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# NET NEUTRALITY: IMPACTS ON NEW HAMPSHIRE SMALL BUSINESSES

## FIELD HEARING

BEFORE THE

## COMMITTEE ON SMALL BUSINESS AND ENTREPRENEURSHIP UNITED STATES SENATE

ONE HUNDRED FIFTEENTH CONGRESS

SECOND SESSION

MAY 3, 2018

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# NET NEUTRALITY: IMPACTS ON NEW HAMPSHIRE SMALL BUSINESSES

**THURSDAY, MAY 3, 2018**

UNITED STATES SENATE,
COMMITTEE ON SMALL BUSINESS
AND ENTREPRENEURSHIP,
*Durham, NH.*

The Committee met, pursuant to notice, at 10:03 a.m., in Room 158, Memorial Union Building, University of New Hampshire, Hon. Jeanne Shaheen presiding.

Present: Senator Shaheen.

## OPENING STATEMENT OF HON. JEANNE SHAHEEN, RANKING MEMBER, AND A U.S. SENATOR FROM NEW HAMPSHIRE

Senator SHAHEEN. Good morning. I'm actually going to sit down in just a minute because we have an official format we have to follow, because this is an official field hearing of the Small Business and Entrepreneurship Committee. So we will be following the guidelines that we have as a field hearing. But I want to first welcome everyone, and you should feel free to move up if you would like, if you have trouble hearing.

I wanted to thank the University of New Hampshire for hosting us this morning. We have Stan Waddel, who is UNH's Chief Information Officer who is here, and he will say a few words because he is also very interested in these issues.

So, Stan, before we officially open, I'm going to ask you to say a few words.

Mr. WADDEL. Certainly. Thank you. Thank you very much.

First, I would like to offer each of you a warm welcome to the University of New Hampshire. The University of New Hampshire is the State's flagship research and education institution, home to 13,000 undergraduate students and 2,500 graduate and professional students, and an estimated $1.5 billion economic impact on the State of New Hampshire.

As a technology professional in higher education, I can tell you that colleges and universities are watching this issue with great concern. We have concerns around whether or not the impacts will increase our cost of delivering content for students in the education of students. We have concerns whether or not it will impact the cost of our research endeavors and just in general have an impact on the ability to have a free exchange of ideas and information on the internet.

So we are watching these developments with concern, and I'm pleased that you guys are here to discuss this very important mat-

ter. Given that, I'd like to welcome the panel and Senator Jeanne Shaheen.

Senator SHAHEEN. Thank you.

Mr. WADDEL. And I'll be brief and just say welcome and good morning.

Senator SHAHEEN. Thank you, Stan.

As you can tell, Stan is not from New Hampshire, but we're delighted that he's here, and he said he's actually made it through three winters now.

Mr. WADDEL. I have.

Senator SHAHEEN. So he's here to stay.

Thank you very much, Stan.

At this time I would like to officially open the Small Business Committee's field hearing in Durham to explore the impact of net neutrality on New Hampshire's small businesses.

Now, before we turn to our witnesses, I'm going to introduce a few of the people in the audience today.

First of all, we have New Hampshire's head of the Small Business Administration, District Director Greta Johansson. Greta, very nice of you to join us today. Thank you.

We also have the—I don't know if we have Warren Daniel here? Yes. Warren, thank you. Nice to have Warren here.

And do we have Jason Cannon, the Acting Director from the Small Business Development Centers? No.

So, thank you all very much. It's really important to have representatives from the SBA here to listen to the testimony about the impact on our small businesses.

Is Carol Miller here? She is the Broadband—there you are, Carol. Thank you. She's the Broadband Specialist at the New Hampshire Bureau of Economic Affairs.

And Liz Gray from Live Free and Start. Nice to see you, Liz. Thank you for being here.

Let me also finally recognize Mike Shultz, who is the Vice President for Regulatory and Public Policy, and Ellen Scarponi, Senior Director of Government Affairs at Consolidated Communications. Thank you both for being here, as well.

I also want to introduce the staff of the Small Business Committee who are here. Despite what you may have heard about divisions in Congress in Washington, at the Small Business Committee we actually work very well together on both sides of the aisle to promote the interests of small business. So we are delighted to have staff from both the majority and the minority represented here today. We are very glad to welcome Skiffington Holderness, who is the Majority Staff Director for the committee. He was sent by Senator Jim Risch, who is the Chairman of the committee from Idaho. Again, we're delighted to have you here. We're hoping that he will stay and spend some money while he's here.

[Laughter.]

We're also joined by Becky McNaught, who is the Counsel on the minority staff for Senator Cardin, who is from Maryland and is the Ranking Member. I have a note here that says this is the first time for both of you to be in New Hampshire, so we hope you will stay and enjoy yourselves a little bit.

And finally let me introduce the Clerk of the Small Business Committee, Kathryn Eden, who is here to make sure that all of the notes from today's hearing are properly recorded.

Again, I want to thank Chairman Risch and Ranking Member Cardin not only for sending their staff but also for their cooperation in today's hearing.

I have a statement from Chairman Risch that I will enter into the record, and it's very helpful to have his support for this hearing.

[The prepared statement of Senator Risch follows:]

**Statement for the Record**
**Senator Jim Risch**
**U.S. Senate Committee on Small Business & Entrepreneurship**
**"Net Neutrality: Impacts on New Hampshire Small Business"**
**May 4, 2018**

I'd like to thank Senator Shaheen for holding today's hearing on the important issue of internet regulation. About 89 percent of all businesses in Idaho are small businesses, often times operating from the owner's home. Internet access is vital for these small businesses in rural states like Idaho and New Hampshire. The internet has enabled entrepreneurs in states like ours to start small businesses through the use of the internet for e-Commerce and shared services. But ill-fitting and frequently changing regulations of the internet have hurt these small businesses.

