now.

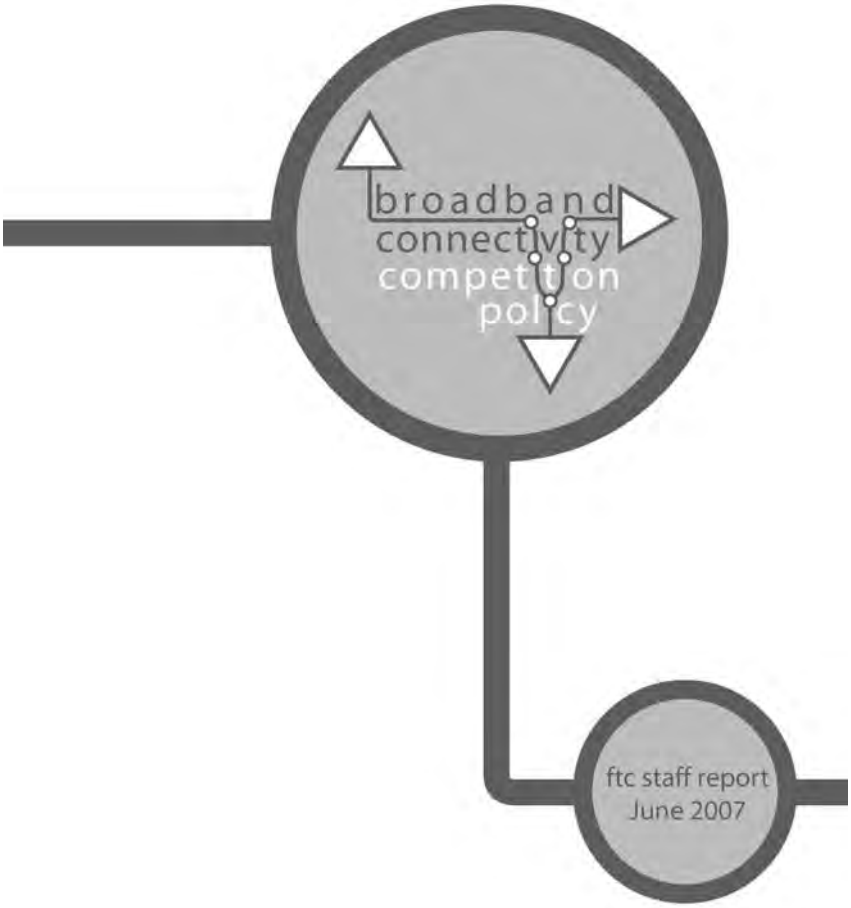
Mr. GENACHOWSKI. Very quickly. The DOJ's filing with the FCC called this market that we are discussing, concentrated. And the chairman of the Federal Trade Commission testified, in our process, in a way that—with respect was different from what Commissioner McDowell suggested. And I would just suggest that we make the FTC and the DOJ materials part of the record of the proceeding.

Mr. GOODLATTE. Without objection they will be.

Mr. MCDOWELL. And they speak for themselves.

Mr. GOODLATTE. Sure.

[The information referred to follows:]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This Report represents the views of the FTC staff and does not necessarily represent the views the Commission or any individual Commissioner. The Commission, however, has voted to authorize the staff to issue this Report.

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INTRODUCTION AND EXECUTIVE SUMMARY

Background

The Internet[1] has profoundly impacted numerous aspects of daily life for many people in the United States and is increasingly vital to the American economy. In response to recent debate relating to Internet access issues, Federal Trade Commission ("FTC" or "Commission") Chairman Deborah Platt Majoras announced the formation of the Internet Access Task Force ("Task Force") in August 2006 and invited interested parties to meet with the Task Force to discuss issues relating to Internet access generally and net neutrality[2] in particular.[3] The Task Force held a two-day public workshop on broadband connectivity competition policy in February 2007 ("Workshop") to bring together consumer advocates and experts from business, government, academia, and the technology sector to explore competition and consumer protection issues relating to broadband Internet access.[4] The purpose of this Report is to summarize the Task Force's learning on broadband Internet connectivity in general and network neutrality in particular, as developed from the Workshop, meetings between the Task Force and various interested parties, and the FTC staff's independent research.

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[1] As discussed in more detail in Chapter I of this Report, the term "Internet" is commonly used to refer to the decentralized, interconnected network of computer networks that allows computers to communicate with each other. Individual networks are owned and administered by a variety of organizations, such as private companies, universities, research labs, government agencies, and municipalities.

[2] The terms "net neutrality" and "network neutrality" have been used to identify various policy concerns and prescriptions raised by diverse parties to the larger social discussion of broadband Internet connectivity. Typically, such terms are identified with positions that recommend, at least, some legal or regulatory restrictions on broadband Internet access services that include non-discrimination requirements above and beyond any that may be implied by existing antitrust law or Federal Communications Commission ("FCC") regulations. Particular concerns and positions are explored in some detail throughout the Report, but the terms "net neutrality" and "network neutrality" are used here, interchangeably, to refer to this larger family of views. Unless otherwise clarified, our terminological choice is not meant to endorse any particular policy position.

[3] *See* Deborah Platt Majoras, Chairman, FTC, Luncheon Address, The Progress & Freedom Foundation's Aspen Summit, The Federal Trade Commission in the Online World: Promoting Competition and Protecting Consumers (Aug. 21, 2006), *available at* http://ftc.gov/speeches/majoras/060821pffaspenfinal.pdf.

[4] The agenda, transcript, public comments, and other information relating to the Workshop are available on the FTC's Web site at http://www.ftc.gov/opp/workshops/broadband/index.shtm. In addition, Appendix I to this Report provides the identity and affiliation of the Workshop participants.

Throughout this Report, citations to "Public Comments" refer to comments submitted to the FTC in response to its request for public comments on the topics addressed at the Workshop. In addition, citations to "Tr." refer to the Workshop transcript, which is comprised of two volumes. Volume I corresponds to the proceedings on February 13, 2007; Volume II corresponds to the proceedings on February 14, 2007. Speakers are identified by last name. Finally, citations to "Participant Presentations" refer to presentations, including slide presentations and commentary, provided by Workshop participants.

Originally, the Internet developed out of efforts by researchers at American universities and the U.S. Department of Defense Research Projects Agency ("DARPA")[5] in the 1960s and 1970s to create and test interconnected computer networks that would communicate via data packet switching rather than traditional circuits. Today, the Internet – which enables applications such as e-mail and browsers that search the World Wide Web (the "Web") – connects many millions of end users (and more than one hundred million Web sites worldwide) to content, applications, and each other. End users include the initial government and academic centers, corporate entities across all sectors of the economy, and individuals and associations.

Individual end users (and networks of end users) arrange for Internet access via a "last mile" connection to an Internet service provider ("ISP"),[6] which provides, in turn, routing and connections from the ISP's own network to the Internet. Content and applications providers offer their products and services to end users via network operators, which enable connectivity and transport into the middle, or "core," of the Internet. Before the turn of the century, most computer users connected to the Internet using "narrowband," dial-up telephone connections and modems to transmit data over the telephone system's traditional copper wirelines. Much faster "broadband" connections recently have been deployed using various technologies, including coaxial cable wirelines, upgraded copper digital subscriber lines ("DSL"), and to a lesser extent fiber-optic wirelines, wireless, satellite, and broadband over powerlines ("BPL").

Traditionally, data traffic has traversed the Internet on a "first-in-first-out" and "best-efforts" basis. This protocol for data transmission was established principally as a result of DARPA's original priority, which was to develop an effective technique for communications among existing interconnected networks, and which placed network survivability – or the potential for robust network operation in the face of disruption or infrastructure destruction – as the top goal in designing the overall architecture of this network of networks. Since the Internet's earliest days, however, computer scientists have recognized that network resources are scarce and that traffic congestion can lead to reduced performance. Although different data transmission protocols and the viability of usage-based pricing mechanisms were explored throughout the 1980s and 1990s, the debate over broadband connectivity policy did not reach critical mass until recently. Technical, business, legal, and regulatory developments all appear to have contributed to the acceleration of the discussion.

Regulatory jurisdiction over broadband services generally is subject to the shared jurisdiction of the FCC, the FTC, and the Department of Justice ("DOJ").[7] FCC jurisdiction comes chiefly from the Communications Act of 1934, as amended ("Communications Act").[8] FTC jurisdiction over broadband arises chiefly under its

[5] Appendix 2 to this Report provides a glossary of acronyms that are frequently used herein.

[6] In this Report, we also refer to broadband ISPs as "broadband providers" and "access providers."

[7] See *infra* Chapters II and IX.A for discussion of various jurisdictional issues.

[8] 47 U.S.C. §§ 151 *et seq.*

statutory mandate to prevent "unfair methods of competition" and "unfair or deceptive acts or practices in or affecting commerce" under the FTC Act.[9] The FTC's authority to enforce the federal antitrust laws generally is shared with DOJ's Antitrust Division. The FCC, FTC, and DOJ have exercised their existing authority in various ways. All three agencies have scrutinized proposed mergers in Internet-related markets and have negotiated significant conditions on certain mergers allowed to go forward.[10] In addition, the FTC has enforced the consumer protection laws, bringing a variety of cases against Internet service providers that have engaged in allegedly deceptive marketing and billing practices.[11]

Certain judicial and regulatory decisions in recent years have clarified the scope of broadband regulation in two fundamental regards. First, since about 2000, the FCC has undertaken a substantial and systematic deregulation of broadband services and facilities, concluding that cable, wireline, powerline, and wireless broadband Internet access services are "information services" that are not subject to common carrier requirements.[12] The first of these decisions was sustained by the Supreme Court in *National Cable & Telecommunications Association v. Brand X Internet Services*.[13]

Second, these decisions have served to reinforce and expand FTC jurisdiction over broadband Internet access services. That jurisdiction had once been regarded as limited to the extent that the FTC's general enforcement authority under the FTC Act did not extend to entities that were "common carriers" under the Communications Act. The regulatory and judicial decisions at issue, however, confirmed that the larger categories of broadband Internet access services, as information services, are not exempt from FTC enforcement of the FTC Act.

In recent years, changes in both user demand and technology have prompted some broadband providers openly to consider prioritizing certain data traffic to improve network management and provide premium services. The demand for bandwidth has increased dramatically, as a growing number of users seek access to increasingly data-rich Internet content, such as streaming video, which often requires considerable bandwidth or has particular quality-of-service requirements. That demand has prompted

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[9] 15 U.S.C. §§ 41 *et seq.*

[10] *See, e.g.*, Am. Online, Inc. & Time Warner, Inc., FTC Dkt. No. C-3989 (Dec. 17, 2000) (complaint), *available at* http://www.ftc.gov/os/2000/12/aolcomplaint.pdf. See *infra* Chapters II and IX for discussion of FCC, FTC, and DOJ scrutiny of mergers in the area of broadband Internet access.

[11] *See, e.g.*, Am. Online, Inc. & CompuServe Interactive Servs., Inc., FTC Dkt. No. C-4105 (Jan. 28, 2004) (decision and order), *available at* http://www.ftc.gov/os/caselist/0023000/040203aolcsdo.pdf; Juno Online Servs., Inc., FTC Dkt. No. C-4016 (June 29, 2001) (decision and order), *available at* http://www.ftc.gov/os/2001/06/junodo.pdf.

[12] Particular rulemaking and other administrative decisions along these lines are discussed in more detail in Chapters II and IX, *infra*.

[13] 545 U.S. 967 (2005).

concern about present and future congestion and about the need for further infrastructure investment and development. At the same time, technological developments have made feasible differentiation in delivery of data of various types, or from various sources, based on payment to or affiliation with a network operator.

In response, various interested parties, including some content and applications providers and commentators, have expressed concern about network operators' use of these technologies in an environment that is not subject to common carrier regulations. Some of these providers and commentators, therefore, have proposed that the transmission of data on the Internet be subject to some type of "net neutrality" regulation that forbids or places restraints on some types of data or price discrimination by network operators. Opponents of net neutrality regulation assert that it is not just unnecessary, but potentially harmful, and that allowing network operators to innovate freely across technical and business contexts, and to differentiate their networks, will lead to enhanced service offerings for both end users and content and applications providers.

Before turning to the policy discussion that follows, it is worth clarifying that this Report reflects the views of the staff of an agency that enforces the federal antitrust and consumer protection laws. The statutory mission of the FTC is to protect both competition and consumers by safeguarding and encouraging the proper operation of the free market. In carrying out that mission, the FTC primarily is focused on maximizing consumer welfare, as that term is defined in an economic sense in modern antitrust and consumer protection jurisprudence. We recognize that preserving the diversity of views expressed on the Internet is one of the animating principles of many of the most ardent proponents of network neutrality. In this Report, however, we do not attempt to balance consumer welfare (as we use it, in the economic sense) and free expression.[14] Instead, the Report focuses on the consumer welfare implications of enacting some form of net neutrality regulation.

Further, although the goal of increasing competition in broadband Internet access is fundamental to the FTC staff's interest and may be widely shared, how best to achieve that goal is a point of sharp disagreement. What the FTC can offer in this debate is an explanation of which behavior the antitrust and consumer protection laws already proscribe and a framework for analyzing which conduct may foster or impede competition in particular circumstances.

The Report is organized as follows. Chapter I provides technical information on the functioning of the Internet, and Chapter II provides background information on the

[14] *See, e.g.*, Mercatus Center, Public Comment 27, at 10 ("If the desired outcome is that anyone willing to pay the monthly price for Internet access can communicate with others at some minimum speed, then a policy that promotes 'neutral' treatment of everyone on the network may be appropriate. But if the desired outcome is to have as many people as possible connected to the Internet so they can speak if they so choose, then a different policy, aimed at reducing the consumer's total cost of Internet access as well as usage, may be most effective, even if it does not mandate 'neutrality.'"); Feld, Tr. II at 75 ("It is a question about balancing. . . . I can say that something does introduce a certain amount of economic inefficiency and it is still extraordinarily valuable for the contribution that it gives to us as a society, as a democracy . . . . I would argue that is something we should be willing to consider.").

legal and regulatory developments that have fueled the debate over net neutrality regulation. The purpose of these Chapters is to inform the subsequent policy discussion. Chapter III identifies and briefly describes the various arguments for and against net neutrality regulation that have been put forth to date. Chapter IV analyzes potential conduct by ISPs and other network operators, including vertical integration into content and applications and discrimination against non-affiliated providers of content and applications. Chapter V analyzes the potential use of data prioritization technologies by network operators. Chapter VI considers the current and future state of competition in the area of broadband Internet access. Chapter VII explores the application of the antitrust laws to certain potential conduct and business arrangements involving ISPs and other network operators. Chapter VIII addresses consumer protection issues relating to broadband Internet access. Chapter IX identifies regulatory, legislative, and other proposals for broadband Internet access that have been put forth to date. Finally, Chapter X identifies guiding principles for policy makers to consider prior to enacting any new laws or regulations in this area.

The Contours of the Debate

Proponents of network neutrality regulation include, among others, some content and applications providers, non-facilities-based ISPs, and various commentators. They generally argue that "non-neutral" practices will cause significant and wide-ranging harms and that the existing jurisdiction of the FCC, FTC, and DOJ, coupled with Congressional oversight, are insufficient to prevent or remedy those harms. Proponents suggest that, with deregulation of broadband services, providers of certain broadband Internet services have the legal ability, as well as economic incentives, to act as gatekeepers of content and applications on their networks.

Principally, these advocates express concern about the following issues: (1) blockage, degradation, and prioritization of content and applications; (2) vertical integration by ISPs and other network operators into content and applications; (3) effects on innovation at the "edges" of the network (that is, by content and applications providers); (4) lack of competition in "last-mile" broadband Internet access markets; (5) remaining legal and regulatory uncertainty in the area of Internet access; and (6) the diminution of political and other expression on the Internet. Not all proponents of net neutrality regulation oppose all forms of prioritization, however. For example, some believe that prioritization should be permitted if access to the priority service is open to all content and applications providers on equal terms; that is, without regard to the identity of the content or application provider.

Opponents of network neutrality regulation include, among others, some facilities-based wireline and wireless network operators and other commentators. They maintain that net neutrality regulation will impede investment in the facilities necessary to upgrade Internet access and may hamper technical innovation. They also argue that the sorts of blocking conduct described by net neutrality proponents are mainly hypothetical thus far and are unlikely to be widespread and thus are insufficient to justify a new, *ex ante* regulatory regime.

Principally, opponents of net neutrality regulation argue that: (1) neutrality regulations would set in stone the status quo, precluding further technical and business-model innovation; (2) effective network management practices require some data prioritization and may require certain content, applications, or attached devices to be blocked altogether; (3) new content and applications are likely to require prioritization and other forms of network intelligence; (4) allowing network operators to innovate freely and differentiate their networks permits competition that is likely to promote enhanced service offerings; (5) prohibiting price differentiation would reduce incentives for network investment generally and may prevent pricing and service models more advantageous to marginal consumers; (6) vertical integration by network operators into content and applications and certain bundling practices may benefit consumers; and (7) there is insufficient evidence of either the likelihood or severity of potential harms to justify an entirely new regulatory regime, especially given that competition is robust and intensifying and the market generally is characterized by rapid technological change.

Competing Concerns about Integration and Differentiation

Proponents of net neutrality regulation have raised various concerns about the effects of data or price differentiation in broadband markets.[15] Certain of these concerns are tied to vertical integration (broadly construed), as broadband Internet access providers have begun to offer online content and applications in addition to their primary access services. Other concerns are independent of such integration.

In particular, proponents are concerned that vertical integration by Internet access providers into content and applications markets could prompt them to block, degrade, or charge higher prices to competing content or applications. New information technologies, such as deep packet inspection, may allow network operators to identify the source and content of much of the data traffic they handle. Hence, a broadband provider with significant market power in a given access market, which has an interest in content or applications generally, could have an incentive to block or degrade competing content or applications.

Independent of market power considerations, some net neutrality proponents have raised concerns about the so-called "terminating access monopoly problem," which could result from broadband Internet access providers charging content or applications providers terminating fees for delivery to end users over the last mile. Some proponents also have expressed concern that if broadband providers are allowed to sign exclusive deals with content or applications providers, end users may be unable to access much of the content they desire, thus "balkanizing" the Internet.

On the other hand, because vertical integration may offer efficiencies that are procompetitive and pro-consumer, not all vertical integration is problematic. More particularly, opponents of net neutrality regulation maintain that some degree of vertical

[15] See *infra* Chapters IV and V for more detailed discussion of data differentiation and price differentiation, respectively.

integration by Internet access providers into content and applications may facilitate investment in infrastructure, investment in content or applications, optimization of fit between content and delivery systems, and pricing benefits for consumers. They assert that such vertical integration also may facilitate entry and thereby increase competition in broadband Internet access markets. Further, the incentives of broadband providers may cut both ways: for example, despite potentially having an incentive to favor affiliated content and applications, access providers have argued that they have an interest in providing access to a wide range of content and applications, which are essential complements to the services they sell.

As is the case with data discrimination, it is impossible to determine in the abstract whether allowing content and applications providers (or even end users) to pay broadband providers for prioritized data transmission will be beneficial or harmful to consumer welfare.[16] Such prioritization may provide benefits, such as increased investment and innovation in networks and improved quality of certain content and applications that require higher-quality data transmission, as net neutrality opponents claim. Network neutrality proponents have raised concerns, however, regarding potential adverse effects of data prioritization, including, among others: (1) a diminution in innovation by content and applications providers – particularly those unable to pay for prioritization; (2) the intentional or passive degradation of non-prioritized data delivery; and (3) increased transaction costs resulting from negotiations between broadband providers and content and applications providers over prioritization.

The balance between competing incentives on the part of broadband providers to engage in, and the potential benefits and harms from, discrimination and differentiation in the broadband area raise complex empirical questions and may call for substantial additional study of the market generally, of local markets, or of particular transactions. Again, further evidence of particular conduct would be useful for assessing both the likelihood and severity of any potential harm from such conduct.

Present and Future Broadband Competition[17]

Proponents and opponents of net neutrality regulation have fundamentally different views on the present (and likely future) state of competition in the broadband industry. Proponents argue either that a national market for broadband Internet access is, in effect, a cable-telephone duopoly or that there are significant failures of competition in many local markets. Opponents characterize the market as highly competitive. Broadband Internet access generally is a relatively new industry characterized by high levels of demand growth from consumers, high market shares held by incumbent cable and telephone providers, and many new entrants trying to capture some share of the market.

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[16] *See infra* Chapter V.

[17] Broadband competition issues are discussed throughout this Report, particularly in Chapters VI and VII.

FTC staff did not conduct independent empirical research regarding competition in local broadband Internet access markets for the purposes of this Report. We note that opponents of net neutrality regulation have pointed to evidence on a national scale that (1) access speeds are increasing, (2) prices (particularly speed-adjusted or quality-adjusted prices) are falling, and (3) new entrants, including wireless and other competitors, are poised to challenge the incumbent cable and telephone companies. We note, too, that statistical research conducted by the FCC has tended to confirm these general trends.[18] For example, broadband deployment and penetration have increased dramatically since 2000. The FCC estimated that by 2006, broadband DSL service was available to 79 percent of the households that were served by a telephone company, and cable modem service was available to 93 percent of the households to which cable companies could provide cable television service.[19]

Jurisdiction and the Application of Antitrust Law

The competitive issues raised in the debate over network neutrality regulation are not new to antitrust law, which is well-equipped to analyze potential conduct and business arrangements involving broadband Internet access. The antitrust laws are grounded in the principle that competition serves to protect consumer welfare. In conducting an antitrust analysis, then, the ultimate issue would be whether broadband providers engage in unilateral or joint conduct that is likely to harm competition and consumers in a relevant market.

Many proponents of net neutrality regulation are concerned that broadband Internet access suppliers have market power in the last-mile access market and that they will leverage that power into adjacent content and applications markets in a way that will harm competition in those markets and, ultimately, consumers. Such leveraging may take the form of exclusive dealing arrangements, refusals to deal, vertical integration, or certain unilateral conduct. All of these types of conduct can be anticompetitive and harmful to consumers under certain conditions. They also, however, can be procompetitive, capable of improving efficiency and consumer welfare, which involves, among other things, the prices that consumers pay, the quality of goods and services offered, and the choices that are available in the marketplace. Accordingly, such conduct would be analyzed under the antitrust laws to determine the net effect of such conduct on consumer welfare.

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[18] *See, e.g.*, FCC, HIGH-SPEED SERVICES FOR INTERNET ACCESS: STATUS AS OF JUNE 30, 2006 (2007) [hereinafter FCC, HIGH-SPEED SERVICES], *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-270128A1.doc. Although some have questioned whether the methodology used in compiling this data allows the FCC to provide a reliable analysis of competition in particular markets, the FCC data does provide an overall picture of the significant growth in broadband penetration over the past few years.

[19] *See, e.g.*, *id.* at 2-4, 5 tbl.1, 6 tbl.2, 7 tbl.3, 19 tbl.14.

There nonetheless remains significant disagreement with respect to the adequacy of existing agency oversight. Some proponents of net neutrality regulation have argued that existing laws, regulations, and agency oversight are inadequate to safeguard competition in broadband Internet access markets. Those opposed to net neutrality regulation, however, have argued that current competition law is adequate, that careful rule-of-reason application of the law is critical to the preservation of competition, and that additional regulations likely would be over-intrusive and, on balance, a burden to vibrant competition in broadband markets.

Consumer Protection Issues

Effective consumer protection in the broadband marketplace is essential to robust competition in that market – regardless of the outcome of the current broadband connectivity debate. The FTC has been active in enforcing relevant consumer protection law, bringing a variety of cases against ISPs that have engaged in allegedly deceptive marketing and billing practices. The Workshop highlighted various consumer protection concerns. Several Workshop participants argued that such concerns were best addressed under FTC jurisdiction, given the FTC's statutory mandate, its interest and experience in consumer protection issues generally, and its interest and experience in consumer protection aspects of various Internet services in particular.

Internet access implicates two broad areas of consumer protection: (1) clear and conspicuous disclosure of material terms of Internet access services; and (2) security and privacy issues created by broadband Internet access services. Current federal consumer protection law can address both sets of concerns, although consumer protection issues in the broadband marketplace may present unique technical and jurisdictional challenges, both to consumers and law enforcement agencies. Commentators within and without the Workshop have suggested that federal law enforcement fruitfully could be augmented by industry self-regulation and expanded federal guidance on pertinent issues.

Suggested Guiding Principles

The FTC's Internet Access Task Force has conducted a broad examination of the technical, legal, and economic issues underpinning the debate surrounding broadband connectivity competition policy. Based on this examination, as well as our experience with the operation of myriad markets throughout the economy, we identify guiding principles that policy makers should consider in evaluating options in the area of broadband Internet access.[20] We have provided an explanation of the conduct that the antitrust and consumer protection laws already proscribe and a framework for analyzing which conduct may foster or impede competition in particular circumstances. In evaluating whether new proscriptions are necessary, we advise proceeding with caution before enacting broad, *ex ante* restrictions in an unsettled, dynamic environment.

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[20] *See infra* Chapter X.

There is evidence that the broadband Internet access industry is moving in the direction of more, not less, competition, including fast growth, declining prices for higher-quality service, and the current market-leading technology (*i.e.*, cable modem) losing share to the more recently deregulated major alternative (*i.e.*, DSL). We nonetheless recognize that not every local broadband market in the United States may enjoy vigorous competition.[21] This Report does not reflect a case-by-case analysis of the state of competition in each of the localities that may represent relevant antitrust markets.

There also appears to be substantial agreement on the part of both proponents and opponents of net neutrality regulation that greater competition in the area of broadband Internet access would benefit consumers. Thus, to the extent that policy makers are not content to wait for the market to increase competition, they should consider pursuing various ways of increasing competition in the provision of broadband Internet access.

Based on what we have learned through our examination of broadband connectivity issues and our experience with antitrust and consumer protection issues more generally, we recommend that policy makers proceed with caution in evaluating proposals to enact regulation in the area of broadband Internet access. The primary reason for caution is simply that we do not know what the net effects of potential conduct by broadband providers will be on all consumers, including, among other things, the prices that consumers may pay for Internet access, the quality of Internet access and other services that will be offered, and the choices of content and applications that may be available to consumers in the marketplace.

With respect to data discrimination, broadband providers have conflicting incentives relating to blockage of and discrimination against data from non-affiliated providers of content and applications.[22] In the abstract, it is impossible to know which of these incentives would prove stronger for each broadband provider. Further, even assuming such discrimination were to take place, it is unknown whether the net effect on consumer welfare would be adverse. Likewise, it is not possible to know in the abstract whether allowing content and applications providers to pay broadband providers for prioritized data transmission will be beneficial or harmful to consumers.[23]

Several open questions that likely will be answered by either the operation of the current marketplace or technological developments provide additional reasons for caution. These questions include, among others: (1) How much demand will there be from content and applications providers for data prioritization?; (2) Will effective data prioritization, throughout the many networks comprising the Internet, be feasible?; (3) Would allowing broadband providers to practice data prioritization necessarily result in the degradation of non-prioritized data delivery?; (4) When will the capacity limitations of the networks comprising the Internet result in unmanageable or unacceptable levels of

[21] *See infra* Chapter VI.B.

[22] *See infra* Chapter IV.

[23] *See infra* Chapter V.

congestion?; and (5) If that point is reached, what will be the most efficient response thereto: data prioritization, capacity increases, a combination of these, or some as yet unknown technological innovation? The eventual answers to these questions may give policy makers key information about the net effects on consumer welfare arising from the conduct and business arrangements that network neutrality regulation would prohibit or limit.

Policy makers also should carefully consider the potentially adverse and unintended effects of regulation in the area of broadband Internet access before enacting any such regulation. Industry-wide regulatory schemes – particularly those imposing general, one-size-fits-all restraints on business conduct – may well have adverse effects on consumer welfare, despite the good intentions of their proponents. Even if regulation does not have adverse effects on consumer welfare in the short term, it may nonetheless be welfare-reducing in the long term, particularly in terms of product and service innovation. Further, such regulatory schemes inevitably will have unintended consequences, some of which may not be known until far into the future. Once a regulatory regime is in place, moreover, it may be difficult or impossible to undo its effects.

Two aspects of the broadband Internet access industry heighten the concerns raised by regulation generally. First, the broadband industry is relatively young and dynamic, and, as noted above, there are indications that it is moving in the direction of more competition. Second, to date we are unaware of any significant market failure or demonstrated consumer harm from conduct by broadband providers. Policy makers should be wary of enacting regulation solely to prevent prospective harm to consumer welfare, particularly given the indeterminate effects that potential conduct by broadband providers may have on such welfare.

The federal antitrust agencies, the FTC and the DOJ, and the FCC share jurisdiction over broadband Internet access, with each playing an important role in protecting competition and consumers in this area. Further, as a byproduct of the ongoing debate over network neutrality regulation, the agencies have a heightened awareness of the potential consumer harms from certain conduct by, and business arrangements involving, broadband providers. Perhaps equally important, many consumers are now aware of such issues. Consumers – particularly online consumers – have a powerful collective voice. In the area of broadband Internet access, they have revealed a strong preference for the current open access to Internet content and applications.

The FTC has been involved in the Internet access area for over a decade and will continue to be involved in the evolving area of broadband access. The FTC Act is sufficiently flexible to allow the FTC to enforce the antitrust and consumer protection laws in most industries, including those involving new and ever-changing technologies. The fundamental principles of antitrust and consumer protection law and economics that we have applied for years are as relevant to the broadband industry as they are to other industries in our economy.

The FTC will continue to devote substantial resources to maintaining competition and protecting consumers in the area of broadband Internet access, using a variety of tools. The FTC will continue to enforce the antitrust and consumer protection laws in evaluating conduct and business arrangements involving broadband access. Further, the FTC's Broadband Connectivity Competition Policy Workshop and this Report exemplify some of the diverse resources the agency may bring to bear on Internet access issues, in addition to specific law enforcement actions. The Workshop and Report reflect the agency's interest in and commitment to developing competition and consumer protection policy. Finally, the agency will continue to expend considerable efforts at consumer education, industry guidance, and competition advocacy in the important area of Internet access.

I. THE INTERNET: HISTORICAL AND TECHNICAL BACKGROUND

The Internet is a decentralized network of computer networks that enables millions of private and public computers around the world to communicate with each other. This interconnection of multiple computer networks, which otherwise would function only as a series of independent and isolated islands, gives rise to the term "Internet" as we know it today.[24] This Chapter is organized as follows. Section A summarizes the historical development of the Internet and describes how data is routed over it; Section B discusses the relationship between "last-mile" Internet service providers, Internet "backbone" networks, and content and applications providers; and Section C explores the technical aspects of network management, data prioritization, and other forms of data "discrimination."

A. Historical Development

The Internet developed out of research efforts funded by the U.S. Department of Defense Advanced Research Projects Agency in the 1960s and 1970s to create and test interconnected computer networks.[25] The fundamental aim of computer scientists working on this "ARPANET" was to develop an overall Internet architecture that could connect and make use of existing computer networks that might, themselves, be different

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[24] The Federal Networking Council, a group of U.S. federal agency representatives involved in the early development of federal networking, for example, adopted this definition of the term "Internet" in 1995:

> "Internet" refers to the global information system that–
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> (i) is logically linked together by a globally unique address space based on the Internet Protocol (IP) or its subsequent extensions/follow-ons;
>
> (ii) is able to support communications using the Transmission Control Protocol/Internet Protocol (TCP/IP) suite or its subsequent extensions/follow-ons, and/or other IP-compatible protocols; and
>
> (iii) provides, uses or makes accessible, either publicly or privately, high level services layered on the communications and related infrastructure described herein.

U.S. Federal Networking Council, *Resolution dated October 24, 1995*, *in* Robert E. Kahn & Vinton G. Cerf, *What Is the Internet (and What Makes It Work)* n.xv (1999), *available at* http://www.cnri.reston.va.us/what_is_internet.html.

The convention of writing "internet" in lower case letters typically refers to interconnected networks generally, while writing "Internet" with an uppercase "I" is generally used to refer to the original or current version of the Internet. DOUGLAS E. COMER, THE INTERNET BOOK 60 (4th ed. 2007). Sometimes, though, individual networks are also referred to as being alternative "Internets." *E.g.*, INTERNET2, ABOUT US (2007), *available at* http://www.internet2.edu/about.

[25] *See generally* David D. Clark, *The Design Philosophy of the DARPA Internet Protocols*, COMPUTER COMM. REV., Aug. 1988, at 106, *available at* http://nms.csail.mit.edu/6829-papers/darpa-internet.pdf; BARRY M. LEINER ET AL., A BRIEF HISTORY OF THE INTERNET, http://www.isoc.org/internet/history/brief.shtml (last visited June 18, 2007); COMER, *supra* note 24, at 62.

both architecturally and technologically.[26] The secondary aims of the ARPANET project were, in order of priority: (1) Internet communication must continue despite the loss of networks or gateways between them; (2) the Internet architecture must support multiple types of communications services; (3) the architecture must accommodate a variety of networks; (4) it must permit distributed, decentralized management of its resources; (5) the architecture must be cost-effective; (6) the architecture must permit attachment by computer devices with a low level of effort; and (7) the resources used in the Internet architecture must be accountable.[27] That is to say, ARPANET's first priority was network survivability in a potentially hostile environment, and its last priority was providing a system for allocating charges for passing data packets from network to network.[28]

By the late 1960s, computer scientists were experimenting with non-linear "packet-switched" techniques to enable computers to communicate with each other.[29] Using this method, computers disassemble information into variable-size pieces of data called "packets" and forward them through a connecting medium to a recipient computer that then reassembles them into their original form. Each packet is a stand-alone entity, like an individual piece of postal mail, and contains source, destination, and reassembly information. Unlike traditional circuit-switched telephone networks, packet-switched networks do not require a dedicated line of communication to be allocated exclusively for the duration of each communication. Instead, individual data packets comprising a larger piece of information, such as an e-mail message, may be dispersed and sent across

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[26] Clark, *supra* note 25, at 106 ("The top level goal for the DARPA Internet Architecture was to develop an effective technique for multiplexed utilization of existing interconnected networks.").

[27] *Id.* at 107.

[28] *Id.* Besides survivability, "[t]here were also other concerns, such as implementation efficiency, internetwork performance, but these were secondary considerations at first." LEINER ET AL., *supra* note 25. David D. Clark, who served as chief Protocol Architect for TCP/IP from 1981-89, has noted that the ARPANET's original goals differ from what an architecture designed for commercial purposes might have looked like:

> This set of goals might seem to be nothing more than a checklist of all the desirable network features. It is important to understand that these goals are in order of importance, and an entirely different network architecture would result if the order were changed. For example, since this network was designed to operate in a military context, which implied the possibility of a hostile environment, survivability was put as a first goal, and accountability as a last goal. During wartime, one is less concerned with detailed accounting of resources used than with mustering whatever resources are available and rapidly deploying them in an operational manner. While the architects of the Internet were mindful of [resource] accountability, the problem received very little attention during the early stages of the design, and is only now being considered. An architecture primarily for commercial deployment would clearly place these goals at the opposite end of the list.

Clark, *supra* note 25, at 107.

[29] *See generally* LEINER ET AL., *supra* note 25.

multiple paths before reaching their destination and then being reassembled.[30] This process is analogous to the way that the individual, numbered pages of a book might be separated from each other, addressed to the same location, forwarded through different post offices, and yet all still reach the same specified destination, where they could be reassembled into their original form.[31]

By the mid-1970s, computer scientists had developed several software communications standards, or protocols, for connecting computers within the same network. At about the same time, ARPANET scientists developed a protocol for connecting different networks to each other, called the Transmission Control Protocol/Internet Protocol ("TCP/IP") software suite.[32] The TCP component of the suite controls the disassembly and reassembly of data packets sent from a computer server, where the data resides.[33] The IP component specifies the formatting and addressing scheme for transmitting data between sender and recipient computers.[34]

This approach requires that individual networks be connected together by gateway interface devices, called switches or routers.[35] Thus, interconnected networks are, in

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[30] *See generally* JONATHAN E. NUECHTERLEIN & PHILIP J. WEISER, DIGITAL CROSSROADS: AMERICAN TELECOMMUNICATIONS POLICY IN THE INTERNET AGE 39-45 (paperback ed., 2007) (comparing circuit-switched and packet-switched networks).

[31] *See id.* at 42.

[32] Vinton G. Cerf & Robert E. Kahn, *A Protocol for Packet Network Intercommunication*, 22 IEEE TRANSACTIONS ON COMM. 637 (1974), *available at* http://www.cs.princeton.edu/courses/archive/fall06/cos561/papers/cerf74.pdf.

[33] In the original paper describing the TCP/IP protocol, Cerf and Kahn explain:

> Processes that want to communicate present messages to the TCP for transmission, and TCP's deliver incoming messages to the appropriate destination processes. We allow the TCP to break up messages into segments because the destination may restrict the amount of data that may arrive, because the local network may limit the maximum transmission size, or because the TCP may need to share its resources among many processes concurrently. . . .
>
> From this sequence of arriving packets (generally from different HOSTS [computers]), the TCP must be able to reconstruct and deliver messages to the proper destination processes.

Id. at 640.

[34] "Since the GATEWAY [(router)] must understand the address of the source and destination HOSTS, this information must be available in a standard format in every packet which arrives at the GATEWAY. This information is contained in an *internetwork header* prefixed to the packet by the source HOST." *Id.* at 638. "If the TCP is to determine for which process an arriving packet is intended, every packet must contain a *process header* (distinct from the internetwork header) that completely identifies the destination process." *Id.* at 640.

[35] *See id.* at 638.

effect, a series of routers connected by transmission links. Packets of data are passed from one router to another, via the transmission links. Typically, each router has several incoming transmission links through which packets arrive and several outgoing links through which the router can send packets. When a packet arrives at an incoming link, the router will use a software algorithm to determine the outgoing link through which the packet should be routed. If that outgoing link is free, the packet is sent out immediately. If the relevant outgoing link is busy transmitting other packets, however, the newly arrived packet must wait. Usually, the packet will be temporarily held, or "buffered," in the router's memory, waiting its turn until the relevant outgoing link is free. Thus, buffering is a method of dealing with temporary surges in Internet traffic, which can be variable or "bursty." If too many packets are buffered during a period of congestion, however, the router may have no choice but to reroute or drop altogether some of those packets.[36] Because no transmission mechanism can be completely reliable, computer scientists also developed methods of retransmitting data to deal with dropped or otherwise incorrectly transmitted packets.[37]

Two of the resulting features of this TCP/IP protocol are that it transmits data between networks on a "first-in-first-out" and "best-efforts" basis.[38] Therefore, although the resulting interconnected networks are generally able to transmit data successfully

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[36] *See generally* Edward W. Felten, *Nuts and Bolts of Network Neutrality* 1-2 (AEI-Brookings Joint Center, Working Paper No. RP-06-23, 2006), *available at* http://www.aei-brookings.org/publications/abstract.php?pid=1106. *See also* Jon M. Peha, *The Benefits and Risks of Mandating Network Neutrality and the Quest for a Balanced Policy*, 34th Research Conference on Communication, Information, & Internet Policy 5-6 (2006), *available at* http://web.si.umich.edu/tprc/papers/2006/574/Peha_balanced_net_neutrality_policy.pdf (describing the use of algorithms to manage traffic flows across a network).

[37] As Cerf and Kahn explained:

> No transmission can be 100 percent reliable. We propose a timeout and positive acknowledgement mechanism which will allow TCP's to recover from packet losses from one HOST to another. . . . [T]he inclusion of a HOST retransmission capability makes it possible to recover from occasional network problems and allows a wide range of HOST protocol strategies to be incorporated. We envision it will occasionally be invoked to allow HOST accommodation to infrequent overdemands for limited buffer resources, and otherwise not used much.

Cerf & Kahn, *supra* note 32, at 643.

[38] *See generally* DAVID CLARK ET AL., NEW ARCH: FUTURE GENERATION INTERNET ARCHITECTURE: FINAL TECHNICAL REPORT (2003), *available at* http://www.isi.edu/newarch/iDOCS/final.finalreport.pdf (sponsored by DARPA Information Technology Office). "The original Internet provided a very simple and minimally specified packet transfer service, sometimes called 'best effort'. Crudely, what 'best effort' means is that the network makes no specific commitments about transfer characteristics, such as speed, delays, jitter, or loss." *Id.* at 7.

between senders and receivers using TCP/IP, congestion or other technical issues can affect transmission and, as a result, no particular quality-of-service level is guaranteed.[39]

Also, during the Internet's early years, network architectures generally were based on what has been called the "end-to-end argument."[40] This argument states that computer application functions typically cannot, and should not, be built into the routers and links that make up a network's middle or "core." Instead, according to this argument, these functions generally should be placed at the "edges" of the network at a sending or receiving computer.[41] This argument also recognizes, however, that there might be certain functions that can be placed only in the core of a network. Sometimes, this argument is described as placing "intelligence" at or near the edges of the network, while leaving the core's routers and links mainly "dumb" to minimize the potential for transmission and interoperability problems that might arise from placing additional complexity into the middle of the network.[42]

Throughout the 1970s and 1980s, the interconnection of computer networks using TCP/IP continued to grow, spurred by uses such as e-mail.[43] In the mid-1980s, the National Science Foundation ("NSF") recognized that computer networks were having an important impact on scientific research by facilitating communications between researchers working in different locations. NSF and DARPA had been jointly funding a network to connect computer science researchers ("CSNET") since the late 1970s. In 1985, NSF announced a plan to connect one hundred universities to the Internet, in addition to five already-existing supercomputer centers located around the country.[44]

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[39] In the original paper describing the TCP/IP protocol, Cerf and Kahn recognized that because individual networks have differing characteristics, "[t]he transmit time for this data is usually dependent upon internal network parameters such as communications media data rates, buffering and signaling strategies, routing, propagation delays, etc." Cerf & Kahn, *supra* note 32, at 637. "The success or failure of a transmission and its performance in each network is governed by different time delays in accepting, delivering, and transporting the data." *Id.* "TCP may need to share its resources among many processes concurrently." *Id.* at 640. Likewise, resources needed to buffer high volumes of incoming packets may also be "limited." *Id.* at 643. Thus, "[c]ongestion at the TCP level is flexibly handled owing to the robust retransmission and duplicate detection strategy." *Id.* at 645.

[40] *See, e.g.*, J.H. Saltzer et al., *End-to-End Arguments in System Design*, 2 ACM TRANSACTIONS ON COMPUTER SYS. 277 (1984).

[41] *Id.* at 277 ("The argument appeals to application requirements, and provides a rationale for moving function upward in a layered system, closer to the application that uses that function.").

[42] *See, e.g.*, Adam Thierer, *Are "Dumb Pipe" Mandates Smart Public Policy? Vertical Integration, Net Neutrality, and the Network Layers Model*, *in* NET NEUTRALITY OR NET NEUTERING: SHOULD BROADBAND INTERNET SERVICES BE REGULATED? 73, 79 (Thomas M. Lenard & Randolph J. May, eds., 2006).

[43] LEINER ET AL., *supra* note 25 ("Thus, by 1985, Internet was already well established as a technology supporting a broad community of researchers and developers, and was beginning to be used by other communities for daily computer communications. Electronic mail was being used broadly across several communities . . . .").

[44] COMER, *supra* note 24, at 72-76.

Recognizing the increasing importance of this interconnected network to U.S. competitiveness in the sciences, however, NSF embarked on a new program with the goal of extending Internet access to every science and engineering researcher in the country. In 1988, NSF, in conjunction with a consortium of private-sector organizations, completed a new long-distance, wide-area network, dubbed the "NSFNET" backbone.

Although private entities were now involved in extending the Internet, its design still reflected ARPANET's original goals. Although the original ARPANET was decommissioned in 1990, its influence continued because TCP/IP had supplanted or marginalized most other wide-area computer network protocols in existence at that time,[45] and because its design, which provided for generality and flexibility, proved to be durable in a number of contexts.[46] At the same time, its successful growth made clear that these design priorities no longer matched the needs of users in certain situations, particularly regarding accounting and resource management.[47]

By 1992, the volume of traffic on NSFNET was approaching capacity, and NSF realized it did not have the resources to keep pace with the increasing usage. Consequently, the members of the consortium formed a private, non-profit organization called Advanced Networks and Services ("ANS") to build a new backbone with transmission lines having thirty times more capacity.[48] For the first time, a private organization – not the government – principally owned the transmission lines and computers of a backbone.

At the same time that privately owned networks started appearing, general commercial activity on the NSFNET was still prohibited by an Acceptable Use Policy.[49] Thus, the expanding number of privately owned networks were effectively precluded from exchanging commercial data traffic with each other using the NSFNET backbone. Several commercial backbone operators circumvented this limitation in 1991, when they established the Commercial Internet Exchange ("CIX") to interconnect their own backbones and exchange traffic directly. Recognizing that the Internet was outpacing its ability to manage it, NSF decided in 1993 to leave the management of the backbone to the competing commercial backbone operators. By 1995, this expanding network of

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[45] LEINER ET AL., *supra* note 25.

[46] "In the context of its priorities, the Internet architecture has been very successful. The protocols are widely used in the commercial and military environment, and have spawned a number of similar architectures." Clark, *supra* note 25, at 113.

[47] *Id.*

[48] COMER, *supra* note 24, at 75-76.

[49] "On the NSFNET Backbone – the national-scale segment of the NSFNET – NSF enforced an 'Acceptable Use Policy' (AUP) which prohibited Backbone usage for purposes 'not in support of Research and Education.'" LEINER ET AL., *supra* note 25.

commercial backbones had permanently replaced NSFNET, effectively privatizing the Internet.[50]

The growth of the Internet has been fueled in large part by the popularity of the World Wide Web, created in 1989.[51] The number of Web sites on the Internet has grown from one in 1989, to 18,000 in 1995, to fifty million in 2004, and to more than one hundred million in 2006.[52] This incredible growth has been due to several factors, including the realization by businesses that they could use the Internet for commercial purposes, the decreasing cost and increasing power of personal computers, the diminishing complexity of creating Web sites, and the expanding use of the Web for personal and social purposes.

From its creation to its early commercialization, most computer users connected to the Internet using a "narrowband" dial-up telephone connection and a special modem to transmit data over the telephone system's traditional copper wirelines, typically at a rate of up to 56 kilobits per second ("Kbps").[53] Much faster "broadband" connections have subsequently been deployed using a variety of technologies.[54] These faster technologies include coaxial cable wirelines, upgraded copper digital subscriber lines, fiber-optic wirelines, and wireless, satellite, and broadband-over-powerline technologies.[55]

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[50] Michael Kende, *The Digital Handshake: Connecting Internet Backbones* 5 (FCC Office of Plans and Policy, Working Paper No. 32, 2000), *available at* http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp32.pdf.

[51] *See generally* WORLD WIDE WEB CONSORTIUM, ABOUT THE WORLD WIDE WEB CONSORTIUM (W3C), http://www.w3.org/Consortium (last visited June 22, 2007). Other popular uses of the Internet include: the transfer of data files from one computer to another through a File Transfer Protocol ("FTP"); electronic mail using Simple Mail Transfer Protocol ("SMTP"); and the use of TELetype NETwork ("TELNET") to use one computer to access a different computer at another location. *See generally* NUECHTERLEIN & WEISER, *supra* note 30, at 130. The Internet is often described as being comprised of multiple "layers," including: a physical layer consisting of the hardware infrastructure used to link computers to each other; a logical layer of protocols, such as TCP/IP, that control the routing of data packets; an applications layer consisting of the various programs and functions run by end users, such as a Web browser that enables Web-based e-mail; and a content layer, such as a Web page or streaming video transmission. *See id.* at 118-21.

[52] Marsha Walton, *Web Reaches New Milestone: 100 Million Sites*, CNN, Nov. 1, 2006, http://www.cnn.com/2006/TECH/internet/11/01/100millionwebsites/index.html (last visited June 15, 2007).

[53] *See* NUECHTERLEIN & WEISER, *supra* note 30, at 134-35.

[54] *See id.* at 134-47. Broadband has been defined by the FCC as services that provide transmission speeds of 200 Kbps or higher in at least one direction. *E.g.*, FCC, HIGH-SPEED SERVICES, *supra* note 18, at 5 tbl.1. Some critics, however, believe this definition is outdated. *See, e.g.*, G. Sohn, Tr. I at 97 ("[I]t defines broadband at a ridiculously slow speed, 200 kilobits per second.").

[55] See *infra* Chapter VI for a discussion of various broadband technologies.

The thousands of individual networks that make up the global Internet are owned and administered by a variety of organizations, such as private companies, universities, research labs, government agencies, and municipalities. Data packets may potentially travel from their originating computer server across dozens of networks and through dozens of routers before they reach a "last-mile" Internet service provider[56] and arrive at a destination computer. This process of disassembly, transmission, and reassembly of data packets may take as little as a fraction of a second for a simple piece of information like a text e-mail traveling along a high-speed network, or it may take several hours for a larger piece of information like a high-resolution video traveling a long distance along a low-speed network.[57]

This network of networks connects millions of individuals and organizations in a way that allows almost instantaneous communications using computers, computerized mobile devices, and other network attachments. End users interact with each other through an ever-expanding universe of content and applications, such as: e-mail, instant messaging, chat rooms, commercial Web sites for purchasing goods and services, social networking sites, Web logs ("blogs"), music and video downloads, political forums, voice over IP ("VoIP") telephony services, streaming video applications, and multi-player network video games. Internet users include individuals of virtually all ages and walks of life, established businesses, fledgling entrepreneurs, non-profit groups, academic and government institutions, and political organizations.

The TCP/IP protocol suite has been updated periodically since its introduction.[58] In recent years, however, some computer experts and other interested parties have questioned the TCP/IP suite's thirty-year-old first-in-first-out and best-efforts characteristics.[59] Likewise, in light of the increasing deployment of applications that may

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[56] See *infra* Chapter I.B.1 for a discussion of last-mile ISPs.

[57] *See, e.g.*, NUECHTERLEIN & WEISER, *supra* note 30, at 136.

[58] Kahn & Cerf, *supra* note 24 ("Refinement and extension of these protocols and many others associated with them continues to this day by way of the Internet Engineering Task Force."). *See also* INTERNET ENGINEERING TASK FORCE, OVERVIEW OF THE IETF, http://www.ietf.org/overview.html (last visited May 16, 2007) ("The Internet Engineering Task Force (IETF) is a large open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet."). IETF activities take place under the umbrella of the Internet Society. *See generally* INTERNET SOCIETY, ABOUT THE INTERNET SOCIETY, http://www.isoc.org/isoc (last visited May 16, 2007) (The Internet Society "is the organization home for the groups responsible for Internet infrastructure standards, including the Internet Engineering Task Force (IETF) and the Internet Architecture Board (IAB).").

[59] *E.g.*, David Farber & Michael Katz, Op-Ed., *Hold Off On Net Neutrality*, WASH. POST, Jan. 19, 2007, at A19 ("The current Internet supports many popular and valuable services. But experts agree that an updated Internet could offer a wide range of new and improved services, including better security against viruses, worms, denial-of-service attacks and zombie computers; services that require high levels of reliability, such as medical monitoring; and those that cannot tolerate network delays, such as voice and streaming video. To provide these services, both the architecture of the Internet and the business models through which services are delivered will probably have to change."); Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847, 1863 & n.74 (2006) (noting the opinion of computer scientist David Farber that the current Internet architecture is "getting old").

operate better in a non-end-to-end environment, some have reexamined the end-to-end design argument.[60] Some also have explored what a next generation Internet architecture might look like, with the goal of managing the emerging tension between the Internet's open characteristics and more technologically demanding new applications.[61] In addition, some observers have suggested that the Internet's continued exponential growth and the proliferation of resource-intensive content and applications like video file sharing and the prospect of Internet Protocol television ("IPTV") may outstrip the Internet's current capacity and cause it to become significantly congested or crash altogether.[62]

The problem of network congestion, in particular, was recognized in the original paper describing the TCP/IP suite and, although it received less attention than ARPANET's other original design priorities, computer scientists continued to be mindful of the issue. Some, therefore, continued to explore different transmission protocols and the viability of market-based pricing mechanisms through the 1980s and 1990s.[63] Further, as data-routing technologies have advanced in recent years, some network operators have begun openly to consider using prioritization and other active management practices to improve network management and provide certain premium

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[60] *See, e.g.*, Marjory S. Blumenthal & David D. Clark, *Rethinking the Design of the Internet: The End-to-End Arguments vs. the Brave New World*, 1 ACM TRANSACTIONS INTERNET TECH. 70 (2001) (concluding that the open, general nature of the Internet historically associated with the end-to-end argument should be preserved); ROBERT E. KAHN, CORPORATION FOR NATIONAL RESEARCH INITIATIVES, INTERNET EVOLUTION, GOVERNANCE AND THE DIGITAL OBJECT ARCHITECTURE: WORKSHOP ON SCORM SEQUENCING AND NAVIGATION 8 (Feb. 23, 2005), *available at* http://www.handle.net/presentations_plugfest9/PlugFest9_Plenary_kahn.ppt (discussing whether the Federal Network Council's 1995 Internet definition, *see supra* note 24, should be updated to also include services "integrated with" communications and related infrastructures); Press Release, Stanford Center for Internet and Society, The Policy Implications of End-to-End (Dec. 1, 2000), *available at* http://cyberlaw.stanford.edu/e2e (workshop chaired by Professor Lawrence Lessig) ("In an increasing range of contexts . . . e2e [(end-to-end)] is being questioned. Technologies that undermine e2e are increasingly being deployed; other essential services, such as quality of service, are being developed in ways that are inconsistent with e2e design.").

[61] *E.g.*, CLARK ET AL., *supra* note 38, at 4 ("The goal of this project was to consider the following question: if we could now design the Internet from scratch, knowing what we know today, how would we make the basic design decisions?").

[62] *E.g.*, DELOITTE TOUCHE TOHMATSU, TELECOMMUNICATIONS PREDICTIONS: TMT TRENDS 2007 (2007), *available at* http://www.deloitte.com/dtt/cda/doc/content/us_tmt_%202007_Telecom_Predictions_011606.pdf. According to this report, "[o]ne of the key possibilities for 2007 is that the Internet could be approaching its capacity. The twin trends causing this are an explosion in demand, largely fueled by the growth in video traffic and the lack of investment in new, functioning capacity." *Id.* at 4.

[63] *E.g.*, Jeffrey K. MacKie-Mason & Hal R. Varian, *Pricing the Internet*, *in* PUBLIC ACCESS TO THE INTERNET 269 (Brian Kahin & James Keller eds., 1995). According to MacKie-Mason and Varian: "Congestion is likely to be a serious problem in the future Internet, and past proposals to control it are unsatisfactory. We think an economic approach to allocating scarce Internet resources is warranted." *Id.* at 284. "Our objective is not to raise profits above a normal rate of return by pricing backbone usage. Rather, our goal is to find a pricing mechanism that will lead to the most efficient use of existing resources, and will guide investment decisions appropriately." *Id.*

services for a fee.[64] As a result, computer scientists, network operators, content and applications providers, and other interested parties have increasingly debated the significance of the Internet's historical and current architecture and its implications for the Internet's future development.[65]

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[64] *See, e.g.*, *At SBC, It's All About "Scale and Scope,"* BUS. WK., Nov. 7, 2005, http://www.businessweek.com/@@n34h*1UQu7KtOwgA/magazine/content/05_45/b3958092.htm (interview with SBC Telecommunications' CEO Edward Whitacre). According to Whitacre:

> [T]here's going to have to be some mechanism for these people who use these pipes to pay for the portion they're using. Why should they be allowed to use my pipes?
>
> The Internet can't be free in that sense, because we and the cable companies have made an investment and for a Google or Yahoo! or Vonage or anybody to expect to use these pipes [for] free is nuts!

Id. See also Marguerite Reardon, *Qwest CEO Supports Tiered Internet*, ZDNET NEWS, Mar. 15, 2006, http://articles.techrepublic.com.com/2100-1035_11-6050109.html. Qwest CEO Richard Notebaert has stated his company would like to offer prioritized data transmission in the same way that express parcel service may be purchased from Federal Express or UPS. In his view, "[i]t's possible that (these companies) would like to have differentiated service. . . . And if you have enough money, we can make a lot of things happen." *Id.* "Would this give some content providers an advantage over others? . . . Well, yeah. We're all trying to provide a bit of differentiation for a competitive edge. That's what business is about." *Id.*

[65] For example, some of the Internet's early designers have offered the following account:

> One should not conclude that the Internet has now finished changing. The Internet, although a network in name and geography, is a creature of the computer, not the traditional network of the telephone or television industry. It will, indeed it must, continue to change and evolve at the speed of the computer industry if it is to remain relevant. It is now changing to provide such new services as real time transport, in order to support, for example, audio and video streams. The availability of pervasive networking (i.e., the Internet) along with powerful affordable computing and communications in portable form (i.e., laptop computers, two-way pagers, PDAs, cellular phones), is making possible a new paradigm of nomadic computing and communications.
>
> This evolution will bring us new applications – Internet telephone and, slightly further out, Internet television. It is evolving to permit more sophisticated forms of pricing and cost recovery, a perhaps painful requirement in this commercial world. It is changing to accommodate yet another generation of underlying network technologies with different characteristics and requirements, from broadband residential access to satellites. New modes of access and new forms of service will spawn new applications, which in turn will drive further evolution of the net itself.
>
> The most pressing question for the future of the Internet is not how the technology will change, but how the process of change and evolution itself will be managed. As this paper describes, the architecture of the Internet has always been driven by a core group of designers, but the form of that group has changed as the number of interested parties has grown. With the success of the Internet has come a proliferation of stakeholders – stakeholders now with an economic as well as an intellectual investment in the network. We now see, in the debates over control of the domain name space and the form of the next generation IP addresses, a struggle to find the next social structure that will guide the Internet in the future. The form of that structure will be harder to find, given the large number of concerned stake-holders. At the same time, the industry

B. Major Internet Components

1. "Last-Mile" Internet Service Providers

"Last-mile"[66] Internet service providers offer the network connections that link end users to the wider Internet.[67] By connecting its end-user customers to the many networks comprising the Internet backbone, an ISP provides its customers access to the end-user computers of any other ISP in the world connected to that backbone. Computer users in the United States have had nearly ubiquitous last-mile access to dial-up Internet connections of 56 to 280 Kbps since the late 1990s through telephone modems.[68] In recent years, faster broadband connections have supplanted dial-up service for a rapidly growing number of computer users who demand faster access to the increasingly sophisticated and data-rich content and applications available on the Internet.[69] Principally, end users receive last-mile broadband Internet service through coaxial cable wireline or upgraded copper digital subscriber wireline connections; other platforms, such as fiber-optic wirelines, wireless, satellite, and broadband over powerlines, are also increasingly available to connect end users to the Internet.[70]

Basic residential service packages are typically available on a flat-rate basis to home computer users.[71] ISPs may require that end users with more demanding needs, like a medium or large business, purchase a business-class or other type of premium

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> struggles to find the economic rationale for the large investment needed for future growth, for example to upgrade residential access to more suitable technology. If the Internet stumbles, it will not be because we lack for technology, visions, or motivation. It will be because we cannot set a direction and march collectively into the future.

LEINER ET AL., *supra* note 25.

[66] Networks that connect end users to the broader Internet are generally referred to as "last-mile" ISPs. Networks that transmit data from a content or applications provider's computer server(s) to the broader Internet are sometimes referred to as "first-mile" ISPs.

[67] Today, major last-mile wireline broadband ISPs include: AT&T, Comcast, Covad, Cox Communications, and Verizon. Major wireless broadband ISPs include: AT&T, Sprint Nextel, T-Mobile, and Verizon Wireless.

[68] *See* NUECHTERLEIN & WEISER, *supra* note 30, at 134-35.

[69] *See id.* at 134-47.

[70] According to the most recent data available from the FCC, most broadband consumers access the Internet today by cable modem or DSL. Of the 64.6 million high-speed lines in the United States as of June 30, 2006, 44.1% were cable modem, 36.4% DSL or other high-speed telephone line, 17.0% mobile wireless, 1.1% fiber-to-the-premise, 0.8% satellite, 0.5% fixed wireless, and 0.01% broadband over powerlines (and other lines). FCC, HIGH-SPEED SERVICES, *supra* note 18, at 5 tbl.1.

[71] *See generally* Lehr, Tr. I at 37 (discussing "the market's current attraction to . . . flat-rate pricing"); Brenner, Tr. II at 96. *See also, e.g.*, VERIZON, VERIZON HIGH SPEED INTERNET, http://www22.verizon.com/content/consumerdsl/plans/all+plans/all+plans.htm (last visited May 17, 2007).

service package.[72] In addition, end users can purchase for a premium fee access to a specialized virtual private network ("VPN") offering a defined quality-of-service level over a reserved portion of an ISP's network.[73]

Last-mile broadband wireline architecture can take various forms. A last-mile ISP can extend a fiber-optic wireline from a backbone connection to either a neighborhood node, to the curb of a premise, or all the way to the end user's premise. If the fiber runs only to the node or curb, the ISP can then use a cable or DSL connection for the remaining distance to the end user's premise.[74] DSL wirelines provide a dedicated amount of bandwidth to each end user, but can transmit data up to only about three miles without the use of a repeater. Accordingly, transmission speeds can vary depending on an end user's distance from a repeater.[75] Cable wirelines offer shared bandwidth among many customers. Thus, the transmission speed for an individual cable modem customer can vary with the number of customers who are using the network simultaneously.[76]

Last-mile wireless networks using wireless fidelity ("Wi-Fi") or worldwide interoperability for microwave access ("Wi MAX") technologies can be set up by deploying multiple antennas on street lights, traffic signals, and buildings, so that multiple wireless hotspots overlap each other to form a continuous "mesh" network of wireless signals. An initial connection to a backbone network also must be made in order to provide access to the wider Internet.[77] Several major telecommunications companies also offer mobile wireless Internet services over their wireless phone networks.[78] Three satellite providers offer broadband Internet service via satellite.[79] An end user must have a computer or other device that is configured for wireless Internet use to access these

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[72] *E.g.*, COMCAST, COMCAST WORKPLACE, http://www.comcast.com/wa-business/internet.html (last visited May 14, 2007). Last-mile access for large enterprise customers, particularly those with multiple locations, typically involves the use of dedicated, high-capacity facilities often referred to as special access or dedicated access services. *See In re* Special Access Rates for Price Cap Local Exch. Carriers, 20 FCC Rcd 1994, 1995-96 (2005) (order and notice of proposed rulemaking) [hereinafter *Special Access NPRM*].

[73] *See, e.g.*, CHARLES B. GOLDFARB, ACCESS TO BROADBAND NETWORKS: CONGRESSIONAL RESEARCH SERVICE REPORT TO CONGRESS 10-11 (2006), *available at* http://www.ipmall.info/hosted_resources/crs/RL33496_060629.pdf.

[74] *Id.* at 9-11.

[75] *See generally* FCC, FCC CONSUMER FACTS: BROADBAND ACCESS FOR CONSUMERS, http://www.fcc.gov/cgb/consumerfacts/dsl2.html (last visited June 22, 2007).

[76] *See generally id.*

[77] Wireless broadband providers that do not have their own facilities connecting their transmitters (*e.g.*, cell towers) to their switches typically purchase special access services from an incumbent local exchange carrier or other provider of such services. *See Special Access NPRM*, 20 FCC Rcd at 1995-96.

[78] GOLDFARB, *supra* note 73, at 10.

[79] *Id.* at 10-11.

networks. In addition, there are now over forty deployments of broadband–over-powerline technologies in the U.S., most of which are in trial stages.[80]

Today's last-mile networks generally are partitioned asymmetrically to provide more bandwidth for data traveling from an ISP's facilities to the end user's computer ("downstream") than in the other direction ("upstream"). Typically, this is done because end users request much more data from other server computers than they, themselves, send out.[81] As a result, asymmetric architecture may constrain content and applications that require the end user simultaneously to send and receive content at the same speeds and volumes, such as two-way video transmissions.[82] Also, ISPs have the technical capability to reserve portions of last-mile bandwidth for specific applications.[83]

2. Internet Backbone Operators

Since 1995, when the expanding number of commercial backbone networks permanently replaced NSFNET, commercial backbones have generally interconnected with each other through voluntary, market-negotiated agreements.[84] To this day, there are no general, industry-specific regulations that govern backbone interconnection in the U.S.[85] Instead, commercial backbone operators independently make decisions about interconnection by weighing the benefits and costs on a case-by-case basis.[86] Typically,

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[80] *Id.* at 11-12.

[81] *Id.* at 4, 9.

[82] *Id.* at 9.

[83] For example, Verizon reserves one fiber of its downstream fiber-to-the-home service specifically for the company's video service, while a separate fiber carries all other incoming traffic. *Id.* at 10. AT&T reserves 19 of 25 megabits of downstream end-user bandwidth specifically for the company's video service. *Id.* at 11. AT&T customers can purchase between 1.5 and 6 Mbps of the remaining downstream bandwidth for Internet access and voice services. *Id.*

[84] Observers have noted that:

> Particularly in the Internet's early days, many backbone providers exchanged traffic at government-sponsored Network Access Points (NAPs)–the Internet's equivalent to public airports, where the routes of many different carriers converge. (When the government privatized the Internet, it transferred control of these points to commercial providers.) Internet backbone providers now increasingly rely on privately arranged points of interconnection, largely because of congestion at the NAPs.

NUECHTERLEIN & WEISER, *supra* note 30, at 132.

[85] *See generally id.* at 133 ("These peering and transit agreements are completely unregulated. Neither the FCC nor any other governmental authority regulates the prices that a larger backbone network may charge a smaller one for transit services or mandates that backbone providers interconnect at all.").

[86] As one commentator notes:

> Currently, there are no domestic or international industry-specific regulations that govern how Internet backbone providers interconnect to exchange traffic, unlike other network

backbones connect to each other under one of two types of arrangements. In a "peering" arrangement, backbones of similar size engage in a barter arrangement in which backbone A carries traffic for backbone B in exchange for backbone B carrying a similar amount of traffic for backbone A. In this arrangement, exchanged traffic generally is destined only for the other backbone's end users. In a "transit" arrangement, a smaller backbone pays a larger backbone to carry its customers' traffic to all end users on the Internet.[87] To date, market forces have encouraged interconnection among backbones and between backbones and last-mile ISPs.[88]

Today, these backbones make up the core or "middle" of the Internet. Generally, individual backbone networks are made up of a multiplicity of redundant, high-speed, high-capacity, long-haul, fiber-optic transmission lines that join at hubs or points of interconnection across the globe.[89] Transmission over the backbone is generally reliable even when one component fails because there are multiple different routes of transmission from one computer to another.[90] A backbone's customers include ISPs providing last-mile connectivity to end users, providers of content and applications that wish to connect their computer servers directly to a backbone, and specialized companies that lease space on shared or dedicated computer servers to smaller content and applications providers.

3. Providers of Content and Applications

Millions of organizations and individuals connected to the Internet's edges provide an ever-expanding universe of content and applications to end users. Commercial entities and other organizations provide a large portion of such content and applications, but individuals are increasingly contributing content and applications to the Internet for personal, social, and creative purposes.[91]

> services, such as long distance voice services, for which interconnection is regulated. Rather, Internet backbone providers adopt and pursue their own interconnection policies, governed only by ordinary laws of contract and property, overseen by antitrust rules.

Kende, *supra* note 50, at 2.

[87] *See generally* NUECHTERLEIN & WEISER, *supra* note 30, at 132-33.

[88] *Cf.* Ryan, Tr. I at 237.

[89] NUECHTERLEIN & WEISER, *supra* note 30, at 131-38. *See also* Li Yuan & Gregory Zuckerman, *Level 3 Regains Luster Amid Web-Video Boom*, WALL ST. J., Dec. 21, 2006, at C1 (providing a map of Level 3's fiber-optic backbone). Today, major U.S. backbone operators include: Verizon, AT&T, Global Crossing, Level 3, Qwest, SAVVIS, and Sprint-Nextel.

[90] COMER, *supra* note 24, at 137-42.

[91] Popular examples include: Blogger.com (Web logs); flickr.com (photo sharing); YouTube.com (audio and video files); and MySpace.com (social networking pages, Web logs, photo sharing, audio and video files). *See also* Lev Grossman, *Time's Person of the Year: You*, TIME, Dec. 25, 2006, at 38, *available at* http://www.time.com/time/magazine/article/0,9171,1569514,00.html.

Content and applications providers use various methods to distribute their offerings over the Internet. Smaller organizations and individuals typically lease space on a shared or dedicated computer server from a specialized company that provides a connection to the wider Internet, typically through a negotiated agreement with a backbone operator.[92] Large companies may build their own server farms with direct access to an Internet backbone.[93] Some companies also provide Web sites where users can post self-generated content, such as photos, blogs, social networking pages, and audio and video files, while the companies themselves manage the site's underlying technical aspects.[94] Increasingly, content and applications providers are also copying their content and applications to multiple computer servers distributed around the world, a technique called local caching.[95] This practice allows data to be transmitted to end users more quickly, over a shorter physical distance, and using fewer routers. This strategy, in turn, generally decreases the potential for transmission problems such as the delay or dropping of data packets.[96]

Today, many applications can be delivered from a provider's computer server via the Internet to a customer's computer and installed automatically. This ability to transmit applications cheaply and directly to end users allows applications providers to update their programs frequently and to deliver new versions to customers quickly. Likewise, the Internet allows content providers to transmit cheaply an expanding array of content, such as music and video downloads.

Originally, most Web content consisted of static text and graphics files that could be viewed graphically using a basic Web browser and a narrowband connection. Some of the newest content and applications, however, are time-sensitive, bandwidth-intensive, or both. VoIP, for example, is sensitive to both "latency" – the amount of time it takes a packet of data to travel from source to destination – and "jitter" – on-again, off-again

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[92] *See, e.g.*, TheHostingChart, http://www.thehostingchart.com (last visited June 22, 2007).

[93] *See, e.g.*, Pepper, Tr. 1 at 93. Pepper notes that "a lot of these large providers made enormous investments in big server farms to bring content closer to consumers with their caching servers. Bringing content closer to consumers reduces the need to go across multiple hops [between networks]." *Id. See also* Yoo, *supra* note 59, at 1881-83; John Markoff & Saul Hansell, *Hiding in Plain Sight, Google Seeks More Power*, N.Y. TIMES, June 14, 2006, at A1, *available at* http://www.nytimes.com/2006/06/14/technology/14search.html?ei=5090&en=d96a72b3c5f91c47&ex=1307937600.

[94] *See supra* note 91.

[95] Content and applications providers may construct multiple server farms in various locations. *See supra* note 93. Alternatively, they can contract with a third party to manage this function. *See, e.g.*, Misener, Tr. II at 191 ("Essentially, you have a company that has set up edge serving facilities. That is to say server farms outside major metropolitan areas."). *See also* Yoo, *supra* note 59, at 1881-83; William C. Symonds, *Traffic Cops of the Net*, BUS. WK., Sept. 25, 2006, at 88, *available at* http://www.businessweek.com/magazine/content/06_39/b4002094.htm (profiling third-party content distribution company Akamai Technologies).

[96] *See* Pepper, Tr. 1 at 93; Yoo, *supra* note 59, at 1882.

delay associated with bursts of data traffic.[97] High-resolution video files and streaming video applications are examples of bandwidth-intensive content and applications that some observers suggest are already challenging the Internet's capacity.[98]

C. Network Management, Data Prioritization, and Other Forms of Data "Discrimination"

The differential treatment of certain data packets by network operators, such as prioritizing some packets over others, is often referred to as data "discrimination."[99] This Section addresses Internet congestion (one of the primary reasons cited for engaging in such data discrimination), the various types and uses of data discrimination, and the feasibility of end users detecting and avoiding certain types of data discrimination.

1. Internet Congestion

As explained above, the problem of network congestion has been recognized since the Internet's earliest days. Network resources such as computer processing power, transmission media, and router buffer memory are finite, like other resources. Congestion, therefore, can occur at any point on the Internet. Of course, end users can purchase more powerful computers and network operators can expand the capacity of their networks, but the computers, physical transmission media, and routers that comprise the Internet can still transport and process only a certain amount of data at any given time. Although it happens rarely, if too many computers send bursts of packets at the same time, a network may become temporarily overloaded.

The TCP/IP protocol generally has enabled the Internet to function at a workable level, even as Internet use has undergone tremendous growth during the last decade.[100] Nonetheless, Internet transmissions are still subject to variable performance and periods of congestion. Some observers suggest that the use of bandwidth-intensive applications like certain peer-to-peer file-sharing protocols by even a small minority of users is already consuming so many network resources as to be worrisome. This situation is of particular concern to some experts, who believe that the use of such applications by even a small portion of Internet users may effectively degrade service for the remaining

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[97] *See, e.g.*, Blumenthal & Clark, *supra* note 60, at 72-73; GOLDFARB, *supra* note 73, at 2-3 & n.4.

[98] *See, e.g.*, GOLDFARB, *supra* note 73, at 3-4.

[99] "Unfortunately, engineers, economists, and lawyers have different definitions for discrimination." Peha, *supra* note 36, at 3. Some technology experts distinguish between so-called "minimal" or "needs-based" discrimination, where packets are discarded or otherwise treated differently only when absolutely necessary (as in the case of congestion), and "non-minimal" or "active" discrimination, where packets are treated differently for some other, discretionary reason. *See, e.g.*, Felten, *supra* note 36, at 4. The introduction to Chapter IV below includes a discussion of how we use the term "discrimination" in analyzing the potential effects on consumer welfare of various conduct by ISPs and other network operators.

[100] COMER, *supra* note 24, at 165-69.

majority of end users.[101] Some observers suggest that such applications are already testing the Internet's existing capacity and may even potentially crash the Internet, or parts of it.[102]

2. Alleviating Internet Congestion

Several techniques have been used to alleviate short-term Internet congestion. Non-linear packet switching enables data to be dispersed and, in turn, allows networks to reroute individual data packets around points of congestion and avert delays. The TCP component of the TCP/IP suite also monitors delays and slows the packet-transmission rates accordingly.[103] Some applications, however, such as certain peer-to-peer file-sharing protocols, operate in a different manner. When congestion occurs, these applications do not slow their rates of data transmission. Rather, they aggressively take advantage of TCP's built-in reduction mechanism and, instead, send data as fast as they can.[104] Therefore, some networks have actively restricted or blocked altogether these kinds of applications, on the grounds that the networks need to preserve an equitable level of service for the majority of their end users.

Networks may also use "hot potato" routing policies that hand off to other networks at the earliest possible point data that is not destined for termination on their own networks, thus reducing the use of network resources.[105] Local caching of data by content and applications providers further helps to alleviate congestion by reducing the

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[101] According to Peha, "[t]raffic from a very small number of users can dominate the network and starve everybody else out. Peer-to-peer, in particular, is a problem today, and other applications might come along. " Peha, Tr. I at 22. *See also* SANDVINE, INC., NETWORK NEUTRALITY: A BROADBAND WILD WEST? 4 (2005), *available at* http://www.sandvine.com/general/getfile.asp?FILEID=37 (reporting that it is common for less than 20% of users/applications/content to consume 80% of a network's resources); ANDREW PARKER, CACHELOGIC, P2P IN 2005 (2005), *available at* http://www.cachelogic.com/home/pages/studies/2005_01.php (reporting that in 2004 peer-to-peer traffic constituted 60% of overall Internet data traffic and 80% of upstream data traffic); Press Release, Sandvine, Inc., EDonkey – Still King of P2P in France and Germany (Sept. 13, 2005), *available at* http://www.sandvine.com/news/pr_detail.asp?ID=88 (reporting that P2P file-sharing traffic in the UK and North America represents up to 48% of all downstream bandwidth and 76% of all upstream traffic).

[102] *See, e.g.*, Brenner, Tr. II at 99 (recounting that "[w]e all know the famous story of downloading the Victoria's Secret streaming video when so much demand was placed on it, nobody could get a download"). Beyond this oft-cited example, however, staff has not been presented with any specific evidence of an instance where a significant portion of the Internet has substantially crashed, apart from general examples of temporary network congestion. *See also* DELOITTE TOUCHE TOHMATSU, *supra* note 62, at 4.

[103] TCP sends and receives acknowledgements each time a packet is sent to and received from a computer. Also, TCP automatically starts a timer whenever a computer sends a packet. The timed period depends on the distance to the recipient computer and delays on the Internet. If the timer runs out before the sending computer receives an acknowledgement, TCP retransmits the packet and lengthens the timed period to accommodate the network delay, effectively slowing the transmission rate. Once enough computers in the network slow down, the congestion clears. *See* COMER, *supra* note 24, at 140-41.

[104] Peha, *supra* note 36, at 7.

[105] NUECHTERLEIN & WEISER, *supra* note 30, at 132.

distance over which data must travel and the number of routers that might potentially delay or drop packets. In addition, as discussed below, some networks have proposed prioritizing data and providing other new types of quality-of-service assurances to alleviate the effects of congestion.

3. Packet-inspection and Flow-control Technologies

To treat some data packets differently than others, as opposed to simply using a first-in-first-out and best-efforts approach, a network operator must be able to identify certain relevant characteristics of those packets.[106] One source of identifying information is the packet's header, which contains the IP address of its source and destination. The packet header also contains several types of information that suggest the type of application required to open the data file, such as the source and destination port numbers, the transport protocol, the differentiated service code point or traffic class, and the packet's length.[107] Additionally, the header contains the Media Access Control ("MAC") address of the packet's source and destination, which provides information about the manufacturer of the device attached to the network.[108]

In recent years, router manufacturers have refined packet-inspection technologies to provide network operators with a wide range of information about the data traffic on their networks, including information not provided in packet headers.[109] These technologies were developed in part to help local area networks direct traffic more efficiently and to thwart security risks.[110] Deep packet inspection may also be implemented on the Internet to examine the content of packet streams – even search for keywords in text – and to take action based on content- or application-specific policies.[111] Such actions could involve tracking, filtering, or blocking certain types of packet streams. Further, deep packet inspection can map the information it accumulates to databases containing, for instance, demographic or billing information.[112]

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[106] Peha, *supra* note 36, at 3 (discussing the criteria that networks can consider when deciding how to prioritize packets).

[107] *Id.* at 4. Some computer scientists believe that port numbers have become an unreliable tool for determining a packet's associated application. According to Peha, "[o]nce upon a time, you could learn who the application was, through something called a port number, but that hasn't been reliable or meaningful for a number of years." Peha, Tr. I at 18.

[108] Peha, *supra* note 36, at 4.

[109] *See, e.g.*, Pepper, Tr. I at 83-87.

[110] *E.g.*, Tim Greene, *The Evolution of Application Layer Firewalls*, NETWORK WORLD, Feb. 2, 2004, *available at* http://www.networkworld.com/news/2004/0202specialfocus.html ("Now the latest Internet defense technology – deep packet inspection firewalls – is being touted as the best line of defense against worms that can sneak past earlier technology to wreck havoc in corporate networks.").

[111] Peha, *supra* note 36, at 4-5.

[112] *Id.*

Another relatively new technology that may be implemented to reveal information about packet streams is flow classification. This technology monitors the size of packets in a data stream, the time elapsed between consecutive packets, and the time elapsed since the stream began, with the goal of making reasonable determinations about the nature of the packets in the stream. Thus, flow classification may reveal information about a packet stream even if the individual packets themselves are encrypted against packet inspection.[113] With the development of these two technologies, it is now cost-effective for a network operator to gain extensive knowledge about the nature of the data traveling across its network.[114]

4. Data Prioritization and Other Forms of Data Discrimination

Recently, some network operators have suggested that they would like to use these new technologies to prioritize certain data traffic or to provide other types of quality-of-service assurances to content and applications providers and/or end users in exchange for a premium fee.[115] In contrast to the practice of transmitting data on a first-in-first-out and best-efforts basis, network operators could use a router algorithm to favor the transmission of certain packets based on characteristics such as their source, destination, application type, or related network attachment. One or more of these strategies could be employed to manage network traffic generally. Or, they might be used by a network operator to actively degrade certain non-favored traffic.

Packets going to or from certain favored addresses could be given priority transmission. Likewise, network operators could give priority to packets for latency-sensitive applications such as VoIP or network video games. In the alternative, routers could be programmed to reroute, delay, or drop certain packets.[116] For example, a network operator could block packets considered to be a security threat.[117] It could drop or otherwise delay packets associated with unaffiliated or otherwise disfavored users, content, or applications.[118] A network could apply such treatment only in certain

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[113] *Id.* at 4. For example, if a network operator detects a steady stream of packets flowing at 30 Kbps across its network for a period of time, it might conclude those packets are part of a VoIP telephony transmission. *Id.*

[114] *Id.* at 5.

[115] *See supra* note 64. Quality of service "typically involves the amount of time it takes a packet to traverse the network, the rate at which packets can be sent, and the fraction of packets lost along the way." Peha, *supra* note 36, at 5.

[116] *E.g.*, Peha, *supra* note 36, at 4-6.

[117] *E.g.*, Craig McTaggart, *Was the Internet Ever Neutral?*, 34th Research Conference on Communication, Information, & Internet Policy 9 (2006), *available at* http://web.si.umich.edu/tprc/papers/2006/593/mctaggart-tprc06rev.pdf (discussing blocking as a tool to control network abuse).

[118] *E.g.*, Peha, *supra* note 36, at 12–13 (describing scenarios in which network operators might block rival services, specific content, or software).

circumstances, such as during periods of congestion, after a quota of packets has been met, or, until certain usage fees are paid.[119] Some observers, however, question whether implementing wide-scale prioritization or similar schemes across multiple networks having differing technical characteristics is, in fact, even technically possible.[120]

Network operators also could provide separate physical or logical channels for different classes of traffic.[121] Another method for favoring certain Internet traffic is to reserve capacity on last-mile bandwidth for certain packet streams to provide a minimum level of quality.[122] Similarly, a network operator could limit the amount of bandwidth available to an end user, thereby degrading or effectively blocking altogether the use of

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[119] *See, e.g.*, *id.* at 5-6.

[120] *See, e.g.*, Alcatel-Lucent, Public Comment 1. According to Alcatel-Lucent, an opponent of network neutrality regulation:

> [I]ndustry standards would have to be adopted that put in place common policies for the labeling and prioritization of data packets. . . . The vast majority of Internet traffic must traverse the networks of numerous broadband service providers. This means that in order to favor the traffic of Service A over Service B during its entire trip through the Internet, each service provider and backbone network would have to prioritize and label packets in exactly the same way – a scenario that does not exist today. The idea that a service provider could maintain priority routing for its "preferred data packets" between a user in Washington, DC and Los Angeles, CA is not possible absent a comprehensive agreement between all network service providers to treat and identify data packets based on a common standard not currently in existence. Absent such developments, the data would almost certainly change hands at least once, likely stripping it of any prioritization it might have enjoyed inside the network of a sole provider.

Id. at 5. Likewise, a representative of Google, a network neutrality proponent, states that:

> [L]ast mile providers who want to give some sort of priority service, you know, only have control over their own network. It's not obvious to us how you can offer this kind of end-to-end service. It's not obvious to us how you identify the traffic in order to segregate it, that you're going to give priority to. And how do you do this segregation without degrading other traffic?

Davidson, Tr. 1 at 230-31.

[121] For example, a network operator could physically send favored data traffic over a lightly used connection, while sending other data traffic over a more heavily used connection. Or, the network could use logical separation to send traffic on the same physical connection, but use different service flows, as in the case of a virtual local network ("VLN"). Peha, *supra* note 36, at 6.

[122] For example, AT&T's Project Lightspeed and Verizon's FiOS services reserve portions of last-mile bandwidth for their proprietary video services. GOLDFARB, *supra* note 73, at 10-11, 17-18. These network operators also could sell reserved capacity to content or applications providers in return for a quality-of-service guarantee. Verizon, for example, has such plans for its FiOS service. *Id.* at 10.

bandwidth-intensive content or applications.[123] A network operator also could treat data packets differently by providing preferential access to services, such as local caching.[124]

Data also can be treated differently through the use of pricing structures, such as service tiers, to provide a certain quality-of-service level in exchange for payment.[125] In a fee-for-priority system, content and applications providers and/or end users paying higher fees would receive quicker, more reliable data transmissions. Sometimes, such an arrangement is referred to as a "fast lane." Other data might simply be provided on a best-efforts basis. Similarly, a network operator might assess fees to end users based on their behavior patterns, a practice sometimes referred to as "content billing" or "content charging."[126]

5. Detecting Data Discrimination[127]

Although differential data treatment may be easy to detect in some instances, like outright blocking, in many instances it may be more difficult for an end user to distinguish between performance problems resulting from deliberate discrimination and problems resulting from other, more general causes.[128] For example, an end user whose Internet traffic is treated differently than other traffic might experience poor performance in one or more aspects, such as delays in transmitting data, delays in using applications, or sporadic jitter. Such effects, however, can also result from general network

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[123] *See Network Neutrality: Competition, Innovation, and Nondiscriminatory Access: Hearing Before the S. Comm. on Commerce, Sci., & Transp.*, 109th Cong. 13 (2006) (testimony of Earl W. Comstock, President and CEO, COMPTEL), *available at* http://www.digmedia.org/docs/comstock-020706.pdf.

[124] *Id.* at 14.

[125] Peha, *supra* note 36, at 6.

[126] *Id.*

[127] The difficulties associated with end-user detection of data discrimination discussed in this Section would appear to be equally applicable to enforcement of any network neutrality regulation that prohibited data discrimination by ISPs and other network operators.

[128] *See, e.g.*, Pepper, Tr. I at 93. According to Pepper:

> [T]here are techniques that consumers actually have readily available to them to test their own bandwidth and performance latency between . . . the home, or the office, and the first POP [(point of presence)], right?
>
> And so, those techniques are actually relatively available. The problem is that, depending on the service you're trying to download, the application that you're using, it may – you may be going through two or three hops [between networks], or as many as a dozen hops across the Internet. When you go across multiple hops across multiple networks, it's more difficult for a consumer to know.

Id. See also Brenner, Tr. II at 98 ("[T]here are many points between the key strokes of the customer and the download in which the speed can be affected.").

congestion.[129] Distinguishing the two may be particularly difficult for end users not possessing a technical background. Researchers, however, are working to develop diagnostic tools to detect the differential treatment of data.[130]

6. Potential End-user Responses to Data Discrimination

a. Bypassing Discriminatory Networks

Some computer experts have suggested that the prospect of networks treating some data differently than others might give rise to a kind of arms race between network operators seeking to employ technical measures to manage their networks and end users seeking to employ countermeasures to avoid them.[131] They suggest, for example, that end users can bypass networks to a limited degree through cooperative access sharing.[132] On a small scale, a group of neighbors with access to multiple, distinct broadband Internet service providers might each set up an open-access Wi-Fi router, giving everyone in the group access to each other's service provider. If one provider engages in data discrimination, members of the cooperative could bypass it by accessing the Internet through another provider in the pool. Such a strategy, however, depends on a last-mile network operator allowing the use of open-access Wi-Fi access points in the first place.[133] To the extent that last-mile networks allow the resale of their services through open-access wireless networks, competition from resellers might have a similar effect.[134] Alternatively, a municipality might set up its own wireline or wireless network if its residents are not satisfied with the service provided by private providers. It is conceivable, however, that a municipal network could also engage in certain practices that some of its residents consider to be discriminatory.[135]

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[129] *See, e.g.*, Felten, *supra* note 36, at 4.

[130] Robert McMillan, *Black Hat: Researcher Creates Net Neutrality Test*, COMPUTERWORLD, Aug. 2, 2006, *available at* http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=9002154.

[131] *See generally* William H. Lehr et al., *Scenarios for the Network Neutrality Arms Race*, 34th Research Conference on Communication, Information, & Internet Policy (2006), *available at* http://web.si.umich.edu/tprc/papers/2006/561/TPRC2006_Lehr%20Sirbu%20Peha%20Gillett%20Net%20Neutrality%20Arms%20Race.pdf. *See also* Lehr, Tr. I at 52.

[132] Lehr et al., *supra* note 131, at 10-13. *See also* Lehr, Tr. I at 41-43.

[133] Lehr et al., *supra* note 131, at 10-13.

[134] *Id.* at 13-14 (describing the Wi-Fi resale business model of FON); Lehr, Tr. I at 42-43. *See also* FON, What's FON, http://www.fon.com/en/info/whatsFon (last visited May 14, 2007).

[135] Lehr et al., *supra* note 131, at 15; Lehr, Tr. I at 43.

b. Technical Measures to Counter Data Discrimination

Countering data discrimination, like detecting it in the first place, may be difficult, especially for end users without technical backgrounds. Several technical measures to counter data discrimination do exist, however, at least to a limited degree. Several potential methods for circumventing applications-based degradation or blocking involve the computer port numbers that typically indicate which software application a computer should use to open a packet. Computer users and applications developers can prevent networks from identifying the application associated with a packet by employing port numbers not commonly associated with a particular application or by assigning and reassigning port numbers dynamically.[136] Alternatively, applications developers can use TCP port 80, the number used by most hypertext transfer protocol ("HTTP") traffic and, thus, potentially make an application's traffic indistinguishable from most other Web browser-based traffic.[137]

To evade differential treatment based on a sender or receiver's IP address, an end user could access information from the Internet through a proxy that reroutes data through another server, camouflaging its source and destination.[138] Likewise, packets might be encrypted so that a network cannot use packet inspection to identify their contents or related application.[139] Such encrypted packets could also be transmitted through a VPN to a gateway computer outside the ISP's network, where the packets could be decrypted and forwarded to their recipient.[140] In such a scenario, the last-mile ISP would see only streams of encrypted packets traveling from the end user through the VPN, thus preventing the ISP from identifying the computers with which the sender is communicating.[141] Some ISPs have responded to these measures by banning the use of VPNs and encryption protocols or charging a fee for their use.[142] Alternatively, a network might simply relegate or drop altogether encrypted packets when it cannot identify their contents.

An alternate encryption system called "onion routing" conceals packets' content, source, and destination without the use of a VPN. A packet is enveloped in several layers of encryption and then sent through a special network of links and unique routers called

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[136] Lehr et al., *supra* note 131, at 19-20. *See also* Lehr, Tr. 1 at 45-46.

[137] Lehr et al., *supra* note 131, at 20-21.

[138] *Id.*

[139] For example, some P2P software has been rewritten using the Internet IP Security protocol ("IPSec") to encrypt everything in the packets except the IP header. *Id.*

[140] Felten, *supra* note 36, at 8-9.

[141] *Id.*

[142] Lehr et al., *supra* note 131, at 22.

"routing anonymizers" or "onion routers."[143] A layer of encryption is removed at each router until the packet is stripped of encryption and delivered to its destination. Onion routing prevents network operators from knowing who is communicating with whom, and the content of the communication is encrypted up to the point where the traffic leaves the onion-routing network.[144]

Even with encryption, however, a network might be able to infer the type of packet through flow classification and continue to target certain packets for discrimination.[145] An end user might try to evade flow classification by altering the size and timing of packets, adding blank packets to the flow, or mixing packets from multiple flows.[146] A network might respond, however, by degrading or blocking all of the user's traffic or by manipulating that traffic in a way that affects one type of application much more than it does other types of traffic.[147]

Alternatively, end users might be able to offset the effects of certain kinds of discrimination to some extent by using buffering techniques to preload data streams into a computer's memory and then accessing them after a period of time, thereby alleviating problems with latency or jitter. Such techniques, however, may not be useful for real-time applications like VoIP and streaming video.[148] In some circumstances, caching content closer to end users might also effectively circumvent discriminatory practices that are implemented further into the core of the Internet.[149]

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The text above provides historical and technical background regarding the Internet to help inform the policy discussion in this Report. In the next Chapter, we address the jurisdiction of the relevant federal agencies in the area of broadband Internet access, as well as the legal and regulatory developments that have prompted the current debate over network neutrality.

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[143] *Id.*

[144] *Id. See also generally* U.S. Navy, Onion Routing: Executive Summary, http://www.onion-router.net/Summary.html (last visited June 15, 2007).

[145] Felten, *supra* note 36, at 8-9; Lehr et al., *supra* note 131, at 23; *see* Peha, *supra* note 36, at 4.

[146] Lehr et al., *supra* note 131, at 23.

[147] Felten, *supra* note 36, at 9.

[148] Lehr, Tr. I at 48-49.

[149] *Id.* at 49.

II. LEGAL AND REGULATORY BACKGROUND AND DEVELOPMENTS

If recent years have seen considerable change in the development and deployment of platforms for broadband Internet access, they also have seen considerable flux in the field of broadband regulation. A comprehensive review of federal and state law issues pertinent to the provision of broadband Internet access would go well beyond the scope of this Report.[150] This Chapter, however, provides a basic legal and regulatory framework for the policy discussion to follow in the remainder of the Report. To that end, it sketches the central elements of FTC (in Section A) and FCC (in Section B) jurisdiction over broadband services, including the statutory bases of that jurisdiction. This Chapter also reviews (in Section C) certain decisions of the courts and the agencies, including recent enforcement activity, rulemaking, and policy statements that have served to clarify both jurisdictional and substantive questions about broadband Internet access.

In brief, federal regulatory jurisdiction over broadband services generally is subject to the shared jurisdiction of the FCC, the FTC, and the DOJ. FCC jurisdiction comes chiefly from the Communications Act,[151] which established the FCC and provides for the regulation of "interstate and foreign commerce in communication by wire and radio."[152] FTC jurisdiction over broadband services comes chiefly from its statutory mandate to prevent "unfair methods of competition" and "unfair or deceptive acts or practices in or affecting commerce" under the FTC's enabling legislation, the FTC Act.[153] The FTC's authority to enforce the federal antitrust laws generally is shared with DOJ's Antitrust Division.[154]

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[150] For a more detailed treatment of the pertinent legal background, see, e.g., PETER W. HUBER ET AL., FEDERAL TELECOMMUNICATIONS LAW (2d ed. 1999) (especially Chapters 3, 10-12, Supp. (2005), and Supp. (2006)). *See also* NUECHTERLEIN & WEISER, *supra* note 30 (discussing Internet commerce, policy, and law).

[151] 47 U.S.C. §§ 151 *et seq.* Significant amendments to the Communications Act of 1934, 48 Stat. 1064 (1934), were imposed by the Telecommunications Act of 1996. *See* Pub. L. No. 104-104, 110 Stat. 56 (1996). Although broad in scope, the Telecommunications Act of 1996 did not replace the Communications Act, but amended it.

[152] 47 U.S.C. § 151.

[153] 15 U.S.C. §§ 41 *et seq.* Although the FTC Act is central to the FTC's jurisdiction over broadband Internet access, and competition and consumer protection issues generally, it is not the only statutory basis of FTC authority pertinent to the larger Internet debate. With regard to competition concerns, the FTC is also charged under, for example, the Clayton Act (15 U.S.C. §§ 12-27); the Hart-Scott-Rodino Antitrust Improvements Act of 1976 (15 U.S.C. § 18a) (amending the Clayton Act); and the International Antitrust Enforcement Assistance Act of 1994 (15 U.S.C. §§ 46, 57b-1, 1311, 1312, 6201, 6201 note, 6202-6212).

[154] The FTC and DOJ share antitrust authority with regard to most areas of the economy. The two antitrust agencies have long-standing arrangements, first established in 1948, that allow them to avoid inconsistent or duplicative efforts. See *infra* notes 218-19 for a discussion of various DOJ merger reviews in the area of Internet broadband access.

A. FTC Jurisdiction under the FTC Act

The FTC Act gives the FTC broad authority with regard to both competition and consumer protection matters in most sectors of the economy.[155] Under the FTC Act, "[u]nfair methods of competition in or affecting commerce, and unfair or deceptive acts or practices in or affecting commerce," are prohibited,[156] and the FTC has a general statutory mandate "to prevent persons, partnerships, or corporations," from engaging in such prohibited methods, acts, and practices.[157]

At the same time, the FTC Act cabins this general grant of statutory authority with regard to certain activities. In particular, the FTC's enforcement authority under the FTC Act does not reach "common carriers subject to the Communications Act of 1934," as amended.[158] An entity is a common carrier, however, only with respect to services that it provides on a common carrier basis.[159] As discussed below in Chapter II.C, because most broadband Internet access services are not provided on a common carrier basis, they are part of the larger economy subject to the FTC's general competition and consumer protection authority with regard to methods, acts, or practices in or affecting commerce.

Exercising its statutory authority over competition matters, the FTC has, where appropriate, investigated and brought enforcement actions in matters involving access to content via broadband and other Internet access services. For example, the FTC challenged the proposed merger between America Online ("AOL") and Time Warner, on the basis that the merger threatened to harm competition and injure consumers in several markets, including those for broadband Internet access and residential Internet transport services (*i.e.*, "last mile" access).[160] The consent order resolving the agency challenge required the merged entity to open its cable system to competitor Internet service

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[155] The FTC's authority is defined broadly to deal with "methods . . . acts or practices in or affecting commerce." 15 U.S.C. § 45(a)(2). But for certain limited market sectors that are expressly excluded from the FTC's enforcement authority, and for the areas in which FTC jurisdiction over various market sectors is shared, the FTC's authority ranges broadly over "commerce," without restriction to particular segments of the economy. *See id.* (FTC authority generally; express exclusion for, e.g., common carriers); *supra* note 154 and accompanying text (shared FTC/DOJ antitrust authority).

[156] 15 U.S.C. § 45(a)(1). In 1994, Congress defined an "unfair" act or practice over which the FTC has authority as one that "causes or is likely to cause substantial injury to consumers which is not reasonably avoidable by consumers themselves and not outweighed by countervailing benefits to consumers or to competition." *Id.* § 45(n).

[157] *Id.* § 45(a)(2).

[158] *Id.*

[159] 47 U.S.C. § 153(44) (provider of telecommunications services deemed a common carrier under the Communications Act "only to the extent that it is engaged in providing telecommunications services").

[160] Am. Online, Inc. & Time Warner, Inc., FTC Dkt. No. C-3989 (Dec. 17, 2000) (complaint), *available at* http://www.ftc.gov/os/2000/12/aolcomplaint.pdf.

providers on a non-discriminatory basis, for all content.[161] The order also prevented the company from interfering with the content of non-affiliated ISPs or with the ability of non-affiliated providers of interactive TV services to access the AOL/Time Warner system.[162] Moreover, the order required the company, in areas where it provided cable broadband service, to offer AOL's DSL service in the same manner and at the same retail pricing as in areas where it did not provide cable broadband service.[163]

The FTC has addressed Internet access and related issues in a number of other merger investigations as well.[164] For example, the FTC investigated the acquisition by Comcast and Time Warner of the cable assets of Adelphia Communications and, in a related matter, the exchange of various cable systems between Comcast and Time Warner. In the course of that investigation, the FTC examined, among other things, the likely effects of the transactions on access to and pricing of content. The investigation eventually was closed because a majority of the Commission concluded that the acquisitions were unlikely to foreclose competition or result in increased prices.[165]

In addition to such competition issues are various consumer protection issues that have been raised in the larger Internet access context. Over the past decade, the FTC has brought a variety of cases against Internet service providers that have engaged in allegedly deceptive marketing and billing practices.[166] For example, in 1997, the FTC separately sued America Online, CompuServe, and Prodigy, alleging that each company had offered "free" trial periods that resulted in unexpected charges to consumers.[167] One Prodigy advertisement, for example, touted a "Free Trial" and "FREE 1ST MONTH'S MEMBERSHIP" conspicuously, while a fine print statement at the bottom of the back panel of the advertisement stipulated: "Usage beyond the trial offer will result in extra

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[161] *Id.* (Apr. 17, 2001) (consent order), *available at* http://www.ftc.gov/os/2001/04/aoltwdo.pdf.

[162] *Id.*

[163] *Id.*

[164] *See, e.g.*, Cablevision Sys. Corp., 125 F.T.C. 813 (1998) (consent order); Summit Commun. Group, 120 F.T.C. 846 (1995) (consent order).

[165] *See* Statement of Chairman Majoras, Commissioner Kovacic, and Commissioner Rosch Concerning the Closing of the Investigation into Transactions Involving Comcast, Time Warner Cable, and Adelphia Communications (Jan. 31, 2006) (FTC File No. 051-0151); *see also* Statement of Commissioners Jon Leibowitz and Pamela Jones Harbour (Concurring in Part, Dissenting in Part), Time Warner/Comcast/Adelphia (Jan. 31, 2006) (FTC File No. 051-0151). Both statements are available at http://www.ftc.gov/opa/2006/01/fyi0609.htm.

[166] *See, e.g.*, Am. Online, Inc. & CompuServe Interactive Servs., Inc., FTC Dkt. No. C-4105 (Jan. 28, 2004) (consent order), *available at* http://www.ftc.gov/os/caselist/0023000/0023000aol.shtm; Juno Online Servs., Inc., FTC Dkt. No. C-4016 (June 25, 2001) (consent order), *available at* http://www.ftc.gov/os/caselist/c4016.shtm.

[167] *See* Am. Online, Inc., FTC Dkt. No. C-3787 (Mar. 16, 1998) (consent order), *available at* http://www.ftc.gov/os/1997/05/ameronli.pdf; CompuServe, Inc., 125 F.T.C. 451 (1998) (consent order); Prodigy, Inc., 125 F.T.C. 430 (1998) (consent order).

fees, even during the first month."[168] Other alleged misrepresentations included AOL's failure to inform consumers that fifteen seconds of connect time was added to each online session (in addition to the practice of rounding chargeable portions of a minute up to the next whole minute),[169] as well as its misrepresentation that it would not debit customers' bank accounts before receiving authorization.[170] The settlement orders in these matters prohibited the companies from, among other things, misrepresenting the terms or conditions of any trial offer of online service. Although all three matters involved dial-up, or narrowband, Internet access, the orders are not limited by their terms to narrowband services.

More recently, in the matter of *FTC v. Cyberspace.com*,[171] the federal district court for the Western District of Washington granted summary judgment in favor of the FTC, finding, among other things, that the defendants had violated the FTC Act by mailing false or misleading purported rebate or refund checks to millions of consumers and businesses without disclosing, clearly and conspicuously, that cashing the checks would prompt monthly charges for Internet access services on the consumers' and businesses' telephone bills. Following a trial on the issue of consumer injury, the court ordered the defendants to pay more than $17 million to remedy the injury caused by their fraudulent conduct. The Court of Appeals for the Ninth Circuit affirmed the trial court's liability finding last year.[172]

In addition, the FTC has brought numerous cases involving the hijacking of consumers' modems.[173] For example, in *FTC v. Verity International Ltd.*,[174] the Commission alleged that the defendants orchestrated a scheme whereby consumers seeking online entertainment were disconnected from their regular ISPs and reconnected to a Madagascar phone number. The consumers were then charged between $3.99 and

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[168] *Prodigy*, 125 F.T.C. at 430 exhibit A (complaint). Similar complaints were lodged against America Online and CompuServe.

[169] For example, "an online session of 2 minutes and 46 seconds, with the 15 second supplement, totals 3 minutes and 1 second and is billed as 4 minutes." *Am. Online*, FTC Dkt. No. C-3787 at 4 exhibit E (complaint).

[170] *See id.* at 5-6 exhibit F.

[171] No. C00-1806L, 2002 U.S. Dist. LEXIS 25565 (W.D. Wash. July 10, 2002), *aff'd*, 453 F.3d 1196 (9th Cir. 2006).

[172] *Cyberspace.com*, 453 F.3d at 1196.

[173] A list of FTC enforcement actions involving the Internet and online services generally, and modem hijacking allegations in particular, can be found at http://www.ftc.gov/bcp/internet/cases-internet.pdf. These actions include the following: FTC v. Sheinkin, No. 2-00-3636-18 (D.S.C. 2001); FTC v. RJB Telcom, Inc., No. CV 00-2017 PHX SRB (D. Ariz. 2000); FTC v. Ty Anderson, No. C 00-1843P (W.D. Wash. 2000); FTC v. Audiotex Connection, Inc., No. CV-97-0726 (DRH) (E.D.N.Y. 1997).

[174] 335 F. Supp. 2d 479 (S.D.N.Y. 2004), *aff'd in part, rev'd in part*, 443 F.3d 48 (2d Cir. 2006), *cert. denied*, 127 S. Ct. 1868 (2007).

$7.78 per minute for the duration of each connection. In that case, AT&T and Sprint – which were not parties to the FTC enforcement action – had carried the calls connecting the consumers' computers to the defendants' servers. Consumers were billed at AT&T's and Sprint's filed rates for calls to Madagascar. The defendants therefore argued that the entertainment service in question was provided on a common carrier basis and thus outside the FTC's jurisdiction. One defendant also claimed to be a common carrier itself and hence beyond FTC jurisdiction. Although both the District Court and the Court of Appeals rejected those arguments, the FTC had to expend substantial time and resources litigating the question of jurisdiction.[175]

As the *Verity* case demonstrates, enforcement difficulties posed by the common carrier exemption are not merely speculative. The FTC regards the common carrier exemption in the FTC Act as outmoded and, as it creates a jurisdictional gap, an obstacle to sound competition and consumer protection policy. As the FTC has explained before Congress, technological advances have blurred traditional boundaries between telecommunications, entertainment, and high technology.[176] For example, providers routinely include telecommunications services, such as telephone service, and non-telecommunications services, such as Internet access, in bundled offerings. As the telecommunications and Internet industries continue to converge, the common carrier exemption is likely to frustrate the FTC's efforts to combat unfair or deceptive acts and practices and unfair methods of competition in these interconnected markets.

Finally, based on the above discussion of the FTC's jurisdiction over broadband services, three general points may be in order. First, as the investigations and enforcement actions described above suggest, the FTC has both authority and experience in the enforcement of competition and consumer protection law provisions pertinent to broadband Internet access. Second, the FTC Act provisions regarding "[u]nfair methods of competition in or affecting commerce, and unfair or deceptive acts or practices in or affecting commerce," are general and flexible in nature, as demonstrated by judicial and administrative decisions across diverse markets.[177] Third, the FTC's investigative and enforcement actions have been party- and market-specific; that is, neither the general body of antitrust and consumer protection law nor the FTC's enforcement and policy record determines any particular broadband connectivity policy or commits the Commission to favoring any particular model of broadband deployment.

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[175] In response to a request from the district court, the FCC filed an amicus brief in support of the FTC's jurisdiction in this matter. *See Verity*, 443 F.3d at 56, 61.

[176] *See FTC Jurisdiction over Broadband Internet Access Services: Hearing Before the S. Comm. on the Judiciary*, 109th Cong. 9-11 (2006) (statement of William E. Kovacic, Comm'r, FTC), *available at* http://www.ftc.gov/opa/2006/06/broadband.shtm.

[177] "Congress has deliberately left these phrases undefined so that the parameters of the FTC's powers and the scope of its administrative and judicial functions could be responsive to a wide variety of business practices." ABA SECTION OF ANTITRUST LAW, ANTITRUST LAW DEVELOPMENTS 643 & n.4 (6th ed. 2007) (citing FTC v. Sperry & Hutchinson Co., 405 U.S. 233, 239-44 (1972); FTC v. R.F. Keppel & Bro., 291 U.S. 304, 310-12 (1934)).

B. FCC Jurisdiction under the Communications Act

As noted above, FCC jurisdiction over broadband services arises under the Communications Act.[178] Central to the broadband discussion is a distinction under that Act between "telecommunications services" and "information services."[179] The former, but not the latter, are subject to substantial mandatory common carrier regulations under Title II of the Communications Act.[180] While not subject to the Title II common carrier regulations, information services are treated by the FCC as subject to its general, ancillary jurisdiction under Title I of the Communications Act.[181]

Under Title II, providers of telecommunications services are bound to, among other things, enable functional physical connections with competing carriers,[182] at "just and reasonable" rates,[183] which the FCC may prescribe,[184] and are prohibited from

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[178] 47 U.S.C. §§ 151 *et seq.*

[179] Under the Communications Act, an "information service . . . means the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications . . . ." 47 U.S.C. § 153(20). In contrast, "'telecommunications service' means the offering of telecommunications for a fee directly to the public . . . regardless of the facilities used," *id.* § 153(46), and "'telecommunications' means the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received." *Id.* § 153(43). In brief, to act simply as a transmitter or transducer of information is to provide a telecommunications service, whereas to act as a transformer of information is to provide an information service.

[180] The Communications Act is divided into seven Titles. *See generally* 47 U.S.C. §§ 151 *et seq.* Under Title I are "General Provisions," including, for example, the purposes of the Act, definitions, the establishment of the FCC, and the structure and operations of the FCC. Under Title II are the "Common Carriers" provisions, including, among others, common carrier regulations and "Universal Service" requirements. Under Title III are "Provisions Relating to Radio." Under Title IV are "Procedural and Administrative Provisions." Under Title V are "Penal Provisions." Under Title VI are provisions relating to "Cable Communications." Finally, miscellaneous additional provisions are included under Title VII.

[181] *See, e.g.*, *In re* Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities, 20 FCC Rcd 14853, 14914 (2005) (report and order and notice of proposed rulemaking) ("We recognize that . . . the predicates for ancillary jurisdiction are likely satisfied for any consumer protection, network reliability, or national security obligation that we may subsequently decide to impose on wireline broadband Internet access service providers."). Although the scope of the FCC's ancillary jurisdiction over broadband services has not been defined by the courts, it should be noted that the Supreme Court, in *dicta*, has recognized the application of the FCC's ancillary jurisdiction over information service providers. *See Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 976 (2005).

[182] 47 U.S.C. § 201(a).

[183] *Id.* § 201(b).

[184] *Id.* § 205.

making "any unjust or unreasonable discrimination in charges, practices, classifications, regulations, facilities, or services . . . ."[185]

There are, however, several important qualifications on these Title II common carrier requirements. First, the Communications Act expressly provides for regulatory flexibility to facilitate competition. In particular, with regard to telecommunications carriers or services, the FCC

> shall forebear from applying any regulation or any provision of this Act . . . if the Commission determines that–(1) enforcement . . . is not necessary to ensure that the charges, practices, classifications, or regulations . . . are just and reasonable and are not unjustly or unreasonably discriminatory; (2) enforcement . . . is not necessary for the protection of consumers; and (3) forbearance from applying such provision or regulation is consistent with the public interest.[186]

In addition, in determining such "public interest," the FCC must "consider whether forbearance from enforcing the provision or regulation promotes competitive market conditions."[187] Finally, the Communications Act expressly states that "[i]t shall be the policy of the United States to encourage the provision of new technologies and services to the public."[188] As a consequence, any person "(other than the Commission) who opposes a new technology or service proposed to be permitted under this Act shall have the burden to demonstrate that such proposal is inconsistent with the public interest."[189]

C. Regulatory and Judicial Clarification

As noted above, a series of regulatory and judicial decisions have helped to clarify both the distinction between information and telecommunications services and the status of broadband services as information services. That clarification is, to an extent, in tension with early regulatory and judicial attempts to grapple with the novel technologies that enabled the provision of Internet access. For example, in 1980, the FCC promulgated rules designed to address, among other things, the growing commerce in data-processing services available via telephone wires (the "Computer II Rules").[190] With reference to those rules, the FCC subsequently applied certain common carrier obligations, such as non-discrimination, to local telephone companies providing early

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[185] *Id.* § 202.

[186] *Id.* § 160(a).

[187] *Id.* § 160(b).

[188] *Id.* § 157(a).

[189] *Id.* § 160(b).

[190] *See In re* Amendment of Section 64.702 of the Comm'n's Rules & Regulations (Second Computer Inquiry), 77 F.C.C.2d 384, 417-23 (1980) [hereinafter *Computer II Rules*].

DSL services.[191] Further, as recently as 2000, the Court of Appeals for the Ninth Circuit held that "the transmission of Internet service to subscribers over cable broadband facilities is a telecommunications service under the Communications Act."[192]

Still, the FCC's current view that broadband services are information services has its roots in earlier decisions by the FCC and the courts. The same Computer II Rules that grounded the early DSL determination distinguished between "basic" and "enhanced" services and did not subject the latter to Title II common carrier regulation.[193] In the following decade, the FCC recognized that ISPs provide not just "a physical connection [to the Internet], but also . . . the ability to translate raw Internet data into information [consumers] may both view on their personal computers and transmit to other computers connected to the Internet."[194] Moreover, the 1998 Universal Service Report regarded "non-facilities-based" ISPs – those that do not own their own transmission facilities – solely as information service providers.[195] Indeed, even the Ninth Circuit opinion that held that ISPs offering cable broadband were offering telecommunications services recognized that, under the Communications Act and FCC implementing regulations, a significant portion of those services were information services.[196]

In 2000, the FCC issued a Notice of Inquiry to resolve, among other things, the application of the Communications Act's information/telecommunications distinction to cable broadband ISPs.[197] In its subsequent declaratory ruling in 2002, the FCC concluded that broadband cable Internet access services were information services, not

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[191] In a 1998 order, the FCC found, among other things, that incumbent local exchange carriers are subject to various interconnection obligations under Title II of the Communications Act. *See In re* Deployment of Wireline Servs. Offering Advanced Telecomms. Capability, 13 FCC Rcd 24011 (1998) (memorandum opinion and order and notice of proposed rulemaking). The FCC noted that, although DSL and other advanced services could "also be deployed using other technologies over satellite, cable, and wireless systems, [it would] limit the discussion here to wireline services, because none of the petitioners raise issues about these other technologies." *Id.* at 24016 n.11. *See also* GTE Operating Cos. Tariff No. 1, 13 FCC Rcd 22466 (1998).

[192] AT&T Corp. v. City of Portland, 216 F.3d 871, 880 (9th Cir. 2000).

[193] *See Computer II Rules*, 77 F.C.C.2d at 428-32.

[194] *In re* Fed.-State Joint Bd. on Universal Serv., 13 FCC Rcd 11501, 11531 (1998).

[195] *See id.* at 11530.

[196] *See AT&T*, 216 F.3d at 877-78.

[197] *In re* Inquiry Concerning High-Speed Access to the Internet Over Cable & Other Facilities, 15 FCC Rcd 19287 (2000) (notice of inquiry). As noted above, this notice of inquiry had been expressly limited in its application to broadband services provided by local telephone companies over wireline. Prior to 2000, the FCC had not ruled on the application of common carrier obligations to broadband services provided via cable. It sought, in this notice of inquiry, "to instill a measure of regulatory stability in the market," and to resolve a split in the Circuit courts regarding the regulatory status of "cable modem" broadband services. *See id.* at 19288 & n.3 (*comparing AT&T*, 216 F.3d 871 *with* Gulf Power Co. v. FCC, 208 F.3d 1263 (11th Cir. 2000)).

telecommunications services, and hence not subject to common carrier regulation under Title II.[198] In reaching that conclusion, the FCC emphasized the information coding, storage, and transformation processes that were central to such services, as it had in concluding that non-facilities-based services were information services in its Universal Service Report.[199] Moreover, the FCC concluded that there was no principled or statutory basis for treating facilities-based and non-facilities-based services differently, as both offered "a single, integrated service that enables the subscriber to utilize Internet access service . . . ."[200]

In response, several parties sought judicial review of the FCC's determination in a dispute eventually heard by the Supreme Court, in *National Cable & Telecommunications Association v. Brand X Internet Services* ("*Brand X*").[201] In *Brand X*, the Court upheld the FCC's determination that cable broadband is an information service as a reasonable construction of the Communications Act, reversing a Ninth Circuit decision that had relied on *City of Portland* as precedent.[202]

In the wake of the *Brand X* decision, the FCC has continued to expand, platform by platform, upon the broadband policy defended in that case. In 2005, the FCC released the *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities* ("Wireline Order"), in which it reclassified wireline broadband Internet access service by facilities-based carriers as an information service.[203] That reclassification pertains to both "wireline broadband Internet access service . . . [and] its transmission component,"[204] and is independent of the underlying technology employed.[205] The

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[198] *In re* Inquiry Concerning High-Speed Access to the Internet Over Cable & Other Facilities, 17 FCC Rcd 4798, 4821-22 (2002) (declaratory ruling and notice of proposed rulemaking).

[199] *Id.* at 4820-23.

[200] *Id.* at 4823.

[201] 545 U.S. 967 (2005).

[202] *Id.* at 973-74. It should be noted that *Brand X* is fundamentally a *Chevron* decision. That is, the Court did not examine the question of the status of cable broadband services as an abstract or *de novo* issue of statutory construction. Rather, the Court held that the FCC's ruling was – because based on reasonable policy grounds – a permissible resolution of ambiguous statutory language in the Telecommunications Act of 1996, given the FCC's authority under the Communications Act, the Administrative Procedures Act, and standards of agency deference the Court had articulated in *Chevron v. NRDC*. *See id.* at 973 (citing Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837 (1984) and 5 U.S.C. §§ 551 *et seq.*).

[203] *In re* Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, 20 FCC Rcd 14853 (2005) (report and order and notice of proposed rulemaking).

[204] *Id.* at 14856.

[205] *Id.* at 14860 n.15 ("We stress that our actions in this Order are limited to wireline broadband Internet access service and its underlying broadband transmission component, whether that component is provided over all copper loops, hybrid copper-fiber loops, a fiber-to-the-curb or fiber-to-the-premises (FTTP) network, or any other type of wireline facilities, and whether that component is provided using circuit-switched, packet-based, or any other technology.").

Wireline Order does, however, *permit* facilities-based wireline carriers *to elect* to provide broadband transmission service on a common carrier basis.[206]

In 2006, the FCC released an order in which it classified broadband-over-powerline Internet access services as information services.[207] Also in 2006, the FCC granted – by operation of law – Verizon's petition for forbearance from Title II and Computer Inquiry Rules[208] with respect to its broadband services.[209] Verizon had asked for forbearance "from traditional common-carriage requirements for all broadband services," seeking relief chiefly with regard to certain commercial broadband services not expressly addressed in the Wireline Order or other rulemaking.[210]

Most recently, the FCC clarified more generally the status of wireless services as information services, issuing in 2007 a declaratory ruling finding: (1) "that wireless broadband Internet access service is an information service"; (2) that while the underlying transmission component of such service is "telecommunications," offering telecommunications transmission "as a part of a functionally integrated Internet access service is not 'telecommunications service' under section 3 of the Act"; and (3) "that

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[206] *Id.*

[207] *In re* United Power Line Council's Petition for Declaratory Ruling Regarding the Classification of Broadband Over Power Line Internet Access Serv. as an Info. Serv., 21 FCC Rcd 13281 (2006) (memorandum opinion and order).

[208] *See In re* Regulatory & Policy Problems Presented by the Interdependence of Computer & Commun. Servs. & Facilities, 28 F.C.C.2d 267 (1971) (final decision and order) ("Computer I"); *In re* Amendment of Section 64.702 of the Comm'n's Rules & Regulations (Second Computer Inquiry), 77 F.C.C.2d 384 (1980) (final decision) ("Computer II"); *In re* Computer III Further Remand Proceedings: Bell Operating Co. Provision of Enhanced Servs., 14 FCC Rcd 4289 (1999) (report and order). Collectively, these matters are known as the "Computer Inquiry Rules."

[209] *See* Press Release, FCC, Verizon Telephone Companies' Petition for Forbearance from Title II and Computer Inquiry Rules with Respect to Their Broadband Services Is Granted by Operation of Law (Mar. 20, 2006), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-264436A1.pdf (explaining that a forbearance petition will be deemed granted if the FCC does not deny the petition within one year of receipt, unless one-year period is extended by the FCC). Although the FCC did not explicitly grant such relief, "the effect given to the petition by operation of law grants Verizon's further broadband relief, continuing our policy to encourage new investment." *In re* Petition of the Verizon Tel. Cos. for Forbearance under 47 U.S.C. § 160(c) from Title II & Computer Inquiry Rules with Respect to Their Broadband Servs., WC Docket 04-440 (2006), 2006 FCC LEXIS 1333 (Chairman Martin & Comm'r Tate, concurring).

[210] Such services included: (1) packet-switched services capable of 200 Kbps in each direction and (2) certain optical networking, hubbing, and transmission services. *See In re* Petition of the Verizon Tel. Cos. for Forbearance under 47 U.S.C. § 160(c) from Title II & Computer Inquiry Rules with Respect to Their Broadband Servs., WC Docket 04-440 (Feb. 7, 2006) (*ex parte* letter from Verizon Tel. Cos.), *available at* http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6518324844.

mobile wireless broadband Internet access service is not a 'commercial mobile service' under section 332 of the Act."[211]

Thus, over the past few years, the FCC has essentially unified the regulatory status of cable, wireline, powerline, and wireless broadband Internet access services as information services that are not subject to Title II common carrier requirements.[212] In doing so, the FCC has focused on the abstract functional properties of ISPs as they ranged across varying implementations or platforms. Underlying this unification has been a significant degree of deregulation across broadband technologies, in keeping with the statutory interest under the Communications Act in furthering competition and the development of new technologies.[213]

The FCC has nonetheless continued to demonstrate an interest in, and commitment to, broadband Internet access. Certain policy statements have sought to guide industry conduct to avoid both FCC enforcement actions and the "potentially destructive" impact of overbroad and premature regulation of an "emerging market."[214] In 2004, then-FCC Chairman Michael Powell challenged the industry to preserve four "Internet Freedoms" to that end. They were:

(1) *The "Freedom to Access Content* . . . consumers should have access to their choice of legal content" (within "reasonable limits" imposed by legitimate network management needs);

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[211] *In re* Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks, 22 FCC Rcd 5901, 5901-02 (2007) (declaratory ruling).

[212] *See id.* ("This approach is consistent with the framework that the Commission established for cable modem Internet access service, wireline broadband Internet access service, and Broadband over Power Line (BPL) – enabled Internet access service and it establishes a minimal regulatory environment for wireless broadband Internet access service that promotes our goal of ubiquitous availability of broadband to all Americans.") (citations omitted).

[213] *See, e.g.*, *Assessing the Communications Marketplace: A View from the FCC: Hearing Before the S. Comm. on Commerce, Sci., & Transp.*, 110th Cong. 2 (2007) (statement of Kevin J. Martin, Chairman, FCC), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-270192A1.pdf ("In 2005, the Commission created a deregulatory environment that fueled private sector investment. . . . Broadband deployment has been our top priority at the Commission, and we have begun to see some success as a result of our efforts."); *see also, e.g.*, Thorne, Tr. II at 34 ("Over the past ten years, the policy of Congress and the Federal Communications Commission has been to encourage investment and innovation in broadband networks. This policy has been wildly successful."). In addition, the FCC had undertaken to expand the supply of broadband access services by, for example, promoting the use of unlicensed spectrum in rural areas. *See In re* Implementation of the Commercial Spectrum Enhancement Act & Modernization of the Comm'n's Competitive Bidding Rules & Procedures, 20 FCC Rcd 11268 (2005) (declaratory ruling and notice of proposed rulemaking) (implementing Enhance 911 Services Act, Pub. L. No. 108-494, 118 Stat. 3986, Title II (2004)). See *infra* Chapter VI.D for a more detailed discussion of federal spectrum policies.

[214] Michael K. Powell, Chairman, FCC, Keynote Address at the Silicon Flatirons Symposium: Preserving Internet Freedom: Guiding Principles for the Industry (Feb. 8, 2004), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-243556A1.pdf.

(2) *The "Freedom to Use Applications* . . . consumers should be able to run the applications of their choice" (within service plan limits and provided the applications do not "harm the provider's network");
(3) *The "Freedom to Attach Personal Devices* . . . consumers should be permitted to attach any devices they choose to the connection in their homes" (within service plan limits, provided the devices do not "harm the provider's network or enable theft of service"); and
(4) *The "Freedom to Obtain Service Plan Information* . . . consumers should receive meaningful information regarding their service plans" (so that "broadband consumers can easily obtain the information they need to make rational choices.").[215]

With some modification, those four Internet Freedoms were incorporated into an FCC policy statement ("Broadband Policy Statement"), issued to accompany the Wireline Order in 2005.[216] Recast as FCC principles, they included:

(1) The ability of consumers to "access the lawful Internet content of their choice";
(2) the ability of consumers to "run applications and use services of their choice, subject to the needs of law enforcement";
(3) the ability of consumers to "connect their choice of legal devices that do not harm the network"; and
(4) the existence of "competition among network providers, application and service providers, and content providers."[217]

In approving the AT&T/SBC and Verizon/MCI mergers in 2005, the FCC required the companies to adhere to connectivity principles set forth in its Broadband Policy Statement for a period of two years.[218] More recently, in approving the

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[215] *Id.* (italics included in published version of address).

[216] *See In re* Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, 20 FCC Rcd 14986 (2005) (policy statement).

[217] *Id.* Also in 2005 – prior to issuance of the Wireline Order – the FCC took enforcement action against allegedly discriminatory behavior by an ISP. *In re* Madison River Communs., LLC, 20 FCC Rcd 4295, 4297 (2005). The resulting consent decree in that matter required a small North Carolina ISP to "not block ports used for VoIP applications or otherwise prevent customers from using VoIP applications." *Id.* Because the FCC used its Title II authority in this case, under which it can regulate common carrier services, this case may not be precedent for future enforcement authority over such services now characterized as information services and regulated under the FCC's Title I ancillary jurisdiction. See also *infra* Chapters VII.B and IX.B for additional discussion of the *Madison River* matter.

[218] *See In re* SBC Communs. Inc. & AT&T Corp. Applications for Approval of Transfer of Control, 20 FCC Rcd 18290 (2005) (memorandum opinion and order) (especially appendix F); *In re* Verizon Communs. Inc. & MCI Inc. Applications for Approval of Transfer of Control, 20 FCC Rcd 18433 (2005) (memorandum opinion and order) (especially appendix G).

The DOJ also examined the proposed mergers and successfully sought, under the Tunney Act, the divestiture of certain assets as conditions to such mergers. *See* United States v. SBC Communs., Inc., Civ.

AT&T/BellSouth merger, the FCC required the combined company to agree not to provide or sell (for a period of thirty months following the merger closing date) "any service that privileges, degrades, or prioritizes any packet transmitted over AT&T/BellSouth's wireline broadband Internet access services based on its source, ownership, or destination."[219]

Most recently, the FCC announced an inquiry "to better understand the behavior of participants in the market for broadband services."[220] Among other things, the FCC is seeking information regarding the following:

- How broadband providers are managing Internet traffic on their networks today;
- Whether providers charge different prices for different speeds or capacities of service;
- Whether our policies should distinguish between content providers that charge end users for access to content and those that do not; and
- How consumers are affected by these practices.[221]

In addition, the FCC has asked for comments "on whether the [Broadband] Policy Statement should incorporate a new principle of nondiscrimination and, if so, how would 'nondiscrimination' be defined, and how would such a principle read."[222]

Action Nos. 05-2102 (EGS) & 05-2103 (EGS), 2007 WL 1020746 (D.D.C. Mar. 29, 2007). In particular, the merging parties were required to divest themselves of long-term interests in certain local private line, or special access, facilities. *Id.* at *5 (noting that "[a]part from the difference in geographic scope due to the identities of the parties, the proposed final judgments are practically identical and require the same type of divestitures."). See *infra* Chapter VI.B for a discussion of special access facilities and their relationship with broadband Internet services.

[219] *In re* AT&T Inc. & BellSouth Corp. Application for Transfer of Control, 22 FCC Rcd 5662 (2006) (memorandum opinion and order). Two FCC Commissioners issued a concurring statement expressing their view that "[t]he conditions regarding net-neutrality have very little to do with the merger at hand and very well may cause greater problems than the speculative problems they seek to address." *Id.* at 5826 (Chairman Martin & Comm'r Tate, concurring).

The DOJ also reviewed the AT&T/BellSouth merger, examining, among other things, the merged firm's ability or incentive to favor its own Internet content over that of its rivals. *See* Press Release, DOJ, Statement by Assistant Attorney General Thomas O. Barnett Regarding the Closing of the Investigation of AT&T's Acquisition of BellSouth 3 (Oct. 11, 2006), *available at* http://www.usdoj.gov/atr/public/press_releases/2006/218904.pdf. The DOJ concluded its investigation last October, finding that "the merger would neither significantly increase concentration in markets for the provision of broadband services to end users nor increase Internet backbone market shares significantly." *Id.*

[220] Press Release, FCC, FCC Launches Inquiry into Broadband Market Practices (Mar. 22, 2007), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-271687A1.pdf.

[221] *Id.*

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The legal and regulatory developments discussed above have prompted the current debate over network neutrality regulation. In the next Chapter, we provide an overview of the arguments in favor and against such regulation that have been put forth to date.

[222] *Id.*

III. OVERVIEW OF ARGUMENTS IN FAVOR OF AND AGAINST NETWORK NEUTRALITY REGULATION

Technology experts have recognized since the Internet's earliest days that network resources are scarce and that traffic congestion may lead to reduced performance.[223] Although such experts continued to explore different data-transmission protocols and the viability of market-based pricing mechanisms through the 1980s and 1990s, the current debate over broadband connectivity policy did not accelerate until more recently.[224] At about the same time that the FCC began its cable broadband rulemaking proceedings in 2000,[225] data routing technologies advanced to the point where some network operators began openly to consider using prioritization and other active management practices to improve network management and provide certain premium services for a fee.[226]

Various interested parties, including some content and applications providers, non-facilities-based providers of Internet services, and third-party commentators, have expressed concern about network operators' use of these routing technologies in an environment that is not subject to common carrier regulation. Some of them, therefore, have proposed that the transmission of data on the Internet be subject to some type of "network neutrality" rules that forbid or place restraints on some types of data or price discrimination by network operators.[227] This Chapter summarizes the major arguments in favor of (in Section A) and against (in Section B) the enactment of some form of network neutrality regulation put forth to date.[228] Arguments involving data discrimination and prioritization, as well as competition and consumer protection issues, are addressed in more detail below in Chapters IV through VIII of this Report.

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[223] *See supra* Chapter I.A.

[224] *See generally* Vinton G. Cerf & David Farber, The Great Debate: What is Net Neutrality?, Hosted by the Center for American Progress (July 17, 2006), *available at* http://www.americanprogress.org/kf/060717%20net%20neutrality.pdf; Tim Wu & Christopher Yoo, *Keeping the Internet Neutral?: Timothy Wu and Christopher Yoo Debate* (Vand. Pub. Law, Research Paper No. 0-27, 2006), *available at* http://ssrn.com/abstract=953989.

[225] See *supra* Chapter II.C for a discussion of relevant FCC proceedings.

[226] *See supra* Chapter I.A.

[227] *See, e.g.*, Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. ON TELECOMM. & HIGH TECH. L. 141, 151 (2005) ("Over the history of communications regulation, the Government has employed both common carriage requirements (similar to the neutrality regime discussed here) and limits on vertical integration as [a] means of preventing unwanted discrimination."). *See also* Cohen, Tr. II at 195 (arguing that network neutrality regulation "is really a return to the status quo as where it was [in August 2005 and before Brand X] so it's not . . . a new set of regulations").

[228] This Chapter is not intended to be a comprehensive treatment of the many arguments put forth in favor of and against network neutrality. Instead, this Chapter serves as a general survey of the types of arguments raised by both sides of the network neutrality debate. Nor does this Chapter attribute every single argument or variation thereon to every individual or entity that has made such arguments.

A. Arguments in Favor of Network Neutrality Regulation

Proponents of network neutrality regulation argue, among other things, that the existing jurisdiction of the FCC, FTC, and DOJ, as well as oversight by Congress, are insufficient to deal with what they predict will be inevitable and far-reaching harms from so-called non-neutral practices. They suggest that after recent legal and regulatory determinations, providers of certain broadband Internet services now have the legal authority to act as gatekeepers of content and applications on their networks.

Principally, these advocates express concern about: (1) blockage, degradation, and prioritization of content and applications; (2) vertical integration by network operators into content and applications; (3) effects on innovation at the "edges" of the network (*i.e.*, by content and applications providers); (4) lack of competition in "last-mile" broadband services; (5) legal and regulatory uncertainty in the area of Internet access; and (6) diminution of political and other expression on the Internet. Net neutrality proponents argue that various harms are likely to occur in the absence of neutrality regulation and that it will be difficult or impossible to return to the status quo if non-neutral practices are allowed to become commonplace. Proponents thus see an immediate need to enact neutrality regulation.[229]

1. Concerns about Blockage and Degradation of Non-Favored Content aud Applicatious

Network neutrality advocates suggest that, without neutrality rules, network operators will use packet-inspection technologies to favor the transmission of their own content and applications, or those of their affiliates, over those of other providers instead of offering the unrestricted access generally available to end users today.[230] They frequently suggest that end users' access to the wider Internet will become balkanized and restricted to what network operators choose to display in their own proprietary "walled gardens." Proponents believe such walled gardens will look more like the original America Online dial-up service or even an Internet version of cable television, with access to only a limited number of favored sites. Proponents further point to preferential practices in other industries, such as cable television and telephony, as indications of the likelihood that network operators will adopt comparable practices in the absence of net neutrality regulation.[231]

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[229] *See, e.g.*, Cohen, Tr. II at 150 ("I can't take the view that we should start from the premise of wait until it's all destroyed before we do anything about it.").