For decades, internet service was lightly regulated under Title I of the Communications Act and treated as an information service. Under this light-touch approach, entrepreneurs enjoyed open and unfettered internet access, and networks were free to invest without fear of heavy handed regulation, giving way to unprecedented growth of online business. In 2015, the Obama Administration's Federal Communications Commission (FCC) took us off this bipartisan consensus with its "Net Neutrality" rules. With Net Neutrality, the FCC regulated internet service under the onerous requirements of Title II, which was designed in the 1930's for the old "Ma Bell" monopoly. A regulatory scheme that was designed to keep large companies under the thumb of government is clearly an inhospitable environment for small businesses to start and to thrive. Net Neutrality's heavy-handedness also gave the FCC practically limitless authority to choose who wins and who loses among internet service providers. Many Idahoan broadband providers are small businesses

themselves, and the classification of broadband access as a Title II service placed an unnecessary burden on small businesses that provide and utilize rural broadband.

Small businesses need regulations that are easy to follow and they need steady regulatory schemes that don't flip-flop when administrations change. In 1934 when the Communications Act was put into place, legislators could not even fathom the concept of the internet. Internet service should not be squeezed in to fit an outdated law. It is up to us in Congress to enact clear and reasonable rules for the internet that people can count on staying in place – regardless of who is in charge of the FCC from year to year. Until these are enacted, we need to let the fast-evolving tech marketplace work as it has worked since the internet started: under the light touch of Title I. Fortunately, the FCC returned to the Title I scheme last year, reopening the field of internet service to entrepreneurs who were previously discouraged by the hurdles of public utility-style Title II.

The federal government should focus on eliminating barriers to rural broadband deployment instead of imposing additional ones on internet providers. Lighter regulations, like those under Title I, help the small broadband providers that many rural Idahoan small businesses rely on for internet access. Lighter regulations also open up the internet provider field to entrepreneurs who would offer an alternative to the big companies. All small businesses already face an uphill battle to get started, get funded, and keep compliant with regulations. Regulating internet service providers even further as if they are giant telephone monopolies virtually assures that no small entrants can enter this field. I look forward to continuing to work to make sure that the internet frontier is accessible to America's entrepreneurs.

Now, today's format will be a roundtable discussion that features our panelists, and because this is an official hearing of the Small Business Committee, we will not be able to take questions from the audience. I know a number of you here have been at other field hearings, so you know that we're all here to listen. But the official record will remain open for another two weeks. Is that correct? So if anyone would like to submit written testimony, we will make sure that that gets entered into the record.

So again, let me welcome all of you. Thank you very much for coming to the discussion this morning. This is an issue that I think is a key for so many of our small businesses. It's also a key for consumers. But as we look at the 99 percent of employers in New Hampshire who are small businesses, this is really critical. Net neutrality and the importance of maintaining an open internet is very important as we think about innovation and creativity that's going on with our small businesses.

This week is also National Small Business Week. It's an opportunity to celebrate the contributions of small businesses to our economy. As I know everybody here knows, about two-thirds of jobs that are created are created as the result of small businesses, so anything we can do to help them prosper is very important.

Net neutrality, as I think everyone here knows and as our panelists will further describe, is the idea that broadband providers should not be able to block or slow down access to certain websites. Now, this is a principle that I think has been key to a free and open internet. It has created a marketplace that's robust and a level playing field for ideas and commerce.

Unfortunately, the protections that have ensured net neutrality are now at risk because of decisions by the Federal Communications Commission last year that voted along party lines to repeal net neutrality rules. As a result, unless Congress acts, these net neutrality protections will disappear later this year, and I think this is a decision that could really have major ramifications for consumers as well as for small businesses.

In discussions that I've had throughout New Hampshire, small business owners have repeatedly expressed their concerns about what the impact of these changes would mean on their access to the internet. They're concerned that broadband providers will create a pay-to-play system that would put them at a competitive disadvantage. Small businesses in rural communities are especially concerned. As most of you know, in New Hampshire we have parts of our State that don't really have access to high-speed broadband, and we have other rural communities where they have access to only one provider.

So it's possible in the near future that the Senate will consider a bipartisan Congressional Review Act resolution to rescind the FCC's order ending net neutrality, and just yesterday a coalition of small business owners across the country sent a letter to Congress asking that we protect them by overturning the FCC's decision to repeal net neutrality, and that letter was signed by 6,000 small businesses across the country.

So as Congress considers whether to let net neutrality go forward, today's field hearing is an opportunity for us to hear from small businesses in New Hampshire, from those who work on this

issue in New Hampshire, about what's at stake for them and the communities they serve, and I'm looking forward to your comments and the discussion today. I will take what I hear here and not only will we have it for the record but I will share it with my colleagues in Washington.

So let me begin by introducing our panelists today.

First we have MJ Shoer. He currently serves as Director, Client Engagement, at Onepath, which is a nationwide managed service provider with offices in New Hampshire and other states.

Let me just point out that we have longer bios of all of the panelists here on the table in the back of the room, so please take those. You will be very impressed with the past work of all of our panelists.

Next we have Robert Zakon. He is a technologist and entrepreneur who specializes in a wide range of subjects, including cyber security, enterprise architecture, cloud computing, and the internet.

Nancy Pearson has more than 15 years of non-profit management experience, and she brings expertise in program development, delivery, and marketing at the Center for Women and Enterprise in New Hampshire, where she is the Director. Nancy, thank you for being here.

Zach Luse founded Paragon Digital Marketing in 2012 and has more than 15 years of internet marketing experience, working with and consulting for organizations of all sizes. Zach, thank you for joining us.