[230] *See, e.g.*, Wu, *supra* note 227. *See also* EARL W. COMSTOCK, WHAT IS NET NEUTRALITY? (2006), *available at* http://www.comptel.org/content.asp?contentid=658; G. Sohn, Tr. I at 98; Farrell, Tr. I at 220.

[231] *See, e.g.*, Lawrence Lessig & Robert W. McChesney, *No Tolls on the Internet*, WASH. POST, June 8, 2006, at A23. Lessig and McChesney suggest that "[w]ithout net neutrality, the Internet would start to look like cable TV. A handful of massive companies would control access and distribution of content, deciding what you get to see and how much it costs." *Id. See also* Tulipane, Tr. I at 259-66. In Tulipane's view, "prioritization based on source or content will result in a closed network, just like the cable system today." *Id.* at 266. Similarly, Sohn suggests: "[s]hort of outright blocking, ISPs could engage in various forms of

Advocates of net neutrality point to certain statements by ISP executives as evidence of their intent to treat some content and applications differently than others.[232] They cite to the *Madison River*[233] matter as evidence that network operators do, in fact, have the technological means and incentive to actively degrade or outright block certain content and applications.[234] They also question whether end users will be able to determine readily why certain content and applications might be unavailable or executing more slowly or less reliably than others.[235] Some also suggest that the introduction of specialized, virtual private networks ("VPNs") that require users to purchase premium service packages foreshadows the advent of a balkanized, non-neutral Internet.[236]

In particular, these proponents warn that network operators might try to disfavor some content and applications by inhibiting or forbidding users from attaching related devices to their networks, such as the VoIP phone equipment of competing Internet telephony providers or VoIP-enabled mobile phones.[237] They also state that cable companies have, in fact, blocked streaming video applications to protect their own cable television businesses and that wireless phone companies have placed limits on the types of content and applications that can be accessed using their wireless Internet services.[238]

Some network neutrality proponents also contend that network operator bans on the use of basic residential packages to operate VPNs, open-access Wi-Fi antennas that support multiple users, home networks, and computer servers all amount to violations of neutrality principles.[239] Some, but not all, proponents, however, believe that such

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discrimination, and the fears [sic] that could have the practical effect of driving innovators to really have now a practical need to seek deals with each recipient's ISP." D. Sohn, Tr. II at 227-28.

[232] *See supra* note 64.

[233] In *Madison River*, an ISP allegedly blocked its customers from accessing a competing VoIP provider. The ISP entered into a consent decree with the FCC that prohibited the ISP from blocking ports used for VoIP traffic. The ISP also made a voluntary payment of $15,000 to the U.S. Treasury. *In re* Madison River Communs., LLC, 20 F.C.C.R. 4295, 4297 (2005).

[234] *See, e.g.*, Davidson, Tr. I at 227-28. For Davidson, "prioritization in the last mile creates real concerns. Particularly, we are concerned that prioritization through router-based discrimination in the last mile degrades computing services, and creates incentives to relegate some of those computing services to a slow lane." *Id.*

[235] *See supra* Chapter I.C.5.

[236] *See, e.g.*, Yokubaitis, Tr. II at 108.

[237] *See, e.g.*, Libertelli, Tr. I at 73 ("[F]or Skype, network neutrality is about protecting our users' ability to connect to each other, whenever and wherever they want. We support net neutrality[] because it embodies a policy of decentralized innovation.").

[238] *See, e.g.*, John Windhausen, Jr., *Good Fences Make Bad Broadband: Preserving an Open Internet Through Net Neutrality* 16-23 (Public Knowledge White Paper, 2006), *available at* http://www.publicknowledge.org/pdf/pk-net-neutrality-whitep-20060206.pdf.

[239] *See, e.g.*, *id.*

restrictions may be justified because they are meant to solve situations in which a few users generate costs that are imposed on other users.[240]

2. Concerns about Charging Content and Applications Providers for Prioritized Data Delivery

Net neutrality advocates also express concern that, short of outright blockage or active degradation, network operators will present certain content and applications to users in a preferential manner in exchange for payment. They express concern that network operators may, for example, use packet-inspection technology to provide quicker load times for certain providers' Web pages or faster and more consistent connections for favored VoIP or streaming video providers.[241] Some network operators have, in fact, indicated that they would like to offer certain prioritized services or other kinds of quality-of-service guarantees in exchange for a premium fee.[242]

Some neutrality advocates object to the idea of a network offering prioritized data transmission or quality-of-service guarantees in exchange for payment.[243] That is, they object to a deviation from the long-standing first-in-first-out and best-efforts transmission characteristics of the Internet. They are concerned about the potential for prioritization to result in blocking or degradation of non-favored content and applications. These advocates are concerned that content and applications from providers affiliated with the network operator or having a greater ability to pay will be available in a "fast lane," while others will be relegated to a "slow lane," discriminated against, or excluded altogether.[244] Further, creating priority fast lanes, according to some advocates, necessarily would

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[240] *See, e.g.*, Wu, *supra* note 227, at 152.

[241] *See, e.g.*, Editorial, *Open Net*, THE NEW REPUBLIC, June 26, 2006, *available at* http://www.tnr.com/doc.mhtml?pt=oy4NRC5%2Bfmu%2Fm585FtGwlC%3D%3D.

[242] *See infra* Chapter III.B.

[243] *See, e.g.*, Davidson, Tr. I at 228. In his view:

> [W]hat we're worried about is in that context, the power to prioritize in the last mile effectively becomes the power to control the applications and content that customers can effectively use.
>
> So, imagine, for example, that a last mile provider with market power might be able to use prioritization to, for example, relegate a competing Voice over IP provider to a lower quality slow lane. It might prevent a competing video provider – prevent a competing video service from accessing a higher tier of priority necessary to provide good service, and preference its own services instead.

Id. See also Tulipane, Tr. I at 259-66.

[244] *See, e.g.*, Davidson, Tr. I at 229-30. According to Davidson, "[w]e are concerned about creating a fast lane tier of traffic that is susceptible of exclusive dealings." *Id.* at 229. In his view, "prioritization that provides an incentive to create slow lanes so that you can charge people for the fast lanes is something that we think is problematic." *Id.* at 230.

result in (intentionally or effectively) degraded service in the remainder of the network.[245] Likewise, some advocates object to the creation of private networks that might provide prioritized data transmission or other forms of quality of service to only a limited number of customers, arguing that this will represent the "end" of the Internet as we know it.[246]

Some advocates, therefore, argue that content and applications providers should not be allowed to pay a premium fee for prioritized data transmission, even if they want to do so. They object, for example, to a possible two-sided market model where content and applications providers pay networks for prioritization in the same way that merchants subsidize the purchase price of a newspaper by paying for the placement of advertisements in return for greater consumer exposure to their advertisements.[247] Instead, in this view, networks should be required to derive revenues principally from providing Internet access to residential and business customers.[248] Some advocates who object to prioritized data transmission would, however, allow network operators to charge end users more for the consumption of larger amounts of bandwidth.[249]

Other advocates do not strictly object to prioritization or quality of service for a fee.[250] They argue, however, that different levels of prioritization should be offered on uniform terms to all "similar" content and applications providers and that all end users be

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[245] *See, e.g.*, *id.* at 228-30 ("[P]rioritization . . . in the last mile degrades competing services, and creates incentives to relegate some of those competing services to a slow lane . . . [given] that the only way that you can have a fast lane that you can charge for, that is useful, is if there are also slow lanes that are less useful, and less attractive.").

[246] *See, e.g.*, Lessig & McChesney, *supra* note 231. Lessig and McChesney predict that, without neutrality rules, network operators will use data prioritization "to sell access to the express lane to deep-pocketed corporations and relegate everyone else to the digital equivalent of a winding dirt road." In their view, "[n]et neutrality means simply that all like Internet content must be treated alike and moves at the same speed over the network." *Id.*

[247] *See* Pepper, Tr. I at 87 ("The last set of questions on net neutrality concern who can be charged for what service on broadband connections. Should the Internet access be funded solely by consumers, or can the cost be shared with content providers and application providers?").

[248] *See, e.g.*, Editorial, *supra* note 241 ("Net neutrality would prohibit all of this. Telecoms could make money they way they always have – by charging homes and businesses for an Internet connection – but they couldn't make money from the content providers themselves."). *See also* Sidak, Tr. I at 107 ("In other words, they don't have a problem with network operators and end users contracting for prioritized delivery. The problem they have is . . . with suppliers of content.").

[249] *See, e.g.*, Davidson, Tr. I at 228 ("Not all network management is anti-competitive prioritization. And there are a lot of things I think many of us agree that are not problematic in this context. So, charging end users, whether it's businesses or consumers, more for more bandwidth, not a problem here."). *See also* COMSTOCK, *supra* note 230.

[250] *See, e.g.*, D. Sohn, Tr. II at 230. In Sohn's view, network neutrality regulation "wouldn't need to involve a complete ban on all prioritization, even on the Internet part. I think in particular, an ISP should be free to offer prioritization capability that enables subscribers to choose what services to use it with." *Id.* *See also* Cohen, Tr. II at 150 ("There are and should remain many networks on which network providers are free to discriminate based on the source, ownership or destination of data . . . .").

guaranteed a minimum level of access to the entire universe of Internet content.[251] Another advocate suggests that network operators should be free to create specialized service parameters and to provide prioritized data transmission, but with a requirement that networks also maintain a basic level of best-efforts Internet service.[252]

Some network neutrality proponents further suggest that, as the speed of the Internet continues to increase with the deployment of faster technologies like fiber-optic wirelines and improved wireless transmissions, the issue of prioritization may become irrelevant.[253] They suggest that when Internet speeds of upwards of 100 megabits per second ("Mbps") are widely available, first-in-first-out and best-efforts delivery at these rates should be sufficient to transmit all Internet traffic without any problems, even for advanced and time-sensitive applications. These proponents suggest that all congestion and bandwidth scarcity issues will effectively disappear at these speeds and the issue of prioritization will eventually be moot. A neutrality regime, therefore, can be seen as a temporary remedy for a problem that ultimately will be outgrown and an important measure that will prevent network operators from creating artificial scarcity in their networks in the meantime to derive additional revenues by charging content and applications providers for new types of data transmission.[254] Thus, some of these

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[251] *See, e.g.*, Wilkie, Tr. I at 170 ("The caveat might be that you might want to add that tiering and offering higher levels of prioritization are allowable, but they would have to be offered on a non-discriminatory basis, or what economists call 'second degree price discrimination,' that is, the prices are functions of the level of functionality offered, not the identity of the customer."). *See also* G. Sohn, Tr. I at 128 (advocating that if one content or applications provider negotiates a particular service arrangement with a network operator, a second competing content or applications provider should "absolutely" be provided with an identical arrangement by the operator without having to engage in separate negotiations).

[252] *See, e.g.*, Press Release, USC Annenberg Center, Annenberg Center Releases Principles for Network Neutrality (2006), *available at* http://www.annenberg.edu/news/news.php?id=13. *See also* D. Sohn, Tr. II at 226 (suggesting that the optimum outcome is "to keep this neutral open Internet at an acceptable level of service, to keep that in existence even as experimentation with other networks . . . proceeds").

[253] *See, e.g.*, *Network Neutrality: Competition, Innovation, and Nondiscriminatory Access: Hearing Before the S. Comm. on Commerce, Sci., & Transp.*, 109th Cong. (2006) (testimony of Gary R. Bachula, Vice President, Internet2) [hereinafter Bachula Senate Testimony], *available at* http://commerce.senate.gov/pdf/bachula-020706.pdf; Bachula, Tr. II at 164-74. *See also* Davidson, Tr. I at 231 ("In most cases, the best way to deal with any concerns about prioritization is to provide better broadband, higher bandwidth offerings to consumers.").

[254] According to Bachula:

> When we first began to deploy our Internet2 network some eight years ago, our engineers started with the assumption that we would have to find technical ways of prioritizing certain bits, such as streaming video or video conferencing, in order to ensure that they arrived without delay.
>
> For a number of years, we seriously explored various quality of service techniques, conducted a number of workshops and even convened an ongoing quality of service working group, but as it developed, all of our research and practical experience supported the conclusion that it was far more cost effective to simply provide more bandwidth. It was cheaper to provide more bandwidth than to install these sophisticated quality of service prioritization techniques.

proponents believe that, instead of allowing network operators to engage in prioritization, policy makers should focus on creating incentives for the deployment of next-generation, high-speed networks.[255]

3. Concerns about Vertical Integration

Net neutrality proponents also express concern about the prospect of network operators integrating vertically into the provision of content and applications. Proponents argue that network operators now have the legal and technological ability to control both their own physical networks and the ability of content and applications providers to reach end users. Proponents further suggest that vertically integrated network operators will favor their own content and applications, or those of their affiliates, over others.[256] Some of these proponents, therefore, argue that network operators' ability to vertically integrate should be legally restricted or forbidden altogether.[257]

4. Concerns about Innovation at the "Edges" of the Internet

Proponents suggest that if so-called non-neutral practices are allowed to flourish in the core of the networks that comprise the Internet, innovation by content and applications developers that are connected to the Internet's "edges" will suffer. Some proponents, for example, are concerned about the complexity and cost that content and applications providers would experience if they had to negotiate deals with numerous network operators worldwide. They suggest that content and applications providers will need to expend considerable resources to negotiate and enter into prioritization agreements or other preferential arrangements with numerous networks and that many (particularly, small) companies will not be able to pay the fees that operators will demand to reach end users in a competitive manner.[258] Thus, they fear that innovators will be

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> With enough bandwidth in the network, there is no congestion, and video bits do not need preferential treatment. All the bits arrive fast enough even if intermingled.

Bachula, Tr. II at 169.

[255] Robert D. Atkinson & Philip J. Weiser, *A "Third Way" on Network Neutrality*, 13 THE NEW ATLANTIS 47, 58-59 (2006), *available at* http://www.thenewatlantis.com/archive/13/TNA13-AtkinsonWeiser.pdf. These commentators suggest that Congress should allow companies investing in broadband networks to expense new broadband investments in the first year and also extend the moratorium on federal, state, and local broadband-specific taxes, but make it contingent upon provision of an open, best-efforts level of Internet service. *Id. See also generally* Lehr, Tr. I at 36 ("[Over time, network] penetration saturates. And so, revenues growth slows. And the question is that if we want the industry to continue to meet the growth in traffic, we have to figure [out] what the incentives are.").

[256] *See, e.g.*, Joseph Farrell, *Open Access Arguments: Why Confidence is Misplaced*, *in* NET NEUTRALITY OR NET NEUTERING: SHOULD BROADBAND SERVICES BE REGULATED?, *supra* note 42, at 195.

[257] *See, e.g.*, Christian Hogendorn, *Regulating Vertical Integration in Broadband: Open Access Versus Common Carriage*, 4 REV. NETWORK ECON. 19, 30 (2005).

[258] *See, e.g.*, Davidson, Tr. I at 224-33. According to Davidson, "[a]s our founders have said, two graduate students in a dorm room with a good idea would not have been able to create this service if the first thing that they had to do was to hire an army of lawyers and try to reach carriage agreements with providers all

blocked, actively degraded, or provided with low-priority data transmissions, and the development of the next revolutionary Internet site or application may be inhibited. They predict that spontaneous innovation will be precluded or forced to proceed through established businesses already having significant capital and favored relationships with network operators.[259] Similarly, net neutrality proponents sometimes argue that non-profit and educational entities may be at a disadvantage relative to highly capitalized businesses.[260]

5. Concerns about "Last-Mile" Competition in Broadband Service

Net neutrality proponents typically argue that a cable-telephone duopoly exists in most markets for last-mile broadband connections and that competition from only two broadband providers is not sufficient to check the harms that they envision. Net neutrality proponents generally do not believe that one of these competitors will provide users with an acceptable, alternative open service if the other decides to pursue exclusive deals or data prioritization. Proponents also typically express doubt about the potential of newer technologies like wireless Internet and broadband over powerlines to provide in the near future a robust, competitive alternative to the access offered by the cable and telephone companies.[261]

A related concern expressed by some network neutrality proponents is that last-mile ISPs might not disclose to end users the ISPs' differential treatment of certain data and that they will be able to get away with such non-disclosure due to a lack of viable competitive alternatives in the marketplace or the difficulty of tracing problems to ISPs' practices. Proponents also suggest that, to the extent that such disclosures are made by ISPs, many end users will not be able to readily understand them, making such

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around the world." *Id.* at 226. *See also* Cohen, Tr. II at 152 ("[Historically, Internet start-ups] did not have to negotiate. They did not have to persuade or cajole network providers for special treatment."); Center for Creative Voices in Media, Public Comment 6, at 2 ("Artists must have the freedom to distribute their works over the broadband Internet, and the American public must have the freedom to choose from among those works, rather than have the cable and telephone broadband providers who overwhelmingly control the market for broadband deny those freedoms and make those choices for them.").

[259] *See, e.g.*, Mark. A. Lemley & Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era*, 48 UCLA L. REV. 925 (2001). Lemley and Lessig suggest that, "[i]f that strategic actor owns the transmission lines itself, it has the power to decide what can and cannot be done on the Internet. The result is effectively to centralize Internet innovation within that company and its licensees." *Id.* at 932. *See also* Farrell, Tr. I at 154 ("[T]here is a concern if you allow last mile providers to make charges on content providers, there is a concern about possible expropriation of successful content providers.").

[260] *See, e.g.*, *Reconsidering Our Communications Laws: Ensuring Competition and Innovation: Hearing Before the S. Comm. on the Judiciary*, 109th Cong. (2006) (statement of Jeff C. Kuhns, Senior Director, Consulting and Support Services, Information Technology Services, The Pennsylvania State University), *available at* http://judiciary.senate.gov/testimony.cfm?id=1937&wit_id=5418.

[261] *See, e.g.*, Feld, Tr. II at 18-19; Putala, Tr. II at 29 ("The much heralded independent alternatives are still tiny."); Wu, Tr. II at 255 ("I have been hearing that for ten years. I've never met anyone who has a connection, broadband over power line, and it has been used a million times . . . .").

disclosures ineffective in checking potential ISP misconduct.[262] Some network neutrality proponents also argue that the use of data packet inspection and other traffic analysis technologies by network operators may give rise to privacy concerns that end users might not readily recognize.[263]

6. Concerns about Legal and Regulatory Uncertainty

Net neutrality advocates suggest that the FCC's recently issued broadband principles, its ancillary jurisdiction over broadband providers under Title I of the Communications Act of 1934, and the antitrust laws are insufficient to prevent or police potentially harmful conduct by broadband providers.[264] In particular, they argue that the FCC's broadband principles are not legally enforceable, that the full scope of its Title I authority has yet to be determined, and that any remedial action is likely to result in years of litigation and appeals, leaving the status of the Internet in doubt.[265] Neutrality advocates argue that more concrete examples of alleged harms, beyond *Madison River*, do not exist primarily because network operators have been on their best behavior in the short time since recent legal and regulatory determinations were handed down, to avoid attracting further scrutiny. Proponents argue that without further regulation, however, network operators will likely engage in such practices in the future and that there will be no practical way to prevent or remedy the resulting harms without a comprehensive, *ex ante* regulatory regime.[266]

7. Concerns about Political and Other Expression on the Internet

Advocates suggest that, without a network neutrality rule, operators will likely engage in practices that will reduce the variety and quality of content available to users, generally. In particular, they suggest network operators may degrade or block content that they find to be politically or otherwise objectionable or contrary to their own

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[262] *See, e.g.*, Kenney, Tr. II at 103 ("I think these disclosure issues are important, but I don't think that's the issue here today. In fact, the elephant in the room is whether or not disclosure of prioritization practices is sufficient to remedy the harm.").

[263] *See, e.g.*, *id.* ("I don't think anyone has a full understanding of what sort of security and vulnerability issues are at stake with deep packet inspection technologies.").

[264] *See, e.g.*, Libertelli, Tr. I at 117 ("[W]e're talking about a policy statement [(the FCC principles)]; we're not necessarily talking about a binding rule of decision."); Farrell, Tr. I at 159 ("I am not convinced that anti-trust, as currently enforced, is going to do a good job on those potential problems.").

[265] *See, e.g.*, *Network Neutrality: Competition, Innovation, and Nondiscriminatory Access: Hearing Before the H. Comm. on the Judiciary, Task Force on Telecom & Antitrust*, 109th Cong. 23, 35 (2006) (prepared statement of Earl W. Comstock, President and CEO, COMPTEL) [hereinafter Comstock House Testimony], *available at* http://judiciary.house.gov/media/pdfs/printers/109th/27225.pdf.

[266] *See, e.g.*, Misener, Tr. II at 142 ("[W]e really believe that it would be in consumers and industry's best interest for certainty and for a national policy to be set by the Federal Government at the very highest level . . . .").

business interests.[267] Neutrality advocates suggest that other types of speech, such as individuals' Web logs, may also be disfavored or blocked as the incidental result of an operator's more general decisions about favoring certain content providers over others.[268] This argument appears to be a variation on the suggestion that, without a neutrality regime, innovation (or, in this case, speech) at the edges of the network will be inhibited.[269]

B. Arguments against Network Neutrality Regulation

Opponents of network neutrality regulation include facilities-based wireline and wireless network operators, certain hardware providers, and other commentators. These parties maintain that imposing network neutrality regulation will impede investment in upgrading Internet access and may actually hamper innovation. They also argue that, apart from the *Madison River* case, the harms projected by net neutrality proponents are merely hypothetical and do not merit a new, *ex ante* regulatory regime.

Principally, these opponents argue that: (1) the Internet is not neutral and never truly has been, and a neutrality rule would effectively set in stone the status quo and preclude further technical innovation; (2) effective network management practices require some data to be prioritized and may also require certain content, applications, and attached devices to be blocked altogether; (3) there are efficiencies and consumer benefits from data prioritization; (4) new content and applications also require this kind of network intelligence; (5) network operators should be allowed to innovate freely and differentiate their networks as a form of competition that will lead to enhanced service offerings for content and applications providers and other end users; (6) prohibiting network operators from charging different prices for prioritized delivery and other types of quality-of-service assurances will reduce incentives for network investment generally

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[267] *See, e.g.*, Bill D. Herman, *Opening Bottlenecks: On Behalf of Mandated Network Neutrality*, 59 FED. COMM. L.J. 107, 118 (2007) (submitted to FTC as Public Comment 26) ("A broadband provider should no more be able to stop a customer's email or blog post due to its political content than a telephone company should be permitted to dictate the content of customers' conversations."). *See also* Peha, Tr. I at 26 ("There could also be content filtering for other reasons. Perhaps for political reasons I will want to limit access to advocacy groups for issues I oppose, or candidates I oppose.").

[268] *See, e.g.*, Barbara A. Cherry, *Misusing Network Neutrality to Eliminate Common Carriage Threatens Free Speech and the Postal System*, 33 N. KY. L. REV. 483, 507 (2006) (submitted to FTC as Public Comment 8) ("If antitrust principles are insufficient to substitute for the functions that common carriage and public utility obligations have served in providing access, then free speech rights of individuals will be sacrificed to serve economic interests of corporate owners of broadband facilities."); Feld, Tr. II at 15 ("Goal number . . . two is the Internet is open and diverse as it exists today or better. . . . The First Amendment cares about this stuff. Our democracy depends on this stuff, and Congress has told us to protect it as part of the policy. Any policy that doesn't protect that, even if it is more economically efficient, is a failed policy."). *But compare* Thomas B. Leary, *The Significance of Variety in Antitrust Analysis*, 68 ANTITRUST L.J. 1007, 1019 (2001) (raising the question of "whether an increase or decrease in available variety, by itself, merits independent consideration in antitrust analysis").

[269] *See, e.g.*, G. Sohn, Tr. I at 134 ("The Internet actually takes away the gate keepers, so people can engage in democratic discourse, eCommerce, innovation. It's been great. And at a certain point, we have to ask ourselves, do we want it to remain that way?").

and prevent networks from recouping their investments from a broader base of customers, a practice which might, in turn, reduce prices for some end users; (7) vertical integration by network operators into content and applications and certain bundling practices may produce efficiencies that ultimately benefit consumers; and (8) there is insufficient evidence of potential harm to justify an entirely new regulatory regime, especially when competition in broadband services is robust and intensifying and the market is generally characterized by rapid, evolutionary technological change.

1. Historical and Existing Non-Neutrality of the Internet

Opponents of network neutrality regulation argue that the Internet is not, and never truly has been, "neutral."[270] These opponents generally agree that the first-in-first-out and best-efforts characteristics of the TCP/IP data-transmission protocol have played a significant role in the development of the Internet.[271] They point out, however, that since the earliest days of the Internet, computer scientists have recognized that data congestion may lead to reduced network performance and have thus explored different ways of dealing with this problem.[272]

Net neutrality opponents point out that all network routers must make decisions about transmitting data and argue that such decisions invariably have implications that may not be strictly uniform or neutral. In particular, they note that networks have long employed "hot potato" routing policies that hand off to other networks at the earliest possible point data that is not destined for termination on their own networks. A principal goal of hot potato routing is to reduce the usage of network resources.[273] Opponents note that, during periods of congestion, data packets may be rerouted along another path or dropped altogether and that packets may need to be re-sent when transmission errors occur.

Opponents of net neutrality regulation argue that the TCP/IP protocol itself may have differential effects for various content and applications.[274] For example, static Web page content like text and photos and applications like e-mail generally are not sensitive to latency. Thus, users typically can access them via the TCP/IP protocol without

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[270] *See, e.g.*, Ryan, Tr. I at 238 ("IP networks do prioritize. They have from the beginning of time. The prioritization that they had in the network at its inception was basically a first in line prioritization, first in/first out. So it's prioritization based on time, and time alone."). *See also* McTaggart, *supra* note 117.

[271] See *supra* Chapter I.A for a discussion of the TCP/IP protocol.

[272] *See generally supra* Chapter I. *See also* Peha, Tr. I at 17 ("Actually, the [TCP/IP] protocol for 35 years has allowed priority. But, for the most part, people haven't used it. Or even implemented it.").

[273] *See, e.g.*, McTaggart, *supra* note 117, at 10-12.

[274] *See, e.g.*, Yoo, Tr. II at 219. According to Yoo, "every protocol inherently favors some applications over others. TCP/IP, first come, first served, very good at some things, worse at others. In a sense, there is no neutral way to go here, by choosing one protocol over the other, you will actually be choosing winners and losers." *Id.*

noticeable problems, even during periods of congestion. Applications like streaming video and videoconferencing, however, may be sensitive to latency and jitter.[275] Net neutrality opponents argue, therefore, that while first-in-first-out and best-efforts principles may sound neutral in the abstract, their practical effect may be to disfavor certain latency- and jitter-sensitive content and applications because prioritization cannot be used to deliver the continuous, steady stream of data that users expect even during periods of congestion.[276]

Network neutrality critics also note that content providers increasingly are using local caching techniques to copy their content to multiple computer servers distributed around the world, and argue that this practice effectively bypasses the first-in-first-out and best-efforts characteristics of the TCP/IP protocol.[277] Critics further observe that network operators have preferential partnerships with Internet "portal" sites to provide users with greeting homepages when they log on, as well as customized and exclusive content and applications.[278] Similarly, they note that portals, search engines, and other content providers often give premium placement to advertisers based on their willingness to pay.[279] In their view, these practices all constitute additional indicia of existing non-neutrality.

2. Prioritization, Blockage, and Network Management Requirements

Network neutrality opponents frequently argue that operators should be allowed actively to restrict or block data that they believe may be harmful to the performance of

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[275] *See, e.g.*, Pepper, Tr. I at 85-86 ("The problem with non-discrimination is that it does not recognize that treating different packets differently is necessary for the effective delivery of many services. As more real-time interactive services dominate Internet traffic, it's going to be more important to differentiate among packets."). *See also* McTaggart, *supra* note 117, at 12-14.

[276] Some network neutrality proponents, such as Wu, have concluded that, "[a]s the universe of applications has grown, the original conception of [Internet Protocol] neutrality has [become] dated; for IP was only neutral among *data* applications. Internet networks tend to favor, as a class, applications insensitive to latency (delay) or jitter (signal distortion)." Wu, *supra* note 227, at 149. Expanding on this point, some network neutrality opponents, such as Yoo, have concluded that, because "TCP/IP routes packets anonymously on a 'first come, first served' and 'best efforts' basis . . . it is poorly suited to applications that are less tolerant of variations in throughput rates, such as streaming media and VoIP, and is biased against network-based security features that protect e-commerce and ward off viruses and spam." Christopher S. Yoo, *Beyond Network Neutrality*, 19 HARV. J.L. & TECH. 1, 8 (2005). Therefore, in his view, "[c]ontrary to what the nomenclature might suggest, network neutrality is anything but neutral." *Id.*

[277] *See, e.g.*, McTaggart, *supra* note 117, at 6-7 (discussing Google's distributed computing network).

[278] *See, e.g.*, *id.* at 4-5 (discussing network partnerships with portals such as Yahoo!, Microsoft MSN, and Lycos). *See also* Waz, Tr. II at 162 (discussing the premium placement of portals on mobile phones).

[279] *See, e.g.*, McCormick, Tr. I at 273 ("[I]f any of us want to kind of envision what prioritization on the Internet might look like, I mean, I think the clearest understanding of what we know prioritization would be is looking at a Google search page.").

their networks,[280] citing reports that a relatively small number of users can potentially overwhelm network resources through the use of bandwidth-intensive applications, such as peer-to-peer file-sharing and streaming video.[281] They warn that active network management, prioritization, and other types of quality-of-service assurances are needed to prevent the Internet, or its individual parts, from slowing down or crashing altogether in a high-tech "tragedy of the commons."[282] In their view, merely expanding network capacity is expensive and may not be the most cost-effective method of network management, and future content and applications may be even more resource-intensive than applications like BitTorrent are today.[283]

3. Efficiencies and Consumer Benefits from Prioritization

Network neutrality opponents argue that market transactions for prioritization and other forms of quality of service can, in many cases, allocate scarce network resources in

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[280] Network neutrality proponents generally allow that some active management is necessary to maintain network performance, but typically maintain that it should be limited. *See, e.g.*, PUBLIC KNOWLEDGE, PRINCIPLES FOR AN OPEN BROADBAND FUTURE: A PUBLIC KNOWLEDGE WHITE PAPER (2005), *available at* http://www.publicknowledge.org/pdf/open-broadband-future.pdf. According to this group, "[s]ome have maintained that network operators must have the ability to restrict access to the network for legitimate law enforcement purposes, or for network management. While these examples may be valid, this authority can be easily abused and should not be broadly permitted." *Id.* at 10.

[281] *See supra* Chapter I.C.1.

[282] *See, e.g.*, McCormick, Tr. I at 243. According to McCormick, "[a] better Internet doesn't simply come by adding capacity. Like road networks, rail networks, electrical networks, and traditional telephone networks, the advanced networks that comprise the Internet cannot function efficiently and cost-effectively without management. No network has ever been built without regard to prioritization of traffic, peak loads, and capacity management." *Id.* Wireless network operators, in particular, argue that because their networks may not have as much bandwidth as other wireline providers, they must be allowed to limit or block certain content and applications like BitTorrent and to otherwise actively manage the use of their networks' resources. Network neutrality opponents state that any unintended consequences produced by neutrality rules may have particularly acute consequences for such networks. *See, e.g.*, Altschul, Tr. II at 51 (maintaining that applying network neutrality regulations to wireless broadband networks "would have unique effects and they would be negative effects").

[283] *See, e.g.*, Thorne, Tr. II at 34-39 (discussing the costs of deploying broadband networks). According to Thorne:

> When Verizon puts its fiber down a street, it costs us, in round numbers, $800 per home. It costs us again, in round numbers, another $840 to connect the home that actually takes the service. We spend the money to pass the home, but we don't know whether the customer is going to buy broadband service at all, or buy it from us.

Id. at 39. *See also* Schwartz, Tr. I at 255 ("Economically, it doesn't make sense that the solution is always to build more. That's going to involve carrying a lot of excess capacity, which is going to be expensive."); T. Randolph Beard et al., *Why ADCo? Why Now? An Economic Exploration into the Future of Industry Structure for the "Last Mile" in Local Telecommunications Markets*, 54 FED. COMM. L.J. 421, 430 (2002) (estimating the cost of fiber-optic wireline deployment in a metropolitan area at approximately $3 million per mile).

a manner more consistent with the actual priorities of end users.[284] Opponents further suggest that prioritizing streaming telemedicine video, for example, ahead of e-mail or network gaming transmissions to reduce latency and jitter would be socially beneficial.[285]

Net neutrality opponents thus argue that network operators should be allowed to prioritize the transmission of certain data or provide quality-of-service assurances for a fee in the same way that consumers pay for priority mail service. Some observers note that many other types of paid prioritization arrangements such as first-class airline seating, congestion pricing for automobile traffic and public transportation, and premium advertisement placements are commonplace and generally considered to be socially beneficial.[286] In addition, they dispute the notion that non-prioritized data will be relegated to an unacceptable, antiquated slow lane. Rather, they argue that non-prioritized data traffic will continue to receive an acceptable level of basic service that will continue to improve over time along with more general advances in data transmission methods.[287]

4. New Content and Applications and the Need for Network "Intelligence"

Network neutrality opponents argue that new types of specialized services and premium content require sophisticated, "intelligent" data-traffic management at both the core and edges of the Internet.[288] Principal examples include VoIP, streaming video for movies and telemedicine, large video download files, interactive network video games, and customized business applications. In their view, "dumb" networks based on the original TCP/IP protocol's first-in-first-out and best-efforts standards are becoming

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[284] *See, e.g.*, Schwartz, Tr. I at 255-56 ("[I]t makes sense to use the price system as a signal of which things merit priority.").

[285] *See, e.g.*, McCormick, Tr. I at 244 ("A communication about your health, for example, is clearly more important than how quickly your kid can download a video featuring the antics of someone's pet hamster.").

[286] *See, e.g.*, Sidak, Tr. I at 112 ("Obviously, we observe price discrimination in competitive markets all the time."). *See also* Farrell, Tr. I at 157 ("Price discrimination, as you have probably all heard many economists say in forums like this, is not necessarily harmful. And that's correct, given the other alternatives available.").

[287] *See, e.g.*, J. Gregory Sidak, *A Consumer-Welfare Approach to Network Neutrality Regulation of the Internet*, 2 J. COMPETITION L. & ECON. 349, 355 (2006) ("Rather than being forced down Lessig's 'digital equivalent of a winding dirt road,' these content providers would be relegated to something more like a business-class seat on a flight to Paris.").

[288] *See, e.g.*, Verizon Communications Inc., Public Comment 60, at 6-8. Verizon, for example, suggests that "[n]ew Internet content and applications require innovative new broadband delivery methods" and that networks need to be able to prioritize data "to manage bandwidth and control traffic on their network – for example, to offer different levels of service for content and applications providers to reach their customers." *Id.* at 7-8.

increasingly outdated for certain content and applications.[289] Opponents argue that many of these newer applications are sensitive to different levels of speed, latency, jitter, symmetry, bursting, and capacity. For example, virtual teleconferencing generally requires high speed, low latency, and symmetry, while some one-time video downloads might require only high speed. By contrast, VoIP does not require significant bandwidth, but is sensitive to latency and jitter. Neutrality critics argue, therefore, that network intelligence will be increasingly necessary to provide the optimal transmission climate for each of these new types of content and applications and that both content and applications providers and other end users should be allowed to purchase services appropriate to their particular needs.

5. Network Innovation and Competition

Network neutrality opponents contend that network operators should be allowed to innovate freely and differentiate their networks as a form of competition that will lead to enhanced service offerings for content and applications providers and other end users. This perspective has been described as an argument in favor of "network diversity."[290] Thus, opponents believe that network operators should be able to experiment with new data-transmission methods and a variety of business plans to better serve the evolving demands of end users. If such experiments turn out to be failures, network operators will learn from their mistakes and improve their offerings or simply return to the status quo, consistent with the normal dynamics of the market process.[291] In their view, a ban on prioritization would effectively restrict new types of competition, hinder innovation, potentially preclude price reductions for consumers, hamper efficiencies, and lock in one kind of business model.[292] They warn that in the nascent and evolving market for broadband services, mandating a single business plan is likely to lead to inefficient and unintended outcomes.[293] They also assert that allowing content and applications

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[289] *See, e.g.*, Adam Thierer, *Are "Dumb Pipe" Mandates Smart Public Policy? Vertical Integration, Net Neutrality, and the Network Layers Model*, *in* NET NEUTRALITY OR NET NEUTERING: SHOULD BROADBAND INTERNET SERVICES BE REGULATED?, *supra* note 42, at 73. *See also* Pepper, Tr. I at 81-83.

[290] *See, e.g.*, Yoo, *supra* note 276, at 9 ("In other words, standardization of TCP/IP would have the effect of narrowing the dimensions of competition, forcing networks to compete solely on the basis of price and network size.").

[291] *See, e.g.*, Yoo, Tr. II at 220 ("If we have four players and one wants to experiment with a different architecture, if they are wrong, they will get hammered and they will come back to the fold. If they are right, it's precisely the kind of innovation we should tolerate and encourage.").

[292] *See, e.g.*, American Bar Association Section of Antitrust Law, Public Comment 2, at 8 ("Ultimately, we believe that the competitive process will drive investment and innovation in the Internet. That investment and innovation will inure to the benefit of all consumers. We do not think that imposing non-discrimination statutes, regulations or policies will offer any offsetting benefits economically.").

[293] *See, e.g.*, Pepper, Tr. I at 88 ("[One] concern is really whether net neutrality regulation designed to prevent anti-competitive conduct could limit, or prohibit consumer welfare-enhancing network functionality and management, as well as discourage innovation. In other words, regulation is not costless.").

providers to purchase quality-of-service assurances and prioritization may allow new content and applications providers to counteract the competitive advantages typically enjoyed by incumbent providers, such as the ability to pay for large server farms or third-party data caching services.[294]

6. Network Investment and Potential Consumer Benefits

Opponents argue that prohibiting network operators from charging different prices for prioritized delivery and other types of specialized services and premium content will make it more difficult to recoup the costs of infrastructure investments and, thereby, reduce incentives for network investment generally.[295] They argue that both end users and content and applications providers should be free to select any level of service provided by network operators under market-negotiated terms.[296]

Network neutrality opponents also stress that, although the Internet began as a research and government communications network, its explosive growth since the mid-1990s has been fueled mainly by private, risk-bearing investment.[297] They emphasize that the individual, decentralized networks that make up the Internet mostly are owned and operated by private companies and, generally speaking, are private property, even though they may be subject to certain legal requirements like rights of way permissions.[298] They point out that deploying and upgrading broadband networks can entail billions of dollars in up-front, sunk costs.[299] Thus, they argue, any regulation that reduces network operators' ability to recoup their investments also effectively increases

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[294] Similarly, some network neutrality opponents argue that efforts by current leading content providers to codify the status quo under the guise of neutrality rules are really nothing more than a veiled strategy to commoditize data transmission and, thereby, preserve their own existing competitive advantages against possible competitive threats based on new data-transmission techniques. *See, e.g.*, Yoo, *supra* note 276, at 9 ("[T]he commodification of bandwidth would foreclose one avenue for mitigating the advantages enjoyed by the largest players."). *See also* George S. Ford et al., *Network Neutrality and Industry Structure* 1 (Phoenix Center Policy Paper No. 24, 2006) ("[P]olicymakers should avoid Network Neutrality mandates that have the intent or effect of 'commoditizing' broadband access services since such a policy approach is likely to deter facilities-based competition, reduce the expansion and deployment of advanced networks, and increase prices.").

[295] *See, e.g.*, Lenard, Tr. I at 181 (arguing there is a "striking lack of concern about the effect on incentives to invest and innovate").

[296] *See, e.g.*, Sidak, Tr. I at 107 ("Well, why do you need to have a federal law prohibiting one kind of transaction, when you're perfectly happy with the other?").

[297] *See, e.g.*, Waz, Tr. II at 155-61. Waz states that "[a]ll that competitive investment is what makes it possible for a Google and Yahoo! and eBay and Amazon and others to be here today . . . ." *Id.* at 158.

[298] *See, e.g.*, Bruce Owen & Gregory L. Rosston, *Local Broadband Access: Primum Non Nocere or Primum Processi? A Property Rights Approach*, *in* NET NEUTRALITY OR NET NEUTERING: SHOULD BROADBAND INTERNET SERVICES BE REGULATED?, *supra* note 42, at 163.

[299] *See, e.g.*, Thorne, Participant Presentation, at 1 (identifying Verizon Communications capital expenditures of approximately $45 billion during 2004-06).

their risk profile to investors and, accordingly, would prompt capital markets to demand an adjusted, higher rate of return. They suggest such an increase in the cost of capital, in turn, would decrease the likelihood that projects underway could be completed on their planned scale.[300]

In addition to reducing incentives for network investment generally, opponents argue that banning network operators from selling prioritized data delivery services to content and applications providers will prevent networks from recouping their investments from a broader base of customers.[301] In particular, they suggest that networks should be allowed to experiment with a model in which content and applications providers pay networks for prioritization and other premium services in the same way that merchants pay for the placement of advertisements in newspapers and other publications.[302] They suggest that such a business model might reduce prices for some end users, much as advertising subsidizes the subscription prices of ad-supported publications, thereby allowing marginal customers to afford broadband service.[303] They further suggest that such increased end-user penetration would also increase the effective demand for content and applications, generally, and thereby benefit their providers.[304]

7. Economies of Scope from Vertical Integration and Bundling

Net neutrality opponents argue that vertical integration by network operators into content and applications, along with related bundling practices, may produce economies

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[300] Sidak, *supra* note 287, at 357. In addition, some commentators characterize neutrality rules as being a kind of regulatory taking of private property that can no longer be justified under a theory of natural monopoly or other similar grounds. *See, e.g.*, Thomas W. Hazlett, *Neutering the Net*, FIN. TIMES, Mar. 20, 2006; Richard A. Epstein, *What We Need is Regulatory Bed Rest*, FIN. TIMES, Mar. 20, 2006. Both articles are available at http://www.ft.com/cms/s/392ad708-b837-11da-bfc5-0000779e2340.html.

[301] *See, e.g.*, Yoo, Tr. II at 217 ("[W]e need to allow more flexibility on the server side. . . . Part of those costs should also vary based on who, which servers, which content and applications providers need those services."). *See also* Sidak, *supra* note 287, at 367-68.

[302] *See, e.g.*, Yoo, Tr. II at 217 ("[W]e have learned in fact, these are two-sided markets. Basically, upgrades to the network have to be paid for either by consumers or by the server content application side."). *See also* Schwartz, Tr. I at 258-59 ("[N]obody knows what the right pricing structure is. I don't claim to know it; nobody does. There is no presumption that the right structure is to recover all of the cost of consumer broadband networks from consumers alone."). Other examples of two-sided or, more generally, multi-sided markets include credit cards (involving merchants and cardholders); dating services (men and women); video game platforms (developers and players); and telephone networks (callers and receivers). *See generally* Jean-Charles Rochet & Jean Tirole, *Two-Sided Markets: A Progress Report* (Institut d'Économie Industrielle (IDEI), Toulouse, Working Paper No. 275, 2005), *available at* http://idei.fr/doc/wp/2005/2sided_markets.pdf.

[303] *See, e.g.*, Schwartz, Tr. I at 259 ("What economics predicts–and it's independent of a monopoly or–it's independent of the degree of competition in broadband access–the prediction is if you allow them to charge content providers, in their own interest they will now reduce prices to consumers, and therefore, encourage penetration.").

[304] *See, e.g.*, *id.*; Sidak, *supra* note 287, at 367-68; Sidak, Tr. I at 114-15.

of scope and price reductions. They point out that many areas of telecommunications are increasingly converging. For example, both cable and traditional telecommunications companies increasingly are offering "triple-" and "quadruple-play" bundles of high-speed data, telephony, television, and wireless services.[305] In addition, they state that the vertical integration of distribution with other types of media content is already commonplace because consumers typically do not want distribution alone, but, instead, want the particular content enabled by that distribution.[306] Some opponents also suggest that the prospect of additional revenue streams derived from vertical integration and bundling could promote additional competition in last-mile broadband services and provide other benefits to end users.[307]

8. Insufficient Evidence of Harm to Justify New Regulation

Network neutrality opponents argue that there is insufficient evidence of harm to justify an entirely new *ex ante* regime, particularly when, in their view, competition in broadband services is robust and intensifying due, in large part, to de-regulation. They state that, apart from the *Madison River* case, which was quickly resolved by the FCC, the harms projected by network neutrality proponents are merely hypothetical and, therefore, do not merit new rules.[308] Also, they note that a number of network operators have publicly pledged not to block or degrade end users' use of their services.[309] They

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[305] *See generally* Marguerite Reardon, *Cable Goes for the Quadruple Play*, CNET NEWS.COM, Nov. 7, 2005, http://news.com.com/2100-1034_3-5933340.html. *See also generally Your Television is Ringing*, ECONOMIST, Oct. 14, 2006, at 3 (special survey of telecommunications convergence).

[306] *See, e.g.*, Lenard, Tr. I at 177 ("So what may be needed for a successful business model may be a bundled product offering that is sufficiently attractive to attract enough consumers to become subscribers at prices that are going to pay off the costs of these very large investments."). *See also* Thomas L. Lenard & David T. Scheffman, *Distribution, Vertical Integration and the Net Neutrality Debate*, *in* NET NEUTRALITY OR NET NEUTERING: SHOULD BROADBAND INTERNET SERVICES BE REGULATED?, *supra* note 42, at 1, 13.

[307] *See, e.g.*, Rosston, Tr. I at 164-65. According to Rosston, "some of these vertical relationships that people are concerned about that may increase the profits of a new entrant may be the thing that is necessary, in order to get a new entrant, in order to compete." *Id. See also* Thorne, Tr. II at 57-58. Verizon, for example, suggests that it would be interested in partnering with hospitals to develop specialized medical applications that could be delivered over its fiber-optic wireline networks to allow the remote treatment of patients. *Id.* Likewise, some observers have pointed to Google's involvement in advertisement-supported municipal wireless Internet systems as an example of how vertical integration may enhance last-mile competition and benefit consumers. *See, e.g.*, Sidak, Tr. I at 108-09; Thorne, Tr. II at 37; Wallsten, Tr. II at 59.

[308] *See, e.g.*, Wolf, Tr. II at 143-44 ("[J]ust as a doctor would not prescribe needless medication for a growing adolescent on the possibility that some day that adolescent might develop a condition, so, too, we think Federal regulators are prudent to refrain from prescribing conditions that may in fact stifle or injure needed growth."). *See also* Kahn, Tr. I at 185 ("I think the lesson of history is be very, very careful that you don't meddle with a process that is clearly characterized by Schumpeterian [dynamic] competition.").

[309] *See, e.g.*, Thorne, Tr. II at 40 ("[Verizon has] made clear [that] when consumers buy Internet access capacity from us, they should be able to reach any lawful website they want to get to with that capacity, and we do not and will not block, degrade, or interfere with consumers' access to any website."); *Net Neutrality: Hearing Before the S. Comm. on Commerce, Sci., & Transp.*, 109th Cong. 21 (2006) (statement of Kyle McSlarrow, President & CEO, National Cable & Telecommunications Association), *available at*

argue that operators do not have sufficient power over the distribution of content and applications[310] and, in fact, would alienate their end-user customers if they tried to engage in such practices.[311] Furthermore, they question whether it would even be cost-effective for network operators to search for and block specific kinds of content and applications in an ever-expanding Internet universe, given that an increasing number of proxy servers and encryption techniques are available to end users to counter any such blocking.[312] Similarly, some observers suggest that if such practices are detected, end users can quickly publicize them and thereby "embarrass" the relevant network operator engaging in such conduct.[313]

Finally, network neutrality opponents suggest that the existing jurisdiction of the antitrust agencies and the FCC is sufficient to deal with any prospective problems resulting from the use of new data-transmission methods.[314] Generally, network neutrality opponents suggest that any such problems should be handled on a case-by-case basis – not through *ex ante* legislation or regulation.[315] They express concern that any such regime might be manipulated in order to achieve strategic, anticompetitive outcomes or be subject to other forms of rent-seeking behavior and unintended consequences.

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http://commerce.senate.gov/public/_files/30115.pdf ("NCTA's members have not, and will not, block the ability of their high speed Internet service customers to access any lawful content, application, or services available over the public Internet.").

[310] *See, e.g.*, Thorne, Tr. II at 42 ("Does Verizon have the ability to prevent Google or eBay or these others from reaching end users, when the most we could do is temporarily shut off a couple percent of the end users they can see? . . . There is no single broadband provider that has that kind of power.").

[311] Opponents argue that a shift away from the America Online-type walled-garden model has taken place and predict, therefore, that customers would vigorously protest any attempt to return to it after becoming accustomed to generally unrestricted Internet access. *See, e.g.*, Pepper, Tr. I at 136-37.

[312] *See, e.g.*, Thorne, Tr. II at 43 ("What we are selling is precisely the capacity to reach all lawful content and applications. Broadband providers are motivated to maximize the content and applications available to our customers because doing that maximizes the value of our network and the sales we can make."). *See also generally Cat and Mouse, On the Web*, ECONOMIST, Dec. 2, 2006, at 3 (The Economist Technology Quarterly survey) (discussing the ability of networks to block end users' access to desired content and applications and methods that end users may employ to circumvent such practices).

[313] *See, e.g.*, Lehr, Tr. I at 44 ("So, if there is a particular behavior that a carrier is doing, some sort of quality of service differentiation that really has no justification in cost, and looks really high-handed, it's very common for this to get, you know, blogged in real time, and for this to embarrass the carrier so that – I mean, the carriers and the operators – and force them to change their behavior."). *See also* Weiser, Tr. II at 92 (making the same point).

[314] *See, e.g.*, Muris, Tr. II at 122 ("If problems of the sort imagined by the advocates of regulation emerge, the appropriate law enforcement authorities have the jurisdiction and expertise necessary to address them.").

[315] *See, e.g.*, Schwartz, Tr. I at 254 ("[I]f foreclosure does rise to the level of a serious competitive problem, the right response is to address it at the time, on a case-by-case basis–at least that's my view.").

IV. DISCRIMINATION, BLOCKAGE, AND VERTICAL INTEGRATION

As discussed in the preceding Chapter, proponents of network neutrality regulation have raised a variety of concerns about the effects of vertical integration in broadband markets, as broadband Internet access providers have begun to offer online content and applications in addition to their primary access services. In particular, proponents are concerned that providers may block or discriminate against unaffiliated content and applications, to the benefit of affiliated offerings. Because such concerns may stem from diverse vertical arrangements, this Chapter will construe vertical "integration" broadly to include any arrangement under which a broadband Internet access provider may claim income generated by content or applications, such as joint ventures and exclusive dealing arrangements, as well as outright ownership of content or applications.

This is a particularly complicated issue because vertical integration into content and applications provision can create both incentives to engage in procompetitive, socially beneficial behavior and incentives to engage in anticompetitive, socially harmful behavior. Vertical integration generally need not be anticompetitive or otherwise pernicious[316] and is often driven by efficiency considerations.[317] For example, such integration may facilitate further network or content and applications development, and it may spur development of network, content, and applications more optimally suited to each other. Both price and non-price dimensions of broadband Internet service may thus improve. As a result, the notion that vertical integration tends generally to be anticompetitive has been widely rejected in antitrust law and economics for several decades.[318]

Many net neutrality proponents argue that their concerns about vertical integration arise only when there is insufficient competition in the underlying Internet access market. In that case, a vertically integrated last-mile access provider might exercise its market power to block access to competing content or applications, degrade the transmission of competing content or applications, or reduce investment in best-efforts Internet access services in favor of priority services that carry the access provider's own or affiliated content or applications. Other proponents, however, have concerns that are independent of the degree of market power the access provider enjoys in the access market itself. These include concerns about the so-called terminating access monopoly problem and the potential "balkanization" of the Internet.

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[316] *See, e.g.*, Farrell, Tr. I at 154 (concerns about vertical integration in broadband markets are substantial but contingent, sometimes highly uncertain, and "very hard to observe, and pin down").

[317] *See, e.g.*, Yoo, Tr. II at 213-14 (citing research by FTC Bureau of Economics Director Michael Salinger regarding efficiencies in vertical integration in the telecommunications industry).

[318] *See, e.g.*, Joseph Farrell & Philip Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age*, 17 HARV. J.L. & TECH. 85, 87 (2003).

This Chapter of the Report discusses concerns that net neutrality proponents have raised about vertical integration in broadband Internet services. Section A discusses problems that are most likely to arise when a provider enjoys substantial market power in the provision of last-mile Internet access; Section B discusses certain problems that may arise independent of the degree of market power attributed to an access provider; Section C discusses various benefits that may be derived from increased vertical integration in these markets; and Section D provides a brief summary of the competing arguments and remaining uncertainties.

Because several types of alleged problems with vertical integration are tied in some way to price or data discrimination, and because both definitions and applications of "discrimination" have been contentious in the broadband Internet access discussion,[319] this Chapter first briefly clarifies that the economic meaning of discrimination is that of differentiation and is not intended to have any negative connotation.[320] Thus, this Report – in particular, this Chapter and Chapter V – does not assume that price discrimination or any form of product or service differentiation is necessarily anticompetitive or anti-consumer.[321] Even where demand conditions allow a seller to price above marginal cost, price discrimination can provide a means of increasing overall consumer welfare by, for example, providing access to goods or services for some consumers who otherwise would be priced out of the market.[322]

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[319] *See, e.g.*, Ford, Tr. II at 239 (criticizing imprecise usage of terms like "discrimination" in the broadband policy discussion). *Cf.* Farrell, Tr. I at 204-05 (noting disagreement in price discrimination terminology within Workshop, but suggesting semantic dispute is unproductive); Lehr, Tr. I at 37-38 (trying to "move away from the loaded term" of "discrimination"); William H. Page & John R. Woodbury, *Paper Trail: Working Papers and Recent Scholarship*, THE ANTITRUST SOURCE, Apr. 2007, at 6, *available at* http://www.abanet.org/antitrust/at-source/07/04/Apr07-PTrail4=27f.pdf (criticizing Workshop participant Sidak's discussion of price discrimination and Ramsey pricing).

[320] That is, we generally attach no negative connotation to "discrimination." Plainly, however, as mentioned above and discussed throughout this Chapter and Chapter V of this Report, concerns have been raised about particular potential forms of discrimination, such as blocking or degradation of competing content and applications.

[321] Classical price discrimination can, depending on its form, involve a combination of differential pricing and product differentiation. *See generally* ARTHUR C. PIGOU, THE ECONOMICS OF WELFARE (Transaction Publishers 2002) (1920) (articulating, among other things, a general theory of price discrimination). The idealized model discussed by Pigou involves monopoly pricing; there is no suggestion here that any particular entities in the broadband Internet access market enjoy monopoly power or its approximation. *Cf.* William J. Baumol & Daniel G. Swanson, *The New Economy and Ubiquitous Competitive Price Discrimination: Identifying Defensible Criteria of Market Power*, 70 ANTITRUST L.J. 661, 662 (2003) ("[I]t is competition, rather than its absence, that in many cases serves to impose discriminatory pricing."); Alfred E. Kahn, *Telecommunications, the Transition from Regulation to Antitrust*, 5 J. ON TELECOMM. & HIGH TECH. L. 159, 177 (2006) (emphasizing "the difference between price discriminations, such as *might* be taken to reflect inadequacies of competition, and differentiations on the basis of differences in costs, such as would unequivocally be reflective of effective competition").

[322] That is, by producing and selling additional units priced between the highest-priced good or service and the marginal-cost good or service. Hal Varian demonstrated generally that an increase in output is necessary for profit-maximizing price discrimination to increase welfare. *See* Hal R. Varian, *Price Discrimination and Social Welfare*, 75 AM. ECON. REV. 870, 875 (1985); *see also generally* JEAN TIROLE,

Product differentiation in its simplest form can be a means of offering different versions of a good to different consumers, according to their demands. A common example is airline travel. Although all passengers receive the same basic product (transport from one airport to another), airlines offer different fares based on different levels of service during the flight (first class or coach) and flexibility in making arrangements (leisure travel advance fares or last-minute business fares). By linking price and product differentiation, a seller may be able to capture profits that would have been available under unitary pricing and yet serve segments of the market that otherwise would be excluded.[323]

A. Last-mile Access Concerns Contingent on Market Power

Some net neutrality proponents have argued that vertically integrated broadband providers possessing market power in the provision of last-mile access could leverage that power in ways ultimately harmful to consumers. There are two major related concerns. First, such providers could have incentives to discriminate against competing content or applications providers.[324] Second, such providers could have incentives to underinvest in the facilities used to provide common, best-efforts Internet access services.

Because techniques such as deep packet inspection can reveal source or content information, there is some concern that vertically integrated providers with sufficient incentives to discriminate against competing content could do so.[325] Such blocking could take several forms. A broadband provider with an interest in content or applications could block competing content or applications outright. Less extreme forms of discrimination could impose degraded or otherwise inferior transmission on competing

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THE THEORY OF INDUSTRIAL ORGANIZATION 137-39 (1988). Several Workshop participants applied this general point to the broadband competition discussion. *See, e.g.*, Sidak, Tr. I at 114-15. Several others focused on the particular variant of so-called Ramsey price discrimination, observing, for example, that Ramsey pricing is "the most efficient way to recover fixed costs." *See* Yoo, Tr. II at 217; Lehr, Tr. I at 38. In a seminal paper based on then-current models of monopolist price discrimination, Frank Ramsey considered how a proportionate tax system might be structured to raise a given amount of revenue while imposing a minimum decrease in utility. *See* F.P. Ramsey, *A Contribution to the Theory of Taxation*, 37 ECON. J. 47, 47 (1927). The most general answer – that, "the taxes should be such as to diminish in the same proportion the production of each commodity taxed" – provided a foundation not just for models of taxation, but for, among others, utility rate structures and constrained price discrimination. *See id.* Ramsey's model mirrors monopolist price discrimination, but does so subject to a profit constraint.

[323] *See* PIGOU, *supra* note 321, at 279-80.

[324] *See, e.g.*, Farrell, Tr. I at 156.

[325] *See* Michael Geist, *ISP Must Come Clean on Traffic Shaping*, TORONTO STAR, Apr. 16, 2007, at D5, *available at* http://www.thestar.com/sciencetech/article/203408. See also *supra* Chapter I for a discussion of deep packet inspection and other traffic-shaping technologies.

content. For example, such content might be denied access to prioritized routing,[326] relegated instead to best-efforts or otherwise inferior routing.[327]

1. Discrimination against Competing Content and Applications

Some net neutrality proponents have argued that, if a broadband provider had a financial stake in particular content or applications, it could have an incentive to block its competitors' content or applications.[328] In broad economic terms, one Workshop participant identified the potential incentives to block competing content or applications as the incentives to "resist substitutes"[329] for complementary goods in which the integrated entity has a stake.[330]

The incentive to block competitors could, for example, be to protect the primary (broadband Internet access) market from future competition, especially from content or applications providers that might themselves seek a presence in the access market;[331] or the access provider could seek to facilitate price discrimination in the primary market.[332]

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[326] In the alternative, the broadband provider could charge a very high price to competing content providers to access priority routing.

[327] *See, e.g.*, CENTER FOR DIGITAL DEMOCRACY, LIFE IN THE SLOW LANE: A GUIDE TO THE UN-NEUTRAL NET (2006), *available at* http://www.democraticmedia.org/issues/UNN.html.

[328] *See, e.g.*, G. Sohn, Tr. I at 116 (regarding "the possibility" that a provider would "favor certain applications, content, and services"); *cf.* Libertelli, Tr. I at 76 (alleging actual applications discrimination or blocking in wireless broadband 3G markets).

[329] Farrell, Tr. I at 156. Farrell points out that if the broadband provider were allowed to charge competing content providers a price for access equal to profits the broadband provider would lose by customers buying the competing content instead of his own content, then there would be no incentive to block access. However, this would lead to a very high price for the content – even monopoly levels. *See also* Rosston, Tr. I at 163.

[330] Some cable companies providing broadband service are currently integrated into IP telephony (in addition to cable services, including video on demand). Conversely, some telephone companies providing broadband service are currently integrated into cable-type video services (in addition to telephone services). For example, AT&T through its affiliation with Akimbo Systems will branch out into other Internet content as well. *See* Laurie Sullivan, *AT&T Aims for Internet Television*, TECHWEB TECH. NEWS, Apr. 18, 2006, http://www.techweb.com/wire/networking/185303601. IP telephony faces competition from third-party providers such as Vonage, while video on demand services are now beginning to see competition from third-party sources. *See, e.g.*, Saul Hansell, *Smaller Video Producers Seek Audiences on Net*, N.Y. TIMES, Oct. 6, 2005, at C1, *available at* http://www.nytimes.com/2005/10/06/technology/06video.html?ei=5090&en=042ceaad45ac8536&ex=1286251200 (smaller producers trying to bypass traditional TV networks and sell directly to consumers over Internet).

[331] *See* Farrell & Weiser, *supra* note 318, at 109-10.

[332] *See id.* at 107 ("Participating in, or dominating, the applications market can help a platform monopolist to price discriminate; this objective may make even inefficient vertical leveraging profitable.").

The assumptions underlying these concerns are controversial. First, to the extent that such concerns about vertical integration depend on the vertically integrated entity having significant market power in a relevant broadband Internet access market, there is considerable disagreement as to whether such market power exists.[333] Even if an access provider has sufficient market power to discriminate against competitors in complementary content or applications markets, there remains the question of whether it has sufficient incentive to do so. In an oft-cited article suggesting that there are legitimate concerns about vertical integration in broadband markets, Farrell and Weiser (both of whom participated in the Workshop) observed that an access provider, depending on various contingencies, might or might not have sufficient incentives to block competition in content or applications markets.[334] In that article, Farrell and Weiser argue that "[p]rice discrimination need not in itself be inefficient or anticonsumer, but the platform monopolist's desire to price discriminate can . . . lead it to exclude efficient competition or price competition in complementary products."[335] They further argue, however, that "platform monopolists" will balance the fact that the platform business is more valuable when complements are supplied efficiently against the possibility that "competition in the complement can sometimes threaten the primary monopoly."[336]

Others argue that countervailing incentives are dominant and that discrimination problems are merely hypothetical.[337] Specifically, they assert that a broadband access provider's chief incentive is to maximize the value of its core business – its network – to present and potential customers.[338] Because that value depends centrally on the content and applications to which the network provides access, several Workshop participants maintained that providers would not have an adequate incentive "to limit their end users' experience on the public internet."[339]

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[333] Chapter VI of this Report, *infra*, discusses more fully the present and (likely) future state of competition in broadband access markets.

[334] *See* Farrell & Weiser, *supra* note 318, at 100-01.

[335] *Id.* at 108.

[336] *Id.* at 109.

[337] *See, e.g.*, Lenard, Tr. I at 195. *See also* U.S. INTERNET INDUS. ASS'N, NETWORK NEUTRALITY AND TIERED BROADBAND (2006), *available at* http://www.usiia.org/pubs/neutrality.doc.

[338] *See* Lenard & Scheffman, *supra* note 306, at 18-19 ("[U]nder any market structure, the platform provider has a strong incentive to maximize the value of the platform to consumers . . . . Broadband providers benefit from having applications and content markets that maximize value to their customers. Anything that detracts from user value will also reduce the demand (and hence the price that can be charged) for the platform.").

[339] Thorne, Tr. II at 42-43; *see also* Sidak, Tr. I at 104 ("Network operators provide a complementary service to Internet content. They do not have an interest in reducing the supply of a complement.").

Thus, the degree to which a last-mile broadband access provider has a sufficient incentive to discriminate against competing content and applications is an empirical question. The broadband provider must weigh potential profits from additional revenue from additional sales of its own content, against potential losses stemming from the diminution of content or applications that consumers view as essential complements to the access service. Certain net neutrality proponents have cited the *Madison River* matter as evidence that the incentive to discriminate is, or could be, sufficient to prompt an ISP to block a rival's application.[340] Opponents of net neutrality regulation, noting a dearth of similar controversies, have argued that *Madison River* represents a rare and distinctive case that is unlikely to recur in the marketplace.[341]

There is the further empirical question of whether such discrimination against content or application providers would be harmful, on balance, were it to occur.[342] In the short run, consumers of content or applications could face reduced choice or higher prices, and, in the long run, such discrimination could discourage entry into content or applications markets[343] or innovation in them.[344] On the other hand, certain forms of discrimination might have mixed or even positive implications for certain consumers. For example, when a seller of one good uses a complementary good as a metering device, excluding rivals from selling the complementary good may facilitate price discrimination that is favorable to the marginal consumer.[345] It appears that, thus far, little attention has been paid in the net neutrality debate to the question how possible harms and benefits from such discrimination might be assessed in the broadband Internet access context.

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[340] *See, e.g.*, SAVE THE INTERNET, THE THREAT IS REAL, http://www.savetheinternet.com/=threat#examples (last visited June 12, 2007). For an overview of the *Madison River* matter, and diverse views on its significance, see Chapter IX, text accompanying notes 713-18, *infra*.

[341] *See, e.g.*, Pepper, Tr. I at 89-90. As noted in the previous footnote, the possible implications of the *Madison River* matter are discussed more fully in Chapter IX, *infra*. It should be noted that, despite disagreements about the particulars of *Madison River* and its significance as a model case, many opponents of net neutrality view the blocking conduct at issue in *Madison River* as problematic. *See, e.g.*, Kahn, Tr. I at 186.

[342] *See* Farrell, Tr. I at 156.

[343] *See* Farrell & Weiser, *supra* note 318, at 110-11 (citing DOJ's challenge to General Electric's licensing policies for medical imaging equipment).

[344] *See id.* at 113-14.

[345] For example, A.B. Dick Co., which had a patent on mimeograph machines technology, required its machine customers to buy ink from A.B. Dick. Heavy users of the machines used more ink, and therefore paid more to A.B. Dick, than light users. Thus, A.B. Dick was able to price discriminate among its customers. Had A.B. Dick been allowed to sell only the machines, it likely would have sought to maximize profit by setting a price for the machine that would have been prohibitory for smaller users. In this example, low-volume users benefit but high-volume users may be worse off. *See* DENNIS CARLTON & JEFFERY PERLOFF, MODERN INDUSTRIAL ORGANIZATION, 333-35 (4th ed. 2005); *see also* TIROLE, *supra* note 322, at 148 (1988) ("The important caveat here is, of course, that the prohibition of a tie-in sale makes it more likely that the manufacturer serves only the high-demand consumers.").

2. The Quality of Non-prioritized Service[346]

Some net neutrality proponents have suggested that an access provider's ability to charge a premium price for priority service could create an incentive to underinvest in the quality of best-efforts or other non-prioritized services, or even to degrade them. That is, there is a concern that a provider offering prioritization will lower the quality of non-prioritized service in order to make its prioritized service more attractive to consumers of such services. This concern generally follows the recent "damaged goods" literature in economics, which seeks to identify the conditions under which firms intentionally will damage or degrade some units of a good to enable the firms to charge higher prices for others.[347]

Net neutrality opponents have argued that the incentives to degrade the quality of non-prioritized services will be exceeded by countervailing, procompetitive incentives.[348] Just as blocking highly valued competing content would reduce the value of access services, so too would reducing the general quality level of Internet access carrying both competing and non-competing content. Opponents further argue that, because the Internet inevitably will experience some congestion, the possibility of premium or priority services is critical to dealing with such congestion efficiently, thereby allocating resources where consumers value them the most.[349]

As with direct discrimination against competing content or applications, such incentives are subject to "conflicting forces,"[350] and both their likelihood and – should such discrimination occur – severity present empirical questions that cannot be answered in the abstract.

B. Potential Problems Independent of Last-mile Market Power

Network neutrality proponents also have identified two sorts of harm that could occur as a result of certain contracting practices even in a competitive last-mile access

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[346] See *infra* Chapter V for a more detailed discussion of the issues regarding data prioritization by Internet service providers and other network operators.

[347] *See generally* Raymond Deneckere & R. Preston McAfee, *Damaged Goods*, 5 J. ECON. & MGMT. STRATEGY 149 (1996).

[348] *See, e.g.*, Lenard, Tr. I at 178 ("Competitors['] content can increase subscribership at very low, or perhaps even zero, marginal cost. So it's not going to be in the provider's interest to block content that consumers want, and thereby lose subscribers that are going to be high-margin subscribers.").

[349] *See, e.g.*, Sidak, *supra* note 287, at 380 ("To achieve a Pareto-efficient usage of the network, a network operator must have the right to prioritize content to maximize economic welfare and minimize the aggregate welfare losses associated with best-efforts delivery."). See also *supra* Chapter I for a discussion of Internet data congestion. Several Workshop participants made the related point that Ramsey price discrimination is an "efficient way to recover fixed costs." *See* Yoo, Tr. II at 217; Lehr, Tr. I at 38.

[350] Farrell, Tr. I at 205.

market. These are the so-called terminating access monopoly problem and the potential balkanization of the Internet.

1. The Terminating Access Monopoly Problem

One concern raised by net neutrality proponents relates to broadband providers' potential interest in charging content providers for carrying their content over the last mile of the Internet. In particular, access providers might seek payments independent of any charges for prioritized content or application delivery. Net neutrality proponents have noted that such a practice would be analogous to a situation in telephony, in which the terminating telephone network charges the calling party's network a termination fee.[351] There, for example, if a wireline customer calls a cell phone, the wireline network pays the cell phone network a termination fee, typically calculated on a per-minute basis. The ability of the terminating network to charge a fee for delivering traffic to its own customers is known as the terminating access monopoly problem because an end user's network is a "monopolist" for anyone who wishes to connect to that end user.[352]

In the context of broadband Internet access, broadband providers might want to charge content or applications providers for delivering content or applications to end users over the last mile. As noted above, such charges could apply to both best-efforts and prioritized routing. Such charges would have the potential to create two different types of consumer harm. First, in the short run, they could raise the price to consumers of content and applications. Specifically, charges to content and applications providers would raise their costs; in the face of higher costs, such providers are likely to try to recoup at least some of those costs via the prices they seek to charge consumers. At the margin, higher prices will tend to reduce usage, lowering consumer welfare.[353]

There have been instances in the telecommunications area in which terminating access charges have resulted in substantial end-user fees. A Workshop participant provided the following example to demonstrate how such fees might increase prices and thus reduce consumer demand for a particular product: Skype (a VoIP provider) customers in Europe are charged no usage-based fees for Skype-to-Skype calls. Skype-to-landline phone calls are charged approximately two cents per minute, however, because European landline terminating access charges are about two cents per minute, and Skype-to-cell phone calls are charged 21 cents per minute because European cell phone termination charges are about 21 cents per minute.[354] In the United Kingdom, where the per-minute price is 21 cents (due to the access charges), the average usage is only 150 minutes per month. In contrast, in the United States, where the average price

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[351] *Id.* at 154.

[352] *See, e.g.*, Patrick DeGraba, *Central Office Bill and Keep as a Unified Inter-Carrier Compensation Regime*, 19 YALE J. ON REG. 37, 47 (2002).

[353] *See* Farrell, Tr. 1 at 171. *See also* Jean-Jacques Laffont, Patrick Rey & Jean Tirole, *Network Competition: I. Overview and Nondiscriminatory Pricing*, 29 RAND J. ECON. 1, 10-11 (1998).

[354] Wilkie, Tr. I at 171.

for the marginal minute of cell phone use is about seven cents, the average user talks on a cell phone for about 680 minutes per month.[355]

A countervailing effect could mitigate the potential harm from termination charges in the context of Internet access. To the extent that broadband providers collect termination charges on a per-customer basis (or on a usage basis that depends on the number of customers), the broadband provider has an incentive to lower the subscription price to increase the number of subscribers from which it can collect access revenues.[356] Also, some content providers whose business model is based chiefly on advertising revenue may choose to retain that model if they are charged termination fees that are sufficiently small. Here, again, the ability to collect such access fees creates an incentive for the broadband provider to lower subscription rates. However, it may also cause certain marginal, advertiser-supported content to become unprofitable and thus to exit the market.

The second type of potential harm from termination charges is a long-run harm. Broadband providers that can charge content and applications providers terminating access fees might be able to expropriate some of the value of content or applications from their providers.[357] If so, the incentives to generate such content and applications will be reduced; in the long run, consumer choice of content or applications could be reduced as well. One Workshop participant suggested that the greater ubiquity of Internet content – relative to cell phone content – might arise from the fact that, historically, the networks over which Internet content is downloaded have operated under regulations limiting terminating charges, whereas cell phone networks have not.[358]

Some net neutrality opponents argue, however, that termination and related fees may be the most efficient way to deal with what they see as inevitable Internet congestion, routing time-sensitive and time-insensitive traffic during periods of congestion according to the relative demand for content and applications.[359] Moreover, they argue that broadband providers must be able to charge directly and explicitly for desired routing to have the proper incentives to invest efficiently in the necessary infrastructure.[360] Without delivery charges, they argue, content providers whose revenues come chiefly through advertising would have an incentive to free-ride on

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[355] *Id.* at 172.

[356] *Cf.* Sidak, *supra* note 287, at 361 (ISP acts as intermediary and needs end users to demand content).

[357] Farrell, Tr. I at 155.

[358] Wilkie, Tr. I at 199.

[359] *See, e.g.*, Lenard, Tr. I at 179.

[360] *See id.*

infrastructure investments. That could distort both the magnitude and distribution of infrastructure investments, as well as pricing elsewhere in the market.[361]

These issues, as discussed above, also raise difficult empirical questions about the relative magnitudes of countervailing incentives in particular present and future market contexts. Also relevant are the relative costs of providing for certain possible infrastructure investments and the marginal costs of making various improvements available to different consumers. Although systematic, empirically-based answers to these questions have not yet been forthcoming, it is clear that ongoing infrastructure investment is substantial and that desired applications will require further investment still.[362]

2. Exclusive Content and Balkanization of the Internet

Commentators also have expressed concern about the potential balkanization of the Internet.[363] The concern is that if broadband providers are allowed to sign exclusive deals with content and applications providers, end users may be unable to access much of the content and applications they desire through any single Internet service provider.

Net neutrality proponents have suggested that the experience of other markets with exclusive content arrangements is instructive. They have cited, for example, Australia's experience with cable television. Australian regulatory authorities franchised two competing cable companies, but did not impose any program access rules.[364] Thus, each cable company was able to develop proprietary content or sign existing program

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[361] Several commentators have raised concerns about distributing the costs of infrastructure improvements required only for certain services across large groups of consumers who may not demand such services. One Workshop participant suggested that, in addition to demand for very basic broadband services, there appears to be continuing demand for narrowband, or dial-up, Internet access: "Most people who have dial up say they have no interest in broadband connections, according to the Pew Internet American Trust Foundation in a recent survey they did." Wallsten, Tr. II at 47.

[362] *See, e.g.*, *id.* at 46 (regarding ongoing investment).

[363] *See, e.g.*, Bachula, Tr. II at 174 ("To compete in this global economy, we need a simple, inexpensive and open network, not a balkanized one.").

[364] The program access rules promulgated by the FCC require any program owned by a cable company that is sent to any distributor via satellite to be made available to all program distributors. *See In re* Implementation of Sections 12 and 19 of the Cable Television Consumer Protection and Competition Act of 1992: Development of Competition and Diversity in Video Programming Distribution and Carriage, 8 FCC Rcd 3359 (1993) (first report and order) (implementing the Cable Television Consumer Protection and Competition Act of 1992, Pub. L. No. 102-385, §628(c)(2)(D), 106 Stat. 1460, 1494-95 (1992)). Any program owned by a cable company that is sent to distributors over terrestrial wire can be limited to any distributor that the owner desires. This is known as the "terrestrial loophole" because Section 628(c)(2)(D) only addresses satellite delivered programming. A rationale behind the loophole is that typically only local programming is distributed terrestrially, and this rule gives extra incentives to invest in local programming by allowing the developer to sell exclusive rights to distribute the programming. *See* NAT'L CABLE & TELECOMMS. ASS'N, THE EXISTING PROGRAM ACCESS RULES ARE WORKING AS INTENDED (2007), *available at* http://www.ncta.com/DocumentBinary.aspx?id=564.

networks to exclusive contracts. According to a Workshop participant, the result of this regulatory regime in Australia has been that virtually all available programming is carried on either one cable system or the other, but not both. Despite facing demographics in many regards similar to those of the United States, Australia's cable industry is reported as having only a 22% penetration rate.[365]

Opponents of net neutrality have argued that certain exclusive arrangements may be necessary in some cases. One Workshop participant argued that "the ability to bundle, make exclusive deals, [and] otherwise have non-neutral business models, may be the key to facilitating entry."[366] The participant elaborated: "there are three pretty salient facts about the broadband business. One is that is a very young business[,] . . . the second is that it is a distribution business, and the third [is] that it is a business with very large fixed costs."[367] He also stated that "[n]on-neutral business models may very well be essential to provide sufficient revenues to cover the cost of investments"[368] and that "exclusive deals . . . may be key to facilitating entry."[369]

In addition, net neutrality opponents have noted that there may be significant market pressures against exclusive dealing arrangements, as consumers accustomed to a broad range of content and application offerings may be unsatisfied with narrower ones. As one Workshop participant argued, "we have attempts at service providers putting together walled gardens. And they uniformly failed, right? AOL was a walled garden. People didn't want it."[370]

C. Potential Benefits of Vertical Integration

The potential costs of vertical integration by broadband providers into content or applications must be weighed against the potential benefits offered by vertical integration. The most-cited benefit is that the potential to earn additional profits from

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[365] *See* Wilkie, Tr. I at 175.

[366] Lenard, Tr. I at 178. Lenard noted that "a possible example is the Clearwire / Bell Canada deal in which Clearwire entered into some sort of an exclusive deal with Bell Canada to provide services in exchange for a $100 million investment." *Id.* Clearwire is a provider of wireless non-line-of-sight broadband access. It signed a deal with Bell Canada to make Bell Canada the exclusive provider of VoIP capabilities for Clearwire's VoIP offering to its customers. As part of the deal, Bell Canada invested $100 million in Clearwire. *See* Press Release, Bell Canada Enters., Bell Canada and Clearwire Corporation Form Alliance (Mar. 8, 2005), *available at* http://www.bce.ca/en/news/releases/bc/2005/03/08/72179.html; *see also* Ed Sutherland, *Clearwire Clouds VoIP Picture*, WI-FI PLANET, Mar. 31, 2005, http://www.wi-fiplanet.com/columns/article.php/3494171 (noting that Clearwire blocks access to other VoIP services).

[367] Lenard, Tr. I at 176.

[368] *Id.* at 177.

[369] *Id.* at 178. Similarly, another Workshop participant suggested that perhaps there should be different rules governing the behavior of entrants than incumbents. *See* Rosston, Tr. I at 165.

[370] Pepper, Tr. I at 136-37.

selling its content or applications to more customers will increase the vertically integrated firm's incentives both to build out the network (*i.e.*, extend its reach) and to invest in technology that will increase the types and/or amount of content it can offer.[371] In addition, there may be technical or information efficiencies for a vertically integrated entity, even where a platform provider tries to cooperate with independent content or applications developers.[372]

It is well understood that, when a delivery system owns the product it delivers, the delivery system has a greater incentive to serve more consumers.[373] Thus, sharing in the profits of content gives a broadband provider a greater incentive to build out its network and to lower access prices to reach additional customers. In addition to giving incumbents incentives to expand, net neutrality opponents also argue that certain vertical relationships might be beneficial to generating new entry, "and some of these vertical relationships that people are concerned about . . . may increase the profits of a new entrant, [and] may be the thing that is necessary in order to get a new entrant . . . to compete."[374]

A second potential benefit from vertical integration is increased choice of content and applications. Just as increased content revenue can provide an incentive for build-out of a network, so too can the prospect of new subscribers create an incentive to invest in content or applications that might attract additional customers – even if the revenues that would be derived from the content or applications as stand-alone offerings would not cover their costs.[375] For example, according to a Workshop participant, vertical integration by cable television providers in the early days of the cable industry gave those providers additional incentives to invest in content to make the entire cable package more attractive to potential subscribers.[376]

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[371] *See* Rosston, Tr. I at 165 ("[B]ut on the other hand you do need to have incentives to – for the incumbents to upgrade their networks, as well, and to try to provide higher speed access."); *see also* Lenard, Tr. I at 177.

[372] *See, e.g.*, Farrell & Weiser, *supra* note 318, at 102.

[373] *See id.* at 101.

[374] Lenard, Tr. I at 164-65.

[375] *Compare* Farrell, Tr. I at 204 ("[A]lthough, as an economist, I certainly agree that there are kinds of innovation for which you really do need to make sure that the financial incentives are there, I also think it's important to remember that openness to many, many millions of people doing little stuff is quite important."), *with* Rosston, Tr. I at 214 ("[W]hen you say ample supply of content on the Internet, it's true, there is a lot of stuff out there. But it may not be the right stuff that people want to use that, for example, may cause people to increase their demand for broadband, even though it may be a zero profit on the content side.").

[376] Rosston, Tr. I at 197.

D. Brief Summary and Remaining Questions

The prospect of increased vertical integration of broadband services raises various and competing concerns. In particular, vertical integration in broadband Internet goods and services markets could prompt Internet access providers to block or degrade content or applications or charge higher prices. On the other hand, because vertical integration may offer certain efficiencies that are procompetitive and pro-consumer, and because potential harms are contingent, not all vertical integration is problematic. In particular, some degree of vertical integration may facilitate investment in infrastructure, investment in content or applications, optimization of fit between content and delivery systems, and pricing benefits for certain consumers. Some degree of vertical integration may also facilitate entry, and thereby increase competition, in broadband Internet access markets. The balance between competing incentives raises complex empirical questions and may call for substantial additional study of the market generally, of local markets, or of particular transactions.

There are also important questions regarding the costs of various proposed means of addressing the harms vertical integration may cause, should they arise. For example, one Workshop participant who has done considerable work to chart possible harms from vertical integration in this market suggested that a vertical separation "*could* be part of the discussion,"[377] but that it is not necessarily cost-justified, and that the debate on net neutrality has not yet provided "any good exposition of answers to that question."[378] Another participant suggested that "the terminating monopoly problem, the problem of final interconnection is real," but stated that existing laws and regulations were adequate to deal with it and that one ought to "proceed with prudence and caution."[379]

[377] Farrell, Tr. I at 213 (emphasis added).

[378] *Id.* at 215.

[379] Wilkie, Tr. I at 218.

V. DATA PRIORITIZATION

One of the central issues in the network neutrality debate is network operators' use of prioritization – that is, differential treatment of Internet traffic on the basis of certain characteristics of the data. As discussed in Chapter I, to date, the Internet has used primarily a best-efforts protocol that transmits packets on a first-in-first-out basis. Widespread adoption of new prioritization technologies that can provide specialized handling for particular packets based on their application type, source, or content could result in significant changes in the functioning of the Internet.

Prioritization can occur in numerous forms. For purposes of this Chapter, prioritization refers to the provision of higher or lower transmission priority to packets of data. Such priority can be given to packets by different entities in the provision and delivery of data, through various technologies and business models. These prioritization efforts can occur throughout the network, including at the last-mile and in the backbone.[380] As described in Chapter I, last-mile ISP prioritization may involve utilization of special algorithms in routers to prefer packets based on their application type, source, or content by, for example, channeling them into separate bandwidths, scheduling them ahead of other packets, providing shorter paths to their destinations, and making them less likely to be dropped should the number of waiting packets become too large.[381]

To some extent, long-standing techniques provide a means of traffic handling whose effects are similar to the effects of prioritization. For example, a content or applications provider may have a preferred connection to the Internet through its "first-mile" ISP, via a higher-capacity link, resulting in faster uploads than those available to other such providers.[382] Recently, though, technologies for prioritization have significantly increased the options for favoring some transmissions and disfavoring

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[380] While some prioritization does occur on the backbone, prioritization generally has not been necessary – nor would it apparently have much effect – in the backbone, given the large capacity of the networks comprising the backbone. *See* Ryan, Tr. I at 239-40. However, new bandwidth-intensive technologies may test backbone capacity in the future.

[381] Peha, *supra* note 36, at 5-6.

[382] *Id.* at 5. This option, priority at the "first mile" rather than the "last mile," prioritizes the upload of some data packets over others, though Peha claims that "it alone does not allow the network to discriminate among traffic from a given source." *Id.* Also, a recent OECD report notes that "administrators have implemented traffic shaping to smooth out traffic flows and prevent bottlenecks, typically in an effort to improve the user's experience" in a way that did not use "high-speed deep-packet inspection and prioritisation." ORG. FOR ECON. COOPERATION & DEV., INTERNET TRAFFIC PRIORITISATION: AN OVERVIEW 8 (2007) [hereinafter OECD Report], *available at* http://www.oecd.org/dataoecd/43/63/38405781.pdf. Further, as described in Chapter I, network operators can provide separate, dedicated bandwidth for certain applications such as video through VPNs. That is, not all broadband IP communications need be part of the Internet. Such use of VPNs currently does not raise much objection, *see, e.g.*, Davidson, Tr. I at 229, though some commentators are concerned that continued growth of this practice eventually could decrease the total amount of bandwidth available for the wider Internet and possibly transform the Internet itself into a "slow lane." *See* Lehr, Tr. I at 63.

others. The development of such technologies appears to be based in part on the increasing demand for content and applications that benefit from improved quality of service ("QoS"), which "typically involves the amount of time it takes a packet to traverse the network, the rate at which packets can be sent, and the fraction of packets lost along the way."[383]

Even with prioritization, ISPs or other network operators may not be able to guarantee a promised level of QoS because network operators can only control for delivery within their own networks and not for delivery throughout the rest of the Internet's multiple networks (absent agreements between networks to honor each other's QoS determinations).[384] Nevertheless, within the last-mile ISP's network, prioritization could allow the ISP to offer different levels of QoS.

The debate over prioritization focuses on disagreements about what advantages prioritization may have for ISPs, content and applications providers, and end users, and under what circumstances; whether it entails countervailing harms; what the effects on broadband prices, innovation, and investment may be; and whether there are better alternatives. As a result of numerous conflicting views and concerns, policy makers considering whether to regulate prioritization need to examine the complexity of prioritization and its potential implications for the future of the Internet.

This Chapter is organized as follows. Section A addresses the potential reasons for ISPs and other network operators to prioritize data within their networks; Section B examines the feasibility of network operators expanding the capacity of their networks as an alternative to data prioritization; Section C discusses the several potential types and uses of data prioritization; and Section D provides concluding observations on prioritization.

A. Why prioritize data?

The Internet provides access to a vast range and volume of content and applications, for a huge number of firms and individuals providing and/or using them. Nonetheless, transmission capacity is finite, and peak demand at certain periods and locations may strain a network. Networks use different technologies with different overall capacities. With increasing numbers and sizes of transmissions to increasing numbers of users, congestion – especially at the last mile – can be a problem. From the perspective of end users, the best-efforts delivery approach provides an adequate experience for many uses, but congestion in a best-efforts context may render use of certain content and applications undesirable, and perhaps even impossible.

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[383] Peha, *supra* note 36, at 5. Some commentators use the term more broadly to include aspects such as security controls.

[384] OECD Report, *supra* note 382, at 9. As one company has noted in its comments to the Commission, the "current 'best efforts' Internet only permits a packet of data to arrive at its destination as fast as the slowest network over which it traverses." Alcatel-Lucent, Public Comment 1, at 5. *See also supra* note 120.

Some content and applications, such as live streaming video, some VoIP services, and online games, are latency-sensitive; that is, if packets do not arrive sufficiently close together, the communication will be unsuccessful.[385] Some transmissions, such as software downloads or movies, might be large enough that interference due to congestion would cause user frustration and cancellation. From the perspective of providers of such content and applications, the value of their product may be substantially enhanced by mechanisms to avoid congestion problems, which could include prioritization. The availability of prioritization also could enhance innovation with respect to new applications that require higher QoS for successful use.[386] On the other hand, some argue that the need for enhanced QoS is the exception rather than the rule. As one commentator observed, "watching prerecorded audio or video streams doesn't need QoS, because you can use buffering."[387] Moreover, according to commentators and industry participants, even "many VoIP systems seem to work pretty well without any special QoS support in the network."[388]

Further, extensive use of some high-demand content and applications, such as peer-to-peer ("P2P") file sharing, could overcrowd existing capacity and significantly interfere with access to even non-sensitive content and applications.[389] From the ISPs' perspective, the importance of providing successful transmission may at times necessitate the use of traffic-handling mechanisms, and prioritization of packets has become an option for such traffic handling.[390] The value to both users and content and applications providers of avoiding congestion may provide opportunities for ISPs to increase both their own direct revenue and their customer base through prioritization.

In addition, the Internet provides users with a wealth of choices of content and applications. From any provider's perspective, prioritization in delivery can be a means of making its offering better than those of its competitors – faster, more reliable, and more effective. For example, a provider of a high-quality, expensive application may choose, if given the opportunity, to pay for a high level of certainty that all its packets will arrive quickly, while an application that has a slightly greater tolerance for delay or

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[385] For example, VoIP applications require their voice data packets to be received by the end user within 50 milliseconds after they are first spoken. Otherwise, delay in the voice transmission degrades the VoIP experience so that a "real-time conversation" cannot occur. Peha, *supra* note 36, at 8. In contrast, e-mail data packets are not time-sensitive, and an additional delay of a few seconds (or even minutes) of the data packets making such an electronic text message does not significantly affect the user's experience with this application.

[386] *See* Ryan, Tr. I at 241.

[387] Felten, *supra* note 36, at 9.

[388] *Id.*; *see also* Davidson, Tr. I at 274 (stating that "many providers of Voice Over IP do not believe that they need prioritization in order to offer their service, including [Google's voice service]").

[389] *See supra* Chapter I.C.

[390] *See supra* Chapter I.C.

dropped packets may decline to pay for priority in an effort to keep costs down.[391] From the ISPs' perspective, the value placed by content and applications providers on priority treatment may create opportunities to increase ISP revenues, through general fees, partnerships, or financial interests in affiliated providers.

However, prioritization also could lead to countermeasures by some providers or users, leading ISPs to degrade a broader range of packets and/or fine tune their routers to deal with these circumventions, thus sparking an Internet "arms race" to provide or thwart prioritization.[392] For example, a user could encrypt all traffic using a particular application, which may prevent the ISP from recognizing and deprioritizing the application; the ISP, in turn, could respond by deprioritizing all encrypted transmissions. The potential for such an arms race and the unpredictability of its outcome adds an extra level of difficulty to determining the potential value and effects of prioritization.

B. Prioritization versus Capacity Expansion

Some commentators predict a future of Internet traffic problems that will necessitate the use of prioritization technologies. For example, at the Workshop, a participant cited a report suggesting that if YouTube alone becomes a high-definition application, it would double the capacity needs of the entire Internet.[393] Others believe that these concerns are overblown and that prioritization at the last mile will not be required if individual users who desire increased capacity pay for increased bandwidth.[394]

Network expansion to build out capacity at a rate that outpaces congestion might eliminate any need for prioritization. A Workshop participant explains this view:

> Note that the incentive to discriminate with respect to QoS and price is based on the assumption that there are limited resources. In fact, a network has a choice on that. Networks can deploy far more communications capacity than is usually needed, so congestion is simply not a problem.[395]

Another Workshop participant noted that his company's backbone network has far more capacity than normally needed, which readily allows for bursts in usage, outages, and other circumstances.[396] Similarly, the creators of the private Internet2 high-speed

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[391] Schwartz, Tr. I at 257-58.

[392] *See generally* Lehr et al., *supra* note 131.

[393] McCormick, Tr. I at 244; *see also* Wolf, Tr. II at 146-48.

[394] *See, e.g.*, Davidson, Tr. I at 231.

[395] Peha, *supra* note 36, at 8.

[396] Ryan, Tr. I at 239-40.

network decided not to use prioritization techniques and instead relied on increased capacity at the last mile.[397]

Building and maintaining higher-capacity networks obviously creates costs, as do deploying and maintaining prioritization technologies. At issue is whether the costs of having enough capacity for peak loads, leaving substantial excess capacity at other times, outweigh the (direct and indirect) costs of using prioritization techniques instead. A participant has commented that "[e]conomically, it doesn't make sense that the solution is always to build more. That's going to involve carrying a lot of excess capacity, which is going to be expensive."[398] In contrast, another participant has suggested the possibility that higher-capacity networks could provide cost savings through the use of cheaper processors that do not engage in sophisticated packet inspection and allow for simplified billing of capacity usage rather than using complicated prioritization algorithms.[399] The 1990s saw dramatic improvements in fiber-optics technology that forestalled the need for more expensive prioritization technologies to handle capacity issues.[400] However, progress in routing technology may upend this trend, and experts disagree on the question of whether network operators will have a greater incentive to continue increasing capacity or to turn to new prioritization technologies.[401] Opportunities for additional revenue through prioritization and costs attendant on these opportunities, as discussed below, also could be factors.[402] In the end, "[t]he best strategy depends on whether processing or communicating gets cheaper at a faster rate."[403]

Another issue is whether broadband capacity can continue without limit to expand faster than the demands placed on it by new content and applications. For example, one last-mile network operator has estimated that "peer-to-peer file sharing services such as

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[397] Bachula, Tr. II at 169 ("It was cheaper [for Internet2] to provide more bandwidth than to install these sophisticated quality of service prioritization techniques. With enough bandwidth in the network, there is no congestion, and video bits do not need preferential treatment. All the bits arrive fast enough even if intermingled."). A Workshop participant noted, however, that Internet2 operates for a limited number of academic users and suggested that it should not be a model for the commercial Internet. Wolf, Tr. II at 175.

[398] Schwartz, Tr. I at 255.

[399] Peha, *supra* note 36, at 8.

[400] *Id.*

[401] *Id.* at 8-9.

[402] One means for ISPs to reap additional income from excess capacity, as opposed to prioritization, is selling available extra capacity to providers or users as "boosts" of extra bandwidth for such specific tasks as downloading a movie or software. *E.g.*, Marguerite Reardon, *Comcast Gives Broadband Users a Speed Boost*, CNET NEWS.COM (June 1, 2006), http://news.com.com/Comcast+gives+broadband+users+a+speed+boost/2100-1034_3-6079070.html.

[403] Peha, *supra* note 36, at 8.

BitTorrent already consume more than one-half of Internet bandwidth."[404] Given the use of P2P and the possibility of other new bandwidth-intensive technologies such as high-definition Internet video, capacity expansion alone may not be capable of warding off congestion.[405]

Because there is little publicly available data regarding current traffic rates, it is difficult to ascertain the extent of congestion problems at this time.[406] The greater the actual or perceived congestion effects are, the greater are the incentives for each party involved to adopt approaches for active traffic handling. A variety of prioritization approaches have the potential to address congestion. The discussion below focuses on the provision of last-mile broadband access by DSL and cable modem services. Other broadband platforms (such as wireless, satellite, or broadband over powerlines) may have different overall capacity constraints and, therefore, may entail different tradeoffs between capacity increases and prioritization to handle increasing amounts of traffic.

C. Types and Uses of Data Prioritization

1. Prioritization Based on Type of Application

The individual types and uses of prioritization are discussed separately because their advantages and disadvantages vary significantly. Perhaps the least controversial type of prioritization is uniform application-based prioritization or "access tiering," under which all applications of a certain type, such as VoIP or video, are in the same access tier and receive equal priority in delivery.

ISPs can manage traffic flow based on application type by, among other methods, identifying and assigning low priority to high-bandwidth applications to preserve sufficient bandwidth for other applications.[407] For example, routers that can identify P2P packets could allocate such traffic in a number of ways to prevent them from overwhelming the network. Routers can be programmed to prioritize packets so that a portion of the network is able to run non-P2P traffic without competing with high-bit-

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[404] *See* Verizon Communications Inc., Public Comment 60, at 14.

[405] *See* Xiaojun Hei, et al., Polytechnic University, *A Measurement Study of a Large-Scale P2P IPTV System* 1 (Nov. 2006), *available at* http://cis.poly.edu/~ross/papers/P2PliveStreamingMeasurement.pdf ("With the widespread adoption of broadband residential access, IPTV may be the next disruptive IP communication technology. With potentially hundreds of millions of users watching streams of 500 kbps or more, IPTV would not only revolutionize the entertainment and media industries, but could also overwhelm the Internet backbone and access networks with traffic."). *But see id.* at 13 ("Our study demonstrates that the current Internet infrastructure is capable of providing the performance requirements of IPTV at low cost and with minimal dedicated infrastructure.").

[406] Lehr, Tr. I at 36.

[407] Peha suggests ISPs may deprioritize the packets of applications that do not include within themselves mechanisms to reduce transmission rates in times of congestion. Peha, *supra* note 36, at 7.

demand P2P traffic.[408] Similarly, routers can allocate peak-time bandwidth by providing certain types of traffic with only off-peak priority. For example, an Australian ISP assigns low priority to P2P traffic between noon and midnight. Such a policy is meant to create incentives for users who use P2P technologies to shift such usage to off-peak hours.[409]

Conversely, ISPs can identify data packets that are more sensitive to delayed delivery than others and give these packets higher priority to ensure timely delivery. For example, VoIP packets may be given priority by routers because delay in delivering each packet of voice data could make the voice communication unacceptable. A router algorithm could meet the QoS needs of such applications by identifying each application type and its urgency level and assigning priority to time-sensitive packets. As one company described its routers' functionality, "preferential treatment can be given to latency-sensitive applications during periods of increased network congestion," and "[p]acket marking based on application classification . . . enables routers upstream or downstream . . . to prioritize traffic based on individual application requirements and address congestion at relevant network points."[410]

Some commentators have suggested that it will be difficult to define access tiers and to categorize packets, given the heterogeneity of applications and the constantly evolving nature of Internet usage.[411] Also, ISPs and providers may disagree on the appropriate tier for particular applications. For example, disputes could emerge regarding whether applications belong in the voice tier or video tier – especially as applications converge.

a. Charging for Application-based Prioritization

Although the use of application-based prioritization algorithms to improve delivery of certain types of applications (*e.g.*, latency-sensitive ones) or deprioritize others (*e.g.*, P2P) purely as an internally defined traffic-management tool has not raised significant controversy, the same cannot be said of the prospect of ISPs and other network operators charging fees for such application-based prioritization. As explained by an opponent of network neutrality, when an ISP seeks payment for priority based on

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[408] Oregon State University ResNet: Bandwidth, Security & Architecture, http://oregonstate.edu/resnet/guides/security_architecture.php (last visited May 17, 2007) ("Web browsing, SSH, telnet and games are set to a higher priority. . . . All other traffic bound for the Internet (not counting P2P) such as ftp, streaming audio or video, is given a lower priority. If the bandwidth is available, then the only limit is our bandwidth cap. Peer to Peer (P2P) is given the lowest priority.").

[409] OECD Report, *supra* note 382, at 31. In another example, a United Kingdom ISP recently announced traffic-shaping policies that created priority categories based on the type of application and the user's broadband service plan. *Id.* P2P traffic is slated for the next-to-last level of priority. *Id.*

[410] CISCO SYS., CISCO SERVICE CONTROL: A GUIDE TO SUSTAINED BROADBAND PROFITABILITY 4-5 (2005), *available at* http://www.democraticmedia.org/PDFs/CiscoBroadbandProfit.pdf.

[411] *See* Lehr, Tr. I at 32-33.

type of application, it provides a revenue stream to the ISP to support the service and, perhaps, additional investment in its network.[412] Further, as one commentator has maintained, "[i]f broadband companies did not believe they could maximize the value of the technology by selling premium products to purchasers willing to acquire them, they would likely invest in other areas."[413]

ISPs receiving payments from content and applications providers for priority service might choose to lower access prices for users and thus increase broadband penetration, providing even greater value to providers. The market for broadband Internet access has been described as a "two-sided market" because "both consumers and content/applications providers derive value from the sale of broadband access."[414] An ISP has asserted that last-mile ISPs can "allocate charges based on each side's willingness and ability to pay," which will allow last-mile ISPs to "keep prices for consumers lower than they would otherwise be."[415] Further, a Workshop participant has argued that charging providers for prioritization would "increase economic welfare by increasing broadband penetration[] because it would enable network operators to subsidize access prices for income constrained or price-sensitive end-users who currently forgo broadband entirely."[416] On the other hand, according to some network neutrality proponents, users could experience higher costs to access Internet content and applications, reflecting their costs for priority service.[417] Some proponents further suggest that network operators already receive significant fees for access by content and applications providers.[418]

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[412] Verizon Communications Inc., Public Comment 60, at 13-14. *See also* Telecommunications Industry Association, Public Comment 56, at 4 ("Broadband Internet access service is no different tha[n] any other market. Network neutrality rules that restrict [differentiated pricing and product offerings] could end up harming consumers and driving up costs because network providers will lose the incentive to maintain and upgrade their increasingly congested networks."); U.S. Chamber of Commerce, Public Comment 58, at 4 ("Mandating 'net neutrality' provisions will create regulatory barriers that deter investment in these high-speed broadband networks, which will ultimately hurt every American and, certainly, the nation's small businesses.").

[413] American Bar Association Section of Antitrust Law, Public Comment 2, at 6.

[414] Verizon Communications Inc., Public Comment 60, at ii.

[415] *Id.*

[416] Sidak, *supra* note 287, at 362; *see also* Schwartz, Tr. I at 258; Kahn, Tr. I at 188-89 ("Would you say that newspapers should be prohibited from charging advertisers, and should get their money entirely from the people who buy the newspapers?").

[417] "'It seems to me that if broadband operators are charging Google and Amazon for the use of their network, then those costs will automatically get passed on to consumers,' said Gigi Sohn, president and co-founder of Public Knowledge, a Beltway advocacy group. 'And ultimately that will lead to higher prices for consumers.'" Marguerite Reardon, *Without "Net Neutrality," Will Consumers Pay Twice*?, CNET NEWS.COM (Feb. 7, 2006), http://news.com.com/Without+Net+neutrality,+will+consumers+pay+twice/2100-1034_3-6035906.html.

[418] *See, e.g.*, Davidson, Tr. I at 289; Tulipane, Tr. I at 264.

Charging for application-based prioritization raises two further issues of substantial concern to commentators. First, there is disagreement among participants in the network neutrality debate on whether creating priority "fast" lanes necessarily would result in degraded service in the remainder of a given network. For example, a Workshop participant has stated that prioritization in the last mile "degrades competing services, and creates incentives to relegate some of those competing services to a slow lane . . . [given] that the only way that you can have a fast lane that you can charge for, that is useful, is if there are also slow lanes that are less useful, and less attractive."[419] By contrast, an ISP has asserted that "providing better quality to some does not necessarily entail inferior service for others; next-generation broadband networks will have enough capacity and functionality to provide superior services across the board."[420]

ISPs have incentives to maintain sufficient best-efforts service that allows access to all content and applications providers because the value of an ISP priority service to a provider would be affected by the size of the ISP's customer base. ISPs may lose subscribers if they do not provide sufficient access. Some Workshop participants argued, however, that ISPs also have an incentive to create scarcity of bandwidth so that "they can charge more, restricting output in order to raise prices, and charging monopoly rents."[421] Whether preferred priority arrangements lead to an ineffective slow lane likely would depend on various factors, including the extent of capacity constraints, application and content requirements, and the demand for prioritization services, as well as the potential tradeoff in income streams from content and applications providers paying for priority transmission and from customers that demand non-prioritized Internet access.

Second, access-tier prioritization could require content and applications providers to make payment arrangements with multiple last-mile ISPs worldwide. Currently, as a general matter, both providers and users have contracts only with their own ISPs. Each ISP and other network operator has arrangements with others that result in the delivery of the packets across networks. Some commentators have observed that, if last-mile ISPs impose charges on remote providers for priority delivery to their own customers, providers would need to make arrangements with every such ISP to obtain priority treatment for packets directed to the ISPs' customers.[422]

Aggregator services or other kinds of settlement services could simplify this situation.[423] Despite an initial phase of multiplicity of arrangements, market forces may

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[419] Davidson, Tr. I at 228-30; *see also* Lehr et al., *supra* note 131, at 19; CENTER FOR DEMOCRACY & TECHNOLOGY, PRESERVING THE ESSENTIAL INTERNET 7-8 (2006), *available at* http://www.cdt.org/speech/20060620neutrality.pdf.

[420] Verizon Communications Inc., Public Comment 60, at 17.

[421] *See, e.g.*, Bachula, Tr. II at 170.

[422] *See, e.g.*, Davidson, Tr. I at 226, 274-75.

[423] Payment settlement mechanisms for other two-sided markets, such as stock exchanges and credit cards, may provide helpful models. *See* Blumenthal, Tr. I at 287.

lead to pooling of demand for Internet access via a common ISP[424] or other companies offering to handle the multitude of transit negotiations for content and applications providers. Alternatively, fees for application-based prioritization might be incorporated into peering and other arrangements among network operators, so that the fees an applications provider pays to its own ISP would reflect the priorities granted by last-mile ISPs. The issue remains whether such arrangements between and among networks would be too complex to sustain. A Workshop participant, for example, stated that the methodology for charging for priority access has not been thought through as a technical matter and, if attempted, likely would not work at all.[425]

2. Prioritization Based on Source

Prioritization also could be based on the source of the data packet, that is, the particular content or applications provider. Prioritization by source would allow ISPs to sell differentiated transmission offerings to content and applications providers.[426] An ISP, for example, could offer two or more levels of QoS, allowing providers to choose the priority level they are willing to buy for particular content or applications.[427] This would create incentives for providers to determine accurately their data-transmission needs, and allow network operators to allocate their resources more efficiently. Providers that do not need peak performance or timing could pay less for less urgent prioritization or standard best-efforts delivery. Providers also could tailor their content and applications to account for these realities. For example, a VoIP provider could offer different on-peak and off-peak rates to its customers to mirror the rate structure of the ISP. A Workshop participant has stated that "pricing actually becomes a form of congestion control that has quantifiable advantages over more traditional technical approaches."[428]

a. Source-based, Provider-selected Priority Levels

Source-based prioritization, in which the ISP simply offers different QoS levels at graduated prices to any interested provider, can, like paid application-based prioritization, provide the ISP with an income stream and the concomitant potential for profitability, expansion, innovation, and increased broadband deployment. Charges for source-based prioritization also may create incentives for applications providers to innovate in their

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[424] OECD Report, *supra* note 382, at 5.

[425] Ryan, Tr. I at 287-88.

[426] ISPs also could offer priority transmission services based on the destination of the data (for example, data packets sent to a particular content or applications provider).

[427] Schwartz, Tr. I at 257.

[428] Peha, *supra* note 36, at 8.

applications to minimize the level of priority they need.[429] A QoS system for which each provider chooses whether to have higher-quality service for a charge could encourage new types of products.[430] On the other hand, it could discourage innovative but capacity-demanding products by providers that cannot initially pay for a higher quality of service.

b. Source-based Prioritization and Preferential Arrangements

The most contentious issue regarding source-based prioritization appears to be ISPs favoring or disfavoring particular content and applications providers based on their identity, rather than the nature of their offering. For example, ISPs could favor affiliated or partnered providers. Network neutrality advocates argue that the ISP could act as a gatekeeper controlling which content and applications providers succeed and which fail – a role that could have a significant impact on the future face of the Internet. Some commentators who do not object to access tiering to resolve congestion problems do object to prioritization that discriminates among providers within a tier.[431]

Prioritization based on source would allow a content or applications provider to differentiate its product through improved delivery. Such product differentiation could aid providers in competing with others offering otherwise similar products.[432] In addition, ISPs that own or are otherwise affiliated with providers may give them priority service, for a lower charge than they make available to other providers for the same service, to the ISP's ultimate financial benefit.[433] Prioritization through preferential arrangements has the potential to provide ISPs with additional revenue, perhaps much more than other forms of prioritization. On the other hand, if a system of contracts develops between the ISPs and providers, it is possible that providers of the most popular content and applications could charge an ISP to make the providers' offerings available to the ISP's customers.[434]

Some commentators view network operators' use of prioritization as potentially creating barriers to entry or unfairly using an ISP's position with its customers to

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[429] In this respect, the development of broadband itself was a means of obtaining higher QoS, and its increased capacity encouraged providers to create continually more complex content and applications, making narrowband a less and less useful access route.

[430] Yoo, Tr. II at 220 (using the example that Medtronic will only provide heart monitoring services if it can obtain guaranteed QoS in terms of response time).

[431] *See, e.g.*, Windhausen, Jr., *supra* note 238, at iii ("Net Neutrality does not necessarily prevent network operators from offering levels of access, at higher rates, as long as the tier is offered on a nondiscriminatory basis to every provider . . . .").

[432] Schwartz, Tr. I at 259.

[433] For example, Cisco's marketing materials note that the option of higher priority delivery "provides added incentive for the nonfacility operator to partner with the service provider for joint delivery of quality services." CISCO SYS., *supra* note 410, at 8.

[434] Davidson, Tr. I at 288-89.

disadvantage competitors of its affiliated provider;[435] others consider it an appropriate business model for ISPs and providers to seek growth and investment.[436] Some believe competitive pressures will limit the use of such practices.[437] Others believe that competition among ISPs is too attenuated[438] or that information on the use of such prioritization is too inaccessible to provide a restraining force.[439]

Source-based prioritization also may raise some of the same concerns as application-based prioritization, such as the adequacy of a best-efforts "slow lane." Prioritization technologies enable not only complete blocking of disfavored content or applications, but also degrading of their delivery that may, in the limit, be tantamount to blocking.[440] If an ISP enters exclusive deals for priority and simultaneously fails to provide for adequate delivery of non-priority packets, then the ISP could effectively eliminate the traditional ability of every user to reach every content and applications provider (and vice versa) with a single Internet interface.[441]

In addition, potentially significant transaction costs could be introduced if each provider must choose and communicate its desired level of QoS. Prioritization for preferred sources requires the creation of preferred source arrangements; that is, negotiations between providers and any and all remote ISPs. A Workshop participant pointed to cable television as an illustration of such a system – one that would entail complex negotiations between every content and applications provider and ISP, imposing substantial transaction costs that do not now exist for Internet transmissions.[442] For many providers, especially new entrants, niche interest providers, and individuals posting content, the costs of obtaining priority through individual ISP arrangements could be

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[435] *See, e.g.*, Tim Wu, *The Broadband Debate: A User's Guide*, 3 J. ON TELECOMM. & HIGH TECH. L. 69, 89 (2004) ("The NN rules create a structural bias that favors entry of any player, operator or application, or equipment-developer, into the market for consumer usage of the Internet. They are designed to make the Vonage story repeat itself.").

[436] *See, e.g.*, Pepper, Tr. I at 88-89; Verizon Communications Inc., Public Comment 60, at 5-6.

[437] *See, e.g.*, Verizon Communications Inc., Public Comment 60, at 27-28; McCormick, Tr. I at 246-47.

[438] *See, e.g.*, G. Sohn, Tr. I at 96-98; Feld, Tr. II at 20-21. The state of competition in the broadband Internet access area is discussed in more detail in Chapter VI below.

[439] *See, e.g.*, Posting of Patrick Barnard to VoIP Blog, http://blog.tmcnet.com/blog/rich-tehrani/voip/is-net-neutrality-enforceable.html (Mar. 4, 2006) ("[C]onsumers can't tell whether the packets they are receiving have been properly 'prioritized' - so, in the absence of these complaints, who will be responsible for policing the Internet to make sure network operators aren't 'degrading' signals – even to the slightest of degrees?"). *But see* Pepper, Tr. I at 94 (asserting that large service providers "have the ability to identify" problems such as discrimination).

[440] *See, e.g.*, Davidson, Tr. I at 229 (citing Rogers Cable in Canada as degrading network video traffic).

[441] See also *supra* Chapter IV.B.2 for a discussion of concerns over the potential balkanization of the Internet.

[442] Tulipane, Tr. I at 260-63.

prohibitive.[443] These costs could function as an effective barrier to entry for such providers with products that require priority, and as a barrier to entry for any provider if ISPs do not maintain adequate resources for the best-efforts portions of their networks.[444]

Finally, preferred priority arrangements could entail exclusions of non-preferred content and applications providers. For a provider with an application that requires priority treatment, an ISP's preferred arrangement with a competitor may preclude that provider's ability to reach the ISP's customers. Again, if the ISP does not maintain adequate resources for best-efforts delivery, all providers excluded from priority arrangements may effectively be precluded from reaching the ISP's customers. Commentators differ considerably, however, in their projections of the likelihood of such results.[445]

c. Innovation at the "Edges" of the Internet

Some network neutrality proponents argue that innovation by content and applications providers at the "edges" of the Internet would suffer with preferential source-based prioritization, complicated fees and negotiations to distribute content and applications over the fast lane, and inadequate service on the best-efforts lane.[446] This could translate into a devaluing of the overall network as fewer offerings and participants and fewer imaginative new uses could depress the value of broadband Internet service. One response is that ISPs and other network operators have an interest in ensuring "that there is rapid innovation and vibrant competition for Internet content and applications" because consumers are interested not only in greater speeds, "but also new forms of content and application[s] that take advantage of such speeds."[447]

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[443] Libertelli, Tr. I at 73.

[444] Davidson, Tr. I at 274.

[445] For example, Harold Feld has asserted that last-mile ISPs have an opportunity to engage in discriminatory behavior, Feld, Tr. II at 70-72, while Verizon has argued that "providers will have numerous alternative means of distributing their products and services to consumers." Verizon Communications Inc., Public Comment 60, at 27.

[446] *See, e.g.*, Libertelli, Tr. I at 73 ("[Skype] support[s] net neutrality, because it embodies a policy of decentralized innovation. For [Skype], net neutrality is not a theory, but a concrete example of what is possible on the Internet when entry barriers are low."); *id.* at 75 ("If government policy becomes too focused on the interests of network owners, we put at risk all of the innovation and software development that has allowed the Internet to thrive."); Davidson, Tr. I at 226-27 ("And so, we are very eager to preserve the innovation and openness of the Internet that has allowed companies like Google to develop."); D. Sohn, Tr. II at 223-24.

[447] Verizon Communications Inc., Public Comment 60, at 6. *See also* OECD Report, *supra* note 382, at 17 ("[S]ome commentators are worried that a multi-tiered structure would introduce a new barrier to entry and stifle innovation at the edges. Any increased barriers to entry will reduce the amount of competitive entry into the market. It is not clear though how the access to higher-speed delivery would be priced and the amount of burden it would place on new firms. On the other hand, the introduction of higher-quality, guaranteed connections could also spur innovation for services that require such connectivity.").

3. Prioritization Based on Particular Content

A Workshop participant has noted that new technologies can allow network operators to determine, at least to some extent, the particular content of a data transmission.[448] These technologies make possible differentiation at an even more specific level than by application or source. The use of such mechanisms could allow higher (or lower) priority treatment targeted specifically to content such as streaming video for a medical examination or a child's tutoring.[449] The decision to favor or disfavor certain content could be done by the ISP, the provider, or the user, and the effects described above could apply at this more targeted level.[450]

D. Conclusion

Technological developments have enabled network operators, including last-mile ISPs, to identify information about the data packets such operators transmit and to differentiate the treatment that they provide to these packets, allowing a variety of prioritization mechanisms. These developments lead to a wide range of possibilities at all levels of the Internet, but there remains substantial disagreement among commentators as to both the likelihood and desirability of many of them.

Prioritization technologies provide potential benefits for ISPs, content and applications providers, and consumers. For example, prioritization may improve QoS for certain content and applications, reduce overall infrastructure costs, and allocate resources to their highest-valued uses. Prioritization may aid innovation in applications or content that need higher QoS to operate effectively. It also may enable ISPs to obtain income streams from beneficiaries of their networks besides their own customers, either generally or on a preferential basis, and could provide a dimension for both content and applications providers and ISPs to differentiate their offerings. Prioritization may thus improve ISPs' profitability and enable greater investment and innovation in network quality and expansion. Prioritization also could improve certain content and applications providers' sales and profitability, facilitating growth and innovation by such providers.

Widespread use of prioritization technologies, however, poses potential risks as well. It also could create difficulties for newer or competitively weaker providers to enter or remain online or to innovate and successfully disseminate their innovations – difficulties that are routine with most means of communication, but typically not with the Internet. Prioritization could enable not only complete blocking of disfavored content and applications, but also intentional or passive degrading of their delivery, which could be tantamount to blocking. It could enable exclusive deals for priority that, if combined with inadequate delivery of non-priority packets, might eliminate the traditional ability of

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[448] Peha, *supra* note 36, at 4-5.

[449] McCormick, Tr. I at 242-44.

[450] See *infra* Chapter VIII.B.3 for a discussion of privacy and data security concerns raised by certain prioritization technologies.

every user to reach every content and applications provider through a single Internet access agreement. If an ISP has market power, use of these abilities might enable extraction of consumer surplus from Internet access markets as well as related markets. Further, whether an ISP is employing these technologies and whether any of these harms are occurring as a result may be difficult for consumers to determine.

Not every use of prioritization technologies is apt to have all of these positive or negative results. Policy makers considering whether to allow or restrict any or all usage of prioritization technologies should take into account the many and varied implications of such usage.

VI. THE CURRENT AND FUTURE STATE OF BROADBAND COMPETITION

Broadband Internet service is a relatively new industry characterized by high levels of demand growth from consumers, as well as high market shares held by incumbent cable and telephone providers and many new entrants trying to take some of that market share. As proponents and opponents of network neutrality regulation analyze the various competitive forces at work in the industry, they have fundamental differences over the current and future competitiveness of the market. As discussed throughout this Report, those differences play out not only in the regulatory policies proposed by each side, but in the proposed antitrust policies to be pursued to protect consumers.

In this Chapter, we consider the changing nature of the broadband industry, beginning with a brief, historical review of the narrowband, or dial-up, Internet access industry in Section A. Section B reviews competition among the various platforms through which broadband access is provided and then summarizes the sometimes conflicting views on current and future broadband competition in the U.S. Section C provides an overview of municipal provision of wireless Internet service, a subject that often arises in the discussion of broadband competition. Section D addresses federal spectrum policies, a subject that often is raised in the network neutrality debate as a potential source of additional broadband competition. Finally, Section E provides some international perspective on the broadband experience, identifying the various factors that have influenced broadband deployment and adoption rates in a few foreign nations that are often cited as having higher such rates than the U.S.

A. Historical Background: Dial-up Service

In the early days of commercial Internet services – that is, the late 1980s – consumer access to the Internet was provided by narrowband, or dial-up, service. Consumers purchased Internet access at speeds of up to 28 (and later 56) Kbps delivered through the same local telephone lines that delivered voice services. Because the telephone lines were analog, narrowband service required not only dial-up access but a modem to translate digital computer data into an analog signal.

Entry into the provision of Internet services through narrowband was not difficult, and the market was characterized by hundreds of small start-up companies. As in many new markets, shares of the leading companies fluctuated rapidly. First-mover America Online was the largest Internet service provider in the narrowband market, with approximately 45 percent of the narrowband market by the third quarter of 2003.[451] MSN and EarthLink were the next two largest, with approximately 10 and 8 percent of the market, respectively. Over time, broadband began to supplant narrowband: by the fourth quarter of 2003, broadband accounted for 36 percent of the total Internet access

[451] Press Release, comScore, comScore Announces Breakthrough National and Local Market ISP Benchmarking Report (Nov. 24, 2003), *available at* http://www.comscore.com/press/release.asp?press=385.

market, and AOL's share of U.S. consumer ISP subscriptions had fallen to 28 percent.[452] At the end of 2003, broadband's share of the Internet access market had reached nearly 50 percent in many major geographic areas.[453] By 2006, almost 75 percent of U.S. Internet users logged on using a broadband connection.[454]

Although narrowband is still the service of choice for some subset of consumers, as indicated above, that number is dwindling. This does not mean, however, that the narrowband market has become competitively irrelevant. As an acceptable substitute for broadband for some consumers, narrowband appears to retain some constraining influence on broadband prices, and presumably that influence would grow (or decline more slowly) if broadband prices were to rise (or quality to erode).[455] In this regard, narrowband is like any other supplanted technology whose competitive influence lasts long after the early adopters have turned to the newer alternative. Although we are not able to quantify the impact of this competitive restraint, we note its continued presence.

B. Views on the State of Broadband Competition[456]

Both proponents and opponents of net neutrality agree that broadband technologies will continue to supplant narrowband as the means of accessing the Internet. Where those groups differ is on the issue of the current and future state of competition in the broadband marketplace. One of the fundamental issues dividing the two sides is whether broadband suppliers have sufficient market power to engage in anticompetitive practices that will not only harm consumers of applications and content, but that will also degrade the open nature of the Internet and adversely impact the market dynamics for all parties connected to it.

One crucial issue in this particular debate is to determine which entities are effective current and future competitors in the provision of broadband Internet access. An initial step is thus to define what we mean by broadband service. The FCC has stated that 200 Kbps is "enough capacity to provide the most popular forms of broadband – to

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[452] Press Release, comScore, Broadband Usage Poised to Eclipse Narrowband in Largest U.S. Markets (Mar. 10, 2004), *available at* http://www.comscore.com/press/release.asp?press=439.

[453] *Id.*

[454] Carol Wilson, *Nielsen: Broadband Use Nears 75% in U.S.*, TELEPHONY ONLINE, June 22, 2006, http://telephonyonline.com/broadband/news/Nielsen_broadband_Internet_062206/index.html.

[455] *See* Wallsten, Tr. II at 47 ("Lots of things actually reduce demand for broadband. One of them is dial[-]up connections. . . . Most people who have dial[-]up say they have no interest in broadband connections, according to the Pew Internet American Trust Foundation in a recent survey they did. Sixty percent have no interest in broadband. Obviously, that's going to change as prices continue to come down and content available on[]line increases.").

[456] As discussed below in this Chapter, a detailed, locality-by-locality analysis of each broadband market in the U.S. is beyond the scope of this Report. Instead, this Chapter conveys the views on broadband competition generally that various interested parties have expressed. This Chapter also identifies certain national trends in the provision of broadband service.

change web pages as fast as one can flip through the pages of a book and to transmit full-motion video."[457] However true that may have been in 1999, that speed now is widely considered too slow.[458] No consensus has yet emerged, however, as to the appropriate definition of broadband service.[459] DSL services typically start at approximately 700 Kbps, and most emerging technologies, including wireless, are measured in megabits per second.

However it is defined, broadband service is now the appropriate focus of any inquiry into the state of competition in the delivery of Internet services. This market has quickly evolved from one in which consumers could get broadband only if they had access to cable systems offering it, to one in which many, if not most, consumers can get broadband from either a cable or telephone provider.[460] In 2000, over 80 percent of broadband service was provided by cable modem.[461] By the middle of 2006, broadband service by cable had fallen to 55.2 percent, while DSL's residential share had increased to 40.3 percent.[462] The balance of the market consisted mostly of mobile wireless, with fiber, satellite, fixed wireless, and broadband over powerlines garnering relatively small shares.

By some accounts, the broadband Internet access industry is showing signs of robust competition, including fast growth, declining prices for higher-quality service,[463]

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[457] *In re* Inquiry Concerning the Dev. of Advance Telecomms. Capability to All Americans in a Reasonable & Timely Fashion, & Possible Steps to Accelerate Such Dev. Pursuant to Section 706 of the Telecomms. Act of 1996, 14 FCC Rcd 2398, 2406 (1999).

[458] Wallsten, Tr. II at 45; G. Sohn, Tr. I at 97; Ryan, Tr. I at 267; Weiser, Tr. II at 90.

[459] Wallsten, Tr. II at 67 ("I'm pretty sure that if you tried to define it today, a year from now, it would look very different."); Feld, Tr. II at 71 ("[T]he market definition question . . . is murky.").

[460] This does not necessarily mean that most consumers have access to only two broadband providers. According to the FCC, by June 30, 2006, consumers in more than 87% of all U.S. zip codes had access to 3 or more broadband choices, while 63% of zip codes were served by 5 or more broadband providers. FCC, HIGH-SPEED SERVICES, *supra* note 18, at 20 tbl.15. However, the competitive relevance of this data has been questioned because the FCC counts a zip code as served by a broadband provider if only one customer in the zip code has access to that provider. *See* Wallsten, Tr. II at 44, 46. *Cf.* William J. Baumol et al., *Economists' Statement on Network Neutrality Policy* 1 (AEI-Brookings Joint Center, Working Paper No. RP-07-08, 2007), *available at* http://ssrn.com/abstract=976889 ("Just because a zip code has multiple providers does not mean that those providers compete directly, so whether 'enough' firms compete yet is debatable; the trend, however, is positive. Furthermore, consumers are making greater use of new technologies. Mobile wireless use went from fewer than half a million subscribers in 2005 to more than 20 million subscribers in 2006. In short, more people are getting served by more providers and more platforms.").

[461] Press Release, FCC, FCC Releases Data on High-Speed Services for Internet Access (Oct. 31, 2000), *available at* http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/hspd1000.pdf.

[462] FCC, HIGH-SPEED SERVICES, *supra* note 18, at 7 tbl.3.

[463] Sidak, Tr. I at 108; Muris, Tr. II at 120. *See also* Sidak, *supra* note 287, at 399 (documenting changes in speed and price of cable and DSL services during 2000-2006 period).

and the current market-leading technology (*i.e.*, cable modem) losing share to the more recently deregulated major alternative (*i.e.*, DSL). Broadband deployment and penetration have both increased dramatically since 2000. From June 2000 to June 2006, the number of high-speed Internet lines increased from 4.1 million to 64.6 million, with 52 percent growth from June 2005 to June 2006 alone.[464] The FCC estimated that by 2006, broadband DSL service was available to 79 percent of the households that were served by a telephone company, and cable modem service was available to 93 percent of the households to which cable companies could provide cable television service.[465] Penetration kept pace with deployment, as by 2006, broadband Internet access accounted for over 70 percent of all U.S. Internet access.[466]

Prices for DSL broadband services have also fallen rapidly as the telephone companies have competed aggressively to take market share from the cable companies. By one estimate, the average monthly revenue per user of DSL service decreased from 40 dollars in 2002 to 31 dollars in 2006.[467] From May 2005 to April 2006, AT&T reduced the monthly price of 3.0 Mbps DSL service from $29.95 to $17.99.[468] Quality-adjusted cable modem prices too have fallen.[469]

Proponents of net neutrality regulation, however, posit a duopoly with substantial market power residing with the telephone and cable companies in the delivery of Internet services to the home.[470] According to this scenario, structure is determinative and a duopoly inevitably will lead to anticompetitive conduct.[471] Alternative services are not yet seen as effective substitutes.[472] Plans to supply a quality-of-service component to the

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[464] FCC, HIGH-SPEED SERVICES, *supra* note 18, at 5 tbl.1.

[465] *Id.* at 19 tbl.14.

[466] *See supra* note 454.

[467] BERNSTEIN RESEARCH, BROADBAND UPDATE: "VALUE SHARE" AND "SUBSCRIBER SHARE" HAVE DIVERGED 4 (2006).

[468] *Id.* at 6.

[469] Robert W. Hahn & Robert E. Litan, *The Myth of Network Neutrality and What We Should Do About It* 10 (AEI-Brookings Joint Center, Working Paper No. RP-06-33, 2006), *available at* http://www.aei-brookings.org/admin/authorpdfs/page.php?id=1357 ("While the absolute price of a cable modem has not declined as rapidly, the quality-adjusted price has declined significantly, as cable modem connection speeds have more than doubled while prices held steady.").

[470] *See, e.g.*, Libertelli, Tr. I at 76; G. Sohn, Tr. I at 96; Feld, Tr. II at 21; Tulipane, Tr. I at 273.

[471] Save the Internet, Frequently Asked Questions, http://www.savetheinternet.com/=faq (last visited June 15, 2007) ("The cable and telephone companies already dominate 98 percent of the broadband access market. And when the network owners start abusing their control of the pipes, there will be nowhere else for consumers to turn.").

[472] Feld, Tr. II at 21 ("[T]here is no evidence of substitutability for other services."); Putala, Tr. II at 28; G. Sohn, Tr. I at 96.

next generation Internet, along with interest in vertically integrating into applications and content, are seen as the first and necessary steps to use that market power in an anticompetitive fashion. Net neutrality proponents also foresee plans to deny or degrade access to certain content or applications by telephone and cable companies.

Opponents of net neutrality regulation see a different market for access to high-speed Internet services. They believe that high-speed wireless services compete directly with DSL and cable modem services already and will do so increasingly as those services become ubiquitous.[473] Specifically, they note that a substantial number of consumers now have access to high-speed service from satellite technologies, as well as other wireless technologies, such as Wi-Fi, Wi MAX, and 3G cellular services. Three companies have deployed infrastructure to provide satellite broadband service to most of the U.S.[474] According to the FCC, there were over 400,000 satellite broadband customers by the end of 2005.[475] Wi-Fi, which uses unlicensed spectrum, provides download speeds of up to 20 Mbps in over 40,000 hot spots across the country.[476] A number of municipalities are exploring the deployment of Wi-Fi networks.[477] Wi MAX technology is also being deployed, with over 150 pilot projects under way by May 2006.[478] Sprint, for example, is building a nationwide Wi MAX network and expects to reach 100 million customers by 2008.[479] 3G cellular technology is already deployed, with speeds of up to 3

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[473] McCormick, Tr. 1 at 246-47. *See also* Wireless Internet Service Providers Association, Public Comment 61, at 1-2 (not taking a position on network neutrality, but estimating that in 2004 there were 3,000-6,000 wireless ISPs ("WISPs") servicing more than 1 million customers in the U.S. and maintaining that "though many of our membership are smaller in size when compared to the larger wireline [ISPs], WISPs do constitute a 3rd Internet pipe in the US market"); CTIA – The Wireless Association, Public Comment 13, at 9-13 ("Unlike the predictable performance of a mature, oligopoly market, the market for broadband access and services is characterized by new entry and ramped-up investment and build-out using new technologies.") (describing ongoing investment of wireless carriers).

[474] *See* GOV'T ACCOUNTABILITY OFFICE, GAO-06-426, BROADBAND DEPLOYMENT IS EXTENSIVE THROUGHOUT THE UNITED STATES, BUT IT IS DIFFICULT TO ASSESS THE EXTENT OF DEPLOYMENT GAPS IN RURAL AREAS 15 (2006) [hereinafter GAO BROADBAND DEPLOYMENT].

[475] FCC, HIGH-SPEED SERVICES, *supra* note 18, at 5 tbl.1.

[476] JiWire, Wi-Fi Hotspots in the U.S., http://www.jiwire.com/hot-spot-directory-browse-by-state.htm?country_id=1 (last visited June 15, 2007).

[477] See *infra* Chapter VI.C for a more detailed discussion of municipal provision of wireless Internet access.

[478] GAO BROADBAND DEPLOYMENT, *supra* note 474, at 60.

[479] Amol Sharma & Don Clark, *Sprint to Spend Up to $3 Billion to Build Network Using WiMAX*, WALL ST. J., Aug. 9, 2006, at B2. *See also* Sprint Nextel Corp., Public Comment 52, at 7 ("Sprint Nextel's investment in wireless WiMax will provide access of up to 4Mbps.").