And Lisa Drake serves as the Director of Sustainability Innovation at Stonyfield, which is the leading organic yogurt manufacturer based in Londonderry, New Hampshire.

And finally we have Josh Cyr. He's a UNH alum, and he has a background in tech entrepreneurship and software development, and he runs Alpha Loft in Portsmouth, which is one of New Hampshire's premiere startup accelerators.

So we're delighted to have all of you here. Thank you very much for taking time to join us this morning. We're going to ask you to make opening statements of between 3 to 5 minutes, and then hopefully we will have time for further conversation.

I'm going to ask MJ if you would start.

## STATEMENT OF MJ SHOER, DIRECTOR, CLIENT ENGAGEMENT & VCIO, ONEPATH, BEDFORD, NEW HAMPSHIRE

Mr. SHOER. Thank you, Senator. My wife and I are alums, as is our oldest.

Senator SHAHEEN. Oh, good.

Mr. SHOER. My wife and I had our first date in this building many moons ago.

[Laughter.]

It's a little surreal.

Senator, thank you so much for holding this hearing. I think it's very important to share our concerns with our legislators in a very direct way.

As the Senator said, my name is MJ Shoer. I'm the Director of Client Engagement and vCIO for Onepath. We are a national company, but by way of local color we have clients from the Monadnock

region to the North Country and all across the Southern Tier, and very well concentrated here in the seacoast.

For 20 years, I ran a small business MSP in Portsmouth, and then merged into a slightly larger company in Massachusetts, which is both what's called a competitive local exchange carrier, a CLEC, and an ISP. So we've lived and breathed this for many years. In addition, all of our clients are directly affected by this.

By way of a unique perspective, I also had the distinct pleasure of serving on the Board of Directors of CompTIA, which is the Computing Technology Industry Association, which is the global IT trade association. I currently serve as the immediate past chair, and over the last several years we've actually met with our office staff in D.C. when we've come into town annually to talk about technology issues. So I've got kind of an interesting take on all this.

Perhaps most interestingly, back in 1995 I was a principal in the first dial-up internet service provider in Portsmouth, and in a matter of days—not months, not weeks, literally days—we had multiple competitors who had also opened up, and there was quite a bit of choice in Portsmouth at the time.

Now, fast-forward 23 years and there's almost no choice. In the City of Portsmouth, it's really Comcast if you want high-speed internet access. Now, for the business community there is some choice, but for the consumer there really is not. So choice is a big piece of net neutrality as well. While the throttling and the controlling of content has been in the forefront, the concept of choice has been a big part of this equation.

To put a little color on it—and not to pick on any of these companies but I'm big on word pictures—if there was a white board, I'd be doodling, which you're very happy there's not. But consider that Comcast owns NBC Universal, as an example, and further consider that Verizon is one of Comcast's largest competitors. Now, at home on Comcast with my TV service, I can get to ABC's network, CBS' network, NBC's network, whatever I want. But if I want to jump on the cut-the-cord bandwagon and only have internet access and use streaming services, Comcast is actually incented with the lack of net neutrality regulation to limit where I can go. All of a sudden, NBC will perform beautifully, but what about ABC or CBS?

In higher education, with everything that's going on with the internet and being able to offer virtual courses in conjunction with on-campus courses, similar issues could happen. If a wealthy university, say a Notre Dame or a USC, were to make a deal with providers to prioritize their courseware at the expense of more moderately sized universities like our own, our own UNH could be at a significant disadvantage in the field of higher education. And even though I'm biased, this is a pretty darn good school. We don't want to see that happen.

But more importantly is how it impacts small and mid-sized businesses in the State. It could be crippling without the regulations in place. I always like to say it's like the difference between Route 95 and Route 1. With net neutrality in place, we're all driving on 95 to get where we want to go. But if net neutrality is rolled back and I want to go stream a show on ABC across Comcast internet, I'm forced down Route 1, and I'm going to hit so many lights and so much traffic that I'm probably just not going to bother going

anymore, and I really do believe it's that simple. That is the crux of the issue.

But let me just quickly share a slightly broader perspective from the standpoint of CompTIA, which is that CompTIA's membership spans the entire global IT industry. So it's large providers, small providers, ISPs, edge providers, and CompTIA firmly believe that congressional bipartisan legislation is the only way to address this issue. Now, the CRA is a great first step. It will get what needs to get done. But I believe—this is my personal opinion, not CompTIA's—I believe this is a tremendous bipartisan opportunity.

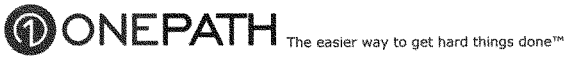
You're right, Senator, I think most of us out here in the real world don't see anything but division and gridlock on this side of the aisle or that side of the aisle, and I know I, for one, would dearly love to see both sides of the aisle collaborate on anything, and this could be a great start. And who knows? Maybe it could be the tip of that snowball over the top of the mountain.

But we definitely believe that permanent legislation is the way to go because, as it stands right now, many states have enacted executive orders, their own laws, and yet the FCC's ruling preempts the states from doing anything to begin with. So there's instant conflict going on with this.

I think the summary of it is it's a critically important issue. I hope you are very successful in rolling back the rollback. That's a double negative, but I think everyone knows what I mean. And we do believe that if the CRA is successful, the foot should not come off the gas pedal to get that permanent legislation in place.

Thank you.

[The prepared statement of Mr. Shoer follows:]




**Net Neutrality: Impacts on New Hampshire Small Businesses**

MJ Shoer
Director, Client Engagement &vCIO
Onepath

Senator Shaheen,

First, thank you for holding this field hearing, allowing local businesses the opportunity to share our concerns with you in a very direct way. My name is MJ Shoer and I am the Director of Client Engagement and vCIO for Onepath, a national provider of managed IT services to small and mid-sized businesses. Locally, we have three offices in New England, with our New Hampshire office being located in Bedford, NH. I hope to share a unique perspective on this important issue with you.