Mbps.[480] Additionally, telephone companies are deploying fiber-optic broadband networks,[481] and BPL technology is already deployed in a handful of local markets.[482]

Net neutrality proponents dispute these characterizations of competitive alternative technologies. Proponents argue that satellite, wireless, and BPL providers face technical problems and other barriers to entry into consumer broadband markets, and that their competitive impact should be discounted as a result. They note first the small market shares and slower speeds of BPL and fixed and mobile wireless.[483] Further, satellite service is available only to those consumers that have a clear view to the satellite.[484] In addition to these technical issues, regulatory policies, such as spectrum availability and local franchise requirements, can raise barriers to entry for wireless access providers.[485]

Some commentators also have identified the area of so-called special access services as a potential obstacle to more robust competition in the area of broadband Internet access.[486] Special access services involve dedicated (typically high-capacity) facilities that run directly between the end user and a carrier's network or between two discrete end-user locations.[487] With respect to broadband Internet access, such services are sold at the retail level to large enterprise customers, particularly those with multiple locations, and at the wholesale level to various broadband access providers, including

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[480] Altschul, Tr. II at 7.

[481] *In re* Review of the Section 251 Unbundling Obligations of Incumbent Local Exch. Carriers, 18 FCC Rcd 16978, 17146 (2003) (triennial review order) ("[C]ompetitive LECs have demonstrated that they can self-deploy FTTH loops and are doing so at this time.").

[482] *See N.Y. Eases Limits on Utility Role in BPL Transactions, Says Industry Source*, COMM. DAILY, Oct. 19, 2006, at 3; Press Release, Cal. Pub. Utils. Comm'n, PUC Approves New Broadband Over Power Lines Regulatory Framework (Apr. 27, 2006). *See also* Yinka Adegoke & Robert MacMillan, *DirecTV May Try Broadband on Power Lines*, REUTERS, May 14, 2007, *available at* http://www.reuters.com/article/technologyNews/idUSN1433448320070514?feedType=RSS&rpc=22 (discussing DirecTV's potential testing of delivery of broadband over powerlines within the next year).

[483] *See* Putala, Tr. II at 29. *But see* CTIA – The Wireless Association, Public Comment 13, at 20 ("The relative speeds of the newer generations of wireless technologies are comparable to the average DSL speeds experienced by consumers, and the next generations of wireless technologies promise even faster speeds.").

[484] *See* Feld, Tr. II at 20.

[485] *See, e.g.*, Feld, Tr. II at 18-20 (identifying, among others, federal spectrum licensing and intellectual property barriers to entry); Wallsten, Tr. II at 48-49 (discussing local franchise rules for IPTV). See *infra* Chapter VI.D for a more detailed discussion of federal spectrum policies.

[486] *See, e.g.*, Sprint-Nextel Corp., Public Comment 52, at 1-5; BT Americas Inc., Public Comment 5, at 8. Special access services also are referred to as dedicated access services or local private line services.

[487] *Special Access NPRM*, 20 FCC Rcd 1994, 1997 (2005). In contrast to special access services, switched access services use local exchange switches to route originating and terminating voice and data traffic. *Id.*

other carriers competing for enterprise customers and wireless network operators that do not have their own facilities connecting their transmitters (*e.g.*, cell towers) to their switches.[488] Some commentators argue that competition in the provision of special access services is "*de minimis*"[489] and that this lack of competition constrains the ability of some ISPs, particularly wireless access providers, to compete with the ISPs that also own special access facilities.[490] After taking certain deregulatory actions in the area of special access services in 1999,[491] the FCC currently is conducting "a broad examination of the regulatory framework to apply to . . . interstate special access services . . . ."[492]

Because alternative broadband providers are not perfect substitutes for cable or DSL broadband providers, the mere counting of providers using new technologies does not answer the question of whether or not they are effective competitive alternatives to cable and DSL.[493] The alternatives must have some ability to discipline incumbents attempting to exercise market power before they can be considered part of the market. In certain circumstances, however, alternative products or services need not be perfect substitutes for all consumers to be considered part of a relevant antitrust market.[494] If a wireless broadband service appeals to a sufficient number of marginal cable modem or DSL broadband consumers to constrain pricing activity by the cable and telephone

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[488] *See id.* at 1995-96; Sprint-Nextel Corp., Public Comment 52, at 2; BT Americas Inc., Public Comment 5, at 8 n.31.

[489] Sprint-Nextel Corp., Public Comment 52, at 2-3 ("The vast majority of buildings and cell sites throughout the country have access to only one provider of these essential inputs – either AT&T or Verizon.").

[490] *See, e.g.*, *id.* at 5.

[491] *See In re* Access Charge Reform, 14 FCC Rcd 14221 (1999) (fifth report and order and further notice of proposed rulemaking), *aff'd*, WorldCom, Inc. v. FCC, 238 F.3d 449 (D.C. Cir. 2001). Some have criticized the FCC's basis – that is, a sufficient amount of competition for provision of special access services – for taking these actions. *See, e.g.*, GOV'T ACCOUNTABILITY OFFICE, GAO-07-80, FCC NEEDS TO IMPROVE ITS ABILITY TO MONITOR AND DETERMINE THE EXTENT OF COMPETITION IN DEDICATED ACCESS SERVICES (2006).

[492] *Special Access NPRM*, 20 FCC Rcd at 1995. Even with the deregulatory actions taken by the FCC, special access services remain subject to Title II of the Communications Act. Sprint Nextel Corp., Public Comment 52, at 3 n.7.

[493] Feld, Tr. II at 16 ("[T]he FTC understands that it is not just an issue of counting noses."); Waz, Tr. II at 162 ("[M]arket share is only the beginning of the analysis.").

[494] *See* FTC & DOJ, COMMENTARY ON THE HORIZONTAL MERGER GUIDELINES 15 (boundaries of a relevant antitrust product market may not be clear cut when "substitutes exist along a continuum"). *Cf. In re* Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, 20 FCC Rcd 14853, 14885 (2005) (report and order and notice of proposed rulemaking) ("We recognize that the attributes of the available broadband platforms vary, particularly as to price, speed, and ubiquity. We expect that customers will weigh these attributes for each platform and make service-related decisions based on their specific needs. For example, a customer may select a broadband Internet access service with a somewhat slower speed than that associated with other service platforms in return for the lower price of the selected service.").

companies, then it may be considered a competitive alternative and counted as part of the relevant market.

Even products or services not currently being sold to consumers may constrain anticompetitive conduct by incumbent firms. The Horizontal Merger Guidelines jointly issued by the FTC and the Department of Justice Antitrust Division provide extensive guidance on establishing relevant antitrust markets generally and on the inclusion of potential entrants in a relevant market in particular.[495] These Guidelines consider potential entrants, under certain circumstances, to be capable of affecting current business decisions of incumbent firms.[496]

* * *

The broadband marketplace is in considerable flux.[497] The competitive impact of all of the alternative broadband technologies on the incumbent telephone and cable companies, therefore, is not totally clear. Nonetheless, there are national trends that appear to show an increasing number of competitive alternatives across all markets. Of course, effective national competition for broadband customers does not mean that all consumers enjoy competitive local markets. Relevant antitrust markets in the broadband industry may be highly localized, as cable franchise laws, population density, income dispersion, and other factors may limit some consumers' current choices of broadband providers. However, without identification and analysis of each local market – which is well beyond the scope of this Report – we cannot determine which consumers currently benefit from competitive broadband markets.

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[495] *See* DOJ & FTC, HORIZONTAL MERGER GUIDELINES § 3.2 (1997).

[496] *Id.* ("The Agency generally will consider timely only those committed entry alternatives that can be achieved within two years from initial planning to significant market impact."). *See also* Yoo, Tr. II at 257 ("[I]n a world where Sprint is making a multi-billion dollar commitment to come in by the end of 2008, that's a reasonable time frame to have.").

[497] As the FCC has noted in its broadband rulemaking proceedings:

> As the Internet and related applications mature and continue to evolve, the demand for broadband Internet access services will likely grow. The presence of more content available through the Internet and the enhanced means of presenting the content, together with growth in broadband-related applications, such as streaming video, will lead more subscribers to seek broadband Internet access service. As the number of subscribers grows, so does the opportunity for alternative technologies and their respective providers. As any provider increases its market share or upgrades its broadband Internet access service, other providers are likely to mount competitive challenges, which likely will lead to wider deployment of broadband Internet access service, more choices, and better terms.

In re Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, 20 FCC Rcd 14853, 14885 (2005) (report and order and notice of proposed rulemaking).

C. Municipal Provision of Wireless Internet Access

In recent years, hundreds of municipalities throughout the United States have considered whether they should provide broadband Internet access to their residents and, if so, how.[498] Some municipalities have installed costly fiber-optic or cable wiring. More recently, with the development of wireless Internet technologies that are less expensive to deploy, such as Wi-Fi and Wi MAX, municipalities also have explored and, in some cases played a role in the development of, municipal wireless broadband networks. These municipalities have done so either in conjunction with an outside entity, such as a private ISP, or in their own capacity as a municipal provider of wireless Internet service. Municipalities and other entities that have implemented such networks have most commonly used one of six general operating models: non-profit, cooperative, contracting out, public-private partnership, municipal, and government loan-grant. A variety of hybrids may be created by combining various features of each model.[499]

FTC staff issued a report in October 2006 on the *Municipal Provision of Wireless Internet*.[500] The report concluded that the arguments for and against municipal involvement in wireless Internet service may vary depending on a municipality's particular factual circumstances. Accordingly, rather than attempt to provide a single answer to the question of whether, and to what extent, a municipality should involve itself in the provision of wireless Internet services, the report provides an analytical framework for policy makers considering such a decision.[501]

Some commentators suggest that, whatever the particular operating model, municipal-based wireless networks may be a significant issue in the broadband Internet connectivity debate.[502] In particular, some suggest that municipal networks may add an additional competitive point of delivery to other existing wireline and emerging wireless technologies like third generation and fourth generation mobile broadband and satellite. Some network neutrality opponents, therefore, argue that the proliferation of municipal-level wireless networks demonstrates not only that broadband competition is sufficiently robust, but that it is increasingly intense and obviates the need for a new *ex ante* regulatory regime. In particular, they point out that some network neutrality proponents, like Google and EarthLink, are themselves working to deploy large-scale municipal

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[498] *See generally* Posting of Esme Vos to MuniWireless, http://www.muniwireless.com/article/articleview/5495 (Apr. 5, 2007, 03:14).

[499] *See generally* FTC STAFF, MUNICIPAL PROVISION OF WIRELESS INTERNET (2006), *available at* http://www.ftc.gov/os/2006/10/V060021municipalprovwirelessinternet.pdf.

[500] *Id.*

[501] *Id.* at 41-49.

[502] *See, e.g.*, Lehr, Tr. 1 at 43. According to Lehr, "alternative access connections, and municipal networking where communities get together, maybe with the help of their local government . . . or local utility . . . get together and provision a network. And if that network is an open access network, then that provides another way to deal with this." *Id.*

networks in competition with other technologies.[503] At lease one network neutrality proponent also has suggested that the introduction of these additional delivery points may alleviate many of the "last mile" concerns raised in the broadband connectivity debate.[504]

Others argue, however, that municipal networks are not necessarily a panacea and could themselves raise important connectivity issues.[505] Some observers view the concerns raised by network neutrality proponents as a potential stumbling block to the deployment of municipal-level networks because municipalities, in many cases, may need to rely on private network operators for their technical expertise and financial backing.[506] Some municipal network operators, however, indicate that they intend to resell non-discriminatory, wholesale access to other non-facilities-based Internet service providers in order to alleviate these concerns.[507] Some private companies also are attempting to create municipal-scale networks by distributing wireless Internet routers to consumers without charge and then deriving revenues from advertising-supported services or fees from users who are not router owners. Essentially, this business model seeks to create a wide-area network of overlapping, privately operated wireless Internet hotspots.[508]

In addition, although the potential speeds of new wireless Internet technologies are comparable to those of DSL, cable, and fiber wirelines, a wireless network's actual

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[503] Sidak, for example, argues that Google's involvement in municipal networks "has just removed one of the two principal arguments that have been made in favor by [Google] for network neutrality regulation – the supposed absence of competition in the broadband access market." Sidak, Tr. I at 109. *See also* Thorne, Tr. II at 36-38 (citing Google and EarthLink's involvement municipal wireless networks).

[504] Lawrence Lessig, a network neutrality proponent, argues that "[t]here's an explosion in municipal mesh networks . . . . [If] people unify them, the last mile is solved. The last mile is provided free of proprietary control." Gavin Clark, *Municipal WiFi is the New Hope for Net Neutrality – Thinker*, THE REGISTER, Aug. 16, 2006, *available at* http://www.theregister.com/2006/08/16/wifi_net_neutrality_lessig.

[505] *See, e.g.*, Lehr, Tr. I at 43 ("And so, in principle, that will help, because more choices [are] better. But it's possible that the municipal network, if it's not an open access network, could also be guilty of non-neutral treatment. There is no reason to presume that your municipal carrier, if it has market power, may be any better behaved than an investor-owned carrier."). *See also* Rosston, Tr. I at 210-11 (warning that cities may favor one wireless network and attempt to exclude others).

[506] Visiongain concludes that the "network neutrality [debate] is not a fuel for the municipal broadband movement in the U.S. . . . It's a . . . stumbling block." Ed Gubbins, *Neutrality and Municipalities*, TELEPHONY, Feb. 20, 2006, at 24, *available at* http://telephonyonline.com/mag/telecom_neutrality_municipalities (according to analyst Pam Baker, municipalities "need technology companies' expertise, experience, and money . . . . But they cannot afford to give those companies total, or even majority, control . . . . Yet cities repeatedly fail when they attempt to provide [networks] themselves.").

[507] Putala, Tr. II at 60 ("[EarthLink is] committed to offering as many local ISPs, to AOL, to anyone else who wants to sell capacity on our Wi-Fi networks, the ability to get the same non-discriminatory, very reasonable wholesale pricing, so they can make an offering.").

[508] *See* FON, What's FON?, http://www.fon.com/en/info/whatsFon (last visited June 18, 2007); Meraki, Our Story, http://meraki.net/about (last visited June 18, 2007).

performance may vary depending on its particular architecture, the number of users, its proximity to a high-speed backbone, and other factors like local geography or interference from other devices.[509] While current wireless technologies in many cases may be close substitutes for existing wireline technologies when used to access content and applications having light or moderate bandwidth requirements, they generally do not provide enough bandwidth to support certain applications, such as real-time video transmissions.[510]

Thus, given these varying factors, some observers view the competitive implications of municipal wireless networks as being highly fact-specific, much like the decision whether, and to what extent, a municipality should participate in providing such services in the first instance.[511] Further, some commentators suggest that an *ex ante* network neutrality regime might subject a wireless network to differential, negative effects beyond those that might befall a more traditional wireline network, due to the differing technical constraints of wireless technologies.[512]

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[509] *See, e.g.*, Peha, Tr. I at 60. *See also* FTC STAFF, *supra* note 499, at 6-12, app.

[510] *See, e.g.*, Putala, Tr. II at 30 ("For EarthLink, this means as we go to compete with Comcast and Verizon in Philadelphia, we are going to try to offer both our municipal Wi-Fi broadband service with speeds of about a meg [one megabit] up and down, as well as our eight megabits ADSL two plus or wicked fast broadband service that requires us to have access to Verizon's unbundled loops.").

[511] *See, e.g.*, Lehr, Tr. I at 53-54. According to Lehr:

> With respect to municipal entry, a lot of folks, you know, make the false conclusion that when local governments, or local communities build infrastructure, or get involved in the infrastructure provisioning question, that that's a – you know, that's a sort of binary good/bad thing, and they do it one way or they don't do it.
>
> The answer is, it's a very complex mix of strategies they face. The particular technologies and strategies they undertake, how they do that, is a very complicated thing, and has big implications for what sorts of net neutrality problems may happen.
>
> For example, if they do . . . a fiber deployment that's an open access platform, then that really does go a long way towards eliminating concerns, most of the net neutrality concerns. But such an infrastructure plan is unlikely to make sense in most communities. And other alternative sorts of strategies, if they make sense at all, need to be evaluated in this.

Id.

[512] *See, e.g.*, Altschul, Tr. II at 51-52 (stating that network neutrality regulations "would have unique effects and they would be negative effects" for wireless Internet networks); Sidak, Tr. I at 104-05 (stating that, "[o]bviously, there are very different network architecture considerations for wireless networks than for wireline networks" and warning against applying network neutrality rules without further evidence of harmful practices). *See also* Lehr, Tr. I at 56-57. Lehr explains that, generally, "spectrum is perceived to be a very scarce resource, RF spectrum. So that, generically, your bandwidth is more of something – a resource you're going to be more concerned with in the wireless world . . . . [S]o the need to, for example, carefully manage traffic on a wireless network is greater." *Id. See also id.* at 61-64 (comparing wireless, DSL, cable modem, and fiber technologies).

D. Federal Spectrum Policies[513]

Electromagnetic spectrum is a finite natural resource. The artificial scarcity of spectrum that results from government use restrictions further reduces the supply of wireless services available to consumers, including broadband Internet access. Thus, some commentators suggest that the federal government's electromagnetic spectrum policies constitute a key component of the broadband connectivity debate.[514] Wireless Internet technologies have become increasingly important alternatives to wireline (*i.e.*, DSL and cable modem) services,[515] and they may have important implications for the broader marketplace for Internet services by increasing competition among Internet access providers.[516] Some commentators suggest that making additional spectrum available to the private marketplace to enhance the competitiveness of wireless Internet services may be the best way to address concerns raised by network neutrality proponents.[517]

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[513] A comprehensive analysis of federal spectrum policies is beyond the scope of this Report. This Section merely provides a brief overview of the subject to inform the discussion of the role of spectrum policy in the broadband connectivity debate.

[514] *See, e.g.*, Lehr, Tr. 1 at 54 ("[A] lot of the sorts of alternatives that we talk about really depend a lot on wireless, and new sorts of wireless technologies. . . . [S]pectrum reform is, obviously, a key element in that."); Mercatus Center at George Mason University, Public Comment 4, at 20-21, 27-31.

[515] The FCC's Wireless Broadband Access Task Force, for example, concluded that "[b]roadband wireless service has the potential to compete with wireline technologies in urban and suburban markets as a primary pipe to the home and business, to complement wireline technologies by adding a component of mobility or portability, and to lead the way in rural markets where other broadband technologies are less feasible." FCC WIRELESS BROADBAND ACCESS TASK FORCE, CONNECTED & ON THE GO: BROADBAND GOES WIRELESS 46 (2005), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-257247A1.pdf.

According to the FCC's most recent survey, during the June 2005-06 period, high-speed lines (over 200 Kbps in at least one direction) increased from 376,837 to 495,365 for satellite; from 208,695 to 360,976 for fixed wireless; and from 379,536 to 11,015,968 for mobile wireless. Advanced service lines (over 200 Kbps in both directions) increased from 10,966 to 27,489 for satellite; from 191,229 to 333,072 for fixed wireless; and from 21,079 to 1,913,904 for mobile wireless. FCC, HIGH-SPEED SERVICES, *supra* note 18, at 5 tbl.1, 6 tbl.2.

[516] *See, e.g.*, Lehr, Tr. 1 at 67-68. Lehr suggests that making "more spectrum available down there [below one gigahertz] for commercial communication services, would open up new options to help alleviate last mile facilities competition concerns." *Id.* In his view, "the question about what we do with that 700 megahertz spectrum, I think, is an important aspect of this whole net neutrality debate." *Id. See also* Baumol et al., *supra* note 460, at 3 ("Congress and federal regulators should promote policies that increase the opportunities for competition and foster Internet innovation. One such policy would be spectrum liberalization. . . . The [FCC] should make additional licensed spectrum available for flexible use as soon as possible and allow it to be traded so that spectrum can be allocated to its highest-valued uses.").

[517] *See, e.g.*, Rosston, Tr. 1 at 164. According to Rosston, "the key is making sure, for example, when we get more spectrum out, that we actually enforce the anti-trust laws and make sure that we have the ability to have multiple competitors providing broadband access to the home." *Id.* Thus, in his view, "that is going to help alleviate these concerns. In my mind, this is a much better way than trying to mandate network neutrality." *Id.*

The federal government affects the availability and price[518] of wireless Internet services by determining how much spectrum is available to private companies that provide such services to consumers. The Communications Act gave the FCC a broad grant of power to regulate spectrum in the public interest.[519] The FCC has authority over spectrum usage by commercial entities and local and state governments. The Department of Commerce, through the creation of the National Telecommunications and Information Administration ("NTIA") in 1978, also plays an important role in advising the President and managing the federal government's use of spectrum.[520] Other federal agencies also assist in the development and implementation of federal spectrum policy.[521]

The FCC and NTIA manage spectrum by dividing, or allocating, the entire spectrum into blocks, or bands, of frequencies established for a particular type of service. These allocated blocks can then be further subdivided, or allotted, into bands designated for a particular service. For example, an allocation of spectrum for land mobile service can be further divided into allotments for business, public safety, and cellular uses. In the final subdivision of spectrum, particular parties receive an assignment, or license, to operate a transmitter on a specific channel or group of channels in a particular geographic area under specific conditions.[522]

In the past, the FCC relied on comparative hearings or lotteries to award licenses.[523] Over time, this approach garnered significant criticism.[524] In the early 1990s,

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[518] Making more spectrum available to the private marketplace generally will be expected to lower its price and, thereby, reduce the price of associated services for consumers. *See In re* Principles for Reallocation of Spectrum to Encourage the Dev. of Telecomms. Techs. for the New Millennium, 14 FCC Rcd 19868, 19872-73 (1999) (policy statement) [hereinafter *1999 Policy Statement*]. Recent studies estimate that the costs of current restrictions on spectrum use run into the billions of dollars, annually. *See* Jerry Ellig, *Costs and Consequences of Federal Telecommunications Regulation*, 58 FED. COMM. L.J. 37, 80 (2006) (estimating the annual costs of current spectrum policy at $77 billion or more, annually).

[519] 47 U.S.C. §§ 151 *et seq.*

[520] *See* NTIA, About the NTIA, http://www.ntia.doc.gov/ntiahome/aboutntia/aboutntia.htm (last visited June 18, 2007).

[521] *See, e.g.*, Memorandum on Spectrum Policy for the 21st Century, 39 PUB. PAPERS 605 (June 5, 2003) [hereinafter Memorandum on Spectrum Policy] (establishing a Federal Government Spectrum Task Force to improve government spectrum use).

[522] FCC, CONNECTING THE GLOBE: A REGULATOR'S GUIDE TO BUILDING A GLOBAL INFORMATION COMMUNITY VII-1 to -10 (1999), *available at* http://www.fcc.gov/connectglobe/regguide.pdf.

[523] *See generally* FCC SPECTRUM POLICY TASK FORCE, ET DOCKET NO. 02-135, REPORT (2002) [hereinafter FCC SPECTRUM POLICY TASK FORCE REPORT], *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-228542A1.pdf.

[524] *See generally* Ronald Coase, *The Federal Communications Commission*, 2 J.L. & ECON. 1 (1959) (questioning the command-and-control method and suggesting a market-based approach). *See also* Ewan Kwerel & John Williams, *A Proposal for a Rapid Transition to Market Allocation of Spectrum* 1 (FCC Office of Plans and Policy, Working Paper No. 38, 2002), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-228552A1.pdf ("Billions of dollars of cumulative loss to the U.S. economy have been attributed to inefficient spectrum allocations . . . .").

the FCC and NTIA began reviewing their spectrum management policies.[525] In 1993, Congress amended Title III of the Communications Act to authorize the FCC to assign licenses through a competitive bidding process, with the goal of matching spectrum to its highest-valued use.[526] The FCC began conducting auctions the next year.[527] In 1997, Congress granted the FCC express authority to allocate electromagnetic spectrum for flexible use.[528] A 1999 FCC Policy Statement outlined principles for future spectrum management to: allow for flexible spectrum use to better respond to marketplace demands; promote new spectrum-efficient technologies; develop secondary markets to improve spectrum utilization; and develop new ways to make more spectrum available.[529]

In 2002, the FCC Spectrum Policy Task Force completed the first comprehensive review of the FCC's spectrum policies. Its report concluded that, although the agency had improved its methods of spectrum allocation, FCC policy was still "not keeping pace with the relentless spectrum demands of the market."[530] Expanding on the 1999 Policy Statement's principles, the Task Force report concluded that the FCC should pursue a "balanced spectrum policy," based primarily on exclusive rights allocated via market-based mechanisms, a supplemental open-access spectrum commons, and the limited use of command-and-control regulations for certain purposes, such as public safety and national security. Thus, subject to certain exceptions, legacy command-and-control spectrum should be transitioned to the exclusive use and commons models "to the greatest extent possible."[531]

Congress, the FCC, and the NTIA have continued to make additional spectrum available to the private marketplace and have provided additional regulatory flexibility designed to foster innovation, efficient usage, and the development of secondary markets for trading spectrum rights.[532] Both the executive branch and Congress continue to investigate ways to improve spectrum use.[533]

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[525] *See, e.g.*, NTIA, U.S. SPECTRUM MANAGEMENT POLICY: AGENDA FOR THE FUTURE (1991), *available at* http://www.ntia.doc.gov/osmhome/91specagen/1991.html.

[526] 47 U.S.C. § 309(j).

[527] FCC, About Auctions, http://wireless.fcc.gov/auctions/default.htm?job=about_auctions (last visited June 18, 2007).

[528] 47 U.S.C. § 303(y).

[529] *See 1999 Policy Statement*, 14 FCC Rcd 19868 (1999). *See also In re* Principles for Promoting Efficient Use of Spectrum by Encouraging the Dev. of Secondary Mkts., 15 FCC Rcd 24178 (2000) (policy statement).

[530] FCC SPECTRUM POLICY TASK FORCE REPORT, *supra* note 523, at 1.

[531] *Id.* at 3, 6.

[532] *See generally id.* at 46-55; OFFICE OF MGMT. & BUDGET, EXECUTIVE OFFICE OF THE PRESIDENT, COMMERCIAL SPECTRUM ENHANCEMENT ACT: REPORT TO CONGRESS ON AGENCY PLANS FOR SPECTRUM

Some commentators have suggested, however, that comprehensive, market-based reform is still needed to maximize the efficient use of U.S. spectrum. Generally, these commentators propose replacing the current licensing regime with a more robust property rights system that allows for maximum transferability and flexibility of use, subject to technical considerations.[534] Some observers also suggest that innovative technologies may allow primary spectrum rights-holders to share their spectrum with non-interfering secondary users in new ways.[535] Overall, these commentators suggest that comprehensive reform, combined with emerging wireless technologies, could lead to significant improvements in spectral efficiency, competition, and consumer welfare.

Federal spectrum policy has been cited by both proponents and opponents of network neutrality as an important component of the ongoing debate. Both sides agree that improved spectrum use could potentially increase competition in the marketplace for broadband services generally.[536] Many network neutrality proponents, however, express skepticism that wireless broadband services can, in fact, be a sufficiently close substitute to wireline services to check any potential abuses by wireline broadband providers.[537]

RELOCATION FUNDS (2007), *available at* http://www.ntia.doc.gov/reports/2007/OMBSpectrumRelocationCongressionalNotification_final.pdf.

[533] *See* Memorandum on Spectrum Policy, *supra* note 521; U.S. DEP'T OF COMMERCE, SPECTRUM POLICY FOR THE 21ST CENTURY – THE PRESIDENT'S SPECTRUM POLICY INITIATIVE: REPORT 1 (2004), *available at* http://www.ntia.doc.gov/reports/specpolini/presspecpolini_report1_06242004.htm; U.S. DEP'T OF COMMERCE, SPECTRUM POLICY FOR THE 21ST CENTURY – THE PRESIDENT'S SPECTRUM POLICY INITIATIVE: REPORT 2 (2004), *available at* http://www.ntia.doc.gov/reports/specpolini/presspecpolini_report2_06242004.htm; Memorandum on Improving Spectrum Management for the 21st Century, 40 WEEKLY COMP. PRES. DOC. 2875 (Nov. 30, 2004) (directing executive branch agencies to implement the Spectrum Task Force reports' recommendations). *See also* FCC, STRATEGIC PLAN 2006-2011, at 10-12 (2006) (outlining future objectives for the efficient and effective use of spectrum), *available at* http://www.fcc.gov/omd/strategicplan.

[534] *See, e.g.*, Ellig, *supra* note 518, at 81-85. *See also generally* Reed E. Hundt & Gregory L. Rosston, *Communications Policy for 2006 and Beyond*, 58 FED. COMM. L.J. 1 (2006); Jon M. Peha, *Emerging Technology and Spectrum Policy Reform*, International ITU Workshop on Market Mechanisms for Spectrum Management (Jan. 2007), *available at* http://www.itu.int/osg/spu/stn/spectrum/speakers_pres.html.

[535] *See, e.g.*, Peha, Tr. I at 61 ("There may also be some opportunities to share spectrum more than we have in the past, at frequencies that allow you to cover large areas and rural areas."). *See also* Peha, *supra* note 36, at 1-2, 7-9.

[536] *See, e.g.*, Lehr, Tr. I at 54 ("[M]aking sure that we have a really vigorous commercial market for new wireless technologies, I think, is critical to addressing this problem. . . . [S]pectrum reform is, obviously, a key element in that.").

[537] *See, e.g.*, Putala, Tr. II at 29 ("The much heralded independent alternatives are still tiny.").

E. International Comparisons

The reasons for differing rates of broadband deployment and customer adoption across countries are the subject of considerable debate.[538] Certain factors appear to have influenced these rates in some countries. These include: government subsidization of Internet infrastructure or computer use; local loop[539] unbundling requirements; population density and demographics; and consumer demand. This Section provides an overview of the broadband experiences of South Korea, Japan, and the Netherlands, which are often cited as having more extensive broadband deployment and adoption than the U.S.[540]

1. South Korea

South Korea is frequently described as the most "wired" country in the world in terms of Internet service. Although it had less than one Internet user per 100 inhabitants in 1995, by 2002 it was one of the world's largest Internet markets, with 26 million users, and, by 2003, 78 percent of South Korean Internet users logged on via a broadband connection.[541] Several factors have been cited for this explosive growth.

The South Korean government privatized the historical monopoly telecommunications operator, Korea Telecom ("KT"), in the early 1990s and has extensively involved itself in the telecommunications sector to upgrade the country's information technology infrastructure and to promote computer use by businesses and individuals.[542] Initiated in 1995, the Korea Information Infrastructure project has emphasized public-private partnerships in funding a national, high-speed public

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[538] *See generally* FCC OFFICE OF STRATEGIC PLANNING & POLICY ANALYSIS & INT'L BUREAU, BROADBAND INTERNET ACCESS IN OECD COUNTRIES: A COMPARATIVE ANALYSIS (2003) [hereinafter FCC OECD ANALYSIS], *available at* http://www.coe.montana.edu/ec/rwolff/ee543%20papers/fcc-broadband.pdf. This report cautions that "[t]here is no simple way to compare the variety of broadband service packages available in different countries." *Id.* at 6. *See also* DANIEL K. CORREA, ASSESSING BROADBAND IN AMERICA: OECD AND ITIF BROADBAND RANKINGS (2007), *available at* http://www.itif.org/files/BroadbandRankings.pdf (examining various measurements of broadband deployment and adoption rates).

[539] For purposes of this Section, the term "local loop" is used to mean the last mile of Internet access.

[540] *See, e.g.*, Schmidt, Tr. II at 55 (reading the following question from a Workshop audience member: "Why can't consumers get cheap, super high[-]speed broadband from Verizon, EarthLink or other companies like Japanese consumers can?"). According to the OECD, as of December 2006, the number of broadband subscribers per 100 inhabitants in the United States was 19.6, while the corresponding numbers were 29.1 in South Korea, 20.2 in Japan, and 31.8 in The Netherlands. OECD, OECD BROADBAND STATISTICS TO DECEMBER 2006 (2006), *available at* http://www.oecd.org/document/7/0,3343,en_2649_34223_38446855_1_1_1_1,00.html.

[541] INT'L TELECOMMS. UNION, BROADBAND KOREA: INTERNET CASE STUDY 1, 10 (2003) [hereinafter ITU KOREA STUDY], *available at* http://www.itu.int/ITU-D/ict/cs/korea/material/CS_KOR.pdf.

[542] *Id.* at 5, 33-34.

backbone, information technology pilot projects, and technology investment funds.[543] The South Korean government also implemented local loop unbundling requirements in 2002.[544]

This environment seems to have spurred the emergence of multiple ISPs.[545] Some commentators note, however, that many of the ISPs that emerged during the last decade have experienced periods of unprofitability and suggest that market consolidation is already underway.[546] Also, in 2004, the South Korean government subjected KT to stricter service and pricing regulations on the grounds that KT's dominance was a barrier to competition in the broadband market.[547]

Another important factor in South Korea's broadband deployment appears to be the country's high average population density of 1,265 people per square mile with 82 percent of its 48 million people living in urban areas.[548] Apartments account for approximately 48 percent of South Korea's housing stock[549] and provide housing for

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[543] It is estimated that the South Korean government spent approximately $24 billion on backbone infrastructure during the 1995-2002 period and will spend over $53 billion on information technology projects during the 2003-2008 period. *Id.* The actual amount of past and projected investment may be higher, and is difficult to discern, as the government also has directed substantial amounts of private investment. Some estimates run into the tens of billions of dollars. *See, e.g.*, James B. Speta, *Commentary: Policy Levers and Demand Drivers in Korean Broadband Penetration*, J. KOREAN L., 2004-2005, at 1, 7.

[544] *Id.* at 8. Some commentators suggest, however, that the major advances in broadband deployment had already happened by 2002 and were mainly the result of facilities-based competition in a generally de-regulatory environment. *See, e.g.*, Thomas W. Hazlett, *Broadband Miracle*, WALL ST. J., Aug. 26, 2004, at A12.

[545] Heejin Lee & Bob O'Keefe, *The Growth of Broadband Internet Connections in South Korea: Contributing Factors*, 14th Bled Electronic Commerce Conference 438 (2001), *available at* http://domino.fov.uni-mb.si/proceedings.nsf/0/fa0fcb8fccb778fbc1256c9f0030a71f/$FILE/27_Lee.pdf.

[546] One survey reports: "Except for KT and one of the mobile operators, none of Korea's facilities-based telecommunications providers made a profit in 2001." ITU KOREA STUDY, *supra* note 541, at 7. KT competitor "Thrunet reorganized under bankruptcy laws in 2003, and Hanaro reported its first profits only in mid-2004." Hazlett, *supra* note 544. *See also* Kim Tae-gyu, *Hanaro Exposed to Greater M&A Risk*, Korea Times, Mar. 19, 2007.

[547] *See* Kenji Kushida & Seung-Youn OH, *Understanding South Korea and Japan's Spectacular Broadband Development: Strategic Liberalization of the Telecommunications Sectors* 22-23 (Berkeley Roundtable on the Int'l Econ., Working Paper No. 175, 2006), *available at* http://brie.berkeley.edu/publications/wp175.pdf.

[548] POPULATION REFERENCE BUREAU, SOUTH KOREA (2006), *available at* http://www.prb.org/DataFind/datafinder7.htm. The U.S., by comparison, has an average population density of 80 people per square mile and 79% of its population lives in urban areas. POPULATION REFERENCE BUREAU, UNITED STATES (2006), *available at* http://www.prb.org/DataFind/datafinder7.htm. Nearly half of South Koreans live in urban areas with more than one million people, compared to 37% of Americans. Speta, *supra* note 543, at 15.

[549] In the U.S., 27% of households live in apartment buildings. INT'L TELECOMMS. UNION, PROMOTING BROADBAND: THE CASE OF JAPAN 34 (2003) [hereinafter ITU JAPAN STUDY], *available at* http://www.itu.int/osg/spu/ni/promotebroadband/casestudies/japan.pdf.

approximately 40 percent of its population. The average distance of a customer to a telephone exchange is about two kilometers, with 95 percent of customers living within four kilometers of an exchange, the target range of asymmetric DSL. This close proximity simplifies the last-mile roll-out of such networks.[550]

In addition, some observers conclude that the Internet has become much more of a cultural phenomenon in South Korea than in some other countries.[551] For example, although South Koreans' per-capita income is less than a third of that of Americans, they are willing to spend twice as much of their household income on broadband services.[552]

2. Japan

Japan is frequently cited as having some of the lowest prices and highest speeds in the world for Internet service. The Japanese government began a partial privatization of its historical telecommunications monopoly, Nippon Telegraph & Telephone Corp. ("NTT") in the mid-1980s. Some observers have characterized Japan's communications sector since this time as shifting away from government-managed competition and toward a more dynamic, market-oriented system.[553] Japanese industrial policy since the early 1990s, however, has continued to promote the deployment of fiber-optic infrastructure through the use of subsidies and loans from the Development Bank of Japan ("DBJ"),[554] as well as extensive direct investment by NTT.[555]

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[550] ITU KOREA STUDY, *supra* note 541, at 12. "This high population density simplifies network development and lowers costs investment [sic]." *Id.* at 67.

[551] *Id.* at 12 ("[T]hough more difficult to measure, it is widely agreed that Korean 'mentality' is also a key factor. Many Korean Internet users first got a taste of high-speed access at Internet cafes . . . and subsequently wanted the same rapidity at home. There is also a 'copy-cat' syndrome; once one person gets something everyone else wants it, too."). *But see* Associated Press, *Nearly 50 Percent of Americans Have Little Use for Internet and Cell Phones, Survey Finds*, FOXNEWS.COM, May 7, 2007, http://www.foxnews.com/story/0,2933,270392,00.html (summarizing findings of the Pew Internet and American Life Project study).

[552] Speta, *supra* note 543, at 6, 10. As of 2003, Japanese spent 0.02% of their household income on broadband services, Americans spent 0.04%, and Swedes and Koreans spent 0.08%. FCC OECD ANALYSIS, *supra* note 538, at 7.

[553] In this view, Japanese broadband markets "grew out of a transition in its regulatory regime away from 'managed competition.'" Kushida & OH, *supra* note 547, at 23. That is, "[t]he shift entailed the government giving up many of the policy tools to manage competition, but adding new institutions and regulations in a transition from ex ante regulation through licenses and approval, towards an ex post mode of regulation relying on a dispute resolution commission and other institutions." *Id.*

[554] The DBJ has offered providers low or no-interest loans for broadband access lines. The Telecommunications Advancement Organization of Japan ("TAO") has subsidized up to 2% interest on DBJ loans. In addition, the government has offered corporate tax rate reductions for operators' broadband equipment and a reduction on the fixed asset tax for broadband equipment. The TAO also has a program to guarantee debt liabilities of operators introducing broadband access networks. ITU JAPAN STUDY, *supra* note 549, at 33-34.

[555] Kushida & OH, *supra* note 547, at 29.

Non-facilities-based startup firms began to offer DSL service in the late 1990s, relying primarily on access to NTT's existing infrastructure. Interconnection regulations at that time, however, did not cover these access arrangements. The new ISPs, therefore, were operating largely at the discretion of NTT, and, in 2000, the Japanese Fair Trading Commission warned NTT over its treatment of new DSL providers.[556] At the same time, the Ministry of Internal Affairs and Communications ("MIC") required NTT to clarify the terms and fees it offered competitors for access to its network, lease out its unused fiber-optic infrastructure at low prices, and unbundle its metallic and fiber-optic local loops.[557] The Japanese government has continued to review policies relating to competitors' access to NTT's network and also entertained a possible breakup of the company.[558] By 2001, the new entrant DSL providers began to make significant headway.[559]

In addition to other government industrial policy measures, Japan's regional electric power utilities had invested substantially in laying fiber-optic networks since the late 1980s.[560] Another company also entered from the cable radio business by deploying 100 Mbps fiber wirelines along its already-existing nationwide electric-pole network.[561] By the end of 2005, approximately 44 percent of Japanese households had broadband access.[562]

Despite government subsidies for broadband deployment by approved service providers, as of 2003, it has been reported that all Japanese DSL providers were unprofitable, notwithstanding rapid growth in the market for Internet services.[563] Thus, some commentators have questioned whether there is sufficient demand for fiber speeds up to 100 Mbps to justify the Japanese government's industrial policy expenditures.[564]

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[556] *Id.* at 26.

[557] *Id.* at 26-27.

[558] *Japan Requires NTT to Provide Access for High-Speed Internet Network to Rivals*, ASIA PACIFIC TELECOM, Aug. 1, 2006, at 6.

[559] In particular, Softbank / Yahoo! created a price shock in the marketplace by setting its monthly subscription price at $22, the lowest in the world at that time. This prompted other DSL providers, including NTT regional companies, to lower their prices in response. *See* Kushida & OH, *supra* note 547, at 28.

[560] ITU JAPAN STUDY, *supra* note 549, at 14.

[561] *Id.*

[562] Kushida & OH, *supra* note 547, at 5.

[563] Hidenori Fuke, *The Spectacular Growth of DSL in Japan and Its Implications*, COMM. & STRATEGIES 4th Quarter 2003, at 175, 180, *available at* http://www.idate.fr/fic/revue_telech/22/C&S52_FUKE.pdf.

[564] According to one study, beyond service area coverage, "[t]he second and more insurmountable challenge has to do with content, such as: when will there be content attractive enough to the majority of users to migrate from ADSL to FTTH [(Fiber to the Home)]?" ITU JAPAN STUDY, *supra* note 549, at 15.

But a fall in the price of fiber-optic service to below $40 per month in 2003 apparently attracted significant demand.[565] Other commentators have suggested that while local loop unbundling may have spurred short-term price competition, it may also give rise to long-term disincentives to invest in new facilities infrastructure and develop new service offerings.[566]

Finally, Japan's population density is relatively high at 876 people per square mile. Seventy-nine percent of its 127 million people live in urban areas.[567] Thirty-eight percent of Japanese households live in apartment buildings. In Tokyo and Osaka, 66 percent and 52 percent of households, respectively, live in apartment buildings.[568] As in the case of South Korea, such demographics appear to facilitate the deployment of network infrastructure.

3. The Netherlands

The Netherlands has been cited as Europe's leader in broadband penetration.[569] This achievement is often credited to facilities-based competition between cable and DSL in a generally deregulated environment.[570] At the beginning of telecommunications liberalization in Europe during the 1990s, it was left largely to the national governments

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[565] *Id.* at 31. As of 2003, the monthly price for 100 Mbps service was approximately $36.00. Fuke, *supra* note 563, at 181, 186.

[566] In this view, "DSL services based on line-sharing demonstrate the problems with competition policy relying on the unbundling of network functions of incumbent carriers. . . . Other competitive carriers can enjoy this low wholesale price without taking the risk of . . . investing in an uncertain business." Fuke, *supra* note 563, at 180-81. As a result, "[h]ere we are caught in a dilemma between the short-term promotion of service-based competition and the long-term promotion of technological innovations." *Id.* at 186. Similarly, because "DSL services are offered on NTT local companies' metallic subscriber lines, it is virtually impossible for providers of DSL to differentiate their products. . . . This has led to a situation where competition is primarily based on marketing abilities, including price. Other DSL service providers were obliged to match these low prices." *Id.* at 179.

[567] POPULATION REFERENCE BUREAU, JAPAN (2006), *available at* http://www.prb.org/DataFind/datafinder7.htm.

[568] ITU JAPAN STUDY, *supra* note 549, at 34.

[569] *See generally* INFO. SOC'Y & MEDIA DIRECTORATE-GEN., EUROPEAN COMM'N, EU TELECOM RULES: WHERE ARE WE NOW? 2 (2007), *available at* http://ec.europa.eu/information_society/newsroom/cf/document.cfm?action=display&doc_id=266 ("The Netherlands is the leading country in the world in broadband penetration. Competition between networks and services has been increasing as cable operators cover almost the whole territory and offer, alongside several DSL providers, attractive and inexpensive packages to consumers.").

[570] *See id. See also generally* AGENCY FOR INT'L BUS. & COOPERATION, THE NETHERLANDS MINISTRY OF ECON. AFFAIRS, BROADBAND AND GRIDS TECHNOLOGY IN THE NETHERLANDS [hereinafter AGENCY FOR INT'L BUS. & COOPERATION], *available at* http://www.hightechconnections.org/2005/broadband.pdf (last visited June 14, 2007). By 2006, in addition to the deployment of copper wirelines, ninety-eight percent of Dutch houses were connected to a cable TV network, with almost all of these networks offering broadband Internet services. *Id.*

of individual European Union ("EU") member states to decide whether and how local loops should be unbundled.[571] During 1996 and 1997, Dutch government restrictions on offering telecommunications infrastructure were generally discontinued.[572] Previously, incumbent monopoly telecom provider KPN had almost unrestricted rights in these fields. Local unbundling was implemented in 1999, and, consistent with subsequent EU rules, firms with significant market power also have special obligations, such as mandated interconnection at cost-based rates.[573] The Dutch government also has subsidized Internet infrastructure projects and has provided tax breaks for computer purchases.[574] In addition, the Netherlands generally is considered the most densely populated country in Western Europe, with an average population density of 1,037 people per square mile and 65 percent of its population living in urban areas.[575] As a result, over 70 percent of the Dutch population lives in an apartment building, attached row house, or semi-detached house.[576]

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[571] *See generally Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions: Fifth Report on the Implementation of the Telecommunications Regulatory Package*, COM (1999) 537 final (Nov. 10, 2007), *available at* http://ec.europa.eu/comm/information_society/policy/telecom/5threport/pdf/5threp99_en.pdf.

[572] *See generally* Nico van Eijk, *Broadband Services and Local Loop Unbundling in the Netherlands*, IEEE COMM. MAG., Oct. 1999, at 2-3, *available at* http://www.ivir.nl/publications/vaneijk/broadband.pdf.

[573] *E.g.*, Regulation 2887/2000, Unbundled Access to the Local Loop, 2000 O.J. (L 336) 4. The EU has continued to take subsequent measures to harmonize the way in which member states regulate access to communications networks. *See generally Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: 12th Report on the Implementation of the Telecommunications Regulatory Package*, COM (2007) 155 final (Mar. 29, 2007) [hereinafter *EC 12th Report*], *available at* http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/annualreports/12threport/com_2007_155_en.pdf.

[574] For example, the Dutch government has spent 106 million Euros on various research projects such as the GigaPort Next Generation Network, which is claimed to be the fastest research and development network in the world. *See* AGENCY FOR INT'L BUS. & COOPERATION, *supra* note 570. *See also* Kevin J. O'Brien, *Dutch Found To Be the Most Computer Literate in World*, INT'L HERALD TRIB., Feb. 21, 2006, *available at* http://www.iht.com/articles/2006/02/21/business/pew.php (describing a 1997-2004 Dutch tax law that allowed workers to deduct from pretax wages the cost of personal computers if they were also used for business purposes); U.S. DEP'T OF STATE, 2006 INVESTMENT CLIMATE STATEMENT – THE NETHERLANDS (2006), *available at* http://www.state.gov/e/eeb/ifd/2006/62022.htm ("[T]he Netherlands ranks eighth in the world [in Internet deployment] thanks to continued rollout of broadband services, internet-related legislation and government broadband programs. In 2004, the government embarked on a broadband action program aimed at creating a regulatory framework that will stimulate and facilitate broadband development.").

[575] *See* FRANK SIDDIQUI, THE NETHERLANDS MINISTRY OF ECON. AFFAIRS, HEALTHY AND STRUCTURAL GROWTH OF DUTCH ECONOMY (2006), *available at* http://www.hollandtrade.com/vko/zoeken/showbouwsteen.asp?bstnum=1423; POPULATION REFERENCE BUREAU, NETHERLANDS (2006), *available at* http://www.prb.org/DataFind/datafinder7.htm.

[576] STATISTICS NETHERLANDS, NETHERLANDS OFFICIAL STATISTICS 2000-3 (Autumn 2000), *available at* http://www.cbs.nl/NR/rdonlyres/CB145B5F-068C-4086-B0D7-4BA74C3B6791/0/nos003.pdf.

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Because the socio-economic status of individual countries and the historical nature of their telecommunications regimes can vary widely, comparisons of broadband deployment and adoption rates across countries may not be meaningful.[577] It appears to be generally recognized that these measures can be affected by a number of factors.[578] Some observers suggest, therefore, that particular policies aimed at facilitating broadband deployment and adoption may have differential effects in different places, depending on the relevant circumstances.[579] For the United States, its larger geographic size and relatively dispersed population make it difficult to compare broadband experiences directly with many of the smaller and more densely populated countries that are sometimes cited as global Internet leaders.[580] As a result, although many commentators have urged U.S. policy makers to do more to facilitate the roll-out of broadband Internet services, at the same time, some observers have cautioned against trying to model U.S. policy decisions after those of other countries.[581]

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[577] *See generally* Robert M. McDowell, Commissioner, FCC, Address at Catholic University School of Law Symposium: Broadband Deployment in a Multi-Media World: Moving Beyond the Myths to Seize the Opportunities (Mar. 15, 2007), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-271555A1.pdf. *See also* FCC OECD ANALYSIS, *supra* note 538; CORREA, *supra* note 538.

[578] "Broadband transmission speeds vary across the EU, which on average still lag behind the US, Japan, and Korea. To some extent this can be explained by the high population density in South Korea and Japan, and the presence of more high capacity cable networks in the US compared to several major EU countries." *EC 12th Report*, *supra* note 573, at 12.

[579] One commentator suggests, for example, that "[w]hereas the Nordic region and the Benelux countries [Belgium, Netherlands, and Luxembourg] are in favor of open [unbundled] networks, southern countries with a less-developed cable infrastructure fear that this would discourage investments." Matthijs Leendertse, *Don't Stop at Local Loop*, INDUSTRY STANDARD EUROPE, Jan. 17, 2001, *available at* http://www.vandusseldorp.com/vdapinthepress/TheStandard%2017%20Jan%202001.htm.

[580] *See* McDowell, *supra* note 577, at 2 ("[When compiling statistics, the] OECD does not account for population density, which puts a country as a large as ours—with sizable rural areas—at a disadvantage. No other country above the U.S. on the OECD list occupies an entire continent like we do. No other country above on this list is 75 percent rural.").

[581] For example, one commentator has cautioned that, "[i]t is undeniable that [population density] accounts for much of the difference between broadband penetration in the United States and Korea. This suggests caution in adopting those elements of Korean industrial policy that are most different from the general regulatory presumptions in the United States." Speta, *supra* note 543, at 16. *See also* Seth Sacher & Scott Wallsten, *What U.S. Broadband Problem?*, CNET NEWS.COM, July 3, 2006, http://news.com.com/What+U.S.+broadband+problem/2010-1034_3-6090408.html (noting that OECD and other international statistics generally are self-reported and that the methodologies for compiling such statistics generally are not published).

VII. ANTITRUST ANALYSIS OF POTENTIAL BROADBAND PROVIDER CONDUCT

As explained in the preceding Chapter, an important issue raised in the debate over network neutrality regulation is whether the broadband market – however it may be defined – is competitive. The competitive issues raised in this debate, however, are not new to antitrust law, which is well-equipped to analyze potential conduct and business arrangements involving broadband Internet access. In conducting an antitrust analysis, the ultimate issue would be whether broadband Internet access providers engage in unilateral or joint conduct that is likely to harm competition and consumers in a relevant market.

Section A of this Chapter provides broad principles that underlie the antitrust laws and explains that any type of antitrust analysis involving such conduct would entail a case-by-case evaluation of the procompetitive and anticompetitive effects of the conduct to determine its overall impact on consumer welfare. Section B explores some of the most likely antitrust theories that would apply to potential conduct by broadband providers, including exclusive dealing, vertical integration, and unilateral conduct.

A. General Principles Underlying the Antitrust Laws

The antitrust laws are grounded in the principle that competition – "that state of affairs in which output is maximized, price is minimized, and consumers are entitled to make their own choices"[582] – serves to protect consumer welfare. This persistent focus on the consumer ensures that enforcement resources are directed at protecting consumers through the competitive process, not at protecting individual market players.

Vigorous competition on the merits by a single firm, such as the charging by such firm of a price that may be higher than would occur in a market with more competitors, does not by itself constitute anticompetitive conduct. As the Supreme Court noted recently in the *Trinko*[583] case, the charging of monopoly prices by a lawful monopolist by itself "is not only not unlawful; it is an important element of the free market system."[584] Thus, the antitrust laws do "not give judges *carte blanche* to insist that a monopolist alter its way of doing business whenever some other approach might yield greater competition."[585] Empirical evidence and our enforcement experience confirm that competition itself can force changes on a market and erode monopoly profits. Indeed, it is the purpose of the antitrust laws to protect that competitive process.

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[582] HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE § 5.6b, at 258 (3d ed. 2005) (citing FTC v. Ind. Fed'n of Dentists, 476 U.S. 447 (1986)).

[583] Verizon Communs. Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 407 (2004).

[584] *Id.* at 407.

[585] *Id.* at 415-16.

Conduct that has the potential to be both anticompetitive and harmful to consumers, under certain conditions, and procompetitive and capable of improving efficiency, under other conditions, is analyzed under the "rule of reason" to determine the net effect of such conduct on consumer welfare.[586] In contrast, conduct that is always or almost always harmful to consumers – such as collusion among horizontal competitors – generally is deemed per se illegal under the antitrust laws.[587] As discussed in the following section, these principles apply to Internet-related markets in the same manner as they do to other markets in our economy.

B. Potential Antitrust Theories

The potential for anticompetitive harm exists in the various Internet-related markets, as it does in all markets. The FTC's primary mission is to protect consumers by attacking unfair methods of competition and unfair or deceptive acts or practices,[588] and some have called for antitrust enforcement against potential anticompetitive conduct by broadband providers.[589] Antitrust enforcement – outside the merger review context – involves the *ex post* investigation and prosecution of anticompetitive practices, wherever they are found, rather than *ex ante* regulation to prevent or mitigate potential market failure.[590]

It appears that the competitive issues relating to last-mile access to consumers that have been raised in the network neutrality debate largely can be addressed through antitrust enforcement. Depending on the particulars, blocking access to the Internet by content or applications providers or discriminating in favor of a supplier with whom the broadband provider has an affiliated or contractual relationship would be analyzed, for example, under either Section 1 of the Sherman Act,[591] as an exclusive dealing relationship, or under Section 2 of the Sherman Act,[592] as a unilateral refusal to deal.[593]

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[586] *See, e.g.*, *Ind. Fed'n of Dentists*, 476 U.S. at 459 (balancing of competitive effects under rule of reason is appropriate "where the economic impact of certain practices is not immediately obvious").

[587] *See, e.g.*, NCAA v. Board of Regents, 468 U.S. 85, 103-04 (1984) ("Per se rules are invoked when surrounding circumstances make the likelihood of anticompetitive conduct so great as to render unjustified further examination of the challenged conduct.").

[588] *See supra* Chapter II.A.

[589] *See, e.g.*, G. Sohn, Tr. I at 100-01 ("We believe the FTC should investigate and act on allegations of anticompetitive conduct by broadband Internet access providers filed by consumers[] [and] content[,] service, and applications providers."); Pepper, Tr. I at 132; Davidson, Tr. I at 232; Muris, Tr. II at 118.

[590] Current antitrust jurisprudence is cognizant of the costs of government intervention in cases where the conduct at issue may not actually harm – and indeed may benefit – competition. The error costs of such "false positives" are part of the antitrust enforcement calculus when enforcement authorities make a decision on intervention in any particular case.

[591] 15 U.S.C. § 1.

[592] *Id.* § 2.

Vertical integration into content or applications by acquisition would be analyzed under the merger laws.[594] In addition, unilateral conduct on the part of broadband providers – including, for example, the degradation of Internet access service to force buyers into paying more for higher-quality service – would be analyzed under Section 2 of the Sherman Act.[595]

While these types of conduct are possible, the allegations of anticompetitive conduct by proponents of net neutrality regulation have for the most part been prospective. That is, there is little evidence to date of consumer harm from anticompetitive practices by ISPs or any other network operators; the allegations of anticompetitive conduct focus mainly on effects that may occur if certain actions, such as exclusive agreements or vertical integration, are undertaken in the future.[596] The only discriminatory action that both sides of the debate have acknowledged occurred when, in 2005, a small local telephone company allegedly blocked its customers from accessing a competing VoIP provider. The FCC took quick action and entered into a consent decree with the telephone company, Madison River, prohibiting the blocking of ports for VoIP traffic. The company also made a voluntary payment of $15,000 to the U.S. Treasury.[597] The record in the case, however, is sparse and does not contain any analysis of the competitive effects of the actions taken by Madison River.

1. Exclusive Dealing

Exclusive dealing arrangements foreclose a seller's competitors from doing business with the buyer for the duration of the arrangement. In the broadband area, ISPs might sign contracts with content or applications providers to provide exclusive, or preferential, access to consumers. For example, an ISP might arrange to allow access

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[593] Section 5 of the FTC Act, *id.* § 45, which prohibits "unfair methods of competition," encompasses both Sherman Act standards. The Robinson-Patman Act, *id.* §§ 13-13b, 21a, which prohibits, among other things, a seller from discriminating in price between different buyers when the discrimination adversely affects competition, applies to sales involving "commodities"; it does not apply to sales of services or intangible items. *See* ABA SECTION OF ANTITRUST LAW, *supra* note 177, at 495 (collecting cases). As such, the Robinson-Patman Act would not apply to sales of broadband Internet access services or online content and applications. *Cf.* Metro Communs. Co. v. Ameritech Mobile Communs., Inc., 984 F.2d 739, 745 (6th Cir. 1993) (holding that Robinson-Patman Act does not apply to sale of cellular telephone service).

[594] Section 7 of the Clayton Act prohibits mergers or acquisitions, the effect of which "may be substantially to lessen competition, or tend to create a monopoly." 15 U.S.C. § 18.

[595] In addition, horizontal collusive conduct between or among broadband providers would be found to be illegal without an elaborate market analysis. However, we have seen no allegations of such conduct in the broadband area.

[596] *See, e.g.*, Muris, Tr. II at 119 ("This push for regulation is not based, however, on the current robust marketplace.").

[597] *In re* Madison River Communs., LLC, 20 FCC Rcd 4295 (2005) (consent decree).

only to a single VoIP provider. Other VoIP providers might then be denied last-mile access to that ISP's customers or end users.

Antitrust analysis is guided by the question of whether specific conduct ultimately is harmful to competition and consumers.[598] Under certain circumstances, exclusive dealing contracts can violate the antitrust laws.[599] The courts analyze exclusive dealing contracts under the "rule of reason," which balances the contracts' procompetitive and anticompetitive effects.[600] Thus, the net economic effect of the arrangement will determine whether it violates the antitrust laws. A detailed analysis of how an exclusive dealing arrangement affects competition is required, and – critically – that analysis goes beyond the number of foreclosed competitors.[601] The FTC has held that "a proper analysis of exclusive dealing arrangements should take into account market definition, the amount of foreclosure in the relevant market, the duration of the contracts, the extent to which entry is deterred, and the reasonable justifications, if any, for the exclusivity."[602]

Courts have decided exclusive dealing cases on a number of different factors. Although they have looked first at the amount of commerce foreclosed, there is no consensus on how much foreclosure will trigger liability. There appears to be a safe harbor for foreclosure of less than 30 to 40 percent of the relevant market,[603] and even higher shares have been allowed.[604] Other relevant factors in the foreclosure analysis

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[598] *See, e.g.*, Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc., 429 U.S. 477, 488 (1977) (federal antitrust laws designed for "the protection of *competition*, not *competitors*") (quoting Brown Shoe Co. v. United States, 370 U.S. 294, 320 (1962)).

[599] *See, e.g.*, United States v. Dentsply Int'l, Inc., 399 F.3d 181 (3d Cir. 2005); United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001); Luria Bros. v. FTC, 389 F.2d 847 (3d Cir. 1968).

[600] Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2, 44-47 (1984) (O'Connor, J., concurring); Tampa Elec. Co. v. Nashville Coal Co., 365 U.S. 320, 329 (1961).

[601] *See, e.g.*, Thompson Everett, Inc. v. Nat'l Cable Adver., L.P., 57 F.3d 1317, 1326 (4th Cir. 1995) (plaintiff must show substantial anticompetitive effect); Roland Mach. Co. v Dresser Indus., 749 F.2d 380, 394 (7th Cir. 1984) (plaintiff must show that the probable effect of the exclusion will be to raise prices above competitive levels or otherwise harm competition).

[602] Beltone Elecs. Corp., 100 F.T.C. 68, 204 (1982) (dismissal order).

[603] *See, e.g.*, Minn. Mining & Mfg. Co. v. Appleton Papers Inc., 35 F. Supp. 2d 1138, 1143 (D. Minn. 1999) (30-40% at minimum); Sewell Plastics, Inc. v. Coca-Cola Co., 720 F. Supp. 1196, 1212-14 (W.D.N.C. 1989) (even 40% would not enable defendant to raise prices above competitive level). *Cf. Microsoft*, 253 F.3d at 70 ("A monopolist's use of exclusive contracts, in certain circumstances, may give rise to a § 2 violation even though the contracts foreclose less than the roughly 40% or 50% share usually required in order to establish a §1 violation.").

[604] *See, e.g.*, Omega Envtl., Inc. v. Gilbarco, Inc., 127 F.3d 1157, 1162-65 (9th Cir. 1997) (upholding exclusive dealing contracts by firm with 55% market share that foreclosed 38% of the relevant market).

include the length of the exclusive dealing contract,[605] the presence of alternative distribution channels,[606] ease of entry,[607] and actual injury to competition.[608]

In the recent exclusive dealing case of *United States v. Dentsply International, Inc.*,[609] for example, the court held that a manufacturer of prefabricated artificial teeth violated Section 2 of the Sherman Act by means of its exclusivity arrangements with its several distributors.[610] After finding that the defendant enjoyed monopoly power in the relevant market, the court ruled that the defendant's exclusive dealing arrangements were an unlawful exercise of that power.[611] In reaching that conclusion, the court considered, among other things, the alternative distribution channels available to the defendant's competitors, finding that the use of such channels was not "practical or feasible in the market as it exists and functions."[612]

In the Internet access context, exclusive dealing cases would likely turn on market definition in the first instance. Such definition would involve both product and geographic dimensions. With respect to the product market, a court or agency would have to determine which online content and applications are substitutable or interchangeable by consumers by reason of the products' characteristics, prices, and intended uses.[613] A court or agency also would have to determine whether the geographic boundary of such market is local, regional, national, or, perhaps, global.[614] In

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[605] *See id.* at 1162 (one-year term held legal); *accord Thompson*, 57 F.3d at 1326. Longer terms may not survive challenge. *See* Twin City Sportservice, Inc. v. Charles O. Finley & Co., 676 F.2d 1291, 1307-08 (9th Cir. 1982) (greater than 10 years held illegal).

[606] *See* CDC Techs., Inc. v. Idexx Labs., Inc., 186 F.3d 74, 80-81 (2d Cir. 1999); Roy B. Taylor Sales, Inc. v. Hollymatic Corp., 28 F.3d 1379, 1384-85 (5th Cir. 1994).

[607] *See* Concord Boat Corp. v. Brunswick Corp., 207 F.3d 1039, 1059 (8th Cir. 2000).

[608] *See* Advanced Health-Care Servs., Inc. v. Radford Cmty. Hosp., 910 F.2d 139, 151 (4th Cir. 1990); Collins v. Associated Pathologists, Ltd., 844 F.2d 473, 478-79 (7th Cir. 1988).

[609] 399 F.3d 181 (3d Cir. 2005).

[610] *Id.* at 196.

[611] *Id.*

[612] *Id.* at 193.

[613] An antitrust plaintiff also could challenge an exclusive dealing arrangement as harming competition in a broadband Internet access product market.

[614] Some commentators have argued that the online content and applications market is global, *see, e.g.*, Verizon Communications Inc., Public Comment 60, at 23-24, or national, *see, e.g.*, Sidak, *supra* note 287, at 470; Yoo, *supra* note 276, at 72-73. Others, however, have characterized this market as regional. *See, e.g.*, Herman, *supra* note 267, at 134 ("The emphasis on national rather than regional market share is highly problematic. Not all Internet content providers care primarily about national market share. Several prominent regional Web sites exist within the boundaries of any given regional Bell or cable company . . . .").

sum, any exclusive dealing arrangement in the Internet content and applications market – like any such arrangement in any other market – would be subject to a market- and fact-specific antitrust analysis. Indeed, it is not possible, based on generalized data or predictions of future business arrangements, to conclude that the online content and applications market suffers or will suffer from anticompetitive conduct.

2. Vertical Integration

As discussed in Chapter IV, antitrust jurisprudence generally regards vertical integration as harmless or even beneficial to consumer welfare.[615] Such integration, however, may be anticompetitive under certain circumstances. A vertical merger, for example, could foreclose opportunities and thereby harm competition.[616] Such foreclosure might occur by either denying competitors access to essential inputs (for example, in the market for broadband Internet access) or denying access to downstream distribution outlets (for example, in the market for online content and applications).[617] In the Internet access context, for example, an ISP that merges with or acquires a VoIP provider may have the incentive to deny access to its network to competing VoIP providers.[618]

Earlier court cases found vertical mergers to be illegal based primarily on the foreclosure of a small market share.[619] More recent cases, however, have rejected a simplistic market share analysis and have insisted on a showing of anticompetitive effects.[620] The FTC has brought a number of cases alleging downstream foreclosure that would harm competition. In *CMS Energy Corp.*, for example, the FTC required an electric power company to divest certain generation assets before acquiring a utility with a monopoly natural gas pipeline due to concerns that the merged company would have an incentive to foreclose access to the pipeline to rival generation companies.[621] In *Ceridian*

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[615] Because vertical agreements can generate procompetitive efficiencies, they are less suspect than horizontal activity under long-accepted antitrust jurisprudence. *See* 11 HERBERT HOVENKAMP, ANTITRUST LAW ¶ 1902a, at 209 (2d ed. 2005) ("[H]orizontal agreements *as a class* deserve stricter scrutiny than (a) unilateral acts, (b) horizontal mergers, or (c) vertical agreements.").

[616] *See, e.g.*, Brown Shoe Co. v. United States, 370 U.S. 294 (1962).

[617] Vertical mergers also may have anticompetitive effects when they are used, for example, to facilitate horizontal collusion by competitors or by public utilities to avoid the impact of rate regulation. *See* HOVENKAMP, *supra* note 582, §§ 9.3d, 9.3e, at 385-86.

[618] See *supra* Chapter IV for a more detailed discussion of potential discrimination by vertically integrated ISPs.

[619] *See, e.g.*, *Brown Shoe Co.*, 370 U.S. 294; United States v. E.I. du Pont de Nemours & Co., 353 U.S. 586 (1957).

[620] *See, e.g.*, Alberta Gas Chems. Ltd. v. E.I. du Pont de Nemours & Co., 826 F.2d 1235 (3d Cir. 1987); Reazin v. Blue Cross & Blue Shield, Inc., 663 F. Supp. 1360, 1489 (D. Kan. 1987), *aff'd in part, remanded in part*, 899 F.2d 951 (10th Cir. 1990).

[621] CMS Energy Corp., 127 F.T.C. 827 (1999) (consent order).

Corp., a marketer of trucking-fleet credit cards acquired the owner of the dominant point-of-sale system for fleet cards.[622] The potential anticompetitive effect of the acquisition was the foreclosure of rival fleet-card owners from access to the only fleet-card processing system. The consent order settling this case required Ceridian to grant licenses to other fleet-card issuers to use the processing system.

The merger between AOL and Time Warner raised many of the same issues that concern some proponents of net neutrality regulation today. At the time of the merger, AOL was the nation's largest ISP and Time Warner owned cable television systems serving approximately 20 percent of U.S. cable households. One concern was that the merger would lessen competition in the residential broadband Internet access market and reduce AOL's incentive to promote DSL broadband service as an emerging alternative to cable broadband, and that foreclosure of, or discrimination against, competitors of AOL by Time Warner could have harmed competition. The terms of the consent order settling the case required the merged company to provide non-discriminatory access in a number of markets. For example, the order required Time Warner to open its cable system to competitor ISPs and prohibited it from interfering with content passed along the bandwidth contracted for by non-affiliated ISPs. The order also required the company to make available at least one non-affiliated cable broadband ISP service before AOL began offering service and at least two other such services within 90 days to certain subscribers. The consent order also prevented the merged company from discriminating on the basis of affiliation in the transmission of content or from entering into exclusive arrangements with other cable companies with respect to ISP services.[623]

The AOL/Time Warner matter highlights the FTC's ability to protect consumers in Internet markets from vertical integration that may have anticompetitive effects. However, internal expansion by a broadband provider into content or applications would not be covered by the merger laws. Discriminatory conduct by an integrated firm instead would be analyzed as unilateral conduct under Section 2 of the Sherman Act.

3. Unilateral Conduct

Unilateral conduct by firms with sufficient market power can violate the antitrust laws if that conduct is deemed exclusionary or predatory.[624] A court assessing such conduct under Section 2 of the Sherman Act, for example, will initially screen for monopoly power, which is "the power to control market prices or exclude

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[622] Ceridian Corp., FTC Dkt. No. C-3933 (Apr. 5, 2000) (consent order), *available at* http://www.ftc.gov/os/caselist/c3933.shtm.

[623] Am. Online, Inc. & Time Warner Inc., FTC Dkt. No. C-3989 (Apr. 17, 2001) (consent order), *available at* http://www.ftc.gov/os/caselist/c3989.shtm.

[624] The appropriate liability standard to apply under Section 2 to unilateral conduct, such as refusals to deal, tying, and bundling, recently has been the subject of considerable debate among antitrust practitioners, commentators, and the business community. The FTC and DOJ held hearings from June 2006 to May 2007 to explore the appropriate legal framework for analyzing unilateral conduct. Information relating to these hearings is available on the FTC's Web site at http://www.ftc.gov/os/sectiontwohearings/index.shtm.

competition"[625] in a relevant antitrust market.[626] Monopoly power can be shown by direct evidence of control over prices in the relevant market.[627] Where direct evidence is not available, indirect evidence, such as the defendant's share of the relevant market and the existence of barriers to entry, may be used.[628] There is no universally agreed upon market share that alone is sufficient to create an inference of monopoly power, but shares above 70 percent and below 50 percent are often predictive.[629]

If monopoly power can be shown, a plaintiff also must show exclusionary or predatory behavior: anticompetitive conduct that confers or protects, or otherwise extends, monopoly power.[630] The mere exercise of lawfully acquired monopoly power, including the charging of monopoly prices, is not a violation of Section 2.[631] Use of exclusive dealing contracts, or other vertical agreements, may support a monopolization claim.[632] However, an exclusivity arrangement will not be condemned unless it leads to anticompetitive effects; "[t]hat is, it must harm the competitive *process* and thereby harm consumers."[633]

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[625] United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 391 (1956).

[626] A court must be able to determine which particular product (*e.g.*, broadband Internet access or online content and applications) and geographic markets a defendant is monopolizing or attempting to monopolize. *See, e.g.*, Spectrum Sports, Inc. v. McQuillan, 506 U.S. 447, 459 (1993); United States v. Microsoft Corp., 253 F.3d 34, 50 (D.C. Cir. 2001).

[627] Am. Tobacco Co. v. United States, 328 U.S. 781, 789 (1946) (exclusion of competitors is proof of market power); *Microsoft*, 253 F.3d at 51 (prices substantially above competitive level are proof of market power).

[628] *Microsoft*, 253 F.3d at 51.

[629] *See du Pont*, 351 U.S. at 404 (75% would constitute monopoly power); Echlin Mfg. Co., 105 F.T.C. 410, 478 (1985) (46.8% insufficient). *See also* ABA SECTION OF ANTITRUST LAW, *supra* note 177, at 231-32 ("A market share in excess of 70 percent generally establishes a prima facie case of monopoly power, at least with evidence of substantial barriers to entry and evidence that existing competitors could not expand output. In contrast, courts virtually never find monopoly power when market share is less than about 50 percent.") (footnotes omitted).

[630] United States v. Grinnell Corp., 384 U.S. 563, 570-71 (1966) (defining exclusionary conduct as "the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident").

[631] Berkey Photo, Inc. v. Eastman Kodak Co., 603 F.2d 263, 294 (2d Cir. 1979); HOVENKAMP, *supra* note 582, § 6.3, at 273 ("The sale of output at a monopoly price is itself not sufficient to brand someone an unlawful monopolist. . . . Eventually the high profits will attract other producers into the market. Collectively these producers will increase output and prices will be driven to the competitive level.").

[632] *Microsoft*, 253 F.3d at 70.

[633] *Id.* at 58.

As indicated above, refusals to deal can be the basis of a Section 2 claim. Generally, even a firm with monopoly power has no duty to deal with a competitor,[634] but that right is not "unqualified."[635] Under certain narrowly defined circumstances, a monopolist's physical plant, facility, or other asset may be considered sufficiently essential to competition in a relevant market that it must be shared with competitors.[636] It is unlikely, however, that the courts will extend any essential facility obligation to a duopoly, as some have characterized the Internet access industry.[637] Even in a monopoly context, the courts have not looked with favor on refusal to deal cases – particularly essential facilities cases – in recent years. In *Trinko*, for example, the Supreme Court rejected as a basis for antitrust liability an allegation that a local exchange carrier ("LEC") "had filled rivals' orders on a discriminatory basis as part of an anticompetitive scheme to discourage customers from becoming or remaining customers of competitive LECs,"[638] noting that the Court has been "very cautious in recognizing . . . exceptions"[639] to a monopolist's right to refuse to deal with competitors. In any event, an antitrust analysis of a refusal to deal claim or any other claim involving unilateral conduct on the part of a broadband provider would involve a fact-specific determination of whether the conduct at issue harms competition and consumers.

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[634] Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 600 (1985).

[635] *Id.* at 601.

[636] *See, e.g.*, MCI Communs. Corp. v. AT&T, 708 F.2d 1081, 1132-33 (7th Cir. 1983) (setting forth test requiring showing of following elements: (1) control of the essential facility by a monopolist; (2) a competitor's inability practically or reasonably to duplicate the essential facility; (3) the denial of the use of the facility to a competitor; and (4) the feasibility of providing the facility). The Supreme Court recently has noted that it has never had occasion either to recognize or repudiate this "'essential facilities' doctrine crafted by some lower courts." Verizon Communs. Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 410-11 (2004).

[637] *See supra* Chapter VI.B.

[638] *Trinko*, 540 U.S. at 404.

[639] *Id.* at 409.

VIII. CONSUMER PROTECTION ISSUES

This Chapter analyzes the Federal Trade Commission Act's prohibition against unfair and deceptive acts and practices as a framework for ensuring that consumers are adequately protected when purchasing and using broadband Internet access services. Consumer protection issues relating to broadband Internet access often are treated as secondary in the network neutrality debate. Having well-informed consumers of broadband Internet access, however, is crucial to fostering competition, and consumer protection issues will remain important with or without enactment of some form of network neutrality regulation. This Chapter offers a broad overview of basic consumer protection law in Section A; discusses the applicability of consumer protection laws to broadband Internet access services in Section B; and explores additional methods that can be used to protect the interests of consumers in the broadband services marketplace in Section C.

A. An Overview of Section 5 of the FTC Act

As discussed in Chapter II, Section 5 of the FTC Act prohibits entities from engaging in unfair or deceptive acts or practices in interstate commerce.[640] An act or practice is deceptive if it involves a representation, omission, or practice that is likely to mislead consumers acting reasonably under the circumstances, and the representation, omission, or practice is material.[641] Thus, an advertisement is deceptive if it includes material information that is false or that is likely to mislead a consumer acting reasonably under the circumstances. Likewise, an advertisement is deceptive if it omits material information, and that omission is likely to mislead a consumer acting reasonably under the circumstances.[642] Requiring accurate disclosure of material terms allows consumers to compare similar services offered by one or multiple providers and weigh the different terms being offered in making decisions about what services to purchase.

An act or practice is unfair, also in violation of the FTC Act, if it causes injury to consumers that: (1) is substantial; (2) is not outweighed by countervailing benefits to consumers and competition; and (3) consumers themselves could not reasonably have avoided.[643] The Commission has used its unfairness jurisdiction in a broad array of cases. For example, the Commission has taken the position that cramming unauthorized charges for information services onto consumers' telephone bills is an unfair practice.[644] In the data security context, the Commission has challenged the failure to implement

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[640] 5 U.S.C. § 45(a).

[641] Cliffdale Assocs., Inc., 103 F.T.C. 110, 164-65 (1984). *See also* FTC v. Pantron I Corp., 33 F.3d 1088, 1095 (9th Cir. 1994); FTC v. Minuteman Press, 53 F. Supp. 2d 248, 258 (E.D.N.Y. 1998).

[642] *Cliffdale Assocs.*, 103 F.T.C. at 175 (appending FTC Policy Statement on Deception).

[643] 15 U.S.C. § 45(n); *see also* Orkin Exterminating Co. v. FTC, 849 F.2d 1354, 1363-66 (11th Cir. 1988).

[644] *See, e.g.*, FTC v. Verity Int'l Ltd., 443 F.3d 48 (2d Cir. 2006). See also *supra* Chapter II.A for a discussion of this case.

reasonable safeguards to protect the privacy of consumer information, where the failure causes substantial injury without offsetting benefits, as an unfair practice.[645] The Commission also has taken the position that a unilateral change of contract may be an unfair practice. For example, in the context of lifetime service contracts used by an exterminator, the Commission challenged unilateral changes of material terms of the contract by the company as unfair trade practices.[646]

B. Applicability of Consumer Protection Laws to Broadband Internet Access Services

Participants at the FTC's Broadband Connectivity Competition Policy Workshop primarily addressed two broad areas of consumer protection: (1) clear and conspicuous disclosure of material terms; and (2) security and privacy issues created by broadband Internet access services. Current federal consumer protection law can address both sets of concerns. Consideration of the first area suggests that consumers of broadband Internet access would benefit from an industry-initiated effort to: (1) more clearly identify those terms that are material to consumers' decisions to purchase broadband Internet access services; and (2) devise methods to effectively disclose those terms. In the second area, the discussion at the Workshop indicated that further study of the privacy and security practices in the broadband Internet access industry is needed to address concerns that policy makers and others have expressed about those practices.

However the current network neutrality debate is resolved, effective consumer protection in the broadband marketplace will be essential to robust competition in that market. Without truthful marketing and clear disclosure of material terms, consumers will lack the information they need to make informed decisions in the broadband Internet access marketplace. Likewise, inadequate protection of privacy of personal information and data security in the provision of broadband Internet access could hamper consumer confidence in the industry.

1. Clear and Conspicuous Disclosure of Material Terms

In analyzing which acts or practices in the offering of broadband Internet access services are likely to be deceptive, Workshop participants discussed terms that could be considered material to consumers purchasing broadband Internet access services. "A

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[645] *See, e.g.*, CardSystems Solutions, Inc., FTC Dkt. No. C-4168 (Sept. 5, 2006) (decision and order), *available at* http://www.ftc.gov/os/caselist/0523148/0523148CardSystemsdo.pdf; DSW, Inc., FTC Dkt. No. C-4157 (Mar. 7, 2006) (decision and order), *available at* http://www.ftc.gov/os/caselist/0523096/0523096c4157DSWDecisionandOrder.pdf; United States v. ChoicePoint, Inc., No. 106-CV-0198 (N.D. Ga.) (settlement entered on Feb. 15, 2006), *available at* http://www.ftc.gov/os/caselist/choicepoint/0523069stip.pdf; BJ's Wholesale Club, Inc., FTC Dkt. No. C-4148 (Sept. 20, 2005) (decision and order), *available at* http://www.ftc.gov/os/caselist/0423160/092305do0423160.pdf.

[646] *See* Orkin Exterminating, 849 F.2d at 1363-66. *See also* FTC v. Certified Merch. Servs., Inc., No. 4:02:cv44 (E.D. Tex. Dec. 30, 2002) (final judgment and order), *available at* http://www.ftc.gov/os/2003/01/cms.pdf.

claim is considered material if it 'involves information important to consumers and, hence, [is] likely to affect their choice of, or conduct regarding a product.'"[647] Express claims are presumed to be material, that is, likely to affect a consumer's choice or conduct regarding a product.[648] Existing case law easily would support determinations that certain types of terms common to most or all Internet service contracts, such as price and duration, are "material."

Identifying and reaching agreement on what other terms are material to consumers of broadband Internet access and how to provide those consumers with meaningful disclosure is more difficult. Among the terms and conditions that could be considered material, participants and commentators have focused most of their attention on connection speed, limitations on use, and broader network management policies.

Speed was a particular focus of the participants. As a number of them discussed, the connection speed or speeds that a broadband provider offers to its customers, including both upload and download speeds, are terms that likely are material to broadband consumers.[649] Indeed, speed is one of the primary qualitative features on which broadband providers are competing. Consumers can use online "speed test" tools to attempt to determine the actual transmission speeds that they are experiencing through their broadband connections. However, as one Workshop participant noted, the speed of a connection is not completely within the control of the customer's last-mile broadband provider.[650] Myriad factors beyond the control of the provider can affect the download speed that a customer experiences at any particular time, including, among others, the nature of the content or application that the customer is trying to access and the number of other users seeking to access the same content or application at the same time.

Moreover, the type of information about access speeds that should be conveyed is a difficult question. One issue raised by the participants was whether a disclosure that the provider will give the consumer connection speeds of "up to" a certain speed is sufficient. That is, should the provider be required to make more detailed disclosures of average speeds or a range of minimum and maximum speeds? One participant argued that advertisements that tout "theoretical" bandwidth speeds that, in practice, are available only at limited times are likely to mislead consumers. He maintained that more effective disclosures would tell consumers the "effective" or typical bandwidth speed they could expect to receive.[651] In response, another participant argued that, because the bandwidth speeds that consumers will receive at any given time may vary widely due to a number of conditions, disclosure of average bandwidth speeds would be more likely to mislead

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[647] Kraft, Inc. v. FTC, 970 F.2d 311, 322 (7th Cir. 1992) (quoting *Cliffdale Assocs.*, 103 F.T.C. at 165). *See also* FTC v. Pantron I Corp., 33 F.3d 1088, 1095-96 (9th Cir. 1994).

[648] *Kraft*, 970 F.2d at 322.

[649] Weiser, Tr. II at 87-88; Brenner, Tr. II at 97-98.

[650] Brenner, Tr. II at 97-98.

[651] Weiser, Tr. II at 87.

consumers than disclosure of maximum, "up to" bandwidth speeds.[652] He explained that the reason that such claims are effective is that consumers understand that "up to" claims are not the same as "average" claims and, thus, will discount the claims accordingly.[653]

Several of the Workshop participants also discussed disclosure of limitations on use imposed by broadband providers, an issue often raised in the network neutrality debate. As previously discussed, material omissions that are likely to mislead consumers acting reasonably under the circumstances are deceptive in violation of Section 5 of the FTC Act. Some have argued, for example, that if a broadband provider intends to prohibit its customers from using their broadband connections to access specific content or applications, such as VoIP telephone calls or streaming video, the provider should disclose those limitations clearly and conspicuously before the transaction is completed.[654] Similarly, it can be argued that usage limitations, such as a limitation on bandwidth usage or connection times, also should be disclosed.[655]

Other commentators have suggested that network management practices, such as traffic discrimination and traffic shaping, are material terms that must be disclosed to consumers.[656] Where a broadband provider gives priority to traffic coming to or from a particular content provider pursuant to a commercial relationship, the prioritization may enhance the performance of traffic to or from the favored content provider and degrade the performance of traffic to or from other content providers, including the favored provider's competitors. This implicates the question of whether such commercial relationships are material terms that must be disclosed to potential customers. One commentator has argued that offers of broadband Internet access that do not disclose such relationships and their effects are likely to mislead consumers because consumers traditionally expect "that Internet access entails the ability of users to communicate with

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[652] Muris, Tr. II at 132.

[653] *Id.*

[654] *See, e.g.*, G. Sohn, Tr. I at 101; Putala, Tr. II at 32; Tim Wu, *Wireless Net Neutrality: Cellular Carterfone on Mobile Networks* 22-23 (New America Foundation Wireless Future Program, Working Paper No. 17, 2007), *available at* http://www.newamerica.net/files/WorkingPaper17_WirelessNetNeutrality_Wu.pdf.

[655] *See* Weiser, Tr. II at 88-89; Brenner, Tr. II at 94-95; Atkinson & Weiser, *supra* note 255.

[656] *See, e.g.*, Center for Democracy & Technology, Public Comment 7, at 8 ("Public disclosure of prioritization arrangements could enable consumers to exert pressure against any policies they perceive as excessive ISP meddling in their choices among competing Internet content, services, and applications."); Bancroft, Public Comment 3, at 1 ("[V]oluntary disclosure of the existing packet management practices on a residential user's high-speed Internet access arrangement is the logical and necessary first step."); van Gelder, Public Comment 59, at 26 ("Truth in advertising with full disclosure of [an ISP's] intention to discriminate based on content provider would allow consumers to make informed choices about what they are paying for and from whom they wish to obtain Internet service."). *Cf.* OECD Report, *supra* note 382, at 30 ("Other safeguards that policy makers could consider include encouraging or requiring ISPs to clearly state their broadband packet shaping policies to consumers before they sign up for broadband and keeping existing subscribers aware of any changes.").

any and all other Internet users without interference from one's own ISP."[657] If broadband providers begin entering into pay-for-priority arrangements with content and applications providers, issues about the degree to which those arrangements must be disclosed no doubt will arise. Whether particular network management practices will be material to consumers (and therefore must be disclosed), however, cannot be determined in the abstract, but will require an examination of specific practices and consumer expectations.

There is, further, the question of how these types of information can be disclosed clearly and conspicuously so that it is meaningful to consumers. One Workshop participant argued that the disclosures currently used by many broadband providers are inadequate to meaningfully inform consumers of the terms and conditions of their service plans.[658] Meaningful disclosure may prove particularly challenging in this high-tech arena. Some studies of consumer behavior indicate that many pre-purchase disclosures for high-tech products and services, such as end user licensing agreements ("EULAs") for computer software, are not written in language that laypeople can easily understand or are too lengthy.[659] If consumers either do not read disclosures or do not understand them, the purpose of the disclosures is frustrated. The challenge of disclosures in the broadband access area, therefore, is to make such disclosures in a way that will enable consumers to understand both the services at issue and the ISPs' descriptions of how those services are provided. This will allow consumers to make meaningful comparisons of the offerings of competing providers and to know whether they are receiving the promised services.

The bundling of broadband Internet access with other services by many providers may raise special challenges regarding disclosure of material terms in the broadband Internet access area. In some instances, bundling may offer benefits to consumers and competition, but, in all instances, consumers must, of course, receive truthful and non-misleading disclosure of material information.[660] Prime examples of such bundling are the "triple play" packages offered by some telephone and cable television companies, in which broadband Internet access, telephone service, and video service are offered as a package with a single monthly price.[661] The practice of bundling can complicate the task

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[657] Center for Democracy & Technology, Public Comment 7, at 7.

[658] Kenney, Tr. II at 107.

[659] *See, e.g.*, NATHANIAL GOOD, ET AL., STOPPING SPYWARE AT THE GATE: A USER STUDY OF PRIVACY, NOTICE AND SPYWARE (2005), *available at* http://www.law.berkeley.edu/clinics/samuelson/papers/other/SamuelsonClinicSpyware.pdf.

[660] For a useful discussion on bundling see Patrick DeGraba, *The Loss Leader is a Turkey: Targeted Discounts from Multi-Product Competitors*, 24 INT'L J. INDUS. ORG. 613 (2006); Yannis Bakos & Erik Brynjolfsson, *Bundling and Competition on the Internet*, 19 MKTG. SCI. 63 (2000); and Yannis Bakos & Eric Brynjolfsson, *Bundling Information Goods: Pricing, Profits, and Efficiency*, 45 MGMT. SCI. 1613 (1999).

[661] Some providers have recently begun to offer "quadruple play" packages, which include mobile telephone services in addition to the other three services.

of comparing the price and quality of the bundled broadband access with the offerings of other providers. Additionally, bundled packages can increase the transactional costs to a consumer who decides to switch to another broadband provider that is offering service with better quality or at a better price.[662]

2. Unilateral Change of Contract

Some broadband providers offer consumers discounted prices for service contracts with durations of a year or more. Consumers who subscribe to such offerings are likely to expect a consistent level of service throughout the contract period, and, as noted above, the Commission and the courts have found that a unilateral change of contract can be an unfair practice.[663] This raises several important questions to consider as providers' practices change over time. What duties do providers owe to those customers in an industry as dynamic as the broadband industry? If a provider begins to differentiate traffic among various content and applications providers in the midst of such a contract, how will it notify and receive the consent of its subscriber to do so? If a subscriber does not consent to such a change, but the provider implements it anyway, might the change in service be considered an unfair unilateral change in contract if it materially affects the service that the subscriber receives?

3. Privacy and Data Security

A number of Workshop participants recognized the heightened privacy and data security concerns raised by the volume and sensitivity of the user information available to broadband providers.[664] The discussion and commentary on privacy and security concerns in the broadband industry has focused on two areas: (1) disclosure of privacy policies; and (2) data security. Further exploration of each area is justified. At the same time, it is worth noting that the FTC has used its full range of law enforcement authority to address privacy and data security concerns and will continue to do so, where appropriate, in the broadband arena.

An important privacy question raised in this and many other contexts is whether companies in practice live up to their privacy and security policies. For more than a decade, the Commission has encouraged companies to provide information about their privacy practices. At the same time, the Commission has taken the position that companies are obligated to provide the privacy and security protections they advertise and has brought approximately a dozen cases alleging that failure to comply with stated privacy and security practices is a deceptive practice in violation of Section 5 of the FTC

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[662] Kenney, Tr. II at 106.

[663] *See, e.g.*, Orkin Exterminating Co. v. FTC, 849 F.2d 1354, 1363-66 (11th Cir. 1988).

[664] *See* Pcha, Tr. I at 18-29; Kenney, Tr. II at 103, 129; Yokubaitis, Tr. II at 130-31.

Act.[665] We recommend that all companies, including broadband providers, closely review their privacy policies and actual practices to make sure that they are consistent.

Some privacy and security concerns, however, may be unique to the broadband industry. At the Workshop, a participant described a variety of techniques and commercially available tools that broadband providers can use to analyze data packet streams, including, most notably, flow classification and deep packet inspection.[666] Flow classification allows the provider to keep track of "things like packet size, and the time between packets, and stream duration."[667] Even if the packets are encrypted, such monitoring may allow a provider to harvest a significant amount of information about a user, including the kinds of applications the user is employing. Deep packet inspection allows the provider to identify not only the type of application being used, but also the content of the communication. Moreover, as the participant noted, a provider can cross-index the information it gets by monitoring a user's traffic with other information such as "billing information, or [the user's] credit card information."[668] While the participant focused on these tools as part of a discussion about how a provider can discriminate against or prioritize traffic, he also pointed out that these tools can be and are used to improve network security by identifying and protecting the network against viruses, spyware, and other dangers to the system.[669] Not surprisingly, some participants expressed concern that the use of deep packet inspection and other monitoring tools could impinge on user privacy and network security.[670]

The privacy and security implications of the practices of broadband Internet service providers warrant continued monitoring and review. The Commission recognizes that there is no one-size-fits-all data security plan. Rather, data security plans must be adapted to the size and nature of the business, the nature of the tools available, and the security risks the business is likely to face. Like other companies that have access to

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[665] *See, e.g.*, Gateway Learning Corp., FTC Dkt. No. C-4120 (Sept. 10, 2004), *available at* http://www.ftc.gov/os/caselist/0423047/040917do0423047.pdf; Petco Animal Supplies, Inc., FTC Dkt. No. C-4133 (Mar. 4, 2004), *available at* http://www.ftc.gov/os/caselist/0323221/050308do0323221.pdf; Microsoft Corp., FTC Dkt. No. C-4069 (Dec. 20, 2002), *available at* http://www.ftc.gov/os/caselist/0123240/microsoftdecision.pdf; FTC v. Toysmart.com, LLC, No. 00-11341-RGS (D. Mass. July 21, 2000), *available at* http://www.ftc.gov/os/2000/07/toysmartconsent.htm.

[666] Peha, Tr. I at 19. *See also supra* Chapter I.C.3.

[667] Peha, Tr. I at 19.

[668] *Id.*

[669] *Id.* at 21-22.

[670] *See, e.g.*, Kenney, Tr. II at 103; Yokubaitis, Tr. II at 130-31. As one participant noted, "the technology that broadband providers will use to facilitate tiering and network discrimination poses some substantial privacy issues." Kenney, Tr. II at 103. Another participant was even more pointed, noting in his written comments that, "deep packet inspection will yield and reveal some of the most personal and proprietary information customers have." Yokubaitis, Participant Presentation 1, at 5.

large amounts of sensitive personal data, broadband providers have a serious obligation to take reasonable steps to protect that data.

C. Additional Measures to Protect Consumers

As discussed above, it is not always a simple matter to apply the FTC Act's prohibitions against deceptive and unfair practices to broadband Internet access services. Moreover, both the telephone companies and the cable companies, which together provide the majority of broadband residential connections, have traditionally offered more highly regulated services. The move to a less regulated regime may require a significant conceptual shift for some in the industry to think about broad consumer protection standards that are applicable to broadband offerings. Commentators have proposed other measures – in addition to enforcement of the consumer protection laws – to ensure that the interests of consumers are adequately protected in this important industry. As discussed below, these measures include industry self-regulation and FTC guidance.

1. Self-Regulation by the Industry

One option for addressing consumer protection issues in the broadband industry is more active industry self-regulation. Self-regulation, for example, might take the form of voluntary industry-wide disclosure guidelines that would standardize the definitions of relevant terms and conditions of broadband access services to be disclosed to consumers.[671] A Workshop participant suggested that industry self-regulation could take the form of a dispute-resolution regime modeled along the lines of the Better Business Bureau's National Advertising Division and the National Advertising Review Board.[672] Such a mechanism could complement federal and state enforcement efforts by referring the most egregious or recalcitrant violators to law enforcement.

Although it has its limitations, as a general matter, the Commission applauds industry self-regulation. Self-regulation plans in several industries have protected and informed consumers and benefited honest businesses by taking action against competitors that use deceptive or unfair practices.[673] A more comprehensive approach to address the myriad consumer protection issues facing the industry, however, may be necessary. Moreover, any program of self-regulation is more effective when complemented by strong enforcement mechanisms.

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[671] *See, e.g.*, Bancroft, Public Comment 3, at 2.

[672] Weiser, Participant Presentation, at 9.

[673] *See* Deborah Platt Majoras, Chairman, FTC, Self Regulatory Organizations and the FTC, Address Before the Council of Better Business Bureaus (Apr. 11, 2005), *available at* http://www.ftc.gov/speeches/majoras/050411selfregorgs.pdf.

2. FTC Guidance Regarding Consumer Protection Issues

Some commentators have suggested that the FTC might effectively address some of the disclosure issues discussed above by developing guidance to industry regarding the critical information that broadband providers should disclose to their customers and potential customers.[674] With respect to disclosure, such standardized information could allow consumers to conduct a meaningful comparison of the available offerings of broadband providers. Such guidance could be combined with consumer education campaigns to help consumers understand what the information contained in such disclosures means.

FTC guidance may be useful should consumers encounter widespread difficulty obtaining or understanding material information about broadband offerings and service. In any case, we intend to continue to monitor industry practices, and, if appropriate, engage the industry in discussions of best practices. We note that the Commission already provides businesses with substantial information about how to provide non-deceptive disclosures to consumers. In particular, we recommend that broadband providers review the advice offered in the FTC's business education guide on "Dot Com Disclosures,"[675] which offers a comprehensive look at how to provide clear and conspicuous disclosure and focuses on adequate disclosure in online marketing.

Even more recently, the Commission published a business guide, "Protecting Personal Information: A Guide for Business."[676] This guide provides tips about basic practices all businesses should consider when it comes to protecting the privacy of their customers and the security of their data. The plain-language guide includes checklists to get businesses thinking about the kind of data they collect, whether they need it, how they manage and store it, and how to properly dispose of it. The guide also provides tips about the basics of creating a plan for dealing with a security breach, in the event one does occur. We recommend that broadband providers review the guide and consider its applicability. As in other industries, FTC guidance can complement enforcement of the consumer protection laws in the broadband Internet access industry.

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[674] Weiser, Participant Presentation, at 8.

[675] This guide is available at http://www.ftc.gov/bcp/conline/pubs/buspubs/dotcom/index.shtm.

[676] This guide is available at http://www.ftc.gov/infosecurity/.

IX. PROPOSALS REGARDING BROADBAND CONNECTIVITY

This Chapter discusses the various legal, regulatory, and other proposals relating to broadband Internet access that have been put forth to date. Section A reiterates briefly existing federal agency oversight in the broadband area and then explores various views on such oversight. Section B discusses more specifically the FCC's recent broadband policy statement and the conditions imposed by the FCC in approving several recent mergers. Section C summarizes the relevant legislation that Congress has proposed. Finally, Section D reviews some of the other proposals offered by various interested parties.

A. Existing Agency Oversight

The central competition and consumer protection issues raised by broadband Internet access services are subject to the shared jurisdiction of the FCC, FTC, and DOJ. As discussed in Chapter II of this Report, FCC jurisdiction comes chiefly from the Communications Act, which establishes the FCC and provides for the regulation of telecommunications and information entities, services, and facilities.[677] The FTC's jurisdiction over broadband access comes chiefly from its statutory mandate to prevent "unfair methods of competition" and "unfair or deceptive acts or practices in or affecting commerce" under the FTC Act.[678] The FTC's authority to enforce the antitrust laws generally is shared with DOJ's Antitrust Division.[679]

As discussed in Chapter II, recent judicial and regulatory decisions have helped clarify the status of broadband Internet access services as information services not subject to the Communications Act's common carrier requirements.[680] Even proponents of imposing (or reimposing) some common carrier-type obligations,[681] however, generally support FTC oversight of broadband Internet access, as do other network neutrality proponents, as well as net neutrality opponents. For example, one Workshop participant, recognizing FTC jurisdiction and the absence of common carrier regulation, advocated the importance of traditional competition law concerns and, at the same time, regulatory "language along the lines of the AT&T merger condition[s]."[682] Another participant,

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[677] 47 U.S.C. §§ 151 *et seq.* *See also supra* Chapter II.B (discussing FCC jurisdiction).

[678] 15 U.S.C. § 45(a)(1). *See also supra* Chapter II.A (discussing FTC jurisdiction).

[679] *See supra* note 154.

[680] *See supra* Chapter II.C.

[681] Under Title II common carrier regulation, broadband service providers would be required to, among other things, enable functional physical connections with competing carriers, 47 U.S.C. § 201(a), at "just and reasonable" rates, *id.* § 201(b), which the FCC would be empowered to prescribe, *id.* § 205, and would be prohibited from making "any unjust or unreasonable discrimination in charges, practices, classifications, regulations, facilities, or services. . . ." *Id.* § 202(a).

[682] Libertelli, Tr. I at 74, 79. Libertelli went on to distinguish between "net neutrality" and "251 or Title II-style non-discrimination requirements." *Id.* at 126. The AT&T/BellSouth merger conditions imposed by the FCC are discussed below in Chapter IX.B.

advocating further regulation, and apparently critical – as a policy matter but not a legal one – of the *Brand X* decision, argued that "[t]he FCC and FTC often have concurrent jurisdiction, and the public would be well served if that were the case here, as well."[683] Yet another participant, noting with caution that the FTC "has already testified twice before Congress, to oppose measures that would effectively extend the common carrier exemption to broadband," recognized FTC jurisdiction and the importance of the FTC's ability to protect the role of consumer information in competitive markets by enforcing existing FTC Act provisions.[684] Several participants were supportive of FTC jurisdiction, but opposed to further regulation, advocating, for example, a cautious, case-by-case application of current legal standards.[685]

Several participants highlighted the importance of FTC jurisdiction with regard to consumer protection concerns in particular.[686] One participant suggested that the classification of broadband services as information services provided not just FTC consumer protection authority, but, pursuant to that authority, an institutional capacity and experience in enforcing such provisions.[687] That participant argued that the FCC, in its enforcement of the Communications Act, has no substantial institutional history with consumer protection matters.[688] Another participant argued, similarly, for the importance of adequate consumer information and the authority, expertise, and experience of the FTC's "historical consumer protection mission," for enforcing consumer access to such information.[689] Yet another participant argued that, because transparency and disclosure

[683] G. Sohn, Tr. I at 102. Sohn, however, did not advocate a return to Title II regulation: "I don't know anybody who is talking about going back to Title II. . . . [T]hat is not what this debate is about." *Id.* at 125.

[684] *See* Putala, Tr. II at 32 (the FTC "has jurisdiction over broadband connectivity, and everyone should be aware and watch very closely"); *id.* at 32-33 (regarding FTC Act enforcement). *See also* Center for Democracy & Technology, Public Comment 7, at 7 ("The FTC could send an important signal to the marketplace by publicly reiterating that . . . it will be on alert for signs of unfair competition in the broadband marketplace and will not hesitate to take enforcement action."); BT Americas Inc., Public Comment 5, at 2 ("Until such time as effective competition emerges, the Federal Trade Commission should adopt a policy of enhanced antitrust oversight and enforcement to deter abuse of market power.").

[685] *See, e.g.*, Pepper, Tr. I at 81 (advocating enforcement of the FTC Act against concrete violations, but against further regulation); Muris, Tr. II at 121 ("[Competition law enforcement] plays an important but limited role to supplement the common law. It acts as a check on conduct that interferes with the proper functioning of the market, particularly collusion and fraud."); Wolf, Tr. II at 144, 149 (arguing for sufficiency of existing agency oversight and antitrust law framework and that there is "no current demonstrated need for the proposed legislation or regulation").

[686] *See, e.g.*, Weiser, Tr. II at 86-87; *cf.* Putala, Tr. II at 32-33 (citing FTC Commissioner Leibowitz on importance of transparency and disclosure).

[687] Weiser, Tr. II at 86-87. *See also id.* at 123 ("There are serious collective action problems for consumers, and also expertise issues for regular common law courts. The FTC has an opportunity here to basically be an advocate for consumers, and to take cases that consumers would not prosecute on their own . . . .").

[688] *Id.* at 86-87. That participant also questioned the jurisdictional authority of state public utility commissions in the area of broadband Internet access. *See id.* at 86, 123.

[689] Pepper, Tr. I at 91.

were among "the most critical issues regarding the Internet," FTC enforcement actions aimed at material failures to disclose were of central importance.[690]

Several Workshop participants recognized the importance of promoting and protecting competition in the area of broadband Internet access, and several participants linked these goals to the question of FTC jurisdiction explicitly, sometimes linking consumer protection and competition law questions. For example, one participant argued that the FTC has broad jurisdiction to protect consumers through enforcement of both the competition and consumer protection provisions of the FTC Act, as well as its research, education, and advocacy tools on behalf of consumers.[691] At the same time, the participant argued for the maintenance of the current regulatory structure, in tandem with market forces and common law remedies, and cautioned that regulators and lawmakers be wary of the costs of regulation, especially as they might arise from "prospective" regulation undertaken prior to evidence of significant market failure.[692] Another participant advocated that "the FTC should play a leadership role in protecting consumers and competition, by exercising its authority, experience, resources, and expertise, on a case-by-case basis."[693]

As noted above, the question of whether existing law and agency oversight are adequate to address problems that may arise in broadband Internet access is a contentious one. One participant expressed concern regarding the potential adequacy of antitrust enforcement and endorsed the passage of proposed network neutrality legislation.[694] Other participants and commentators also have questioned the adequacy of antitrust enforcement to address concerns identified by network neutrality proponents.[695] Other

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[690] Putala, Tr. II at 32-33 (material failures to disclose should be regarded as "unfair, deceptive, and in violation of the FTC Act").

[691] Muris, Tr. II at 119-20; *cf.* Weiser, Tr. II at 86 (FTC "can do a great service" bringing competition law tools to bear on broadband services, but that tractable "low hanging fruit" issues were more in the realm of consumer protection).

[692] Muris, Tr. II at 119-22; *see also* Sidak, Tr. I at 110 ("[I]t's important to try to separate the purely hypothetical harms . . . from the problems that have been observed and remedied . . . ."); Wolf, Tr. II at 149 ("asserted fears . . . are hypothetical at best"). Some commentators also expressed the general notion that "regulation should not be introduced absent a finding that there is pervasive otherwise anticompetitive conduct that cannot be addressed by the antitrust laws." American Bar Association Section of Antitrust Law, Public Comment 2, at 1.

[693] Pepper, Tr. I at 81 (advocating enforcement of the FTC Act against concrete violations, but against further regulation).

[694] *See* Misener, Tr. II at 140 (advocating passage of the "Dorgan-Snowe bill"); *cf.* Bachula, Tr. II at 172 ("relying on after the fact enforcement through the anti-trust laws is not a practical remedy for universities").

[695] *See, e.g.*, Farrell, Tr. I at 158-59 ("It's often been suggested . . . that because these problems are, in a broad sense, competition problems, you could address them ex post with anti-trust. . . . I am not convinced that anti-trust, as currently enforced, is going to do a good job on those potential problems."); Herman, *supra* note 267, at 139 ("Especially in the rapidly evolving market of online content and services, antitrust enforcement is far too slow a remedy for anticompetitive behavior to save embattled products. . . . If it is to

participants argued that additional legal force should be given to existing FCC policy statements or certain transaction-specific merger conditions.[696]

In contrast, several participants argued that existing law and oversight were adequate and that further regulation was bound to be costly.[697] One participant argued that federal and state agencies, as well as the private bar, "are all empowered right now and have tools at their disposal that may be used if there is indeed anti-competitive or unfair tactics engaged in by broadband providers."[698] He concluded that "existing law provides sufficient oversight . . . especially in light of the adverse unanticipated consequences of proposed new regulation."[699] Another participant insisted that antitrust law "can and must be sufficient to handle" concerns that have been raised about broadband access and blocking.[700]

B. FCC Policy Statement and Merger Conditions

Several Workshop participants highlighted the importance of the FCC's recently issued broadband access principles,[701] and several suggested that particular merger conditions imposed by the FCC ought to be regarded as a model for future broadband regulation.[702]

As noted in Chapter II of this Report, then-FCC Chairman Michael Powell challenged the industry, in a 2004 address, to preserve the following four central "Internet Freedoms":

(1) *The "Freedom to Access Content* . . . consumers should have access to their choice of legal content" (within "reasonable limits" imposed by legitimate network management needs);

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keep affected products from sliding into oblivion, any network neutrality regulation should go through the FCC.").

[696] *See, e.g.*, Libertelli, Tr. I at 79. The question of whether various FCC merger conditions or policy statements should serve as a model for future regulation is discussed in Section B of this Chapter, *infra*.

[697] *See, e.g.*, Muris, Tr. II at 122; *see also* Waz, Tr. II at 156-58.

[698] Wolf, Tr. II at 145; *see also* American Bar Association Section of Antitrust Law, Public Comment 2, at 1, 8.

[699] Wolf, Tr. II at 145; *see also* Small Business and Entrepreneurship Council, Public Comment 49, at 1 ("Such 'pre-regulation' without proof that anything harmful has been or will be done undoubtedly will have unintended consequences for the development of the Internet, and in turn for our nation's entrepreneurs.").

[700] Kahn, Tr. I at 190-91.

[701] *See, e.g.*, Pepper, Tr. I at 85.

[702] *See, e.g.*, Libertelli, Tr. I at 79; G. Sohn, Tr. I at 100.

(2) *The "Freedom to Use Applications* . . . consumers should be able to run the applications of their choice" (within service plan limits and provided the applications do not "harm the provider's network");
(3) *The "Freedom to Attach Personal Devices* . . . consumers should be permitted to attach any devices they choose to the connection in their homes" (within service plan limits, provided the devices do not "harm the provider's network or enable theft of service"); and
(4) *The "Freedom to Obtain Service Plan Information* . . . consumers should receive meaningful information regarding their service plans" (so that "broadband consumers can easily obtain the information they need to make rational choices.").[703]

Also discussed in Chapter II, an overlapping set of broadband connectivity principles were articulated by the FCC the next year in the Broadband Policy Statement that accompanied the Wireline Order. Those principles too were generally supportive of consumer access, as they recognized the importance of the following:

(1) The ability of consumers to "access the lawful Internet content of their choice";
(2) the ability of consumers to "run applications and use services of their choice, subject to the needs of law enforcement";
(3) the ability of consumers to "connect their choice of legal devices that do not harm the network"; and
(4) the existence of "competition among network providers, application and service providers, and content providers."[704]

Support for these principles has been broad,[705] indeed considerably broader than agreement on their implementation or sufficiency. First, there has been disagreement regarding the question of whether the principles should be codified, via regulation or statute.[706] This question is grounded in part in the belief – expressed by Workshop participants and other commentators – that the principles are not legally enforceable.[707]

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[703] *See supra* text accompanying notes 214-15 (regarding Remarks of Michael K. Powell, "Preserving Internet Freedom: Guiding Principles for the Industry").

[704] *See supra* text accompanying notes 216-17 (regarding FCC Broadband Policy Statement).

[705] *See, e.g.*, Pepper, Tr. I at 85 ("wide agreement that the connectivity principle should be followed"); Consumers for Cable Choice, Public Comment 10, at 2 ("The [FCC's] Broadband Policy Statement is an available and viable deterrent against unjustly discriminatory conduct."); National Association of Manufacturers, Public Comment 28, at 2 (opposing network neutrality regulation but stating: "[W]e embraced the 'four freedoms' later adopted by the [FCC] as official policy in 2005. The principles . . . are working.").

[706] *See, e.g.*, Pepper, Tr. I at 85 ("The debate is whether or not Congress should codify them . . . .").

[707] *See, e.g.*, Libertelli, Tr. I at 117 ("[W]e're talking about a policy statement; we're not necessarily talking about a binding rule of decision. And so, more work could be done to make those principles binding on the network owners."); Comstock House Testimony, *supra* note 265, at 23, 35.

Second, there has been disagreement regarding the question of whether the principles should be "a floor, or . . . a ceiling."[708] One participant favored "case-by-case enforcement of access principles," while arguing against codification of the principles and other significant additions to extant competition law, on the grounds that additional regulation was liable to suppress investment, and more generally, that the costs of additional regulation were likely to exceed its potential benefits.[709] As noted in the previous section, several participants echoed this concern about the costs of additional regulation more generally.[710] Others argued that "the four principles may be a good place to start," but that they represented "a necessary, but not sufficient, protection of openness on the Internet."[711] Yet another participant questioned why such principles should apply to network operators but not content and applications providers.[712]

While these abstract principles do not themselves specify the particulars of substantive regulatory implementation, FCC enforcement action in the *Madison River* matter[713] is instructive about the implications of the principles. In fact, *Madison River* has been used as a basis for: (1) arguments on behalf of additional regulation – on the basis that the underlying conduct in *Madison River* demonstrates very real market temptations to engage in harmful blocking that may warrant regulatory resolution;[714] (2) arguments against additional regulation – several participants observed that the underlying conduct alleged in *Madison River* appears to be rare, if not unique,[715] while

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[708] Ohlhausen, Tr. I at 115.

[709] *See* Pepper, Tr. I at 90-91.

[710] *See supra* text accompanying notes 697-99.

[711] Libertelli, Tr. I at 117; *accord* G. Sohn, Tr. I at 116 (regarding the need for, among other things, a fifth "non-discrimination" principle).

[712] *See* Sidak, Tr. I at 117-18.

[713] *In re* Madison River Communs., LLC, 20 FCC Rcd 4295, 4297 (2005). See *supra* notes 217 and 233 for additional information regarding this matter.

[714] Various proponents of net neutrality have cited the matter as illustrating the threat to access that would be posed by market pressures in favor of discrimination, absent their favored regulations. *See, e.g.*, William D. Rahm, *Watching Over the Web: A Substantive Equality Regime for Broadband Applications*, 24 YALE J. ON REG. 1, 2, 6 (2007) (stating that "[t]hose who say the Internet has no gatekeeper have never heard of the Madison River case" and arguing for a "substantive equality" regime for broadband access).

[715] *See, e.g.*, Pepper, Tr. I at 89-90 ("|T|o date there has only been one case of anti-competitive conduct . . . that has been brought to the FCC. And this . . . was the Madison River case, which was quickly remedied by the Commission . . . ."); Kahn, Tr. I at 186 ("[T]he only case I know that has been cited as an argument for some sort of regulatory intervention is the one – the Madison River case."); Sidak, Tr. I at 104 ("The one instance in which [blocking content] occurred has been a rural telephone company, and that is not a set of facts from which we can extrapolate to the behavior that would be followed by network operators supplying service to the vast majority of Americans."); *see also* Verizon Communications Inc., Public Comment 60, at iii ("This isolated episode of a single rural company's action is a slim reed on which to base the monolith of broadband regulation.").

others observed that the conduct at issue was conspicuous and easily disciplined under existing authority;[716] (3) intermediate positions;[717] and (4) a suggestion that the alleged discrimination in that case was in fact the by-product of overly restrictive regulation.[718]

Participants in the broadband policy debate also have regarded FTC and FCC merger conditions – in particular, those attached to the AOL/Time Warner and the AT&T/BellSouth mergers – as significant. As discussed in Chapter II, the FTC challenged the proposed merger between AOL and Time Warner and entered into a consent order that required the merged entity to, among other things, open its cable system to competitor Internet service providers, including those offering broadband services, on a non-discriminatory basis, for all content.[719] The order also prevented the company from interfering with the content of non-affiliated ISPs.[720] Following the FTC's review, the FCC added conditions that would have pertained to AOL advanced instant-messaging ("IM") services, if AOL had developed them.[721]

As with the AOL/Time Warner merger, the parties to the AT&T/BellSouth merger entered into a voluntary, enforceable agreement regarding the terms of the merger and certain post-merger conduct.[722] These included, among other things, certain interconnectivity and related pricing conditions. Moreover, the agreement contains an express commitment to follow the four principles articulated in the FCC's Broadband Policy Statement, for a period of thirty months following the merger closing date.[723] In addition, the combined company committed to maintaining a "neutral network"; that is,

> not to provide or sell to Internet content, applications, or service providers, including those affiliated with AT&T/BellSouth, any service that privileges, degrades, or prioritizes any packet transmitted over

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[716] *See, e.g.*, Kahn, Tr. I at 186 ("[A] more obvious case of an abuse of a vertical position I cannot imagine. And of course, it was properly treated, pre-emptorially, both in the United States and Canada."); Pepper, Tr. I at 89-90 ("[T]he Madison River case . . . was quickly remedied by the Commission . . . .").

[717] *See, e.g.*, Farrell, Tr. I at 156-60 (calling Madison River "arguably" a case of leveraging, and advocating "real" and "substantial" reasons for concern, but caution in seeking a "middle ground").

[718] *See* Ford, Tr. II at 235-36.

[719] Am. Online, Inc. & Time Warner, Inc., FTC Dkt. No. C-3989 (Apr. 17, 2001) (consent order), *available at* http://www.ftc.gov/os/2001/04/aoltwdo.pdf.

[720] *Id.*

[721] *In re* Applications for Consent to the Transfer of Control of Licenses & Section 214 Authorizations by Time Warner Inc. & Am. Online, Inc., Transferors, to AOL Time Warner Inc., Transferee, 18 FCC Rcd 20595 (2001) (memorandum opinion and order).

[722] *In re* AT&T Inc. & BellSouth Corp., Application for Transfer of Control, 22 FCC Rcd 5662 (2007) (memorandum opinion and order).

[723] Where not otherwise specified, the conditions of the merger were to hold for a period of 42 months following the merger closing date.

AT&T/BellSouth's wireline broadband Internet access services based on its source, ownership, or destination.[724]

As with the FCC broadband principles discussed above, commentators have cited these merger conditions for varied, if not contrary, propositions. One Workshop participant suggested that regulators adopt "language along the lines of the AT&T merger condition[s]."[725] Another participant recommended that the AT&T merger conditions represented a tractable definition of network neutrality, and a "good place to start" in discussing non-discrimination policy.[726] Not all have been as supportive of these conditions. Another participant argued that they would work to "prohibit pro-competitive, pro-consumer [improvements] in quality of service and prioritization . . . ."[727] Two FCC Commissioners generally approving of the merger – including Chairman Martin – suggested that certain conditions were "unnecessary and may actually deter broadband infrastructure investment."[728] In particular, their joint statement suggested that, "[t]he conditions regarding net-neutrality have very little to do with the merger at hand and very well may cause greater problems than the speculative problems they seek to address."[729]

C. Legislative Proposals

During the 109th Congress, telecommunications reform was a high priority and the focus of numerous congressional hearings in both the House and the Senate.[730] At many of those hearings, network neutrality played a significant role in the debate on the shape of telecommunications reform. The debate over the inclusion and nature of net neutrality provisions appears to have ultimately prevented comprehensive telecom reform

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[724] *See AT&T Inc. & BellSouth Corp.*, 22 FCC Rcd at app. F.

[725] Libertelli, Tr. I at 78-79.

[726] G. Sohn, Tr. I at 100, 127-28.

[727] Pepper, Tr. I at 121.

[728] *AT&T Inc. & BellSouth Corp.*, 22 FCC Rcd at 5826 (Chairman Martin & Comm'r Tate, concurring).

[729] *Id.*

[730] Telecommunications reform was the subject of over twenty hearings in the Senate Commerce, Science, and Transportation Committee (*see* S. REP. 109-355, at 4 (2006)) and six in the House Committee on Energy and Commerce (*see* H.R. REP. 109-470, at 6-8 (2006)) in 2006.

from being enacted in the last Congress.[731] At least eight legislative proposals addressing net neutrality were introduced in the House and Senate.[732]

The House of Representatives was the first to pass comprehensive telecom legislation and sent H.R. 5252, the "Communications, Opportunity, Promotion and Enhancement Act (COPE Act)," to the Senate.[733] H.R. 5252 was amended in the Senate Commerce, Science, and Transportation Committee and then forwarded to the full Senate, where its consideration was blocked by Senators who insisted that the legislation include network neutrality provisions.[734]

The change in party control in the 110th Congress has resulted in two advocates for net neutrality principles becoming Chairmen of the House and Senate committees with primary jurisdiction over telecommunications. In the House of Representatives, Rep. Ed Markey (D-MA), the sponsor of a net neutrality measure during the previous Congress, is now Chairman of the House Energy and Commerce Subcommittee on Telecommunications and the Internet.[735] To date, this Committee has not introduced net neutrality legislation.

In the Senate, Senator Byron Dorgan (D-ND) is now Chairman of the Senate Commerce, Science, and Transportation Subcommittee on Interstate Commerce, Trade,

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[731] *See, e.g.*, Press Release, Office of Sen. Ron Wyden, Wyden Blocks Telecom Legislation Over Ineffective Net Neutrality Provision (June 28, 2006), *available at* http://wyden.senate.gov/media/2006/06282006_net_neutrality_holds_release.html.

[732] Of the bills introduced in the 109th Congress, one (S. 2917) would have amended the Communications Act of 1934 to establish certain net neutrality duties for broadband ISPs. A second bill (H.R. 5417) would have amended the Clayton Act to make certain non-neutral practices illegal. Five other bills (H.R. 5252, H.R. 5273, S. 2360, S. 2113, and S. 1504) would have given the FCC authority to enforce various types of neutrality rules. The eighth bill (S. 2686) would have required the FCC to report on developments regarding Internet access.

[733] H.R. 5252, sponsored by Rep. Joe Barton (R-TX), was passed on June 8, 2006, by a vote of 321-101. The bill would have given the FCC explicit authority to enforce its 2005 Broadband Policy Statement; authorized a maximum penalty of $500,000 for each violation of such statement, with the FCC having exclusive authority to adjudicate complaints; and required a study from the FCC on whether the objectives of the policy statement and principles were being achieved.

[734] The Senate Commerce, Science, and Transportation Committee held a three-day markup where a net neutrality amendment offered by Senators Dorgan and Snowe failed by one vote. H.R. 5252, as amended by the Senate Commerce Committee, included an "Internet Consumer Bill of Rights" that would, among other things: require that ISPs allow subscribers choice to access and post lawful content, and to access any Web page, application, software, and search engine; allow subscribers to connect any legal device that does not harm any ISP's network; allow subscribers to receive clear and conspicuous notice on price, speed, capabilities, and limitations of any Internet service offered to the public; require that ISPs offer stand-alone Internet service to their subscribers; authorize the FCC to impose fines of $500,000 per violation; and prohibit the FCC from promulgating any regulations beyond those specifically provided in the bill.

[735] Rep. Markey introduced H.R. 5273, the "Network Neutrality Act of 2006," which would have imposed certain non-discrimination and disclosure duties on broadband ISPs. The bill also would have required the FCC to create a complaint resolution system for addressing alleged violations of such duties.

and Tourism.[736] Senator Dorgan, along with Senator Olympia Snowe (R-ME), has introduced S. 215, the "Internet Freedom Preservation Act," which would amend the Communications Act of 1934 to establish certain Internet neutrality duties for broadband ISPs, including not interfering with or discriminating against the ability of any person to use broadband service in a lawful manner. The bill would allow ISPs to engage in certain activities to protect network security and to offer consumer protection services, such as parental controls on accessing content. At the same time, ISPs would be prohibited from requiring a subscriber to purchase a bundle of services as a condition on the purchase of broadband Internet access service. Additionally, the FCC would be required to give a report to specified congressional committees on ISPs' delivery of broadband content, applications, and services. The bill has been referred to the Senate Commerce Committee.[737]

D. Other Proposals Relating to Broadband Connectivity

In addition to the regulatory and legislative proposals discussed above in Sections A-C, various interested parties have developed both general principles and specific proposals relating to broadband connectivity. Following is a brief discussion of some of these proposals.

USC Annenberg Center. The University of Southern California Annenberg Center has articulated five "Principles for Network Neutrality."[738] First, network operators and customers "both should win." Network operators should be able to benefit from their investments, thereby encouraging infrastructure deployment. Customers should have the option of unrestricted access to the "global public Internet." Second, any regulation should be defined and administered "on a nationally uniform basis with a light touch." Any such regulation should be aimed primarily at markets where network operators have significant market power and should emphasize "prompt enforcement of general principles of competition policy, not detailed regulation of conduct in telecommunications markets." Third, network operators should provide a "Basic Access Broadband" service that offers a meaningful, neutral Internet connection. Beyond this basic service, network operators should be free to determine all service parameters, including performance, price, and prioritization of third-party data traffic. Fourth,

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[736] In the Senate, the Commerce, Science, and Transportation Committee has primary jurisdiction over telecommunications issues, but there is no longer a telecommunications subcommittee. At the start of the 109th Congress, then-Chairman Ted Stevens (R-AK) ended the telecommunications subcommittee and moved jurisdiction over telecommunications to the full committee.

[737] S. 215 is identical to S. 2917, legislation introduced in the 109th Congress by Senators Snowe and Dorgan. *See also* Sens. Byron L. Dorgan & Olympia J. Snowe, Public Comment 14 (advocating need for network neutrality legislation, as well as FTC involvement in area of broadband Internet access).

[738] USC Annenberg Center, *supra* note 252. *See also* Wilkie, Tr. I at 169-70 (discussing the creation of these principles). According to Wilkie, these principles modify the FCC's "four Internet freedoms to say that, rather than enforcing non-discrimination, that, essentially, the gist of the proposal is that consumers should have the choice of a net neutral package being offered to them. That is, we should establish a floor, a baseline level." *Id.*

customers should be provided with clear, understandable terms and conditions of service that explain how any network operator, ISP, or content provider will use their personal information and prioritize or otherwise control content that reaches them. Fifth, government policy should encourage competitive entry and technological innovation in broadband access markets to help achieve effective network competition and make high-speed Internet access available to the largest number of customers.

Telecommunications Industry Association. The Telecommunications Industry Association ("TIA") has proposed a series of "Broadband Internet Access Connectivity Principles."[739] In their view, consumers should receive meaningful information regarding their broadband Internet access service plans. Broadband consumers should have access to their choice of legal Internet content within the bandwidth limits and quality of service specified in their service plans. They should be able to run applications of their choice, within the bandwidth limits and quality of service of their plans, as long as they do not harm the provider's network. Also, consumers should be permitted to attach any devices to their broadband Internet access connection, provided they operate within the bandwidth limits and quality of service of their service plans and do not harm the network or enable the theft of services.

The TIA principles further provide that broadband providers should remain free to engage in procompetitive network management techniques to alleviate congestion, ameliorate capacity constraints, and enable new services, consistent with the technical characteristics and requirements of the particular broadband platform. Broadband providers should remain free to offer additional services to supplement broadband Internet access, including speed tiers, quality-of-service tiers, security and spam services, and network management services, and should be free to enter into commercially negotiated agreements with unaffiliated parties for the provision of such additional services. In turn, network operators should be able to continue to optimize network efficiency, enable new services, and create incentives for continued buildout to meet increasing capacity demands. Also, broadband providers should remain free to innovate in the deployment of managed services, such as packaged video programming, which utilize the same networks but are distinct from public Internet access services.

Public Knowledge. Public Knowledge has outlined a set of five "Principles for an Open Broadband Future."[740] First, broadband networks must be open to competition from any entity, including municipalities. Specifically, every consumer should be able to choose among multiple, competing broadband networks, services, applications, and content providers, including municipalities. Also, government policies should be technology-neutral and should forbear from regulating broadband networks except where necessary to promote competition. Second, broadband networks must be open to the

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[739] TELECOMMS. INDUS. ASS'N, BROADBAND INTERNET ACCESS CONNECTIVITY PRINCIPLES (2006), *available at* http://www.tiaonline.org/policy/publications/white_papers/documents/TIABroadbandInternetAccessConnectivityPrinciples.pdf. *See also* TIA, Public Comment 56.

[740] PUBLIC KNOWLEDGE, *supra* note 280.

attachment of any equipment the user chooses, as long as it does not harm the technical operation of the broadband network. Third, such networks must be open and accessible to consumers, applications developers, information service providers, and other networks, without restrictions or degradation, except for law enforcement or network management purposes. As corollaries, consumers have the right to access information and ideas from a diversity of sources and the right to disseminate their own ideas to the public in any manner they desire. Likewise, every broadband network should be able to interconnect with every other broadband network. Fourth, broadband networks should be open to the maximally efficient number of licensed and unlicensed wireless providers. Thus, to the maximum extent possible, spectrum should be allocated so as to promote private commercial and non-commercial uses. Similarly, to the maximum extent possible, spectrum licensees should be given flexible use of their spectrum to offer new services in response to consumer demand. In addition, unlicensed services should have the benefit of a presumption that they be authorized in any spectrum band as long as they do not cause interference with existing licensees. Fifth, broadband networks must be open, available, and affordable to all consumers, regardless of income, race, geographic location, or disability.

Center for Democracy and Technology. The Center for Democracy and Technology ("CDT") has submitted principles that call for any legislation in this area to preserve at least four "essential elements" that are perceived by CDT to currently characterize the Internet, including: (1) non-discriminatory routing without regard to the identities of senders and receivers, the content of packets, the services accessed, or the providers of such content or services; (2) the ability to create and use new content, applications, protocols, and devices without negotiating or even consulting with network operators; (3) the ability to connect to the Internet at different speeds and service levels, as chosen by end users; and (4) the interconnection of networks on an open basis, in the sense that no network operator may be denied the opportunity to interconnect.[741]

CDT has stated that such legislation generally should not prohibit the use of caching services, the blocking or filtering of harmful or illegal content, or notice-and-takedown procedures or other cooperative actions aimed at identifying and removing pirated material. Also, it should not preclude the prioritization of data packets based on traffic type, as long as such services are equally available for similar types of content and any charges are assessed to end users, not content and applications providers. Such legislation, however, should not entail full common carriage obligations or price regulation and should not apply to video or other so-called "non-Internet" networks, such as virtual private networks.[742]

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[741] CENTER FOR DEMOCRACY & TECHNOLOGY, *supra* note 419. *See also* Center for Democracy & Technology, Public Comment 7; D. Sohn, Tr. II at 223-31.

[742] According to David Sohn, Staff Counsel for the Center for Democracy and Technology, "[i]f you look at the AT&T merger commitment, it takes exactly this kind of approach, it excludes enterprise managed IP services. It excludes IP television services." D. Sohn, Tr. II at 230. In his view:

CDT has suggested that these principles be further refined and enacted into legislation that would be enforced by the FCC or FTC using a streamlined complaint process. In CDT's view, the mere advancement of generic principles and case-by-case adjudication without a broader legislative framework would allow too much discretion at the agency level. CDT also has suggested that legislation might bar any non-complying service from being marketed using the terms "Internet," "broadband," or other similar language.

Atkinson and Weiser. Robert D. Atkinson and Professor Philip J. Weiser have proposed a "Third Way" between what they view as overly aggressive network neutrality legislation that may inhibit new quality-of-service offerings and other bills that do not provide sufficient mechanisms for dealing with potential harms.[743] First, these commentators suggest Congress should require broadband providers to state clearly their bandwidth levels, latency, and any limitations on users' ability to access certain content or applications. They suggest that the FCC be charged with monitoring compliance with these requirements under a framework mirroring the FTC's approach to Internet privacy. Further, any firm selling "broadband Internet access" would be required to make available to users a basic level of open, unmanaged, best-efforts access to the broader Internet. Such access would be expected to increase in speed along with general improvements in the delivery of Internet services. Network operators with market power not meeting this FCC-defined parameter would be prohibited from describing their service as "broadband."[744]

Second, Atkinson and Weiser advocate charging the FCC with responsibility for monitoring the use of discriminatory access arrangements to ensure they are not anticompetitive. The FCC would take an "antitrust-like" approach to enforcement and would manage all proceedings on an expedited basis using a case-by-case adjudicative model, rather than a broad, before-the-fact legislative approach. Under this model, the FCC should use Chairman Powell's 2004 "Internet Freedoms" as a starting point for enforcement. All quality-of-service arrangements would have to be offered on a universal basis, unless a network operator could demonstrate a legitimate business

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> To use an analogy, I've sometimes heard in these debates people talk about the Postal Service and premium delivery services. Yes, by all means, a premium delivery service like FedEx should be allowed to exist. You shouldn't regulate that out of existence.
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> At the same time, there may be a very important policy objective of maintaining ordinary Postal Service delivery at an acceptable level of service. That, I think, is really what the goal ought to be here, to keep this neutral open Internet at an acceptable level of service, to keep that in existence even as experimentation with other networks and private networks, as discussed in the previous panel, even if that kind of experimentation proceeds.

Id. at 226.

[743] Atkinson & Weiser, *supra* note 255, at 47.

[744] *Id.* at 55-56.

justification for offering such a service on a limited or exclusive basis. As in antitrust enforcement, the FCC could determine certain practices to be per se illegal, while evaluating other practices under a rule-of-reason approach. Alternatively, if Congress determines that imposing antitrust-style enforcement on the FCC is not practical, it could assign this function to the FTC.[745]

Third, Atkinson and Weiser suggest that Congress should provide investment incentives for additional broadband deployment because, in their view, broadband networks create positive externalities that generate economic and social benefits beyond those captured by a network operator itself. They suggest, therefore, that companies investing in broadband networks be allowed to expense new investments in the first year, instead of depreciating them over fifteen years. Additionally, the moratorium on federal, state, and local broadband taxes should be extended, but made contingent upon network operators providing a basic level of open, unmanaged, best-efforts access to the broader Internet, as described above.[746]

COMPTEL. COMPTEL has recommended several changes to existing antitrust law.[747] First, this group suggests that Congress consider enacting a limited exception to the *Illinois Brick*[748] line of precedent to grant standing for indirect-purchaser private litigants bringing cases against formerly regulated "dominant" firms. Second, COMPTEL suggests that Congress introduce legislation clarifying that dominant carriers for which the FCC has eliminated common carrier regulatory status no longer enjoy liability limitations based on the "filed rate doctrine," to the extent that this doctrine presumes lawfully filed tariffs to be reasonable. Rather, if de-regulated monopoly carriers are engaging in anticompetitive conduct that forecloses entry, unlawfully restricts output, or otherwise leads to supracompetitive pricing as a result of antitrust violations, then the damages – which are subject to trebling – must be based on the difference between the supracompetitive rate and the competitive rate the carrier has foreclosed. Third, the *Trinko*[749] precedent, which, in their view, tolerates aggressive exclusionary behavior, must be repudiated.

Peha. Professor Jon M. Peha has suggested a "balanced policy" that would allow the beneficial use of discrimination, while limiting harmful uses of discrimination if and only if the broadband market is not "highly competitive."[750] In his view, network

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[745] *Id.* at 56-58.

[746] *Id.* at 58-59.

[747] Comstock House Testimony, *supra* note 265, at 36-37.

[748] *See* Ill. Brick Co. v. Illinois, 431 U.S. 720 (1977) (holding that, with certain limited exceptions, only direct purchasers may recover overcharges in private antitrust actions under the Clayton Act).