For just shy of twenty years, I owned my own managed IT services business in Portsmouth, New Hampshire. In December of 2015, I merged into a larger firm, headquartered in Massachusetts that was also a Competitive Local Exchange Carrier (CLEC) and Internet Service Provider (ISP) and in May of last year, that business was acquired by Onepath. In each of these three companies, we ourselves as well as our over seven hundred clients are directly impacted by net neutrality or the lack of it. I also serve as the Immediate Past Chairman of the Board of Directors for CompTIA, the Computing Technology Industry Association, the global non-profit trade association representing the information technology industry. In this capacity, I have been exposed to our members diverse, and sometimes conflicting positions on this issue. As a CompTIA member, I have also visited your DC office several times as part of CompTIA's annual DC Fly-In to talk about issues of importance to the tech industry.

I'd like to take a moment to quickly frame up the history of this issue and its concern for the business community here in New Hampshire and really, across the entire globe. In 1995, I was part of the first company to bring dial-up Internet access to the Seacoast of New Hampshire. Within days, not months or years, we had direct competition, with multiple ISP's springing up and providing choice. Fast forward to today, 23 years later and our choices are more restrictive than ever. In Portsmouth, for example, there is really only one high speed ISP that can cover the entire city and that company is Comcast. So one part of this issue is about competitive access options. While there is some competition for business Internet access, there is really none for consumers.

Comcast owns NBC Universal and has a streaming app that subscribers may use to watch Comcast's Xfinity content online or away from their home. Under the prior rules of net neutrality, Comcast was required to provide unrestricted access for any subscriber to any site on the Internet. Consider that Verizon is a major Comcast competitor, as is any other ISP. While Comcast's television services allow you to watch network television like ABC, CBS and NBC, consider this possible scenario we face with no net neutrality rules in place.

I decide to jump on the "cutting the cord" movement and cancel my Comcast TV services and only retain my Comcast broadband Internet access service. I want to use Yahoo.com, a free email and search service that Verizon now owns. I also want to use Hulu, which competes with Google, a company that Comcast has a strong partnership with. I also want to watch ABC and CBS shows online.

Without net neutrality, Comcast is able to throttle my bandwidth to sites they would rather I not go to. Think of a 4 lane highway like Interstate 95. Comcast routes my Internet traffic across this large highway so I can get to NBC quickly and with no delays. But say I want to watch something on ABC. Comcast routes that Internet traffic onto Route 1 and I have to travel across multiple signaled intersections, so I may have to stop or go very slowly to get to where I want to go. So slowly in fact, that I might just give up and not go there anymore. Hopefully that word pictures makes the issue crystal clear. It really is that simple.

The impact to small and start-up companies could be catastrophic. The Internet has been a great equalizer in many ways. Small businesses have sprung up and offered competitiveness and innovation the likes of which we have not seen before. A lack of net neutrality is a very real threat to our economic competitiveness as small business, entrepreneurs and a nation.

I'd also like to take moment to share a broader perspective on the issue from my perspective as a Board member of CompTIA. For several years now CompTIA has supported a legislative solution to net neutrality. Its diverse membership includes companies from across the tech industry, from ISPs to edge providers to equipment manufacturers and everything in between. These members have come together to support two core principles: 1) that the internet should be a place where all businesses, regardless of size, can compete with one another on a level playing field; and 2) that consumers should be able to access whatever legal content they want without worrying that their ISP might block or slow down that content.

CompTIA and its members want certainty over how the internet is regulated. As such Congress needs to act to prevent this latest round of changes from taking effect. Principles this important should not be subject to the whims of whichever party sits in the White House at any given time. Beyond that, Congress needs to pass net neutrality legislation that prohibits blocking, throttling and anticompetitive conduct by ISP's. And the only way to achieve this goal is through true bipartisan cooperation to reach a well-crafted and settled legislative approach to achieve our core principles of competition and access.

The FCC's decision to repeal their net neutrality rules and reclassify broadband internet access service as an information service placed the Federal Trade Commission (FTC) in charge of policing net neutrality violations. But the FTC's authority in this space is limited. Its consumer protection and antitrust enforcement powers aren't broad enough to tackle the full slate of potential net neutrality violations. Legislation is necessary to help fill in the gaps.

In recent months we have also seen several states introduce net neutrality legislation and two even passed these bills into law. Six states have taken a different path and addressed net neutrality through executive order. Unfortunately, these state approaches vary. While some give enforcement authority to various state bodies, others attempt to create a certification process for ensuring ISPs are maintaining net neutrality, and still others identify fines. A state-by-state patchwork of laws will create a compliance nightmare for ISPs, particularly small ones, especially since internet traffic is not bound by state boundaries. States also lack the technical expertise to properly formulate and enforce such rules. Not to mention that these laws may not even be enforceable, as the FCC's order expressly preempts states from passing net neutrality laws.

In conclusion, the only workable long-term solution to achieving net neutrality is bipartisan federal legislation. This will benefit New Hampshire business, my clients and those of my competitors and businesses of all sizes across this nation. Thank you.

Senator SHAHEEN. Thanks very much, MJ.
Robert.

**STATEMENT OF ROBERT ZAKON, CHIEF TECHNOLOGY OFFICER, ZAKON GROUP, LLC, NORTH CONWAY, NH**

Mr. ZAKON. Good morning. My name is Robert Zakon. I'm the Co-founder and Chief Technology Officer of Zakon Group, LLC. Thank you for the opportunity to provide testimony here at this hearing today.