[749] *See* Verizon Communs., Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398 (2004) (holding that plaintiff's complaint that Verizon breached a duty to share its network with competitors did not state a monopolization claim under Section 2 of the Sherman Act).

[750] Peha, *supra* note 36, at 17-18.

operators should be able to charge senders of data, recipients, or both, for services, thus allowing for two-sided market transactions. Network operators also should be allowed to provide different quality-of-service levels for different classes of traffic and to offer proprietary content and unique services to users, provided that they do not favor their own content and services over those of others.

Unless the broadband market is highly competitive, however, a network could not charge more for one data stream than another if the latter requires at least as many resources as the former. For example, a network operator could not charge more for a steady 50 Kbps VoIP data stream than it does for a steady 50 Kbps gaming application where the quality-of-service requirements are the same for both streams. A network would be prohibited from charging one user, whether a sender or a receiver, a price higher than that charged to another user for a comparable type of service, unless the operator could present a justification based on a cost difference. Similarly, a network could not offer content or services directly through an affiliate at a data rate or quality-of-service level that is not available to competitors at a comparable price. Likewise, a network could not make services available to itself or affiliates, but not to competitors. In addition, a network could not charge a higher price (or offer a lower quality of service) for data traffic that competes with a legacy, circuit-switched service than it charges for comparable traffic that does not compete with a legacy service.

Under this framework, networks should be allowed to block Internet traffic that they reasonably believe poses a threat to security, including traffic originating from an attached device that is reasonably believed to be harmful to the network or its users. But they could not block specific content or applications, absent a reasonable belief that the relevant data traffic presents a security threat. A network operator also could not block traffic from a properly functioning device while carrying traffic from other devices known to be technically equivalent. An operator could not degrade traffic based solely on the nature of the content or application.

Internet2. The Internet2 consortium has suggested that the best solution to the Internet connectivity debate is to upgrade network infrastructures to the point where they no longer suffer from capacity constraints or data congestion.[751] The model for this proposal is the not-for-profit 100-1,000 Mbps Internet2 network that connects 208 universities, 70 companies, and 51 affiliated organizations. This group wants to set a national goal for deploying 100 Mbps bandwidth connections (with symmetric speeds for uploading and downloading) to every home, business, and school in the country in five years and 1,000 Mbps connections in ten years. They suggest that the costs of deploying such high-speed lines, or upgrading existing ones, would be relatively low – once fiber wirelines are laid. In their view, the widespread deployment of such advanced, high-speed Internet services would obviate the need for any kind of prioritized data transmission.[752] In addition, they suggest that the FTC, the FCC, or both should issue

[751] *See* Bachula, Tr. II at 164-73.

[752] Bachula Senate Testimony, *supra* note 253. According to Internet2, once basic wiring is in place, it costs about $150 per end user to upgrade to a 100 Mbps connection, or $30 per user over a five-year period.

specific and enforceable guidelines that would require the maintenance of "open and non-discriminatory networks."[753]

DPS Project. The Dynamic Platform Standards Project for Real Network Neutrality ("DPS Project") has suggested a disclosure and definitional approach to the issue of Internet connectivity.[754] DPS Project proposes legislation that would define "Internet access" to mean the transmission of data packets across networks under the TCP/IP protocol suite in a way that is "agnostic" to the nature, source, or destination of any packet. Network operators advertising the provision of "Internet" service would have to provide such service in conformance with the above definition, regardless of whether other additional, non-conforming services are also provided along with that service. Additional, special features that analyze or identify particular applications could not be described as "Internet" services. Under the proposed legislation, any violation of such rules would be treated as a violation of the FTC Act's prohibition of unfair or deceptive acts or practices.

Sidak. Professor J. Gregory Sidak has proposed that network operators have at least six "fundamental rights" that should be protected.[755] First, a network operator should be allowed to innovate on its network. Second, network operators unilaterally should be able to price the use of their networks in any way that does not violate antitrust law. Third, a network operator should be able to refuse to carry content or applications that present a legitimate risk to the security or performance of its network or to attached devices. Fourth, network operators should be allowed to prioritize the delivery of data packets on their networks. Fifth, they should be able to reserve capacity on their networks. Sixth, network operators should be able to use capacity on their networks to vertically integrate into the provision of content or applications.

By their estimates, it would cost about $250 to upgrade to a 1,000 Mbps connection. *Id.* at 4. *See also* Thorne, Participant Presentation, at 1 (identifying Verizon Communications capital expenditures of approximately $45 billion during the 2004-06 period); T. Randolph Beard et al., *supra* note 283, at 430 (estimating the cost of fiber-optic wireline deployment in a metropolitan area at approximately $3 million per mile).

[753] Bachula, Tr. II at 172.

[754] *See* DYNAMIC PLATFORM STANDARDS PROJECT FOR REAL NETWORK NEUTRALITY, LEGISLATIVE PROPOSAL: THE INTERNET PLATFORM FOR INNOVATION, http://www.dpsproject.com/legislation.html (last visited June 7, 2007); Dynamic Platform Standards Project, Public Comment 15.

[755] *See* Sidak, *supra* note 287, at 373-85.

Felten. Finally, Professor Edward W. Felten and other commentators have suggested that taking a wait-and-see approach to the future development of the Internet might be the best option. In this view, there is not yet any simple policy solution that will not entail difficult line-drawing exercises or potentially create unintended consequences. Believing that "time is on our side," however, a cautious, incremental approach is seen as a potential best solution.[756]

[756] In Felten's view:

> Readers looking here for a simple policy prescription will be disappointed. The network neutrality issue is more complex and subtle than most of the advocates on either side would have you believe. Net neutrality advocates are right to worry that ISPs can discriminate – and have the means and motive to do so – in ways that might be difficult to stop. Opponents are right to say that enforcing neutrality rules may be difficult and error-prone. Both sides are right to say that making the wrong decision can lead to unintended side-effects and hamper the Internet's development.
>
> There is a good policy argument in favor of doing nothing and letting the situation develop further. The present situation, with the network neutrality issue on the table in Washington but no rules yet adopted, is in many ways ideal. ISPs, knowing that discriminating now would make regulation seem more necessary, are on their best behavior; and with no rules yet adopted we don't have to face the difficult issues of line-drawing and enforcement. Enacting strong regulation now would risk side-effects, and passing toothless regulation now would remove the threat of litigation. If it is possible to maintain the threat of regulation while leaving the issue unresolved, time will teach us more about what regulation, if any, is needed.

Felten, *supra* note 36, at 11-12.

X. SUGGESTED GUIDING PRINCIPLES

The FTC's statutory mission is to protect competition and consumers by safeguarding and encouraging the proper operation of the free market. The Federal Trade Commission's Internet Access Task Force has conducted a broad examination of the technical, legal, and economic issues underpinning the debate surrounding broadband connectivity competition policy. Based on this examination, as well as our experience with the operation of myriad markets throughout the economy, we identify guiding principles that policy makers should consider in evaluating options in the area of broadband Internet access. We have provided an explanation of the conduct that the antitrust and consumer protection laws already proscribe and a framework for analyzing which conduct may foster or impede competition in particular circumstances. In evaluating whether new proscriptions are necessary, we advise proceeding with caution before enacting broad, *ex ante* restrictions in an unsettled, dynamic environment.

Section A of this Chapter discusses the promotion of competition in broadband Internet access services. Although there is disagreement as to the competitiveness of the broadband industry, both proponents and opponents of network neutrality regulation agree that more competition in this industry would benefit consumers. In Section B, we suggest that policy makers proceed with caution in evaluating calls for network neutrality regulation, based on the indeterminate effects on consumer welfare of potential conduct by broadband providers and concerns with regulation in the area of broadband Internet access. No regulation, however well-intended, is cost-free, and it may be particularly difficult to avoid unintended consequences here, where the conduct at which regulation would be directed largely has not yet occurred. In Section C, we reiterate the important role that continued federal agency oversight will have in this area. The FTC, for its part, will continue to devote substantial resources to law enforcement, consumer education, industry guidance, and competition advocacy in the important area of Internet access.

A. Competition in Broadband Internet Access Services

Over time, competition produces the best results for consumers, providing them the lowest prices, the highest-quality products and services, and the most choices. Competition forces firms to lower their costs and prices and to improve quality, service, convenience, and other attributes that consumers value. Competition induces firms to produce the types and amounts of goods and services desired by consumers. Our free-market system fosters innovation, creativity, and entrepreneurship that are unmatched around the world.

While there is disagreement over the competitiveness of the broadband Internet access industry, there is evidence that it is moving in the right direction.[757] Specifically, there is evidence at least on a national scale that: (1) consumer demand for broadband is growing quickly; (2) access speeds are increasing; (3) prices (particularly speed-adjusted or quality-adjusted prices) are falling; and (4) new entrants, deploying Wi-Fi, Wi MAX,

[757] *See supra* Chapter VI.B.

and other broadband technologies, are poised to challenge the incumbent cable and telephone companies. Although this is merely a high-level snapshot of a dynamic, evolving marketplace, such evidence challenges the claims by many proponents of network neutrality regulation that the broadband Internet access market is a cable-telephone duopoly that will exist for the foreseeable future and that the two primary broadband platforms do not compete meaningfully.

We nonetheless recognize that what appear to be positive national trends do not necessarily signify vigorous competition in every local broadband market in the United States. In rural markets, in particular, consumers may have relatively limited options for obtaining broadband Internet access. This Report and the findings herein do not reflect a case-by-case analysis of the state of competition in each of the localities that may represent relevant markets under the antitrust laws.

In any case, there appears to be substantial agreement on the part of both proponents and opponents of network neutrality regulation that more competition in the broadband Internet access area would benefit consumers. Thus, to the extent that policy makers are not content to wait for the market to increase competition, they should consider various ways of increasing competition in the provision of broadband Internet access. For example, several commentators have urged government action to make more spectrum available or its use more efficient.[758] Others have identified reform of local franchising rules as a potential means of increasing competition.[759] Some have suggested municipal provision of broadband Internet access as a means of introducing more competitors.[760] Still others have proposed revisions to the federal tax laws to promote investment in the infrastructure necessary for broadband Internet access, including access at speeds considerably higher than those generally available today.[761] While we take no position on these particular proposals, policy makers should consider pursuing ways to increase competition in the broadband Internet access area. To the extent that calls for regulation are based on concerns that competition is not sufficiently vigorous to protect consumers' interests, then pursuing ways to increase that competition would seem to attack the potential problem directly at its source.

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[758] *See supra* Chapter VI.D.

[759] *See supra* Chapter VI.B.

[760] *See supra* Chapter VI.C. Government provision of Internet access can raise competitive concerns, however. As FTC Staff explained in its recent report, *Municipal Provision of Wireless Internet Access*, the benefits to consumers of municipal involvement in wireless Internet access may vary depending on a municipality's particular factual circumstances. Accordingly, that report provides an analytical framework for policy makers considering the question of whether, and to what extent, a municipality should involve itself in the provision of wireless Internet access. *See* FTC STAFF, *supra* note 499.

[761] *See supra* Chapter IX.D.

B. Grounds for Proceeding with Caution

To date, the primary policy proposals in the area of broadband Internet access include imposing some form of network neutrality regulation. In evaluating such proposals, we recommend proceeding very cautiously.

1. Indeterminate Consumer Welfare Effects of Potential Conduct by Broadband Providers

Policy makers should be wary of calls for network neutrality regulation simply because we do not know what the net effects of potential conduct by broadband providers will be on consumers, including, among other things, the prices that consumers may pay for Internet access, the quality of Internet access and other services that will be offered, and the choices of content and applications that may be available to consumers in the marketplace. Similarly, we do not know what net effects regulation to proscribe such conduct would have on consumers. This is the inherent difficulty in regulating based on concerns about conduct that has not occurred, especially in a dynamic marketplace.

Some proponents of network neutrality regulation have argued that vertically integrated broadband providers possessing market power in the provision of last-mile Internet access could leverage that power in ways ultimately harmful to consumers. For example, such providers could block competing services as the provider in the *Madison River*[762] matter allegedly did or discriminate against their competitors' content or applications by relegating them to the proverbial "winding dirt road." Yet, the primary assumption underlying this concern (and others raised by net neutrality proponents) – that broadband providers have market power in the provision of last-mile access – is the subject of considerable debate. Absent coordination or collusion among providers, as long as consumers have one or more alternatives to which they can turn, it is difficult to imagine them accepting the blockage or elimination of content that is important to them.

Further, broadband providers have conflicting incentives relating to blockage of and discrimination against data from non-affiliated providers of content and applications.[763] While a broadband provider with market power may have an incentive to limit its end-user customers' access to competing content and applications, the broadband provider also may have an incentive to maximize the value of its network to end users. Blocking or discriminating against content and applications desired by the provider's customers likely would diminish the value of that network. In the abstract, it is not possible to know which of these incentives would prove stronger. Even assuming discrimination against content or applications providers took place, moreover, there remains the question – also unanswerable in the abstract – whether such discrimination would be harmful, on balance, to consumer welfare. For example, such discrimination may facilitate product differentiation, such as the provision of Internet access services

[762] *See supra* notes 217 and 233.

[763] *See supra* Chapter IV.

designed specifically for certain population segments or other audiences with specialized preferences.

Data discrimination often is discussed in the context of vertical integration by broadband providers into the provision of content and applications. Such integration raises the various issues involving incentives to discriminate discussed above. Vertical integration, however, also provides potential benefits to competition and consumers. For example, the potential to earn additional profits from selling its content and applications to more customers likely would increase the vertically integrated firm's incentives to build out its network and invest in technology to increase the types and/or amount of content that it can offer.

Further, as is the case with data discrimination, it is impossible to determine in the abstract whether allowing content and applications providers (or even end users) to pay broadband providers for prioritized data transmission will be beneficial or harmful to consumers.[764] Such prioritization may provide benefits to broadband providers, content and applications providers, and end users. Prioritization may allocate resources to their highest-valued uses by, for example, allowing content and applications providers that value higher-quality transmission services, such as VoIP or online gaming providers, to pay broadband providers for such services. Prioritization may enable broadband providers to obtain income streams from content and applications providers and other users of broadband networks besides the broadband providers' own customers, resulting in increased investment and innovation in such networks. Prioritization may aid innovation in applications or content, such as streaming video and other real-time applications, that require higher-quality transmission to operate effectively. Prioritization may provide a dimension for both content and applications providers and broadband providers to differentiate their offerings, to the benefit of competition and consumers. Prioritization also may lower prices for less affluent end users, whose access fees could be partially subsidized by prioritization revenues, much like advertising-supported e-mail services now provide free e-mail accounts.

Nonetheless, proponents of network neutrality regulation have raised concerns regarding potential adverse effects of data prioritization. For example, it could create entry barriers for new or less affluent content and applications providers – that may not be able to afford prioritization services – to disseminate their offerings successfully, resulting in a diminution in innovation in content and applications. Prioritization could result in increased transaction costs resulting from the potential need for content and applications providers to negotiate with multiple broadband providers over prioritization arrangements. Thus, the frequently cited example of college students founding successful Web sites in their dorm rooms may become impossible if these students also would have to reach carriage arrangements with numerous broadband providers before they could reach end users. Prioritization also could lead to the intentional or passive degradation of non-prioritized data delivery over broadband networks. That is, the use of prioritization could create incentives for broadband providers to focus all or most of their

[764] *See supra* Chapter V.

investment and innovation in the priority portions of their networks, to the detriment of the non-priority portions of such networks. Prioritization could enable exclusive deals for priority that, if combined with inadequate delivery of non-priority data, would hinder the traditional ability of every end user to reach every content and applications provider through a single Internet access agreement. As with data discrimination, we are unable to determine in the abstract the net effect on consumer welfare of the various forms of data prioritization that may be pursued in the marketplace.

Further reason for policy makers to proceed with caution in the area of broadband Internet access is the existence of several open questions that likely will be answered by either the operation of the current marketplace or the evolution of complicated technologies. These questions include, but are not limited to, the following:

- What is the feasibility of broadband providers engaging in data discrimination, including the outright blockage of data from certain content and applications providers?
- Would consumers be able to detect such data discrimination?
- What would be the consumer response to such data discrimination?
- How much demand will there be on the part of content and applications providers for data prioritization?
- What is the feasibility of effective data prioritization throughout the many networks comprising the Internet?
- Would allowing broadband providers to practice data prioritization necessarily result in the degradation of non-prioritized data delivery?
- What Internet access speeds, including upload and download speeds, will consumers demand?
- When will the capacity limitations of the networks comprising the Internet result in unmanageable or unacceptable levels of congestion?
- If that point is reached, what will be the most efficient response thereto: data prioritization, capacity increases, a combination of these, or some as yet unknown technological innovation?

The eventual answers to these questions may give policy makers key information about the net effects on consumer welfare arising from the conduct and business arrangements that network neutrality regulation would prohibit or limit.

2. Concerns with Regulation

The other ground for proceeding with caution in evaluating calls for network neutrality regulation is the potentially adverse and unintended effects of regulation

generally – whether it is enacted in the area of broadband Internet access or any other area. Industry-wide regulatory schemes – particularly those imposing general, one-size-fits-all restraints on business conduct – may well have adverse effects on consumer welfare, despite the good intentions of their proponents. Even if regulation does not have adverse effects on consumer welfare in the short term, it may nonetheless be welfare-reducing in the long term, particularly in terms of product and service innovation. For example, prohibitions of certain business conduct, such as vertical integration into content and applications or the offering of prioritization services by broadband providers, may not have immediate effects on consumer welfare, but could result in a long-term decline in investment and innovation in broadband networks. Broadband providers that cannot differentiate their products or gain new revenue streams may have reduced incentives to upgrade their infrastructure.

Further, broad regulatory schemes almost certainly will have unintended consequences, some of which may not be known until far into the future. After all, even the most carefully considered legislation is likely to have unforeseen effects. In the broadband Internet context, regulation that nominally seeks to protect innovation in content and applications by prohibiting broadband providers from charging for prioritized delivery over their networks actually could erect barriers to new content and applications that require higher-quality data transmission. A new entrant in the streaming video market, for example, might prefer to purchase a certain quality of service from broadband providers, rather than investing in the server capacity and other resources necessary to provide that level of service on its own. Once a regulatory regime is in place, moreover, it may be difficult or impossible to undo its effects.

Two aspects of the broadband Internet access industry heighten the concerns raised by regulation generally. First, the broadband industry is a relatively young and evolving one. As discussed above, there are indications that it is moving in the direction of more – not less – competition.[765] In particular, there is evidence that new entrants employing wireless and other technologies are beginning to challenge the incumbent wireline providers (*i.e.*, the cable and telephone companies). Second, to date we are unaware of any significant market failure or demonstrated consumer harm from conduct by broadband providers. Policy makers should be wary of enacting regulation solely to prevent prospective harm to consumer welfare, particularly given the indeterminate effects on such welfare of potential conduct by broadband providers and the law enforcement structures that already exist.

Policy makers also should consider the feasibility of undoing the effects of data discrimination, prioritization, and other conduct and business arrangements, about which network neutrality proponents raise concerns, if it is later determined that enforcement under current law has been inadequate and the effects on consumer welfare of such conduct and arrangements turn out to be on balance (or even primarily) harmful. That is, policy makers considering a wait-and-see approach also should consider whether legislative or regulatory action could effectively counteract business arrangements and

[765] *See supra* Chapter VI.B.

network design decisions if the consumer harms from a non-neutral network are later deemed clearly to outweigh the consumer benefits. Although we take no position regarding the technical, operational, or commercial feasibility of reversing or changing course in some manner at a later date, this is a relevant consideration for policy makers evaluating calls for network neutrality regulation.

C. Continued Agency Oversight

The federal antitrust agencies, the FTC and the Department of Justice, and the Federal Communications Commission have jurisdiction to address broadband Internet access, with each playing an important role in protecting competition and consumers in this area.[766] These federal agencies are prepared to address issues that may arise in the broadband area.

Further, as a byproduct of the ongoing debate over network neutrality, the agencies have a heightened awareness of the potential consumer harms from certain conduct by, and business arrangements involving, broadband providers. Perhaps equally important is the fact that many consumers are now aware of such issues. Consumers – particularly online consumers – have a powerful collective voice that should not be ignored by businesses. In the area of broadband Internet access, consumers have revealed a strong preference for the current open access to Internet content and applications.

The FTC has been involved in the Internet access area for over a decade and will continue to be involved in the evolving area of broadband access. The FTC Act is sufficiently flexible to allow the FTC to enforce the antitrust and consumer protection laws in most industries, including those, such as broadband Internet access, involving new and ever-changing technologies. The fundamental principles of antitrust and consumer protection law and economics that we have applied for years are as relevant to the broadband industry as they are to other industries in our economy. Another significant feature of the FTC Act is its grounding in *ex post*, fact- and market-specific analysis of conduct and business arrangements, rather than *ex ante*, industry-wide regulation. In other words, in enforcing the antitrust and consumer protection laws, the FTC generally conducts detailed, after-the-fact analyses of conduct and business arrangements to determine if they harm consumer welfare, rather than issuing broad regulatory directives.

The FTC will continue to devote substantial resources to maintaining competition and protecting consumers from deceptive or unfair acts or practices in the area of broadband Internet access, using a variety of tools. The FTC, for example, will continue to enforce the antitrust laws in evaluating conduct and business arrangements involving broadband access. As explained above,[767] because the various conduct and business arrangements at issue in the broadband area have both procompetitive and

[766] *See supra* Chapters II and IX.A.

[767] *See supra* Chapter VII.

anticompetitive potential, the FTC would carefully analyze the net effect of particular conduct or arrangements on consumer welfare, rather than challenge them as per se illegal.

The FTC also will continue to enforce the consumer protection laws in the area of broadband Internet access. Such enforcement will remain crucial to fostering competition in the broadband area – with or without the enactment of some form of network neutrality regulation. Important questions involving the clear and conspicuous disclosure of material terms of broadband Internet access remain, particularly in the event that broadband providers engage in data discrimination, prioritization, or other traffic-shaping practices discussed above.[768]

Finally, the FTC's Broadband Connectivity Competition Policy Workshop and this Report exemplify some of the diverse resources the agency may bring to bear on Internet access issues, in addition to specific law enforcement actions. The Workshop and Report reflect the agency's interest in and commitment to developing competition and consumer protection policy. The agency also expends and will continue to expend considerable efforts at consumer education,[769] industry guidance,[770] and competition advocacy[771] in the important area of Internet access.

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[768] *See supra* Chapters IV, V, and VIII.

[769] *See, e.g.*, FTC, HIDE AND GO SEEK: FINDING THE DISCLOSURES IN "FREE" INTERNET SERVICE OFFERS (2001), *available at* http://www.ftc.gov/bcp/conline/pubs/alerts/freeispalrt.shtm.

[770] *See, e.g.*, FTC, DOT COM DISCLOSURES: INFORMATION ABOUT ONLINE ADVERTISING (2000), *available at* http://www.ftc.gov/bcp/conline/pubs/buspubs/dotcom/index.shtm.

[771] *See, e.g.*, FTC STAFF, *supra* note 499.

APPENDIX 1 – BROADBAND CONNECTIVITY COMPETITION POLICY WORKSHOP PARTICIPANTS

Michael Altschul	Senior Vice President and General Counsel, CTIA – The Wireless Association
Gary Bachula	Vice President for External Relations, Internet2
Daniel Brenner	Senior Vice President, Law and Regulatory Policy, National Cable & Telecommunications Association
Tod Cohen	Vice President and Deputy General Counsel, Government Relations, eBay
Alan Davidson	Washington Policy Counsel, Google
Joseph Farrell	Professor, University of California, Berkeley
Harold Feld	Senior Vice President, Media Access Project
George S. Ford	Chief Economist, Phoenix Center for Advanced Legal & Economic Public Policy Studies
Alfred E. Kahn	Professor Emeritus, Cornell University
Jeannine Kenney	Senior Policy Analyst, Consumers Union
William Lehr	Research Associate, Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology
Thomas M. Lenard	Senior Fellow and Senior Vice President for Research, The Progress & Freedom Foundation
Christopher Libertelli	Senior Director of Governmental and Regulatory Affairs, Skype Limited
Walter B. McCormick, Jr.	President & CEO, United States Telecom Association
Paul Misener	Vice President for Global Public Policy, Amazon.com
Timothy J. Muris	Professor, George Mason University School of Law
Jon M. Peha	Professor, Carnegie Mellon University

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David Sohn	Staff Counsel, Center for Democracy & Technology
Gigi B. Sohn	President, Public Knowledge
John Thorne	Senior Vice President and Deputy General Counsel, Verizon Communications
Barbara Tulipane	President & CEO, Electronic Retailing Association
Scott Wallsten	Senior Fellow and Director, Communications Policy Studies, The Progress & Freedom Foundation
Joseph W. Waz, Jr.	Vice President, External Affairs and Public Policy Counsel, Comcast
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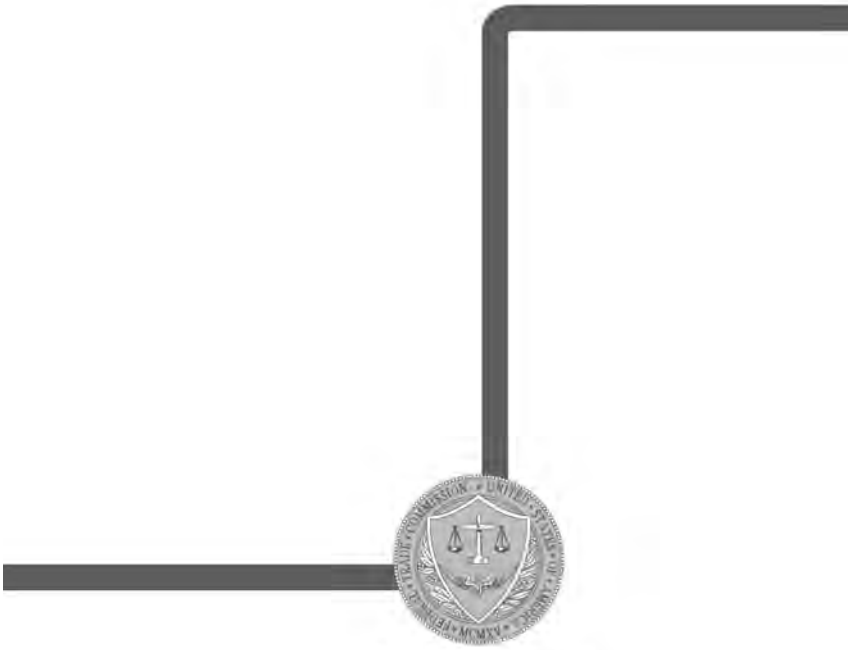
Timothy Wu	Professor, Columbia University Law School
Ronald B. Yokubaitis	Chairman, Data Foundry
Christopher S. Yoo	Professor, Vanderbilt University Law School

APPENDIX 2 – GLOSSARY OF FREQUENTLY USED ACRONYMS

3G	Third-Generation Wireless Communications Technology
AOL	America Online
ARPANET	Advanced Research Projects Agency Network
BPL	Broadband over Powerlines
DARPA	Defense Advanced Research Projects Agency
DOJ	Department of Justice
DSL	Digital Subscriber Line
EU	European Union
FCC	Federal Communications Commission
FTC	Federal Trade Commission
FTP	File Transfer Protocol
HTTP	Hypertext Transfer Protocol
IPTV	Internet Protocol Television
ISP	Internet Service Provider
Kbps	Kilobits Per Second
Mbps	Megabits Per Second
NSF	National Science Foundation
NSFNET	National Science Foundation Network
NTIA	National Telecommunications and Information Administration
OECD	Organization for Economic Co-operation and Development
P2P	Peer-to-Peer
QoS	Quality of Service
SMTP	Simple Mail Transfer Protocol
TCP/IP	Transmission Control Protocol / Internet Protocol suite
TELNET	TELetype NETwork
VoIP	Voice over Internet Protocol
VPN	Virtual Private Network
The Web	The World Wide Web
Wi-Fi	Wireless Fidelity
Wi MAX	Worldwide Interoperability for Microwave Access



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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Economic Issues in Broadband Competition	)	GN Docket No. 09-51
	)	
A National Broadband Plan for Our Future	)	
	)	

***EX PARTE* SUBMISSION**
OF THE UNITED STATES DEPARTMENT OF JUSTICE

I. Introduction

This filing responds to a Federal Communications Commission ("FCC" or "Commission") Notice of Inquiry ("NOI"),[1] released on August 7, 2009, requesting comments to assist in the development of a national broadband plan to be submitted to Congress by February 17, 2010. The United States Department of Justice ("Department"), as a federal agency responsible for enforcing the antitrust laws and promoting competition, has significant expertise in telecommunications issues and has participated in prior Commission proceedings that addressed the role of competition in telecommunications. In these comments, the Department

[1] Notice of Inquiry, *In re A National Broadband Plan for Our Future*, 24 F.C.C.R. 4342, ¶ 6 (2009), *available at* < http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-09-31A1.pdf > ("FCC Broadband NOI").

seeks to provide the Commission with the benefit of insights and perspectives that arise from this experience.

Over the last thirty years, the Department has helped to facilitate the transformation of the telecommunications industry, either directly in its role as an agency that enforces the antitrust laws or indirectly in its role as competition policy advocate and statutory respondent in cases involving appeals of Commission orders under the Hobbs Act.[2] Thus, from the critical decisions involved in resolution of the AT&T antitrust litigation and the implementation of that consent decree to the decisions related to the design of the wireless telecommunications marketplace and the implementation of the Telecommunications Act of 1996, the Department has played a vital role.[3] Similarly, with respect to its merger review authority, the Department has evaluated a series of transactions that have reshaped the telecommunications marketplace, including with regard to the evolving roles of broadband Internet access and wireless services.[4] In addition, the

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[2] Hobbs Anti-Racketeering Act, 18 U.S.C. § 1951.

[3] *See, e.g.*, *United States v. American Telephone & Telegraph Co.*, 552 F. Supp. 131 (D.D.C. 1982), *aff'd sub nom. Maryland v. United States*, 460 U.S. 1001 (1983) (Modification of Final Judgment requiring Bell System break-up); Reply Comments of the United States Department of Justice, *In re Amendment of the Commission's Rules To Establish New Personal Communications Services*, FCC Gen. Docket No. 90-314, E.T. Docket No. 92-100 (Jan. 19, 1993) (addressing competition between cellular and PCS providers and allocation of PCS spectrum to promote competition); Evaluation of the U.S. Department of Justice, *In re Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc., d/b/a Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services in Texas*, FCC CC Docket No. 00-4 (Feb. 14, 2000) (regarding Regional Bell Operating Company entry into long distance services under Section 271 of the Telecommunications Act). More recently, the Department participated in the Commission's initial "net neutrality" proceeding. *Ex Parte* Filing of the United States Department of Justice, *In re Broadband Industry Practices*, FCC WC Docket 07-52 (Sept. 6, 2007).

[4] *See, e.g.*, Press Release, U.S. Dep't of Justice, Justice Department Requires Divestitures in Verizon's Acquisition of Alltel (Oct. 30, 2008), *available at* < http://www.usdoj.gov/atr/public/press_releases/2008/238941.htm >; Press Release, U.S. Dep't of Justice, Justice Department Requires Divestitures in Verizon's Acquisition of MCI and SBC's Acquisition of AT&T (Oct. 27, 2005), *available at* < http://www.usdoj.gov/atr/public/press_releases/2005/212407.htm >; Press Release, U.S. Dep't of Justice, Justice Department Requires Divestitures in Cingular Wireless's Acquisition of AT&T Wireless (Oct. 25, 2004), *available at* < http://www.usdoj.gov/atr/public/press_releases/2004/205960.htm >; Press Release, U.S. Dep't of Justice, Justice Department Requires AT&T to Divest MediaOne's Interest in Road Runner Broadband Internet Access Service (May 25, 2000), *available at* < http://www.usdoj.gov/atr/public/press_releases/2000/4829.htm >.

Department recently issued *Voice, Video, and Broadband: The Changing Competitive Landscape and Its Impact on Consumers,* a compendium of observations and assessments regarding the changing telecommunications landscape.[5]

In many respects, the United States, like many countries around the world, is in the formative stages of deciding how to respond to the advent and increasing preeminence of broadband with regard to both wired and wireless connections. In recognition of the importance of broadband to our economy and society, Congress mandated, as part of the American Recovery and Reinvestment Act of 2009 ("Recovery Act"), that the FCC develop a national broadband plan.[6] Among other things, that plan must analyze "the most effective and efficient mechanisms for ensuring broadband access by all people of the United States," as well as "a detailed strategy for achieving affordability . . . and maximum utilization of broadband infrastructure . . . ."[7] In its NOI, the Commission set forth a series of questions, including "whether multiple providers of broadband services are useful or necessary for achieving our goal of providing broadband services to unserved and underserved areas[,]" and whether it makes "a difference if the providers utilize different technological broadband platforms[.]"[8] In this filing, the Department discusses the nature of competition in the broadband marketplace, highlights the importance of freeing up additional spectrum for broadband, and comments on the need to institute effective reporting obligations to facilitate better oversight of the marketplace by both policymakers and consumers.

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[5] U.S. Dep't of Justice, *Voice, Video and Broadband: The Changing Competitive Landscape and Its Impact on Consumers* (Nov. 2008) ("*DOJ Voice, Video and Broadband Report*"), *available at* <http://www.usdoj.gov/atr/public/reports/239284.pdf >.

[6] American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 6001(k)(1), (2), 123 Stat.115 (2009) (codified at 47 U.S.C. § 1305).

[7] FCC Broadband NOI ¶ 9.

II. Key Characteristics of Broadband Markets

We begin by noting some of the most salient characteristics of broadband markets for the purposes of assessing and promoting competition in them.

A. Broadband as Part of the Information Ecosystem

Broadband services are one part of a wider information technology ecosystem that ultimately delivers value to consumers. Other important elements of the ecosystem are the content and applications available, the devices that consumers use to receive, process, and display that content and those applications, and consumers' familiarity with and skill in using computers and the Internet. Two of these complementary inputs – content and devices – are undergoing substantial technological change. The third – skill – is increasing over time, especially because younger people tend to be much more computer savvy than older people.

Recognizing the roles played by complementary inputs is very important for the purpose of evaluating broadband adoption patterns. Relatively low adoption rates for a given group may reflect the relative absence of these complementary inputs, rather than a problem inherent in the supply of broadband services themselves. For example, some individuals just do not consider broadband to be valuable or relevant, in part because they are simply not accustomed to using computers.[9] In addition, consumers who do not find existing applications and devices attractive are unlikely to subscribe to broadband services until applications are developed that suit their

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[8] *Id.* ¶ 49.

[9] *See* FCC National Broadband Plan, September Commission Meeting at 84 (Sept. 29, 2009) (reporting reasons for non-adoption of broadband as lack of relevance (50%), price (19%), availability (17%), and usability (13%)) ("*FCC Broadband Status Report*"), *available at* < http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-293742A1.pdf >; *see also id.* at 82 (reporting that low-adoption groups are those with less education, those with less income, those living in rural areas, the elderly, and the disabled). According to the report, 63% of households have adopted broadband, 33% have access but have not adopted broadband, and 4% do not have access, while adoption among the 54 million Americans with disabilities is only 30.8% (vs. 63.6% overall). *Id.* at 81, 142.

needs. In formulating policies to encourage the adoption and affordability of services, the FCC needs to consider not only the number and characteristics of existing and future providers but also how these complementary inputs impact the goals the FCC seeks to achieve.

B. Heterogeneous Demands for Broadband

When evaluating competition, the Department begins by evaluating consumer demand for certain goods or services. Here, this involves asking what users are willing to pay for various broadband services. This necessitates distinguishing between institutional and consumer users. For purposes of this filing, the Department will focus on and address broadband use by households.[10] Assessing the extent of broadband competition should be done with an eye toward how various consumers use broadband service.

Consumer demand for broadband is variegated, depending upon the set of underlying applications desired by the user. For example, services that provide only 200 and 300 kilobits per second ("kbps") are apparently unsuitable for streaming video,[11] and therefore are not acceptable substitutes for services providing bandwidth levels of 1 megabit per second ("Mbps"), 2 Mbps, or 5-10 Mbps — let alone 20-50 Mbps.

On the other hand, a wireless broadband service may constitute a "good enough" substitute for those customers who use broadband only for purposes requiring limited bandwidth.[12] Some have suggested that given the popularity of streaming video any service that

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[10] Many of the benefits of broadband derive from usage by businesses and other institutions such as schools, libraries, hospitals, and government entities. *See, e.g., FCC Broadband Status Report* at 93-132. Although the same principles of competition apply to those categories of customers, their needs are not explicitly addressed in this filing.

[11] This speed purportedly is not even sufficient to watch the lowest quality video on YouTube.com, which lists 500+ kbps as a minimum requirement. YouTube.com, YouTube Help, Getting Started: System Requirements, *available at* < http://www.google.com/support/youtube/bin/answer.py?hl=en&answer=78358 > (last visited Oct. 20, 2009).

[12] *See, e.g.,* Andrew Odlyzko, *The Many Paradoxes of Broadband*, First Monday, Sept. 1, 2003, at 8, *available at*

offers actual speeds of 3-4 Mbps could compete in the marketplace today.[13] As streaming video becomes more and more popular, demand for faster, more reliable broadband connections will grow. In the near term, it appears reasonable to expect that most consumer demand will be met by services offering actual speeds of 3-4 Mbps.[14] Over the long term, consumers may demand substantially greater speeds to take advantage of newer applications, such as HD video streaming.

In any industry subject to significant technological change, it is important that the evaluation of competition be forward-looking rather than based on static definitions of products and services. Insight can best be gained by looking at product life cycles, the replacement of older technologies by newer ones, and the barriers facing suppliers that offer those newer technologies. In the case of broadband services, it is clear that the market is shifting generally in the direction of faster speeds and additional mobility.

Because broadband markets are dynamic, it is important to track broadband deployment and adoption in various speed "bands," and, in so doing, to evaluate carefully actual speeds rather than advertised speeds or speeds under ideal conditions. The Commission itself has noted that there can be significant gaps between advertised and actual speeds.[15]

< http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1072/992 >.

[13] *See, e.g.*, Robert Atkinson & Phil Weiser, *A Roundtable on the End of Scarcity, Open Architecture, and the Future of Broadband Competition Policy* 3 (The Information Technology & Innovation Foundation, June 2009) (noting that roundtable participants indicated that most consumers typically need Internet service speeds between 3-4 Mbps), *available at* < http://www.itif.org/files/EndofScarcity.pdf >.

[14] The Commission itself notes that e-mail, browsing, and video streaming can be handled well at speeds of 2-4 Mbps. *FCC Broadband Status Report* at 27.

[15] *Id.* at 26.

C. Broadband Services Are Significantly Differentiated

Broadband services differ along a number of dimensions: the speed actually delivered, the reliability of the underlying network, and whether the service is fixed or mobile. In addition to these dimensions of product differentiation, we observe in the market, and will continue to see, variation in pricing and terms of service, such as usage limitations or alternative pricing models.

In markets such as this, with differentiated products subject to large economies of scale (relative to the size of the market), the Department does not expect to see a large number of suppliers. Nor do we expect prices to be equated with incremental costs. If they were, suppliers could not earn a normal, risk-adjusted rate of return on their investments in R&D and infrastructure.

D. Broadband Competition Varies by Locale

Ultimately what matters for any given consumer is the set of broadband offerings available to that consumer, including their technical characteristics and the commercial terms and conditions on which they are offered. Competitive conditions vary considerably for consumers in different geographic locales. We commend the FCC for having begun to collect information on broadband deployment and adoption at a finer level of geographic granularity, and for considering whether to collect even more detailed data in the future.[16]

For wireline broadband, where the service is delivered to the customer's home, it is typically quite useful to aggregate customers facing very similar competitive conditions for the purpose of measuring market shares.

E. Wireline vs. Wireless Broadband Services

Wireless may be a very attractive alternative for consumers who greatly value mobility and for consumers who do not place much value on the highest speeds (e.g., consumers who do not want advanced services, such as HD video streaming). It appears to offer the most promising prospect for additional competition in areas where user density or other factors are likely to limit the construction of additional broadband wireline infrastructure.

We do not yet know, however, whether wireless broadband offerings will be able to exert a significant degree of competitive constraint on cable modem, DSL or fiber optic-based services. Emerging fourth generation ("4G") services may well provide an alternative sufficient to lead a significant set of customers to elect a wireless rather than wireline broadband service. Clearwire is just now deploying its WiMax network and Verizon Wireless has announced plans to begin offering Long-Term Evolution ("LTE") technology in 2010.[17] Clearwire has launched its service in approximately 25 markets, offering broadband services with speeds of between 3-6 Mbps, and, according to some sources, is winning over some DSL subscribers.[18] Assuming

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[16] *See* FCC Broadband NOI ¶ 61 (noting that the Commission has begun to collect data at the Census Tract level); *cf. FCC Broadband Status Report* at 32-33 (indicating that data at the Census Block level is necessary for full analysis as it is "100 times more granular than Census tract[]" data).

[17] *LTE Standard Nailed Down as Carriers Carefully Plan Deployments*, Comm. Daily, Sept. 1, 2009, at 4-5 (reporting that AT&T will be conducting LTE trials in 2010 and US Cellular will build out LTE over the next 3-4 years); Press Release, Verizon Wireless Updates Specifications for 4G LTE 700 MHz Devices (Aug. 21, 2009), *available at* < http://news.vzw.com/news/2009/08/pr2009-08-21.html >; Verizon Wireless, LTE Innovation Center, Verizon Wireless LTE Network ("Verizon Wireless will be the first in the U.S. and among the first in the world to launch LTE, starting with 25 to 30 markets in mid- to late 2010."), *available at* < https://www.lte.vzw.com/AboutLTE/VerizonWirelessLTENetwork/tabid/6003/Default.aspx > (last visited Oct. 20, 2009).

[18] Press Release, Clearwire Launches Retail and Expands Sales for CLEAR(TM) 4G Mobile Internet Service in Chicago (Dec. 1, 2009), *available at* < http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1360317&highlight= >; Stephen Lawson, *Sprint Willing to Fill Clearwire's Coffers*, PC World (Sept. 17, 2009), *available at* < http://www.pcworld.com/businesscenter/article/172179/sprint_willing_to_fill_clearwires_coffers.html >; *Comcast COO says wireless Internet snags DSL users*, Associated Press (Aug. 6, 2009), *available at* <http://www.cnbc.com/id/32318015>; Peter Wayner, *With WiMax, Walking on*

these speeds are already available, Clearwire would appear to be in a position to attract some wireline broadband subscribers, with its monthly rates ranging from $25 to $45 and no usage caps.[19] As for LTE-based services, they are not yet being offered, but Verizon Wireless expects to provide typical download speeds of 5-12 Mbps.[20]

Wireline and wireless broadband services have fundamentally different cost structures. This has implications for evaluating broadband competition. Within a given locale, wireline broadband involves very substantial sunk costs to reach a customer's location and rather low marginal costs to provide incremental services to connected households. Additionally, the costs of wireline broadband can be shared to a considerable degree with those of providing other services, e.g., multichannel video programming distribution ("MVPD") and wireline telephony, to the extent all the services are provided over the same infrastructure. In contrast, wireless

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the Wireless Side in Baltimore, N.Y. Times, July 30, 2009 (reviewing Clearwire's service in Baltimore, Maryland), *available at* < http://www.nytimes.com/2009/07/30/technology/personaltech/30basics.html >.

[19] *See* Clear.com, Clear Services, The Plans (Sept. 9, 2009) (advertising residential plans), *available at* < https://www.clear.com/shop/clear_services.php?changezip=1&page=mobile_internet >. In addition to Clearwire, there are other WiMax providers. These providers focus on rural areas, often receiving grants under a Department of Agriculture program, but their services have yet to be rolled out or are inferior. For example, Open Range Communications is leasing ATC spectrum from GlobalStar to serve over 500 rural communities, and plans to build out over the next five years. Press Release, *Open Range Communications Secures $374 Million to Deploy Wireless Broadband Services to 546 Rural Communities* (Jan. 9, 2009), *available at* < http://www.openrangecomm.com/pr/pr_022009.html>. Open Range offers services at speeds of 1.5 Mbps/512kbps for $40 per month. *Open Range Communications to Bring Affordable, Portable, Wireless High-Speed Broadband to Over 500 Rural Communities and Six Million Citizens Across the United States*, Business Wire (Oct. 22, 2007), *available at* < http://www.businesswire.com/portal/site/home/permalink/?ndmViewId=news_view&newsId=20071022006575&newsLang=en >. Lariat.net offers a wireless service with speeds of up to 11 Mbps, but guarantees only 200 kbps, for $30 per month. LARIAT.NET Wireless Broadband, *A Full Spectrum of Residential and Business Services, "No Nonsense" Rate Schedule*, *available at* < http://www.lariat.net/rates.html > (last visited Oct. 20, 2009). Metro PCS has also acquired spectrum to build a 4G network. Marguerite Reardon, *Report: Deutsche Telecom looks for 4G Partners in U.S.*, CNET News, Signal Strength (Sept. 23, 2009), *available at* < http://news.cnet.com/8301-30686_3-10360188-266.html?part=rss&subj=news&tag=2547-1_3-0-20 >.

[20] Reply Comments of Verizon and Verizon Wireless, *In re A National Broadband Plan for Our Future*, FCC GN Docket No. 09-51, at 7 (July 29, 2009) (Verizon's 4G LTE network, which will begin offering service in 2010, will provide peak download speeds of up to 50-60 Mbps, and average downstream speeds of 5-12 Mbps), *available at* < http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=7019917666 >; Verizon Wireless LTE Innovation Center, About LTE, Verizon Wireless LTE Network (average data upload speeds of 2-5 Mbps),

broadband involves much smaller sunk costs associated with serving a given customer, but more substantial long-term marginal costs of expanding capacity in a given locale to serve more customers or to accommodate increased usage. Wireless data services may be provided over the same infrastructure and spectrum used to provide wireless voice service.

It is premature to predict whether the wireless broadband firms will be able to discipline the behavior of the established wireline providers, but early developments are mildly encouraging. Notably, the fact that some customers are willing to abandon the established wireline providers for a wireless carrier suggests that the two offerings may become part of a broader marketplace.[21] Within the next several years, however, the limits of wireless broadband will be tested, including the actual delivered speeds, adequacy of in-building coverage, and ability of the networks to accommodate large numbers of users.[22]

In addition, unanswered questions remain as to whether these services will be offered at prices and on terms that make them attractive to wireline users.[23] The LTE standard has only

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available at < https://www.lte.vzw.com/AboutLTE/VerizonWirelessLTENetwork/tabid/6003/Default.aspx > (last visited Oct. 20, 2009).

[21] *See Comcast COO says wireless Internet snags DSL users*, Associated Press (Aug. 6, 2009), *available at* <http://finance.yahoo.com/news/Comcast-COO-says-wireless-apf-126231909.html?x=0&.v=1 >.

[22] *See, e.g.*, Press Release, AT&T Strengthens 3G Wireless Broadband Coverage In and Around Atlanta (Aug. 11, 2009) (noting use of 850 MHz spectrum to achieve better in-building coverage), *available at* <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27036 >; Jenna Wortham, *Customers Angered as iPhones Overload AT&T*, N.Y. Times, Sept. 2, 2009 (recounting complaints of very slow speeds on AT&T's 3G network), *available at* < http://www.nytimes.com/2009/09/03/technology/companies/03att.html?emc=eta1 >; Jon Fortt, *Bandwidth Hogs -- iPhones and Other Smartphones*, Fortune Brainstorm Tech (Aug. 28, 2009) (noting that from 2008 to 2010 mobile data will grow by a factor of six), *available at* < http://brainstormtech.blogs.fortune.cnn.com/2009/08/28/bandwidth-hogs-iphone-and-other-smartphones/ >.

[23] For example, many wireless data services currently have monthly usage caps, unlike wireline services, which generally allow unlimited usage. *See* Thirteenth Report, *In re Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, 24 F.C.C.R. 6185, ¶¶ 119-122 (2009) ("*FCC 13th CMRS Report*"), *available at* < http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-54A1.pdf >; *but see* Chistopher Rhoads & Niraj Sheth, *Carriers Eye Pay-As-You Go Internet*, Wall St. J., Oct. 21, 2009, at B5 (noting that usage limits have not yet been imposed, but that several carriers are considering and testing usage caps, which they may implement by raising flat-rate pricing or charging by usage).

just been finalized,[24] and the likely pricing of these services is unclear. In addition, two of the major providers of these services (Verizon and AT&T) also offer wireline services in major portions of the country, raising the question of whether they will position their LTE services as replacements for wireline services, either within the regions where they provide wireline services or elsewhere.

If wireline providers charge more for service packages that involve greater speeds and/or higher usage limits, consumers purchasing these packages may not enjoy the benefits of competition from wireless broadband, or may do so only indirectly to the extent that consumers as a whole display a willingness to substitute slower wireless service for faster wireline service.

F. Policy Levers

We do not find it especially helpful to define some abstract notion of whether or not broadband markets are "competitive." Such a dichotomy makes little sense in the presence of large economies of scale, which preclude having many small suppliers and thus often lead to oligopolistic market structures. The operative question in competition policy is whether there are policy levers that can be used to produce superior outcomes, not whether the market resembles the textbook model of perfect competition. In highly concentrated markets, the policy levers often include: (a) merger control policies; (b) limits on business practices that thwart innovation (e.g., by blocking interconnection); and (c) public policies that affirmatively lower entry barriers facing new entrants and new technologies.

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[24] *See LTE Standard Nailed Down as Carriers Carefully Plan Deployments*, Comm. Daily, Sept. 1, 2009, at 4-5.

III. Framework for Evaluating Broadband Competition

A. Relevant Antitrust Markets

Section 4 of the NOI requests information on the proper methodology for determining relevant markets in order to evaluate the current state of competition.[25] As emphasized above, the touchstone for this inquiry should be the functional experience from the perspective of the customer, not the particular technology used by the provider. Thus, when the Department evaluates a "market" for antitrust purposes, it assesses the extent to which customers view various services as substitutes.[26] As noted above, broadband offerings are differentiated by, among other things, the reliability of the underlying network, the actual speeds delivered, the pricing plans offered, and the limits placed on the amount of bandwidth that can be utilized without incurring additional charges or risking restrictions on service.[27]

As the Department explains in the *Horizontal Merger Guidelines*, markets are defined both in terms of relevant product and geographic area.[28] Broadband markets are local in nature as customers can choose only among providers that serve their neighborhoods, and the providers and service offerings differ from one area to another.

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[25] FCC Broadband NOI ¶ 35.

[26] U.S. Dep't of Justice & Fed. Trade Comm'n, *Horizontal Merger Guidelines* §§ 1.0, 1.11 (rev. ed. Apr. 8, 1997) ("*Horizontal Merger Guidelines*"), *available at* < http://www.atrnet.gov/policies/mergers >.

[27] Satellite service does not appear likely to provide significant competition to other broadband technologies for the vast majority of Americans. Satellite suffers from several serious competitive disadvantages: (a) the inherent problem of latency, which makes it far less suitable for a range of applications (especially streaming audio and video); (b) costly bandwidth due to limited transponder capacity, which renders the provision of speeds in the range of 1-4 Mbps rather expensive ($80 per month for 1.5 Mbps); and (c) relatively expensive devices to receive satellite transmissions, although these prices may fall over time. *See, e.g.*, SkyWay USA (1.5 Mbps for $79.95/mo.), *available at* < https://secure.skywayusa.com/index.php > (follow "View service plans" link; then use drop-down menu to access offerings and pricing) (last visited Oct. 20, 2009); WildBlue (same), *available at* <http://www.wildblue.com/getWildblue/availability.jsp > (follow zip code prompt to access offerings and pricings) (last visited Oct. 20, 2009).

[28] *Horizontal Merger Guidelines* §§ 1.0, 1.1, 1.2.

Both the incumbent telephone and cable companies are offering wired broadband services across most of the country, using fiber-optic, cable modem, and DSL services as the principal modes of providing residential consumers with broadband access. What is less clear is the degree to which wireless broadband services will provide additional competition in broadband markets going forward.

The Department recommends that the Commission develop a classification for evaluating the degree of competition in different broadband markets using a method of analysis similar to that set forth in the *Horizontal Merger Guidelines*. In part, this could involve measuring market concentration in various local markets using the Herfindahl-Hirschman Index ("HHI"). Such measurements might be calculated separately for services with differing capabilities, and such classifications might shift over time as demand migrates to applications requiring faster speeds.

B. Likely Market Structures

We focus here on competition policy for those areas that already have or will have two wireline providers – i.e., most of the country in terms of population.[29]

The enormous sunk cost of wireline broadband networks makes it unlikely that additional wired broadband competitors will enter many geographic areas other than those with the greatest density of users. According to the *FCC Broadband Status Report*, "[a]t most 2 providers of

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[29] *FCC Broadband Status Report* at 81 (indicating that approximately 96% of American households have broadband access); *see also* Comments of United States Telecom Association, *In re A National Broadband Plan for Our Future*, FCC GN Docket No. 09-51, at 3-4 (June 8, 2009) (asserting that 80% of U.S. households have access to wireline broadband services provided both by telephone and cable companies), *available at* < http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520220030 >; *cf.* FCC, Industry Analysis and Technology Division, Wireline Competition Bureau, *High-Speed Services for Internet Access: Status as of June 30, 2008*, tbl.16 (July 2009) (reporting that as of June 30, 2008, 87% and 67% of zip codes had at least one ADSL and at least one cable modem broadband provider, respectively), *available at* < http://www.fcc.gov/Daily_Releases/Daily_Business/2009/db0723/DOC-292191A1.pdf >.

fixed broadband services will pass most homes."[30] Unfortunately, even in areas where two wireline networks are deployed, consumers seeking to use the most bandwidth-intensive applications may not have more than a single viable choice. The *FCC Broadband Status Report* goes on to state, "50-80% of homes may get [the] speeds they need from only one provider."[31] If this proves to be supported by further data, it will be highly significant, and rather discouraging, in terms of effective broadband competition in the years ahead.

Wireless services have at least two advantages that may make them viable and effective for many consumers. First, as noted above, the sunk costs associated with deploying these networks are far less than those for wireline facilities, because they do not require a dedicated connection to the customer.[32] Second, wireless services can be marketed as "one-stop" services that meet residential as well as mobile broadband needs, whereas wireline broadband connections cannot offer mobility. As noted above, however, it remains to be seen whether these advantages will be sufficient to establish wireless services as a reasonable alternative to wired connections for a significant number of consumers.

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[30] *FCC Broadband Status Report* at 135.

[31] *Id.*

[32] Various comments responding to the FCC Broadband NOI have recognized that wireless technologies have inherent economic advantages over wireline in providing broadband service to rural areas. *See, e.g.*, Clearwire Comments, *In re A National Broadband Plan for Our Future*, FCC GN Docket 09-51, at 3 (June 8, 2009), *available at* < http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520219919 >; Comments of PCIA – The Wireless Infrastructure Association and the DAS Forum, *In re A National Broadband Plan for Our Future*, FCC GN Docket 09-51, at 3 (June 8, 2009), *available at* <http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520220181>; Comments of Wireless Internet Service Providers Association, *In re A National Broadband Plan for Our Future*, FCC GN Docket 09-51, at 15 (June 8, 2009) (rural installation of wireless broadband may cost less than $1,000 per user, whereas fiber may cost more than $20,000 per user), *available at* < http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520219944 >; *cf. DOJ Voice, Video and Broadband Report* at 31-34 (Nov. 2008) (discussing economic conditions affecting the development of competition in telecommunications sector).

C. Consumer Benefits from Additional Competition

Based in large part on its extensive experience in evaluating horizontal mergers, the Department starts from the presumption that in highly concentrated markets consumers can be significantly harmed when the number of strong competitors declines from four to three, or three to two. This same experience teaches us that consumers can enjoy substantial *benefits* when the number of strong competitors rises from two to three, or three to four, especially if the additional competitor offers products based on a new and distinct technology. Developments in both the MVPD and the wireless markets over the past 15 years underscore this point.

1. Direct Broadcast Satellite Service

The entry of two national direct broadcast satellite ("DBS") providers — DirecTV and the DISH Network[33] — as well as wireline overbuilders and, more recently, the telephone companies, has changed the dynamics of competition in the MVPD market. Until the mid-1990s, the cable incumbents dominated the MVPD industry, facing little competition. Soon thereafter, they began to face competition nationwide from the DBS providers and, in a limited number of local areas, from overbuilders.[34] The evidence suggests that DBS providers, which are differentiated from the incumbent cable companies by their technology and other factors, do

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[33] In 1994, DirecTV offered the first high-power DBS service, through which subscribers could receive hundreds of channels via a dish no larger than a pizza. In 1996, Echostar launched its high-power DISH Network. By the end of 1996, there were 4.3 million DBS subscribers, and by June 2000 there were 12.9 million. Seventh Annual Report, *In re Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, 16 F.C.C.R. 6005, tbl.C-1 (2001), *available at* < http://www.fcc.gov/Bureaus/Cable/Reports/fcc01001.pdf >.

[34] These firms attempted to overbuild the incumbent cable network with a second network, relying on fiber-optics and/or coaxial cable. The overbuilders initially focused on offering video, and on serving high-density, high-income areas, but as technology and business models evolved, they also began providing broadband Internet and telephone service and hence became known as broadband service providers ("BSPs"). Thirteenth Report, *In re Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, 24 F.C.C.R. 542, ¶ 100 (2009) ("*FCC 13th MVPD Report*"), *available at* < http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-206A1.pdf >. By 2006, the BSPs had 1.4 million customers. *Id.* tbl.B-1.

not significantly discipline the *prices* charged by cable companies.[35] However, the advent of DBS competition, which introduced digital delivery systems, has spurred cable companies to upgrade their facilities to include more channels, video-on-demand, HD programming, and personal video recorders.[36] Similarly, there is strong evidence that DBS has also challenged cable providers on the customer service front.[37] Competition from overbuilders and telephone companies, which appear to be closer substitutes for traditional cable service than DBS providers, appears to be constraining price to a greater degree as well as promoting quality improvements.[38]

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[35] *See, e.g.*, Report on Cable Industry Prices, *In re Implementation of Section 3 of the Cable Television Consumer Protection and Competition Act of 1992 Statistical Report on Average Rates for Basic Service, Cable Programming Service, and Equipment*, 24 F.C.C.R. 259, ¶ 3 (2009) ("It does not appear from these results that DBS effectively constrains cable prices.") ("*FCC 2009 Cable Price Report*"), *available at* < http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-53A1.pdf >; *see also* Gov't Accountability Off., *Telecommunications: Direct Broadcast Satellite Subscribership Has Grown Rapidly, but Varies across Different Types of Markets*, GAO-05-257, at 33 (Apr. 2005) ("GAO 2005 Study"), *available at* < http://www.gao.gov/new.items/d05257.pdf >.

[36] As a cable industry official noted in this regard: "Evidence of a highly competitive marketplace can be found not only in the choices available to consumers, but also [in] how cable operators and their competitors have reacted. When DBS began to offer consumers an alternative with more channels, more pay-per-view movies, and digital audio and video, cable operators embarked on a $100 billion, nationwide upgrade of their facilities. With additional capacity and digital capability, cable operators began to offer new tiers of digital programming, along with video-on-demand and digital video recording capability. Cable expanded its video services to offer high definition television programming. Cable also increased the quality and diversity of its programming and pioneered commercial high-speed Internet service." Statement of Daniel L. Brenner, Senior Vice President, Law and Regulatory Policy, National Cable & Telecommunications Association, FCC Open Commission Meeting, at 3-4 (Feb. 10, 2006), *available at* < http://www.fcc.gov/realaudio/presentations/2006/021006/brenner.pdf > ; *see also GAO 2005 Study* at 9-10 (finding that DBS penetration was more than 20% greater in areas where cable systems did not provide advanced services such as digital cable, cable modem, and telephone services, and that from 2001 to 2004 the percentage of cable systems that did not provide any advanced services fell from 18% to only 3%).

[37] *See, e.g.*, Brian Santo, *Telco, DBS kicking cable butt in customer satisfaction*, CEDMagazine.com (Oct. 7, 2009), *available at* < http://abced-media.com/portal/wis/cgmc70bDATaq4E4qkf6VicmS-vqxa >.

[38] *FCC 2009 Cable Price Report* ¶ 3 & chart 1-a (as of January 1, 2008, prices were 10.1% lower in communities served by a second cable operator than they were in noncompetitive communities); *see also FCC 13th MVPD Report* ¶ 45 (stating prices charged by cable systems where the FCC has not made an effective competition finding were 20.6% higher than the prices charged by cable systems facing competition from a second cable operator). Charter has responded to new entry by improving customer service, adding more programming channels and services, and rolling out enhanced products (e.g., HD). *DOJ Voice, Video and Broadband Report* at 48 (Comments of Grier C. Raclin); *see also id.* (noting that entry by telephone companies has prompted the cable companies to make competitive investment responses, including offering more HD channels and more VOD (Comments of Hal J. Singer)).

2. Personal Communications Systems

The history of competition in the mobile wireless market suggests that the entry of additional providers has resulted in consumers paying less, receiving new features and better handsets, and enjoying higher quality service. Originally, the FCC licensed two cellular providers in each area of the country. Subsequently, it determined that the duopoly nature of the market made it less than fully competitive and, in the early 1990s, it allocated additional spectrum for Personal Communication System ("PCS") services in order to ensure that at least three new competitors could serve every area.[39] As a result of this new entry, mobile wireless users saw a substantial increase in the variety of pricing plans, lower per-minute prices, the introduction of newer generations of technology, and new features and functionality (texting, Internet access, smartphones).

As to pricing, the arrival of PCS providers was accompanied by AT&T Wireless's introduction of the first digital one rate ("DOR") plan in 1998[40] and the first family plan in 1999.[41] In 2001, Cingular improved its DOR plan by including unlimited night and weekend minutes.[42] In general, the industry began focusing on non-business customers by offering lower-

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[39] First Report, *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 10 F.C.C.R. 8844, ¶ 4 (1995), *available at* < http://wireless.fcc.gov/auctions/data/papersAndStudies/fc95317.pdf >.

[40] Fourth Report, *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 14 F.C.C.R. 10,145, 10,155 (1999) ("*FCC Fourth CMRS Report*"), *available at* < http://wireless.fcc.gov/auctions/data/papersAndStudies/fc99136.pdf >. Digital one rate plans offer large quantities of minutes for a fixed monthly rate, and long distance and roaming anywhere in the country for no additional charge.

[41] Fifth Report, *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 15 F.C.C.R. 17,660, 17,676 (2000) ("*FCC Fifth CMRS Report*"), *available at* < http://wireless.fcc.gov/auctions/data/papersAndStudies/fc000289.pdf >. Family plans allow users to make unlimited calls to family members on the same account and, in some cases, to and from the family's home phone within certain areas.

[42] Seventh Report, *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 17 F.C.C.R.

priced plans, some of which were intended to compete directly with wireline services.[43] Later, providers offered additional enhancements to pricing plans, including free mobile-to-mobile calls to subscribers using the same carrier,[44] unlimited calls to a "circle" of friends, and roll-over minutes. As a result, consumers seem to be paying less on a per-minute basis for voice services and are using their mobile wireless devices more. The average wireless revenue per minute has declined from about 37 cents in 1997 to 6 cents in 2007, and average monthly minutes of use have increased from about 100 to almost 800 over the same period.[45]

PCS providers entered the market using digital technology that allowed higher quality sound and more efficient use of spectrum. With the greater capacity available on these networks, PCS providers were able to offer large buckets of minutes, free enhanced services (e.g., caller ID, voice-mail), and early wireless data services.[46] In anticipation of competition from the PCS providers, the existing cellular providers upgraded their facilities in order to offer comparable services.[47]

12,985, 13,014 (2002) ("*FCC Seventh CMRS Report*"), *available at* < http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-02-179A1.pdf >.

[43] *See* Second Report, *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 12 F.C.C.R. 11,266, 11,313-16 (1997) (noting PCS providers introduced plans without long-term contract requirements in order to differentiate themselves from cellular providers), *available at* < http://wireless.fcc.gov/auctions/data/papersAndStudies/fc9775.pdf >; Sixth Report, *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 16 F.C.C.R. 13,350, 13,382 (2001) ("*FCC Sixth CMRS Report*") (noting Leap's offering of an unlimited local calling plan for a low, flat rate), *available at* < http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-01-192A1.pdf >.

[44] AT&T introduced the first such plan in 2004. Ninth Report, *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 19 F.C.C.R. 20,597, ¶ 114 (2004) ("*FCC Ninth CMRS Report*"), *available at* < http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-216A1.pdf >.

[45] *FCC 13th CMRS Report* at 6276 tbl.12.

[46] *FCC Sixth CMRS Report* at 13,361.

[47] *See FCC Fourth CMRS Report* at 10,173-74; *FCC Fifth CMRS Report* at 17,686.

The auctioning of PCS spectrum also facilitated the development of innovative technologies and business models. For example, VoiceStream (now T-Mobile) introduced two-way text messaging in 2000,[48] AT&T Wireless offered cross-carrier text messaging in 2001,[49] and Sprint launched its nationwide Wireless Web service in 1999 (providing limited access to the Internet)[50] as well as the first live mobile video service in 2003.[51] On the business model front, Sprint made available wholesale access to its network, enabling prepaid providers such as Virgin Mobile to grow in popularity, and providing mobile access for innovative devices, such as the Amazon Kindle.[52] In terms of new technologies, T-Mobile has supported a dual-mode handset that uses Wi-Fi connections where available and its cellular network elsewhere.[53]

D. Enhanced Broadband Mapping

The development of comprehensive broadband maps will play an important role in understanding the nature and extent of broadband competition. To that end, the Department recommends that the Commission expand upon the ongoing broadband mapping effort by including an assessment of the nature and extent of broadband competition in each area. We are aware that NTIA and the Commission are working together to collect the relevant data on broadband deployment and to make it publicly available. Under the Broadband Data

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[48] *FCC Sixth CMRS Report* at 13,411.

[49] *FCC Seventh CMRS Report* at 13,052.

[50] *FCC Fifth CMRS Report* at 17,709.