Zakon Group is a technology consulting development firm founded in 2002 and based in a rural county of New Hampshire. We work with clients of all sizes in industry and government and the non-profit sector, both regionally and around the world. That is in large part possible because of the internet itself. The majority of our work involves the internet in some way, whether it's the application services we develop, the content we host, or with the systems we work with.

The founding policy of net neutrality could very well become outright impeded. Let me repeat that: It could be hindered or outright impeded. This is something that many people don't think of when they're talking about net neutrality.

For example, the internet's openness has allowed our company to develop an event management software application and provided as a service globally. With users' attention span nowadays being fairly limited, and delays of even a few seconds resulting in loss of interest, had limitations been in place on how fast an end user could access the application it is unlikely our software, which has been used by events in over 100 countries, would have become as popular. As a fairly small company, we're not in a position to negotiate enhanced network rights for ourselves and for clients given the potentially diverse providers involved.

As it is, some restrictions placed on internet services outside the United States have resulted in the application being less than fully useful to a few of our international clients.

Also, we currently have a single choice of reliable high-speed service. Again, I mentioned I'm in a rural county of New Hampshire. If our provider should start charging more for some of the services we offer or some of the services that we use from others, it would be immediately felt in our bottom line and leave us with limited alternatives.

Beyond my own business, I volunteer as a mentor with Schoolwork, a non-profit association and resource partner of the Small Business Administration that helps businesses start-up and grow. In this capacity I have seen the benefits of unrestricted access to the internet by other small businesses, including those not in the technology sector such as a small retail shop setting up an internet storefront or manufacturers collaborating with clients and the like. Limiting the options available to these businesses will only serve to stifle their growth by causing them to not have or offer the best quality service possible. Even the uncertainty of what providers may do if net neutrality is not in place, as a client recently remarked to me, could be disruptive in the crucial business planning and funding stages.

Having completed a year of public service last spring as a White House Presidential Innovation Fellow, I had the unique privilege to see the many innovations brought about by small businesses that were also of direct benefit to the government at all levels. These innovations greatly benefited from and were often only possible by an internet with an equal point of view.

In the past few years Federal departments such as those of Defense and Homeland Security have recognized the innovation potential of small companies and stepped up ways to find them and facilitate procurement of their services. Even the public sector derives advantages from net neutrality.

I have watched and participated in the internet's growth since the mid-1980s and for the past 25 years have authored an updated timeline that provides a comprehensive history of the internet. This work, which has been reprinted in thousands of books, magazines, and other mediums, tracks the many innovations that have been made thanks to an open internet. Had roadblocks been placed in this information superhighway and which is now so much more, many small businesses that have become global corporations, and I'm sure you can name them, would likely not have succeeded, and we would be limited to the few innovations allowed by the companies controlling the toll gates.

It is the smaller businesses, however, that have brought many of the revolutionary innovations in the last couple of decades, and much of what you use today just would not be available otherwise.

Net neutrality is imperative to the success of small businesses in this country as they continue to increasingly rely on the internet, and for the benefits derived literally by humankind from the innovations fostered by an open, transparent, and equal-access internet. Thank you.

[The prepared statement of Mr. Zakon follows:]

Robert Zakon
Chief Technology Officer
Zakon Group LLC

Re. Statement presented at the U.S. Senate Small Business and Entrepreneurship Committee Hearing on Net Neutrality: Impacts on New Hampshire Small Businesses, May 3, 2018.

Good morning.

My name is Robert Zakon and I am the co-Founder and Chief Technology Officer of Zakon Group LLC.

Thank you for the opportunity to submit testimony for this hearing.

Zakon Group is a technology consulting and development firm founded in 2002 and based in a rural county of New Hampshire. We work with clients of all sizes in industry, government, and the non-profit sector both regionally and around the world. This is in large part possible because of the Internet.

The majority of our work involves the Internet in some way, whether the applications and services we develop, the content we host, or the systems we architect. Without a policy of Net Neutrality, our work and that of many of our clients could very well be hindered or outright impeded.

For example, the Internet's openness has allowed our company to develop an event management software application and provide it as a service globally. With a user's attention span being fairly limited and delays of even a few seconds resulting in loss of interest, had limitations been placed on how fast an end user could access the application, it is unlikely our software, which has been used by events in over one hundred countries, would have become as popular. As a fairly small company, we are not in a position to negotiate enhanced network rights for ourselves and our clients given the potentially diverse set of providers involved. As it is, some restrictions placed on Internet services in locations outside the United States have resulted in the application being less than fully useful to a few international clients.

Also, we currently have a single choice of reliable high-speed service. A decision on our provider's part to start charging more for some of the services we offer or those we use from others, would be immediately felt in our bottom line and leave us with limited alternatives.

Beyond my own business, I volunteer as a mentor with SCORE, a nonprofit association and resource partner of the Small Business Administration that helps businesses startup and grow. In this capacity, I have seen the benefits of unrestricted access to the Internet by other small businesses, including those not in the technology sector, such as small retail shops setting up Internet storefronts and manufacturers collaborating with clients online. Limiting the options available to these businesses will only serve to stifle their growth by causing them to not have or offer the best quality service possible. Even the uncertainty of what providers may do if Net Neutrality is not in place, as a SCORE client recently remarked, could be disruptive in the crucial business planning and funding stages.

Having completed a year of public service last spring as a White House Presidential Innovation Fellow, I had the unique privilege to see the many innovations brought about by small businesses that were also of direct benefit to the government at all levels. These innovations greatly benefited from, and were often only possible by, an Internet with an equal playing field. In the past few years, federal departments such as those of defense and homeland security have recognized the innovation potential of small companies and stepped up ways to find them and facilitate procurement of their services. Even the public sector derives the advantages of Net Neutrality.

I have watched and participated in the Internet's growth since the mid-1980s, and for the past twenty-five years have authored an annually updated timeline that provides a comprehensive history of the Internet. This work, which has been re-printed and referenced in thousands of books, magazines, and other mediums, tracks the many innovations that have been made thanks to an open Internet. Had road blocks been placed in this affectionately called "information superhighway" and which is now so much more, many small businesses that grew to become global corporations would likely not have succeeded, and we would be limited to the few innovations allowed by the companies controlling the toll gates. It is the smaller businesses, however, that have brought many of the revolutionary innovations in the last couple of decades.

Net Neutrality is imperative for the success of small businesses in this country as they continue to increasingly rely on the Internet, and for the benefits derived by humankind from the innovations fostered by an open, transparent, and equal access Internet.

Thank you for your time.

Robert Zakon
Chief Technology Officer
Zakon Group LLC

Senator SHAHEEN. Thanks very much, Robert.

Nancy.

**STATEMENT OF NANCY PEARSON, DIRECTOR, NEW HAMPSHIRE CENTER FOR WOMEN AND ENTERPRISE, NASHUA, NH**

Ms. PEARSON. Thank you so much for inviting me today on behalf of the Center for Women and Enterprise. We're a small business resource in New Hampshire. We operate the Small Business Administration Women's Business Center. We are the only statewide center dedicated to women entrepreneurs.

One of the things that is of concern for us is that many of our clients are underserved in a number of ways, whether that be from a demographic or an economic or a geographical standpoint, and we provide services no matter where women are in their business cycle, whether they're in the idea phase, launch, start, or growth.

One place that is the great equalizer is and always has been the internet, and it allows women to operate on a level playing field where they normally can't operate. So the potential concerns of the end of net neutrality raise a lot of questions for us, and they all revolve around that equalization issue, and I'm just going to touch upon a few bullet points here.

If, for example, the large companies are able to block or slow content in terms of video streaming services from rival companies, and if they're creating fast lanes and other things that we've read about, there's just no way that small and micro businesses, which is the majority of what my clients are operating, there's no way that they can compete.

All internet traffic needs to be treated as equal so that small business has access to the same resources as the big companies, and this is especially important for startups.

The end of net neutrality could affect businesses using online services that are currently free. So Skype or MailChimp or some of the online market research tools, if suddenly they have to charge for their services and they were otherwise free for small and micro businesses, that could have a significant effect on already thin profit margins for small business.

And in New Hampshire especially, in rural New Hampshire, small businesses rely on the internet for sales and for search engine optimization because they're just not getting the foot traffic that they would otherwise get. I would just like to put that in perspective because that affects Cheshire County, Sullivan County, Grafton County, Carroll County, Coos County. That is the majority of the counties in New Hampshire.

So the bottom line for us is that New Hampshire small businesses and micro businesses rely on the equalizing force of the internet. Just to put that into perspective, women start businesses at five times the rate of any other entrepreneur, and for minority women and women veterans, that number is even higher. So when we start putting additional barriers in the way of these entrepreneurs, it can have a significant and, I think, disastrous effect on the amount of small businesses that are opening on a daily basis.

[The prepared statement of Ms. Pearson follows:]

Nancy Pearson
Director - New Hampshire
Center for Women and Enterprise
30 Temple Street, Suite 610
Nashua, NH 03060

Dear Senate Committee Members,

On behalf of the Center for Women & Enterprise (CWE), thank you for this opportunity to share our thoughts on what the repeal of net neutrality could mean for our constituents.

CWE has been part of the small business resource landscape in New Hampshire since 2015. We operate the U.S. Small Business Administration Women's Business Center. Our services include comprehensive training, resources, counseling and networking opportunities for women (and men).

Many of our clients are from underserved populations whether that be from a demographic, economic or geographical standpoint. We provide resources and services to our clients that might otherwise be out of reach. CWE works hard to ensure that all clients and potential clients, regardless of their economic status, are provided access to our programs and services.

One place that everyone can operate on equal footing is the internet. It has been the great "equalizer." Small businesses depend on the open nature of the Internet to compete against the vast resources of enterprise rivals. The end of net neutrality gives us concern for our clients and all small business for a variety of reasons.

- Internet service providers like Comcast and Verizon may soon be free to block content, slow video-streaming services from rivals, and offer "fast lanes" to preferred partners. There is no way small and micro business can compete.
- All internet traffic needs to be treated as equal so that small business has access to the same resources as the big companies. This is especially important for small startups.
- The end of net neutrality could affect business that uses online services. For instance, free online services such as Skype could have to start charging to provide the same level of service– or go out of business. Small businesses rely on free online services to help run their companies. Raising prices for many of the services small businesses use would negatively affect already small profit margins.

- In rural New Hampshire, small businesses rely on internet sales as well as search engine optimization to grow sales and increase revenue. Inequity online would have a disastrous effect on small business in rural counties such as Cheshire, Sullivan, Grafton, Carroll and Coos.

The bottom line is that in New Hampshire, small businesses rely on the equalizing force of the Internet to level the playing field, giving them access to equal opportunity to succeed, regardless of size or access to capital.

Senator SHAHEEN. Thank you. Nancy, can you just define for us micro businesses?

Ms. PEARSON. I sure can. So, it's a little bit different depending on where you look for information, but in general we're talking about businesses with fewer than five employees, with revenues under $400,000, in general, and generally businesses that require less than $35,000 in seed money to start up.

Senator SHAHEEN. Thank you.

Zach.

**STATEMENT OF ZACH LUSE, FOUNDER & CEO, PARAGON DIGITAL MARKETING, KEENE, NH**

Mr. LUSE. Thank you, Senator. I'm Zach Luse, Founder and CEO of Paragon Digital Marketing. Thanks for allowing me to share my perspective regarding net neutrality as it relates to small businesses. I'm strongly opposed to——

Senator SHAHEEN. Excuse me, Zach.