[51] *FCC Ninth CMRS Report* ¶ 154.

[52] Olga Kharif, *The Coming Wireless Wholesale Wave: An auction of wireless airwaves could create a new breed of wireless players that lease network space to upstarts*, Business Week (Nov. 27, 2007), *available at* < http://www.businessweek.com/technology/content/nov2007/tc20071121_238911.htm >.

[53] Press Release. T-Mobile Introduces Unlimited Calling Over Wi-Fi With the National Launch of T-Mobile HotSpot@Home (June 27, 2007), *available at* < http://www.t-mobile.com/company/_PressReleases_Article.aspx?assetName=Prs_Prs_20070627&title=T-Mobile%20Introduces%20Unlimited%20Calling%20Over%20Wi-Fi%20With%20the%20National%20Launch%20of%20T-Mobile%20HotSpot%20@Home>>%20 >.

Improvement Act,[54] the Commission is already gathering detailed information on broadband deployment and subscribership, including technologies used and speeds actually delivered to consumers.[55] Although this data collection is critical, the Commission should expand its efforts to include an assessment of the nature and extent of competition in each local broadband market.

For example, additional detail on the pricing plans being offered, and on subscriptions to those plans, will be invaluable for the purpose of assessing broadband competition. This information can be used to compare competition across locales, not only in terms of the number of providers and their market shares, but also in terms of the prices they charge for various broadband services. Because the broadband market is always evolving, more granular price and product data will facilitate the tracking of prices, terms, and conditions over time for a number of popular plans offered in a given locale. In principle, by looking across geographic areas, and by relying on data measuring how demand and cost conditions vary across locales, this information can be used to estimate the benefits consumers enjoy from additional broadband competition. In short, we commend the Commission for gathering more detailed information on infrastructure, availability, and actual speeds delivered to customers and recommend that this effort go further to facilitate more effective market monitoring.

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[54] Pub. L. No. 110-385, § 103, 122 Stat. 4096, 4096-98 (2008) (codified at 47 U.S.C. §§ 1302, 1303).

[55] Notice of Inquiry, *In re Inquiry Concerning the Deployment of Advanced Telecommunications Capability to all Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, FCC Docket No. 09-137 et al., ¶¶ 13-31 (rel. Aug. 7, 2009), 2009 WL 2431975, *available at* < http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-09-65A1.pdf >; *see also* FCC Broadband NOI ¶ 29 & n.35 (seeking comment on how to enhance the collection and analysis of data pursuant to the BDIA).

IV. Promoting Broadband Competition

We now address several "policy levers" that the Commission might employ to promote and enhance broadband competition: (a) allocation of additional spectrum, (b) disclosure, and (c) other forms of regulation.

A. Spectrum

In its NOI, the Commission has specifically asked about various possible changes to wireless service policies and how they would affect broadband deployment, including access to spectrum.[56] Given the potential of wireless services to reach underserved areas and to provide an alternative to wireline broadband providers in other areas, the Commission's primary tool for promoting broadband competition should be freeing up spectrum. Although there may be other constraints on the ability of providers such as Clearwire, T-Mobile, Sprint, and new start-ups to develop and deploy effective wireless systems that could provide broadband services comparable to those of existing providers,[57] the scarcity of spectrum is a fundamental obstacle that the

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[56] FCC Broadband NOI ¶¶ 42-46.

[57] One regulatory obstacle that can significantly delay the expansion of mobile broadband networks in specific geographic areas is the local zoning approval required for tower and antenna sitings, as recognized in several comments filed in response to the FCC Broadband NOI. *See, e.g.*, Comments of Motorola, *In re A National Broadband Plan for Our Future*, FCC GN Docket No. 09-51, at 6 n.8, 10-11 n.15 (June 8, 2009) (recommending that the Commission facilitate rapid deployment of wireless broadband by adopting tower siting rules proposed by the wireless industry), *available at* < http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520219800 >; Comments of WISPA, *In re A National Broadband Plan for Our Future*, FCC GN Docket No. 09-51, at 6, 20 (June 8, 2009) (access to tower sites is significant barrier to entry for wireless providers), *available at* < http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=652021994 >. In the same proceeding, mobile services providers that are not affiliated with landline telephone incumbents (e.g., Sprint, T-Mobile) as well as state authorities have raised concerns about the extent to which the high cost of special access services limits wireless network construction and overall competitiveness. *See, e.g.*, Comments of Comptel, *In re A National Broadband Plan for Our Future*, FCC GN Docket No. 09-51, at 13 (June 8, 2009) (asserting that deregulation of special access has produced supracompetitive rates), *available at* < http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520219841 >; Comments of Sprint Nextel, *In re A National Broadband Plan for Our Future*, FCC GN Docket No. 09-51, at 1-3, 8-12, 18-21 (June 2009) (contending that special access represents a market failure because facilities are overpriced and rates of return are excessive), *available at* < http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520219928 >; *see also* Dan Jones, *Sprint: Please, Sir, Can We Have Some More Ethernet Backhaul?* Light Reading's UNStrung

Commission should address. Stated simply, without access to sufficient spectrum a firm cannot provide state-of-the-art wireless broadband services.

Reallocating spectrum that is being underutilized would encourage the deployment of wireless services and could help to make such services more competitive with wireline offerings. First, an increase in the amount of spectrum that firms could devote to broadband would lower the cost of providing wireless broadband services and encourage entry. Second, more spectrum would allow providers to increase the capacity and reliability of their offerings, thereby bringing them closer to cable modem and fiber-based broadband. Third, the increased capacity in the systems would help support new applications. We urge the Commission to give priority to making more spectrum available to wireless broadband providers so as to maximize their potential to compete against the established wireline ones.[58] According to the *FCC Broadband Status Report*, there is no time to spare, given the exploding demand for broadband mobile use, the long lags historically experienced in allocating spectrum to new uses, and the danger that "the spectrum pipeline is drying up."[59]

The Department endorses several general principles regarding the reallocation of spectrum to promote competition.[60] As an initial matter, reallocation of a given portion of the spectrum should be considered when the total value of that spectrum is significantly greater in a

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(Sept. 22, 2009) (discussing Sprint's need for backhaul and alternative sources including Ethernet, pseudowire, and the Clearwire network), *available at* < http://www.unstrung.com/document.asp?doc_id=182159& >.

[58] As the FCC notes, there is "[i]ndustry consensus that more spectrum is needed to meet future requirements." *FCC Broadband Status Report* at 135.

[59] *Id.* at 63, 66, 71, 73, 74.

[60] We do not specifically address here the mechanisms used to free up spectrum previously used by, or assigned to, specific entities, including any transitional issues that might accompany concerns about unfair windfalls. In principle, if the spectrum has higher total value in a new use, the old users can be compensated for the spectrum by the new users. However, the transactions costs associated with providing such compensation may not be small. In all events, it would be beneficial to permit existing users of spectrum to deploy it for new (and more valuable) uses, either by themselves or in collaboration with others (such as through secondary market leasing arrangements).

new use than in its existing use, after accounting for transition costs. Since different portions of the spectrum have different current uses and different physical properties, this comparison must be repeated for each specific portion of the spectrum under consideration.

Once new spectrum is identified and freed up for broadband, there remains the issue of how to assign it to individual providers. The goal in assigning licenses to any such new spectrum designated for commercial services should be to ensure that it generates the greatest ultimate benefits to the consumers of those services. When market power is not an issue, the best way to pursue this goal in allocating new resources is typically to auction them off, on the theory that the highest bidder, i.e., the one with the highest private value, will also generate the greatest benefits to consumers. But that approach can go wrong in the presence of strong wireline or wireless incumbents, since the private value for incumbents in a given locale includes not only the revenue from use of the spectrum but also any benefits gained by preventing rivals from eroding the incumbents' existing businesses. The latter might be called "foreclosure value" as distinct from "use value." The total private value of spectrum to any given provider is the sum of these two types of value. However, the "foreclosure value" does not reflect consumer value; to the contrary, it represents the private value of forestalling entry that threatens to inject additional competition into the market.

In an established oligopoly with large margins between the price and the incremental cost of existing broadband services, the foreclosure value for incumbents in a given locale could be very high. In theory, one could run an auction in which incumbents' bids were discounted (for the purpose of determining who wins, not how much they pay) to reflect foreclosure value, if this value could be measured with reasonable accuracy. An extreme version of this is to run an auction in which some (or even all) of the available spectrum is simply not made available to

incumbents.[61] However, this approach would be unwise if the use value of the new spectrum is greatest in the hands of incumbents, or if there are less restrictive means of accomplishing the desired policy goal (e.g., limiting the total amount of spectrum in an auction which an incumbent may obtain).

Based on the Department's experience with other highly concentrated telecommunications markets, and more generally, there are substantial advantages to deploying newly available spectrum in order to enable additional providers to mount stronger challenges to broadband incumbents. Absent evidence that the incumbents have a high use value (e.g., they are already using their existing spectrum licenses effectively and their networks are still capacity constrained), we would normally expect the highest use value for new spectrum to come from actual or potential rivals who are strong in adjacent product markets and/or adjacent geographic markets and also have relevant expertise.

Even if the incumbents have a high use value, that observation strengthens the case for reallocating more spectrum to the services in question and underscores the need to facilitate greater access to this valuable resource. In addition, to identify spectrum that could be freed up and made available for use by wireless broadband providers, the FCC could spur greater use of secondary markets in spectrum. Among other strategies that the agency might employ are improvement of its register of spectrum holders and encouragement of the disclosure of the terms on which licensees have been willing to provide access to their licensed spectrum.[62]

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[61] Excluding an incumbent from the auction is economically equivalent to discounting its bids to zero for the purpose of determining the winner of the auction.

[62] For a development of these two suggestions, see Philip J. Weiser, *The Untapped Promise of Wireless Spectrum, available at* < http://www.brookings.edu/~/media/Files/rc/papers/2008/07_wireless_weiser/07_wireless_weiser.pdf >.

B. Transparency

Consumers need access to up-to-date information on broadband services in making intelligent choices about the options available to them in the market. Timeliness is important since consumer choices must be based on current information in order to be meaningful. Moreover, consumers must be able to compare the choices available to them in their own geographic areas; data aggregated at the national or state level is of little use. Additionally, it is important that information about speeds and other terms be accurate.[63] The Commission is uniquely situated to ensure more effective public disclosure of such data and should use its authority to do so. To the extent is does so, private parties, non-profits, and researchers can creatively use such information to provide not only greater awareness of the options available, but also valuable insights and analyses.[64]

A fundamental challenge for consumers is that of understanding the nature of broadband service offerings. The difficulty that average consumers have in comparing such offers limits head-to-head price competition. Comparisons become even more difficult when broadband services are sold in bundles with other telecommunications services.[65]

One attractive policy alternative for the Commission is to seek to improve the *quality* of competition by ensuring that consumers get better information about their choices, so that they can compare offers and select the broadband service that best suits their needs. Notably, the

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[63] For a development of how such a model would operate, see Philip J. Weiser, *The Next Frontier for Network Neutrality*, 60 Admin. L. Rev. 273, 290-301 (2008).

[64] The ability of government to share raw data with the public and enable it to be used effectively is addressed in Government 3.0, The Silicon Flatiron Roundtable Series on Entrepreneurship, Innovation and Public Policy, Rep. No. 8 (Therese Kerfoot, Rapporteur, Aug. 2009), *available at* < http://www.silicon-flatirons.org/documents/publications/report/KerfootGovernment3.0.pdf >.

[65] *DOJ Voice, Video and Broadband Report* at 52-54 (discussing perspectives on the difficulties faced by alternative broadband technologies), 57-60 (discussing reasons for bundling).

Commission should address carriers' frequent claims to provide broadband connectivity "up to" particular levels of bandwidth without disclosing average speeds. On that point, the United Kingdom's Ofcom recently worked with private analysts to study the broadband speeds claimed by various operators and the actual results in usage, and found that the actual average speeds are a little above half of the advertised "up to" speeds, varying somewhat by provider.[66] The Commission recently acknowledged this and similar studies.[67]

In other countries, regulatory authorities already have begun to address consumer information concerns.[68] For example, the Irish telecommunications authority, ComReg, provides consumers with the ability to compare available choices for stand-alone broadband, voice telephone, and wireless services, as well as double-play bundles of broadband and telephone services.[69] In addition to its efforts noted above, Ofcom has adopted a somewhat different

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[66] *See* Press Release, Ofcom reveals UK's real broadband speeds (July 28, 2009), *available at* < http://www.ofcom.org.uk/consumer/2009/07/ofcom-reveals-uk%e2%80%99s-real-broadband-speeds >; *see also* Ofcom. *UK broadband speeds 2009: Consumers' experience of fixed-line broadband performance* (July 29, 2009) (full report), *available at* < http://www.ofcom.org.uk/research/telecoms/reports/broadband_speeds/?lang=default >. The European Commission has recognized that in addition to telecommunications regulators in the United Kingdom, those in several other countries, including France, Greece, Hungary, Latvia, and Spain have taken steps to provide consumers with safeguards for broadband service delivery, such as codes of practice, voluntary agreements with industry, and measures on quality of service, including clear requirements for broadband speeds. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Progress Report on the Single European Electronic Communications Market 2008 (14th Report)*, COM(2009) 140 final, SEC(2009) 376, at 15 (Mar. 24, 2009) ("*EC 14th Report*"), *available at* < http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/annualreports/14threport/commen.pdf >.

[67] *FCC Broadband Status Report* at 26.

[68] *See* Commission Staff Working Document, *accompanying the* Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Progress Report on the Single European Electronic Communications Market 2008 (14th Report)*, SEC(2009) 376/2 v.1 pt.1 (Corrigendum) at 42 (July 30, 2009) (identifying several European regulators that have developed price comparison tools for consumers, including those in Sweden, Lithuania, Ireland, Portugal, Denmark, and Slovenia) ("*EC 14th Report Staff Document*"), *available at* < http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/annualreports/14threport/Vol1Part1_30072009.pdf >; *see also EC 14th Report* at 15. The European Commission has observed that the Belgian regulator is continuing efforts to build a tariff simulator encompassing broadband, fixed, and mobile services, while the Polish and Romanian regulators have begun to build similar services. *EC 14th Report Staff Document* at 42.

[69] *See* Commission for Communications Regulation, callcosts.ie (price comparison tool), *available at* <

approach, reviewing and certifying price comparison tools offered by private providers.[70] In the United States, the advent of disclosure regimes in other contexts has proved very effective, e.g., nutritional labeling.[71]

In encouraging or mandating the provision of better information about broadband services, both in its normal data collection and publication activities, and in establishing consumer tools, the Commission should take care to ensure that it does not facilitate price collusion or limit the ability of providers to compete on price. For this reason, while the Commission may wish to promote certain standardized ways of providing price information for purposes of transparency, it should avoid restricting the ability of providers to offer new and innovative forms of service packages or pricing policies, or to discount prices to individual users from standard advertised offerings, provided that the prices are fully disclosed to consumers in a transparent manner.

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http://www.callcosts.ie/home/default.asp.> (last visited Oct. 20, 2009).

[70] *See, e.g.*, Press Release, Ofcom has accredited a price comparison service that allows consumers to get cheaper mobile phone deals by monitoring their online bills (May 20, 2009) (noting that Ofcom accreditation requires an independent audit confirming whether the price comparison service is accessible, accurate, transparent, comprehensive, and up-to-date), *available at* < http://www.ofcom.org.uk/consumer/2009/05/mobile-deals-2 >; Press Release, Ofcom re-accredits price comparison sites (Aug. 27, 2009), *available at* < http://www.ofcom.org.uk/consumer/2009/08/ofcom-re-accredits-price-comparison-sites > (discussing three private price comparison services accredited by Ofcom, for mobile services, broadband services, and fixed line, digital TV and broadband services); *see also EC 14th Report Staff Document* at 42 (noting the United Kingdom's accreditation efforts, and the increasing use of online tools to compare tariffs is increasing in Estonia).

[71] "[I]t seems natural that food manufacturers with a relatively good nutritional story to tell would disclose nutritional information. Kraft and Nabisco could then compete on nutritional value or Kraft could use nutritional information to distinguish its premium brands like Progresso. So one might think, and yet the market did not produce widespread disclosure of nutritional information until federal regulation required it. It was the regulation that created a market for nutritional information that now appears to be strong." Ellen Goodman, *Stealth Marketing and Editorial Integrity*, 85 Tex. L. Rev. 83, 139 (2007) (footnote omitted); *see also* Archon Fung et al., *The Political Economy of Transparency: What Makes Disclosure Policies Effective?* 16-17 (Dec. 2004) (noting development of competition based on nutritional information after government regulation set forth incentives for increased disclosure), *available at* < http://papers.ssrn.com/sol3/papers.cfm?abstract_id=766287#PaperDownload > (follow "download" link; then follow "Stanford Law School" link).

C. Regulation

Between the ongoing deployment of wireline broadband networks, the geographic expansion of wireless broadband services (hopefully spurred by the availability of additional spectrum to broadband wireless services), and increased transparency, the Department is hopeful that the vast majority of American households will benefit from significant competition in their local broadband markets. Put differently, most regions of the United States do not appear to be natural monopolies for broadband service. Nonetheless, some locales may well have only one terrestrial provider able to offer broadband services, especially to consumers who seek to use the most bandwidth-intensive applications, e.g., video teleconferencing.

The Department recommends that the Commission monitor carefully those areas in which only a single provider offers — or even two providers offer — broadband service. Although enacting some form of regulation to prevent certain providers from exercising monopoly power may be tempting with regard to such areas, care must be taken to avoid stifling the infrastructure investments needed to expand broadband access. In particular, price regulation would be appropriate only where necessary to protect consumers from the exercise of monopoly power and where such regulation would not stifle incentives to invest in infrastructure deployment.[72]

More generally, the benefits of price regulation in promoting broadband adoption depend upon the importance of *affordability* relative to other factors (e.g., lack of knowledge) in the broadband adoption decisions of consumers to whom broadband service is available, but who

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[72] This discussion relates to residential broadband services. *See supra* note 10 and accompanying text.

thus far have declined to subscribe. We encourage the Commission to continue to gather information on this important question.

V. Conclusion

Broadband is a cornerstone of growth and innovation in the 21st century economy. American citizens want and deserve the best possible services and a choice of providers. As part of the development of a broadband plan, the Commission should evaluate what strategies will best promote the development of an affordable and innovative broadband infrastructure in the United States.

These broad goals are best served by promoting competition in broadband markets. In practice, this does not mean striving for broadband markets that look like textbook markets of perfect competition, with many price-taking firms. That market structure is unsuitable for the provision of broadband services, which involve very substantial fixed and sunk costs. Rather, promoting competition is likely to take the form of enabling additional entry and expansion by wireless broadband providers, applying other appropriate policy levers, and spurring competition

among broadband providers by improving the information available to consumers about the service offerings in their areas.

Respectfully submitted,

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January 4, 2010

Mr. GOODLATTE. In that regard, Commissioner McDowell, Chairman Genachowski has been somewhat dismissive of antitrust remedies to address these issues. I don't see problems because, as you correctly point out, there are quadrillions of bits of information that are exchanged I think very freely over the Internet on a daily basis

and the examples of potential abuse have been de minimis and have been solved under current law as opposed to this new proposed rule.

But, let me just ask you, looking ahead and supposing that issues will arise, as I no doubt believe they will, do you believe that antitrust law provides an appropriate and adequate remedy for the sorts of misconduct that the open Internet order seeks to curtail?

Mr. MCDOWELL. Yes.

Mr. GOODLATTE. Any elaboration on that?

Mr. MCDOWELL. Sure. So under—I didn't know how long I had. Under Section 2, whether it is refusals to deal or exclusive dealings or raising rivals' costs, all of the scenarios put forth by the proponents of Internet network management regulation for these rules can be addressed by those laws. But so can also, you know, Section 5 of the Federal Trade Commission Act could also address it as well.

And you make an excellent point which is the de minimis amount of allegations that have been made and all, all were resolved in favor of consumers under existing law.

Mr. GOODLATTE. Thank you. My time is expired.

And the Chair now recognizes the gentlewoman from California, Ms. Chu for 5 minutes.

Ms. WATERS. Thank you very much, Mr. Chairman. Let me welcome Mr. Genachowski here and Mr. McDowell here this morning with their statement.

Voice. It is just Judy Chu. Sorry. Ms. Judy Chu.

Ms. WATERS. Oh, it is Judy's turn? I am sorry.

Mr. GOODLATTE. I think we recognized Ms. Chu.

Ms. WATERS. It was? Okay.

Mr. GOODLATTE. But we will come—— [Laughter.]

We have a lot of California——

Ms. CHU. It's fine.

Mr. GOODLATTE. I said we have a lot of California gentlewomen here and we respect them all, but we are going to Miss Chu first.

Ms. CHU. Well, thank you.

Well, Chairman Genachowski, opponents of the rules of the road have argued that the Internet is open and inspired innovation under current law and that broadband has expanded to reach a significant number of Americans. So, please explain for our knowledge what has changed in the marketplace, in your opinion, to make this rule necessary.

Mr. GENACHOWSKI. Well, the misperception that some people have is that the framework that we adopted was the first time that the FCC adopted measures to preserve a free and open Internet. In fact, in 2002 the FCC issued open Internet principles; in 2005 it enforced—it issued an enforcement action against a company that was blocking voice over the Internet; later, under its framework, it issued—it enforced—it took an action against a cable company that was blocking online video. What we saw—what I saw when I came to the FCC was that there had been a bipartisan history in favor of preserving a free and open Internet, but we inherited a process that wasn't the traditional rulemaking process, had created uncertainty because there weren't any rules that had been written down. And we took it upon ourselves to increase certainty

and predictability in the overall broadband economy by conducting an open Administrative Procedures Act rulemaking process.

One other point, if I may, the fact that there were incidents of blocking, degrading during these years when the FCC made clear that that shouldn't happen, means a lot because it means that even with the rules there were issues. In the absence of the FCC going back to 2002 saying this was an issue, it is fair to presume that there would have been many more instances of interference with Internet openness and freedom. What we have done now is simply codify a fair and reasonable, broadly supported framework that increases the level of certainty and predictability for everyone in the broadband economy, including America's great entrepreneurs and early-stage investors.

Ms. CHU. And in fact talking about those companies that have blocked services on the Internet, can you be more specific about them, specific examples?

Mr. GENACHOWSKI. Sure. In 2005 a company called Madison River blocked voice over the Internet traffic to its consumers. In 2008 Comcast blocked lawful video from Bit Torrent. We learned in, I think, 2009 that Apple and AT&T had agreed that voice over the Internet applications should not be allowed on the IPhone, that has since been changed. There have been private lawsuits raising instances of Internet blocking or degrading that were settled by—with agreements to follow practices consistent with open Internet and freedom. All of this was as against a backdrop of an expectation any lawyer would have told any company, look the FCC has something in place here, before our framework they would have said, but we're not sure exactly what it is.

Ms. CHU. And how has this rule been received by the industry and other players?

Mr. GENACHOWSKI. Well, I think in this contentious area I am very proud of our staff for working hard to get the broadest possible consensus that anyone has seen in an issue that is difficult like this. And so across the spectrum from early-stage entrepreneurs and investors, to major ISPs and cable companies, there has been support for the predictability and certainty that the order provides. I mentioned in my opening statement that it has been described as a pragmatic resolution that promotes investment, economic growth and innovation.

Ms. CHU. And in fact opponents do argue that this regulation would hurt our economy and stifle private sector job creation and undermine innovation. How does this ensure that we can continue to have innovation in—and that investment can flourish?

Mr. GENACHOWSKI. Well, fundamentally this is an innovation framework. It makes sure that the next entrepreneur with a great idea in a garage or a dorm room can start that business knowing that if he or she puts it on the Internet it will reach an audience and the market will decide whether or not it is successful. And they don't have to worry about it being blocked by any of the companies that control access to the Internet, that is a fundamental way to make sure that we preserve what has been so great about the Internet in promoting innovation, job creation and private investment in our company.

Ms. CHU. Thank you. I have no time—awareness of the time because of the——

Mr. GOODLATTE. I think that gives you a little latitude to ask another question.

Ms. CHU. Oh. Okay. Well, but thank you, I think I will yield back.

Mr. GOODLATTE. I thank the gentlewoman.

And the Chair now recognizes the gentleman from North Carolina, Mr. Coble?

Mr. COBLE. Mr. Chairman, I thank you for that. Mr. Chabot, the gentleman from Ohio has been here longer than I, Mr. Chairman. If you would recognize him then I will get mine later.

Mr. GOODLATTE. With your deference we will be happy to do that and we will recognize the gentleman from Ohio for 5 minutes.

Mr. CHABOT. Thank you, I—just one question and then I am going to yield the balance of my time to Mr. Coble and then he can have my time and his time.

I understand that it has already been discussed, to some extent here today, in my absence, the fact that some have argued that we don't need further regulation to achieve net neutrality because our Federal antitrust laws may be used to seek redress from anti-competitive behavior. How does that argument square with the impact of the Supreme Court's ruling in Trinko that makes it considerably more difficult to bring an action under our antitrust laws for activities regulated by the FCC pursuant to the Telecommunications Act?

And I will start with Mr. McDowell, I guess. In fact I will give it to Mr. McDowell, then I am going to go ahead and yield back so I can go with Howard.

Mr. MCDOWELL. Thank you, Mr. Chabot. You know, I was in the private sector when the Trinko case was decided in 2004 and I read it many times and I have reread it in preparation for this hearing. What is—I think Trinko is first of all a case of bad facts, perhaps not making the best law. You have an indirect purchaser situation, first of all. But second of all, what the Court said there, my interpretation is that when there is a statutory regime setting up regulatory relief for a particular matter, that the courts are loathe to step in with antitrust remedies. And what you had in Trinko, I think, has to be looked at specifically to the facts and the law applied to Trinko. You had the Telecommunications Act of 1996, you had Title II specifically, you had the unbundling obligations of the regional Bell operating companies, so you had Sections 271 and Section 251 and Section 251(c)(3) in particular. And so that was a very prescriptive, statutory regime, that gave the FCC a great deal of authority and latitude as to how to address competition matters and regulatory matters that came up within the confines of the statute.

Here, with broadband Internet access, broadband Internet access by the net neutrality order's own admission is not common carriage. The order itself, from last December, goes out of its way to say it is not common carriage, even though I think the FCC is trying to foist a lot of the common carriage type regulation on there, on its face it is saying it is not common carriage. So therefore, Title

II would not apply, so therefore it is unregulated, so therefore the antitrust laws would apply even in the face of Trinko.

But I would like to address a few other things as well. Not to split hairs on the legal history of the FCC's actions regarding an open Internet, the FCC, in 2005 did bring action against Madison River and entered into a consent agreement. Madison River was a phone company and was violating its statutory obligations under Title II and that is how the FCC came after it.

The Internet principles of 2005 were just that, they were principles. All four commissioners at that point said they were not enforceable, they did not have the effect of rules, they didn't go through the notice of proposed rulemaking process, the notice and comment process. They weren't codified in the Code of Federal Regulations. Yet, at least two, I think three actually, of the commissioners reversed themselves in 2008 to address the allegations made against Comcast in the Bit Torrent affair that arose in 2007. So in 2008 there was that order and the commissioners reversed themselves to say, oh those are enforceable rules when in fact they didn't go through the process, they weren't codified in the Code of Federal Regulations, they were not rules.

So that was when the commission actually started to take a turn down——

Mr. CONYERS. Sorry.

Mr. MCDOWELL [continuing]. A turn down the wrong road in terms of its authority. And I think that is important. But what is also important about what the chairman said is that all of those complaints, every single one of them were resolved under existing law that came prior to the net neutrality order, every single one of them.

Mr. CHABOT. Okay. Thank you very much.

I would like to yield the balance of my time to Mr. Coble.

Mr. COBLE. Mr. Chairman, what little time I have then I will wait my turn, but let me start with Mr. McDowell.

Mr. McDowell, will the order only affect large cable and telephone companies or will it affect smaller companies as well, a.). And b.) how will it affect local co-ops?

Mr. MCDOWELL. It affects, from my understanding of it, all companies regardless of their size and including local, rural co-ops.

Mr. COBLE. Let me go to the chairman and try to beat the red light, Mr. Chairman. Mr. Chairman, given that the recent academic studies have demonstrated that in excess of 89 percent of the bit traffic—Bit Torrent traffic is copyright infringing material, would slowing down or delaying or blocking Bit Torrent package to prevent copyright infringement be allowed under the rule under the order?

Mr. GENACHOWSKI. The order addresses only lawful content and it makes it clear that measures to enforce intellectual property or other actions against unlawful content are permissible under the framework.

Mr. COBLE. Mr. Chairman, do I have time for one more question?

Mr. GOODLATTE. Without objection, gentleman is recognized for an additional minute and then we are going to give you another bite of the apple here. So——

Mr. COBLE. And by the way, I apologize for my delay, I had two other hearings going on this morning.

Mr. GOODLATTE. Go right ahead.

Mr. COBLE. I thank you, Chairman.

Either to Mr. McDowell or—Commissioner McDowell or the chairman. The order predicts significant and likely irreversible harm from threats to openness unless the FCC rules are enacted, I am told. Has the lack of these rules led to significant and irreversible harm at any point in the past?

Mr. MCDOWELL. The lack of rules has not led to significant or irreversible harm, in fact we have an open and freedom enhancing Internet, I think precisely because the government has not been involved.

Mr. COBLE. Mr. Chairman, you want to be heard?

Mr. GENACHOWSKI. If I could just add again, since 2002 the commission has made clear that it was important to the country and the commission to preserve Internet openness and freedom and since 2005 enforced it in a series of instances. The mechanism that it used was later invalidated by the court and so that left the commission without—at great uncertainty in the marketplace, particularly for early-stage investors. The framework that we adopted, pursuant to Administrative Procedures Act process under the Communications Act restored certainty and predictability among early-stage investors and in various ways for Internet service providers as well.

Mr. COBLE. Thank you. Mr. Chairman Goodlatte, thank you for your generosity. I yield back.

Mr. GOODLATTE. I thank the gentleman. The Chair now recognizes the second gentlewoman from California, Ms. Sánchez for 5 minutes.

Ms. SÁNCHEZ. Thank you and I will just point out for the Chairman's general knowledge that California sends the most female representatives to the United States Congress, that is why you find yourself in the midst of so many here on Judiciary.

Mr. GOODLATTE. And we are pleased to have them all. [Laughter.]

Ms. SÁNCHEZ. Thank you so much. I want to thank both of our witnesses for joining us today. And as both witnesses notice in—or noted in their written treatment, I think the FCC does a great job of addressing the issues in front of them, to the best that they can in a bipartisan manner and that is something that is to be envied from somebody sitting on this side of the table, so to speak.

I want to start my questioning with Chairman Genachowski. Did I pronounce that correctly?

Mr. GENACHOWSKI. Genachowski.

Ms. SÁNCHEZ. Genachowski, I'm sorry. You know, it is no secret that in the FCC's national broadband plan 13 percent—just 13 percent of Americans have only one broadband access provider and 78 percent of Americans have only two broadband options which means not a lot of choice out there. So I am curious in getting your perspective on in the absence of the open Internet order that the FCC has adopted, should those citizens be worried about the content that they hope to access potentially being censored?

Mr. GENACHOWSKI. Well that was one of the reasons why we thought it was important to adopt the order and I think the framework that we adopted gives consumers and innovators basic protections to ensure that if you are a consumer you can access whatever is lawful on the Internet, if you are an entrepreneur you can put something on the Internet and know that consumers will have access to it.

Ms. SÁNCHEZ. Great. And just as a side note, I would be interested to know what you are doing to try to help expand options for these folks that don't have a lot of choices when it comes to access.

Mr. GENACHOWSKI. We each, Commissioner McDowell and I each mentioned several items that we are working on together to increase competition, from dealing with infrastructure issues like tower siteing and pole attachment to freeing up more spectrum both unlicensed and licensed. Those are just some of the measures that we pursue to promote and extend competition in the marketplace.

Ms. SÁNCHEZ. Great. I am curious in knowing what you think the impact of the open Internet order will have minority communities in particular.

Mr. GENACHOWSKI. I think keeping the Internet open allows anyone with an idea or a business concept to have a real chance. And that is true for members of minority communities. We have actually seen a number of examples of business and content entrepreneurs from minority communities take advantage of an open Internet to build an audience, build a business. It is one of the many reasons why preserving the openness and the freedom of the Internet has real value for the country.

Ms. SÁNCHEZ. Thank you. I am interested in knowing, if you can give us an example of how—because it has been suggested that antitrust laws would help with respect to violation of Internet freedom, but can you give me an example of how using solely antitrust enforcement would play out regarding a violation of Internet freedom?

Mr. GENACHOWSKI. What concerned the staff and us as we looked at this issue was—and what we heard from early-stage companies and investors, you know, imagine an early-stage company working out of its garage or a small office, that has a great product, that perhaps is competitive with a product offered by an Internet service provider and gets blocked. Well, what is that early-stage company supposed to do? If the only remedy is filing an antitrust lawsuit, you know, here is a company that has no money, that has very few customers, if any, having to find a lawyer, pay the lawyer to file a lawsuit, prove damage and hope at the end of the day—well this—it is just—even telling the story, it is not realistic for America's early-stage entrepreneurs and small businesses, and it is why I think that going back many years there has been a real consensus that baseline protections for Internet freedom and openness were necessary and would be a healthy complement to antitrust laws, which themselves are very, very important.

And so it is no—I don't mean any disrespect to antitrust laws, they play a critical role in promoting our economy and competition, but in some areas like this, they aren't alone enough.

Ms. SÁNCHEZ. There might be in fact an additional hurdle for people that are trying to compete?

Mr. GENACHOWSKI. Um hmm.

Ms. SÁNCHEZ. Great. And then finally, you know, there has been some debate over what the response has been from the commercial sector to the rules that you adopted in December, whether it has been predominantly positive or negative. You mentioned that in your experience you have been that it seemed to be predominantly positive people are looking for something that is pragmatic and something that has predictability. And I am just wondering if you can expand on that a little bit.

Mr. GENACHOWSKI. Sure, of course. You know, the—and we would be happy to provide you—people said things publicly and so I am not, you know, reporting simply in private conversations. And we heard from, I think one of the Members mentioned TechNet which broadly represents the technology community, companies and associations throughout the broadband economy, large ISPs and cable companies, early-stage investors and entrepreneurs. We would be happy to provide you with some of the examples of statements that were issued after the order was adopted.

Ms. SÁNCHEZ. Would you say, with the Chairman's indulgence I will just—if I could have an additional 15 seconds to ask this last question?

Mr. GOODLATTE. Without objection the gentlewoman is recognized for an additional minute.

Ms. SÁNCHEZ. Oh, thank you. Very generous.

Would you say that these are not always people that have the same interests, so it is sort of a broad swath of people who are interested in this issue have actually come to some sort of agreement in terms of support?

Mr. GENACHOWSKI. Very much so. And I—at some level we became concerned that sort of the Groundhog Day ongoing battle on net neutrality was doing harm to the potential of high-speed Internet for all Americans. And we heard that from many entities throughout the economy saying, you know what, it is time to resolve this, the gap between the bid and ask isn't that large, let's work together to find a framework that moves us forward and allows us to tackle other issues that we need to tackle as country, unleashing spectrum, transforming the Universal Service Fund from telephone to broadband, a whole series of issues that we need to drive broadband success in the United States.

Ms. SÁNCHEZ. Great. And I thank you for your time and I yield back.

Thank you, Mr. Chairman.

Mr. GOODLATTE. I thank the gentlewoman and the Chair now recognizes California gentlewoman number three, Ms. Waters, for 5 minutes.

Voice. Number four.

Ms. WATERS. Thank you very much, Mr. Chairman. Again, I would like to thank Mr. Genachowski and Mr. McDowell for both being here today with this statement. I have three areas that it is going to be hard to get to in a limited period of time, but if I kind of tell you in advance perhaps you can respond to questions that I am going to have about the Comcast/NBC merger, about net neu-

trality and of course our new bank media mogul, Mr. Jamie Diamon and JPMorgan.

On the Comcast/NBC merger, the FCC and DOJ have authority to review media mergers under Federal antitrust laws. The FCC's process allows for a more comprehensive public interest analysis. According to the Supreme Court and FCC president, factors considered to be in the public interest must include a deeply rooted preference for preserving and enhancing competition, promoting diversity of license holdings and generally managing the spectrum in the public interest.

How does consolidation promote a diversity of license holdings and what types of public interest conditions tend to promote a diversity of license holdings and broadcast viewpoints? Which public interest conditions in the FCC's order approving the Comcast merger were not previously agreed to or presented by the merging applicants months in advance? That is on Comcast.

On net neutrality, many of us consider the FCC net neutrality's rule very weak and all of the consumer protection and public interest organizations have basically said this. I want to know, since the future of the Nation's communications infrastructure is moving to mobile wireless, is the FCC at all concerned about the lack of protection for wireless Internet users?

My colleagues on the other side of the alley are also worried about investment. Many investment firms and venture capitalists are now lining up behind innovators who are developing mobile applications for cell phones and other portable services. If the FCC is at all concerned about the potential blocking that could occur over mobile wireless networks, what may that may stifle investment and mobile application?

And finally, last year Bloomberg reported that JPMorgan Chase owns a 10.2 percent stake in U.S.A. Today publisher Gannett Company, making it the company's largest shareholder. Besides U.S. Today, Gannett owns more than 80 other daily newspapers scattered across the country. JPMorgan Chase owns or wields considerable power over Reader's Digest Association, Source Internet Companies and American Media. If the holdings of all these companies that JPMorgan Chase has inherited were rolled into a single entity it would be the largest magazine publisher in the United States.

JPMorgan could also become a co-owner of the Tribune Company, publisher of the Los Angeles Times and Chicago Tribune, depending on the outcome of the proposed bankruptcy organization or reorganization plans in courts. I have been following the L.A. Times waiver for quite some times now and I suppose they have been holding on and they have been protected in this waiver until they could resolve this bankruptcy and perhaps do this kind of sale that is being contemplated.

So, is the FCC at all concerned about whether JPMorgan's mass media holdings violate the agency's cross-ownership rules? Do you think it serves the public interest for Wall Street to own significant portions of the media?

Mr. GENACHOWSKI. Thank you for the questions. Let me try to address each of them.

With respect to Comcast/NBC, the statutory obligation of the agency is to determine that a license transfer is in the public inter-

est. And so it is not surprising that companies who seek FCC approval think in advance about what types of actions might permit the FCC to determine that the transaction was in the public interest. And often those public interest benefits from the start are beneficial.

Of course they don't determine the end of our process. In that transaction we conducted a very thorough, extensive review and over the course of it approved the merger with a series of conditions that allowed the commission to determine that the transaction was in the public interest. I would be pleased to provide you a full list of it and both what was in the initial public interest showing and what——

Ms. WATERS. No, no, no. I know what it is in it and I will be watching to see if there is going to be an enforcement. I don't like it. You have spoken to it. We can move on.

Mr. GENACHOWSKI. And so the second question on wireless, a couple of points. There is a misperception, to a certain extent, about what we did on wireless and open Internet. We did have—we do have a provision, a no blocking provision for wireless Internet access. The transparency requirements are there. And there is also a provision saying no blocking of competitive applications. So those are there.

We also said that we would monitor developments in the wireless space to see if additional action was necessary. We hope there won't be, but it is part of the FCC's role to monitor and determine if additional action is necessary.

And on the third question, I am not familiar with the underlying—sorry.

Ms. WATERS. If you may, just for a moment on the wireless, since the future of the Nation's and communication's infrastructure is moving to mobile wireless, is the FCC at all concerned about the lack of protection for wireless Internet users? I really want to understand with this dual track, this dual system that we have, how are you going to do that?

Mr. GENACHOWSKI. Well, we thought it was appropriate to take into account legitimate differences between wired and wireless, but let me say, the wireless is incredibly important to the future of our economy.

Ms. WATERS. That is right.

Mr. GENACHOWSKI. Wireless Internet access is very important. Ensuring open Internet on wireless is very important. We took into account differences between wired and wireless in putting together our rules, but again, there is a no blocking rule in affect, no blocking of competitive applications, transparency rules in effect. I expect and believe that those will be sufficient to preserve Internet freedom and openness on wireless, but the FCC will monitor the situation and act, if necessary.

Ms. WATERS. Now to JPMorgan.

Mr. GENACHOWSKI. Well, you have mentioned facts that I am not aware and so I don't want to tread into areas that I just haven't had a chance to think about or be briefed on.

Ms. WATERS. Oh, this is big. You have got to know about that?

Mr. GENACHOWSKI. We will look at it. I am not aware of any rules that—cross-ownership rules limiting investment by financial

institutions in broadcast entities. But we would be happy to follow up if you——

Ms. WATERS. No, that's—what I am getting to is this consolidation. You know—you are aware that JPMorgan has bought up these other magazines, newspapers, what have you? You are aware of that?

Mr. GENACHOWSKI. I am aware now.

Ms. WATERS. Okay. And you are aware, particularly of their purchase of the Tribune or the court actions around the Tribune. I guess a decision was made yesterday or today or so about their bankruptcy status and what that means in terms of JPMorgan's purchase of the Tribune. Are you aware of that?

Mr. GENACHOWSKI. I am not familiar with the current status of the bankruptcy proceeding. I am aware that a bankruptcy proceeding is going on with the Tribune.

Ms. WATERS. But you know they want it?

Mr. GENACHOWSKI. Excuse me?

Ms. WATERS. You know that JPMorgan is going after Tribune?

Mr. GENACHOWSKI. I don't know exactly.

Ms. WATERS. Okay. All right.

Mr. GENACHOWSKI. But I would be happy to follow up, understand it more and——

Mr. GOODLATTE. The time of the gentlewoman has expired.

Ms. WATERS. Thank you.

Thank you very much, Mr. Chairman.

Mr. GOODLATTE. And in the category of the last shall be first or the first shall be last, the Ranking Member deferred his questions and so we will recognize him now.

Mr. WATT. Thank you, Mr. Chairman. And I deferred for—because I knew I was going to need to be here until the end of the hearing, as the Ranking Member and other Members had other things to do.

I also deferred because at the outset I kind of have viewed this as a difference in philosophy share. A free enterprise person, antitrust laws will take care of everything and you know, stay out of free enterprise and then you have got another side. And you know, and I still, even after the whole hearing and all of the questions and answers, kind of come down at that same place. You have one philosophy about this, the Chairman has another philosophy, the Chairman of our Subcommittee has one philosophy about it, the Ranking Member has another philosophy about it.

I said at the outset that I was closer to the chairman, Chairman Genachowski's position than I was. But so I ask this to Mr. McDowell, he has been here most of the time, hadn't had a chance to exert himself as much. But I have always kind of felt like it is important to understand more my—the opinion of the person who I disagree with, and so I ask this question for that purpose. When I was practicing law—the beauty of being in Congress, I have said a number of times in this Committee and other Committees, is when I was practicing law I never asked a question that I didn't know the answer to, of a witness on the witness stand. Here I can ask any question that I want, without worrying about the—whether I know the answer to it because nine times out of ten I don't

know the answer to it. And my purpose, I think the purpose of these hearings is to educate Members of Congress about it.

So the questions I am going to ask are designed to educate me about your position, Mr. McDowell, because I want to understand it better.

It seems to me that at least on the surface, and I am sure you will be able to clarify why this is not the case, you believed that the FCC has some role with respect to the—to broadband. You say, in your statement, "Since my arrival at the commission in 2006, the FCC has taken several historic steps to spur the construction of broadband facilities." You list some of those.

And then you say, on page four of your statement, that "Chairman Genachowski also deserves credit for bringing to a vote many other initiatives that may seem unimportant at first blush, but actually have a profound effect on promoting competition in the last mile." So you obviously think FCC has some role in that last mile.

And then you talk about the creation of a shot clock to ensure faster decisions by local authorities, ensuring timely resolution of pole attachment approvals with reduced rental rates for broadband providers, repurposing some satellite spectrum for terrestrial broadband use. So it is quite obviously to me that you believe that the FCC has some role and I am trying to figure out what your bright line distinction is between where you think the FCC ought to be acting with reference to broadband and where it ought not be acting, because it seems to me that in some cases when things have gone the way you wanted on that last mile, you were very happy with where—with the fact that the FCC was there doing something. And yet, in this case you have dissented and said, I don't want you to be there. And the appearance is, is that gives you a results-oriented process as opposed to a substance-oriented process. But I am sure that is not the case.

So just help me understand what you think the dividing line between—is between what the FCC did and what it shouldn't—what it did in this case and what it has done in other cases, I guess.

Mr. MCDOWELL. Excellent question. Thank you. So my guiding principle is whether or not we have statutory authority. So whatever the case might be before us, whether it is this or something else, even if I think it is a good idea but if we clearly do not have the statutory authority to do something then we can't do it.

In this case, with the net neutrality order the commission overreached, in my view. And fresh off a court opinion saying that it overreached using the same or substantially similar arguments that it did just a year earlier. So——

Mr. WATT. What are the statute—what is the statutory authority for all of the other things that—I am just, again, you know, this is not designed to trick anybody I am just trying to better understand where you come down.

Mr. MCDOWELL. Sure. So when it comes to let's say repurposing spectrum, we have the authority, under Title III, to do that and it is explicit. If it is things like pole attachments, we have the authority under Title II to do that and it is explicit.

Sometimes Congress gives us narrow authority, sometimes it gives us broad authority. Sometimes a court says you don't have that much authority, we are going to narrow down what our view

of that is and we have to follow that court's order. And that is what has happened with net neutrality.

Mr. WATT. So ultimately if we get the courts saying, yes the FCC has this authority, which is, you know, where we are headed, I guess, or not headed, one way or another the court will decide this, you are not dissatisfied with the rule you wrote, you are dissatisfied because you felt like the FCC shouldn't have written a rule?

Mr. MCDOWELL. That we just didn't have the authority to do that. So that is right.

Mr. WATT. Yeah. Okay. All right. Okay, that is fine.

And that is—that helps me. And believe me, I am not trying to call you out here, I am just trying to understand better what the differences were here.

Mr. MCDOWELL. And if I could just—you know, one common ground that we have is that, I think we all want an open and freedom enhancing Internet. But how do you get there? And we have already gotten there under existing law, in my view.

Mr. WATT. Well you have gotten the—I am not sure you have gotten there for that last five—what do you call it——

Mr. MCDOWELL. Broadband adoption and deployment, that's different.

Mr. WATT [continuing]. To the last mile.

Mr. MCDOWELL. That is a different issue for the last 5 percent or so. Yeah.

Mr. WATT. Okay. All right. That is all, Mr. Chairman. I—that is very helpful and I appreciate your——

Mr. MCDOWELL. Thank you, sir.

Mr. GOODLATTE. Well, I thank the gentleman. If the gentleman has additional questions he will be recognized again in a moment because I have a few additional questions I would like to ask the witnesses. It has been a very, very helpful and good discussion and I think we ought to take advantage of closing a few issues.

Chairman Genachowski, to revisit the whole issue of the justification for the order that more than 70 percent of Americans live in areas with only one or two fixed broadband providers, the broadband market is rapidly evolving. Commissioner McDowell has pointed out some of the statistics that point in that regard. Antitrust law, which we have advocated, has the benefit of being available and ready to step in at any time but is sitting on the sidelines and not, on a active basis, regulating unless some event takes place that would justify it.

So my question for you is will the order remain in effect if the broadband market evolves toward what you view as being more competition?

Mr. GENACHOWSKI. Well, I am sure that if very significant competition develops in the fixed broadband space we will be asked to and we would take a look at what rules are necessary under those circumstances. It is quite a challenge to generate more competition in the space. The investment costs to build out the infrastructure are high, switching costs are high. Notwithstanding a lot of good work that has been done over the years, we are still at a point where there are only one or two providers for over 70 percent of the country. So I don't think anyone thinks that we are imminently going to see——

Mr. GOODLATTE. But in many instances that is not counting wireless providers or satellite providers. Is that not the case?

Mr. GENACHOWSKI. And we are—one of the reasons that we work together on unleashing spectrum is in additional to the economic benefits of making sure our spectrum infrastructure is available for the kind of innovation that we are seeing, is that we would all be very pleased to see wireless broadband developed as a competitor in a substitutable product for fixed broadband access——

Mr. GOODLATTE. Oh, I think we would agree with that too and we would also agree that you have the jurisdictional authority to work in the direction of making more spectrum available for that purpose and I have conveyed to you my interest in being supportive of that as well. But that is a separate issue from whether you have the authority to do what you are doing here or whether you need to do it given the current increasing availability of broadband and increasing uptake and the number of companies involved. We have some large companies, obviously, in both hard line telephone service, cable service, wireless service. We also have hundreds, if not thousands of small companies that are providing these services too.

So, let me ask you a question regarding that. The order creates entirely new adversarial proceedings that can be initiated by quote, any person. Once any person initiates a proceeding against an Internet service provider, that defendant must answer and the FCC staff must evaluate the competing filings. Because these proceedings have never existed before, how can you be confident that creating them will not impose significant costs on those private parties, and the FCC, particularly smaller companies?

Mr. GENACHOWSKI. Well——

Mr. GOODLATTE. And will it not have the potential affect of slowing down the roll out of more broadband services?

Mr. GENACHOWSKI. We are committed to running any administrative processes in the most efficient way. Because of the reasons I articulated, my concerns about——

Mr. GOODLATTE. But this is an administrative process you have created that doesn't exist and wouldn't be a burden on anybody but for the fact that you have created.

Mr. GENACHOWSKI. Understood. But we needed to find, in our opinion, some framework to preserve Internet freedom and openness.

Let me make a couple of points. One is the transparency piece of what we did is very important and it is designed to minimize the need for anyone to ever have to bring a complaint.

Number two, I agree with the point that was made that it would be beneficial for third party organizations to develop, and I look forward to working with commissioner McDowell and others on that, to be an initial resource. Anything we can do to resolve disputes before they come to the FCC we will support.

And the third point I would make is that putting the framework in place and providing clarity to both early-stage companies and also Internet service providers also reduces the occasion for bringing complaints, because there is greater clarity. So we see the FCC as a backstop that we hope is infrequently and maybe never used. But the existence of that backstop we think will be important in promoting innovation and preserving Internet freedom.

Mr. GOODLATTE. I wish I shared your optimism about greater litigation. But, be that as it may, let me turn to Commissioner McDowell and ask him his opinion about whether small companies or large companies are going to be better able to deal with these adversarial proceedings and what affect will that have on competition in the Internet?

Mr. MCDOWELL. You know, I think the most common request we get at the FCC, when you boil it down to its nub, is please regulate my rival. And I think that is a lot of what is at the heart of what the push for these types of rules. Unfortunately we have seen a growing division between application dividers and Internet service providers from a policy perspective while at the same time from an engineer's perspective they look a lot alike.

So if I were to describe to you a company that has thousands of miles of fiber, it has soft switches and servers and it offers voice, video and data services and if I gave you a multiple choice test and it said, is that company either a.) AT&T, is it Microsoft, b.), c.) is it Verizon, d.) is it Google, it would be a trick question because the answer would be e.) it is all of the above.

And from an engineer's perspective the market is really demanding convergence. And we have got these old stovepipe regulations in the statute that actually force us to look at these—to treat them differently based on whether or not a bit travels over a piece of coax cable or a piece of copper, fiber or through the airwaves. And I think wireless is really going to change the entire landscape here.

I think a lot of this is fighting the last war, except it is fighting the last hypothetical war, no war ever actually broke out. It is really a fight that is rooted——

Mr. GOODLATTE. But it almost invites perpetuation of that war into the future, doesn't it? When we open the door for any person to bring an adversarial proceeding, these companies large and small will have to deal it.

Mr. MCDOWELL. Absolutely. And it disproportionately, I think, affects the smaller companies who have to bear litigation costs. But also it becomes a classic case of "Mother, May I" regulation when the FCC, in its order, invites declaratory rulings. So before a company can come out with a product or service do they have to come to the FCC for a declaratory ruling or do their rivals come to the FCC saying, that type of company cannot offer this type of product or service? Then we become an adjudicator of innovation.

Mr. GOODLATTE. Commissioner Genachowski, Mr. Chairman, the Department of Justice's settlement of its challenge to the Comcast/NBC merger included a commitment from Comcast to abide by the open Internet order for a period of time, even if the order is struck down in court. If the open Internet order is struck down in court, will the FCC play any role in enforcing this provision? And if not, how will the Department of Justice or anyone else enforcing Comcast's obligations under the open Internet order determine whether Comcast's practices are reasonable?

Mr. GENACHOWSKI. I believe that both the DOJ and the FCC orders included conditions relating to open Internet that we both viewed, at the Justice Department and at the FCC, as transaction specific conditions that would justify the merger. So in the absence of the general rules, the mechanisms would still exist to enforce

those conditions with respect to Comcast, I think both at DOJ and FCC.

Mr. GOODLATTE. What is the FCC's authority for using the merger review process to extract what Commissioners McDowell and Baker called quote far reaching and non-merger specific policy concessions, such as Comcast's promise to abide by the open Internet order? Weren't Commissioners McDowell and Baker correct that the FCC's role in merger review limited—was limited to ensuring that the transaction complies with all applicable statutory provisions?

Mr. GENACHOWSKI. Well, that is not what the Communications Act says in its direction to us. In order to approve a merger that is within our jurisdiction, one that involves the transfer of licenses granted under the Communications Act, we have to find that the transaction serves the public interest. An affirmative finding is required. And so it is not surprising that companies seek to demonstrate that a transaction is in the public interest and over the years, under both Republican and Democratic chairman, there have been merger review processes that have developed at the FCC looking at areas of importance under the Communications Act to determine whether or not a transaction is in fact in the public interest. And so it is under that framework that we operate.

The conditions, in my view, in that transaction were transaction specific. I think, for example, the open Internet condition, here you have the largest broadband provider in the country combining with a very large content player, certain it raised the potential harm of discriminating in favor of its content or against others. And so both the FCC and the DOJ concluded that in order to approve that transaction it needed to be clear that that kind of favoritism/discrimination would not occur.

Mr. GOODLATTE. Commissioner McDowell, do you have any response to that?

Mr. MCDOWELL. Certainly the public interest standard is broad and undefined when it comes to mergers. But when you ask one player to live by a set of rules that might be overturned in court for the rest of the industry, so that it is the only player that has to live by those rules, I think that is a legitimate public policy concern.

So it has been my philosophy to look at merger conditions to see, as a result of the merger, is there a specific consumer harm or market harm that arises and what can we do, in a narrowly tailored fashion, to fix that and is there a way to sunset that rather than keep it going on, even if it is overturned in court more broadly for the rest of the industry.

Mr. GOODLATTE. Thank you.

Do my questions prompt any additional questions from the Ranking Member?

Mr. WATT. No, just one observation. I keep hearing everybody bragging about the level of competition out there, still having trouble getting cell service that competes—— [Laughter.]

In the mountains of North Carolina.

Mr. GOODLATTE. And Virginia.

Mr. WATT. And the mountains of Virginia. Maybe I should be asking a question here, how close are we to getting any competition

for—even for phone service, landlines in the mountainous parts of our country?

Mr. GENACHOWSKI. Well, transforming our Universal Service Fund which spends literally billions of dollars a year to support traditional telephone, that is what it is optimized for, transforming that to an efficient, focused mechanism for broadband is a very high priority that is shared, on a bipartisan basis, at the commission, number one. And number two——

Mr. WATT. I have been hearing that for about three or 4 years now, though.

Mr. GENACHOWSKI. Well, we're working——

Mr. WATT. I keep asking this question of all of the players, the mobile carriers, the—I mean nobody seems to—they keep saying it is coming, it is coming.

Mr. GENACHOWSKI. All I can tell you is that the fact that we haven't done it yet as a country is not a good thing. We are taking this very seriously. In fact, about a month ago all five commissioners issued a joint blog letting all the players know that we were serious about action and if you had a point of view and a view on how we should solve some of these problems, now is the time to come to the table. And we are working in a very focused way on this, as we are on the spectrum challenge that the country faces. There is a growing gap between the demand on spectrum, generated by smartphones, tablets, other things, very exciting for economic growth, job creation, the gap between that and the supply. We proposed an idea for freeing up a substantial amount of spectrum. This is one where we have asked for congressional authority so that we can do this on an incentive based, market based mechanism. I think these incentive auctions would be a very positive bipartisan success for the country.

Mr. WATT. Would you just transport into your hearing record over there that I think this needs to be done.

I yield back, Mr. Chairman.

Mr. GOODLATTE. I don't know what authority we have to insert into the record at the commission. But—— [Laughter.]

In that regard I do want to thank our witnesses for their statement today. I appreciate both of you taking all this time today and working with your schedules to make it possible.

Without objection, all Members will have 5 legislative days to submit to the Chair additional written questions for the witnesses, which we will forward and ask the witnesses to respond to as promptly as they can so that their answers may be made a part of our record.

And without objection all Members will have 5 legislative days to submit any additional materials for inclusion in the record.

With that, I again thank the witnesses and declare the hearing adjourned.

[Whereupon, at 12:44 p.m., the Subcommittee was adjourned.]

APPENDIX

Material Submitted for the Hearing Record

Response of the Honorable Julius Genachowski, Chairman, Federal Communications Commission, to Post-Hearing Questions from the Honorable Howard Coble

QFRS – Rep. Howard Coble

Q: I understand that the Federal Trade Commission and the Federal Communications Commission (FCC) have commenced an investigation into Google's "Street View" mapping service. Did the FCC participate in this investigation and if so what is the status of the investigation?

The Federal Trade Commission conducted its own inquiry, which it closed without action in October. The FCC is conducting a separate inquiry. The FCC's organic statute, the Communications Act of 1934, as amended, governs the interception of communications. The Commission is considering whether and how the relevant provisions of the Act might apply to Google Street View.

Q: If Google collected WiFi payload data files in the US, what information may be contained in those files and to what extent is WiFi payload data file fishing regulated?

Although I cannot comment on the details of an open inquiry, Google itself has publicly provided some information about the type of information that was contained in the payload data that the company collected. In an October 22, 2010 post on their official blog (http://googleblog.blogspot.com /2010/10/creating-stronger-privacy-controls.html), the company stated that "a number of external regulators have inspected the data as part of their investigations . . . It's clear from those inspections that while most of the data is fragmentary, in some instances entire emails and URLs were captured, as well as passwords." As to the second part of your question, our inquiry was instituted to determine the extent to which this data collection might be contrary to any statute or regulation.

The Commission has urged consumers to secure their home Wi-Fi networks, which would prevent unauthorized users from viewing or collecting the contents of their Internet use. See http://transition.fcc.gov/cgb/protectwifi.html and http://www.fcc.gov/blog/home-wi-fi-network-security.

Q: Does the FCC regulate the collection of Internet user information by online search engines?

The FCC rules and orders do not address the collection of Internet user information by online search engines.

Q: Do Internet users know what information is being collected by search engines?

Internet users may or may not realize that their queries can be and are being stored by search engines.

Response of the Honorable Julius Genachowski, Chairman, Federal Communications Commission, to Post-Hearing Questions from the Honorable Jerrold Nadler

QFRS – Rep. Jerrold Nadler

Q: Is it not true that an entity with monopoly power in a properly defined product market can make a unilateral decision to impair, impede, or block internet broadband traffic and not violate U.S. Federal antitrust laws, as long as *either* (a) said anticompetitive conduct was not used by said entity to have obtained or maintained its monopoly *or* (b) said anticompetitive conduct did not include the coercive tying of a separate product to gain leverage in another product market with a significant enough effect on commerce? Could not examples of such conduct be decisions to impair, impede, or block internet broadband traffic based on moral or ideological reasons? Please elaborate on these cases of anticompetitive conduct concerning internet broadband traffic, in which antitrust law is not a possible remedy.

See answer to next question.

Q: Is it not true that even if an entity makes a unilateral decision to impair, impede, or block broadband traffic to advantage its own competitive position and/or disadvantage a competitor, said entity would not be in violation of U.S. Federal antitrust laws unless it *either* (a) had monopoly power in a properly defined product market and the entity had used this anticompetitive conduct to achieve or maintain its monopoly, (b) had monopoly or market power in one properly defined product market and this anticompetitive conduct included the coercive tying of a separate product to gain leverage in another product market with a significant enough effect on commerce, *or* (c) did not have monopoly power but engaged in this anticompetitive conduct with a specific intent to monopolize and for which there was a dangerous probability of it achieving monopoly power? Please elaborate on these cases of anticompetitive conduct concerning internet broadband traffic, in which antitrust law is not a possible remedy.

As suggested in Questions 1 and 2, the antitrust laws focus on impacts to competition and not, in contrast to the Communications Act, on other public interest values. Indeed, in antitrust cases the courts have been reluctant to interfere with a company's unilateral decisions about whether and on what terms to deal with other entities, even when the company is a monopoly. For example, in *Verizon Communications, Inc. v. Law Offices of Curtis V. Trinko,* 540 U.S. 398 (2004), the Supreme Court emphasized its reluctance to impose a duty to deal, even where a monopolist allegedly controlled an "essential facility," beyond the limited circumstances in which such a duty had been recognized under earlier precedent. *Id.* at 408-09 (discussing *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985)).

Thus, as the Commission's *Open Internet Order* recognized, echoing the Chairman of the FTC, the ability of antitrust enforcers to respond to threats to the open Internet may be limited. *See, e.g., Open Internet Order* n.141 ("'[T]here is little agreement over whether antitrust, with its requirements for *ex post* case by case analysis, is capable of fully and in a timely fashion *resolving* many of the concerns that have animated the net neutrality

debate.'") (quoting Comm'r Jon Liebowitz, FTC, *Concurring Statement of Commissioner Jon Leibowitz Regarding the Staff Report: "Broadband Connectivity Competition Policy"* (2007), *available at* www.ftc.gov/speeches/leibowitz/V070000statement.pdf). Antitrust enforcement is expensive to pursue, time consuming, and takes effect only after damage is done. As a result, the antitrust laws, standing alone, are not a practical solution for America's early-stage entrepreneurs and small businesses, which rely on a free and open Internet to innovate and grow.

Q: Is it not true that outside of the unilateral decisions to impair, impede, or block internet broadband traffic that could be a violation of U.S. Federal antitrust laws as contemplated by questions one and two, the only other categories of cases which could constitute a violation of U.S. Federal antitrust laws are if a decision to impair, impede, or block internet broadband traffic was not unilateral but instead was part of an agreement either (a) between two or more entities in which those acts were in furtherance of a conspiracy to monopolize and there is a specific intent to monopolize or (2) between or among two or more competitors and which either was obviously harmful to competition (per se antitrust violation) or resulted, on balance, in competitive harm in a properly defined product market (antitrust violation under rule of reason analysis)? Please elaborate on these cases of anticompetitive conduct concerning internet broadband traffic, in which antitrust law is not a possible remedy.

Your question highlights the limitations of antitrust as a tool for addressing agreements between companies to impair, impede or block Internet traffic. In most circumstances, such agreements will be judged under some form of the so-called Rule of Reason standard, which requires a lay jury to balance anti-competitive effects against pro-competitive justifications. Rule of Reason litigation is typically fact-intensive and time-consuming, and frequently involves conflicting expert testimony. The Commission's complaint process under the *Open Internet Order*, by contrast, provides a relatively speedy and inexpensive avenue for enforcement of the straightforward, high-level rules of the road for broadband Internet service providers that are spelled out and explained in the *Order*.

Response of the Honorable Robert M. McDowell, Commissioner, Federal Communications Commission, to Post-Hearing Questions from the Honorable Jerrold Nadler

House Committee on the Judiciary
Subcommittee on Intellectual Property, Competition, and the Internet
Hearing: "Ensuring Competition on the Internet: Net Neutrality and Antitrust"
Room 2141 Rayburn House Office Building
May 5, 2011
Questions for the Record from Rep. Jerrold Nadler

Answers from Commissioner McDowell

1. Is it not true that an entity with monopoly power in a properly defined product market can make a unilateral decision to impair, impede, or block internet broadband traffic and not violate U.S. Federal antitrust laws, as long as *either* (a) said anticompetitive conduct was not used by said entity to have obtained or maintained its monopoly *or* (b) said anticompetitive conduct did not include the coercive tying of a separate product to gain leverage in another product market with a significant enough effect on commerce? Could not examples of such conduct be decisions to impair, impede, or block internet broadband traffic based on moral or ideological reasons? Please elaborate on these cases of anticompetitive conduct concerning internet broadband traffic, in which antitrust law is not a possible remedy.

These scenarios are highly unlikely to occur given the current market conditions. Existing competitive pressure in the marketplace will continue to dissuade companies from taking such steps even in situations where antitrust laws may not apply. Furthermore, other consumer protection laws may apply, such as the Federal Trade Commission Act, which act as a deterrent and cure of misconduct.

2. Is it not true that even if an entity makes a unilateral decision to impair, impede, or block broadband traffic to advantage its own competitive position and/or disadvantage a competitor, said entity would not be in violation of U.S. Federal antitrust laws unless it *either* (a) had monopoly power in a properly defined product market and the entity had used this anticompetitive conduct to achieve or maintain its monopoly, (b) had monopoly or market power in one properly defined product market and this anticompetitive conduct included the coercive tying of a separate product to gain leverage in another product market with a significant enough effect on commerce, *or* (c) did not have monopoly power but engaged in this anticompetitive conduct with a specific intent to monopolize and for which there was a dangerous probability of it achieving monopoly power? Please elaborate on these cases of anticompetitive conduct concerning internet broadband traffic, in which antitrust law is not a possible remedy.

See answer above.

3. Is it not true that outside of the unilateral decisions to impair, impede, or block internet broadband traffic that could be a violation of U.S. Federal antitrust laws as contemplated by questions one and two, the only other categories of cases which could constitute a violation of U.S. Federal antitrust laws are if a decision to impair, impede, or block internet broadband

traffic was not unilateral but instead was part of an agreement *either* (a) between two or more entities in which those acts were in furtherance of a conspiracy to monopolize and there is a specific intent to monopolize *or* (2) between or among two or more competitors and which either was obviously harmful to competition (*per se* antitrust violation) or resulted, on balance, in competitive harm in a properly defined
product market (antitrust violation under rule of reason analysis)? Please elaborate on these cases of anticompetitive conduct concerning internet broadband traffic, in which antitrust law is not a possible remedy.

See answer above.

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