Can you all hear in the back?

Maybe if you pull the microphone closer.

Mr. LUSE. Is that better?

I'm strongly opposed to the recent decision to repeal net neutrality protections. The lack of net neutrality tips the scale in favor of large enterprises and puts small businesses and startups at a severe disadvantage if large enterprises are able to purchase fast lanes to speed up the delivery of their websites to consumers. My company is an internet marketing company and web development company that helps startups and small to midsize businesses succeed and grow online.

I founded Paragon in 2012 in Keene. We've grown from a startup of one, me, and now we're a team of 13 employees in six short years. We have clients all over the country, a few overseas, in a wide array of industries. At Paragon we've spent a lot of time over the past few years making our clients' websites load faster, and the amount of time we've spent optimizing websites has increased substantially over the last couple of years.

Website speed or load times have a major impact on our clients' sales and leads. The issue is two-fold. The number of visitors finding a business' website declines when the site is slow, and the rate at which people sign up or buy something on those sites also declines. That's known as the conversion rate, which declines rapidly as the speed of the site slows down. Data from Google, Amazon, and industry experts, as well as our own data from working with our own clients confirms that website speeds do have a big impact on the ability to attract visitors to a website and keep them there long enough to buy or sign up for a service.

The speed of a website directly impacts the search engine rankings of a website as well. The slower a website is, the less likely it is to appear at the top of search results. Free traffic from search engines can be extremely important for startups or small businesses. Receiving less free traffic from search engines makes it harder for startups to gain traction and for small businesses to compete if they don't have deep pockets to pay for ads.

In addition, there is a direct correlation between the speed of a website, commonly measured by page speed, and the rate at which

people make a purchase on a website. The conversion rate declines rapidly as websites' load times increase. A study by industry experts, Kissmetrics, shows that just a 1-second delay on page speed can result in a 7 percent decrease in conversion rates.

An internal Amazon study showed that for every 100 milliseconds, or a tenth of a second, you slowed down their website, it would cause them a loss of 1 percent in sales, which would cost the company about $1.7 billion a year. Amazon is a very well-known and trusted brand. The impact on small businesses that aren't as well-known or trusted is likely to be greater.

Consumers expect fast and frictionless experiences online and are becoming ever more impatient. This means that speed of websites is likely to become more and more crucial over the coming years.

The internet was a great equalizer, allowing small startups to innovate and disrupt industries long controlled by large corporations. America's small businesses and startups should not be put at a disadvantage, and the next YouTube, Google, Facebook, or Amazon should have a level playing field, the same level playing field that was afforded to the very successful internet companies that once were startups as well.

I certainly urge the committee to work to put net neutrality protections back in place for small businesses and our country so they can continue to compete on a fair and level playing field, and continue to innovate and grow and create jobs.

I appreciate the opportunity to testify. Your interest and action on this issue is very important to the future of small businesses across the country.

[The prepared statement of Mr. Luse follows:]

**Net Neutrality: Impacts on New Hampshire Small Businesses**

Zach Luse
Founder and CEO
Paragon Digital Marketing

Dear Senate Committee Members,

Thank you for allowing me to share my perspective regarding net neutrality as it relates to small businesses. I'm strongly opposed to the recent decision to repeal net neutrality protections. The lack of net neutrality tips the scales in favor of large enterprises and puts small businesses and startups at a severe disadvantage if large enterprises are able to purchase fast lanes to speed up the delivery of their websites to consumers.

My company, Paragon Digital Marketing, is an internet marketing and website development company that helps startups and small to midsize businesses succeed and grow online. I founded Paragon in 2012 in Keene, New Hampshire and we've grown from a startup of one to a team of 13 employees in 6 short years with clients around the country in a wide array of industries.

At Paragon, we've spent a lot of time over the past few years making our clients' websites load faster and the amount of time we've spent optimizing websites has increased substantially over the last couple years. Website speed or load times have a major impact on our clients' sales and leads. The issue is two-fold, the number of visitors finding a business's website declines when the site is slow and the rate at which people sign up or buy something, also known as the conversion rate, declines as well.

Data from Google, Amazon, industry experts as well as our own data and results from working with our clients confirms that website speeds do have a big impact on the ability to attract visitors to a website and keep them there long enough to make a purchase or sign up for a service.

The speed of a website directly impacts its rankings in search engines. The slower a website is the less likely it is to appear at the top of search results. Free traffic from search engines can be extremely important for a startup or small business. Receiving less free traffic from search engines makes it harder for startups to gain traction and small businesses to compete if they don't have deep pockets to pay for ads.

In addition, there is a direct correlation between the speed of a website, commonly measured as page speed, and the rate at which people make a purchase on a website, the conversation rate. The conversion rate declines rapidly as a website's load times increase. A study by industry experts, Kissmetrics, shows that a 1 second delay in page speed can result in a 7% decrease in conversions.

An internal Amazon study showed that for every 100ms, or 1/10 of a second their website slowed down it would cause a loss of 1% in sales, which could cost the company 1.7 billion dollars in sales a year. Amazon is a very well-known and trusted brand, the impact on a lesser known small business or startup would likely be greater.

Consumers expect, fast and frictionless experiences online and are becoming more impatient all the time. This means that the speed of websites will likely become more crucial in the coming years. The internet was a great equalizer allowing small startups to innovate and disrupt industries long controlled by large corporations. America's small businesses and startups should not be put at a disadvantage and the next YouTube, Google, Facebook or Amazon should have the same level playing field that was afforded these very successful internet companies that were once startups too.

☎ 603.399.6400 ✉ info@paragondigital.com 🏠 20 Central Square • Keene, NH 03431 ▭ paragondigital.com

I strongly urge the committee to work to put net neutrality protections back in place so small businesses in our country can continue to compete on a fair and level playing field, continue to innovate and grow and continue to create jobs.

I appreciate the opportunity to testify today. Your interest and action on this issue is so important to the future success of small businesses across the country. Thank you for standing up for small businesses like mine and my clients.

Sincerely,

Zach Luse
Founder and CEO
Paragon Digital Marketing

☎ 603.399.6400 info@paragondigital.com 20 Central Square • Keene, NH 03431 paragondigital.com

Senator SHAHEEN. Thanks very much, Zach.

Lisa.

**STATEMENT OF LISA DRAKE, DIRECTOR OF SUSTAINABILITY INNOVATION, STONYFIELD FARM, INC., LONDONDERRY, NH**

Ms. DRAKE. Thank you for the opportunity to provide testimony regarding our company's concerns about the FCC's decision to roll back net neutrality. Stonyfield is a yogurt manufacturer based in Londonderry, and we work with small businesses across the State and the region primarily to source our first ingredient, which is milk.

As a business with strong ties to the rural and agricultural business community, we share these concerns from a business perspective. We regularly witness how small rural businesses, including the farms and cooperatives that we source from, already struggle with limited access to broadband and limited options for internet service providers. The repeal of net neutrality would compound the challenges faced by these small businesses, adding cost and creating a competitive disadvantage for running a successful business in rural America.

Uninhibited access to the internet is a fundamental necessity for operating a successful business in rural areas, and this is only going to become more important into the future. In our work with farmers in the State and the region, we see how these businesses are increasingly reliant on the internet for access to technical information and support, to market information, and for communication with customers and vendors.

Under this change, internet providers would gain new powers to steer businesses and customers using access to the internet. For example, internet access providers could charge new fees for prioritized access, and while large businesses and farms might be able to afford a pay-to-play prioritized fast lane, small and medium-sized businesses may not be able to and put them at a distinct disadvantage with larger competitors.

Without net neutrality, internet access providers could charge rural businesses new fees for access, specifically to websites or to services. They could favor certain businesses by slowing down traffic or exempting traffic from data caps. Tiered service plans could throttle user access to a limited group of websites, or block websites outright. It could also potentially limit or bias farmers' access to products, services, and information that they need to run their business. So these possible outcomes could create immense uncertainty for companies in every sector of the economy who rely on open and unencumbered connectivity as a key enabler for their business.

Ultimately, if the repeal of net neutrality is implemented, it will have a crippling effect on rural economies, further limiting investment in rural infrastructure and restricting access to the internet for rural businesses, at a point in time when we feel we need to expand and speed this access instead.

So I urge you to consider these impacts on the repeal of net neutrality rules and focus on advancing policies that foster fair competition.

[The prepared statement of Ms. Drake follows:]

10 Burton Drive, Londonderry, NH 03053 603.437.4040 Fax 603.437.4042 Stonyfield.com

Lisa Drake, Director of Sustainability Innovation

April 30, 2018

Senator Jeanne Shaheen and Committee members
Senate Committee on Small Business and Entrepreneurship
Washington, DC 20510-6350

RE: Impact of Repeal of Net Neutrality Rules on Small Business in New Hampshire and rural communities

Dear Senator Shaheen:

On behalf of Londonderry-based Stonyfield Farm, thank you for the opportunity to provide testimony regarding our deep concern about the FCC's decision to roll back net neutrality rules. As a business with strong ties to the rural and agricultural business community, we would like to share our concerns about this decision.

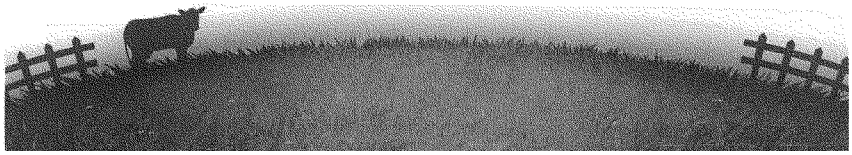
We regularly witness how small rural businesses, including the farms and cooperatives that we source from, already struggle with limited access to broadband and limited options for internet service providers. The repeal of net neutrality would compound the challenges faced by these small businesses, adding cost and creating a competitive disadvantage to running a successful business in rural America. Uninhibited access to the internet is a fundamental necessity for operating a successful business in rural areas and this is only going to become more important in the future. In our work with farmers in the state and region, we see how these businesses are increasingly reliant on the internet for access to technical information and support, to market information and for communications with customers.

Under this change, internet providers would gain new powers to steer businesses and customers use and access to the internet. For example, Internet access providers could charge new fees for prioritized access. While large companies and farms might be able to afford a pay-to-play prioritized 'fast lane' to users, small and medium sized businesses might not and at the very least, put them at a distinct disadvantage with larger competitors. Without net neutrality, internet access providers could charge rural businesses new fees for access to websites and services. They could favor certain businesses by slowing down traffic or exempting traffic from data caps. Tiered service plans could throttle user access to a limited group of websites or block websites outright. It could also greatly limit or bias farmers' access to products, services, and information they need to run their business. These possible outcomes would create immense uncertainty for companies in every sector of the economy who rely on open, unencumbered connectivity as a key enabler for their business and productivity.

Ultimately, if the repeal of net neutrality is implemented, it will have a crippling effect on rural economies, further limiting investment in rural infrastructure and restricting access to the internet for rural businesses at a point in time where we need to expand and speed this access instead. We urge you to consider these impacts of the repeal of net neutrality rules and focus on advancing policies that foster fair competition.

Thank you for the opportunity to provide input on this matter.

Lisa Drake
Director of Sustainability Innovation
Stonyfield Farm, Inc.
ldrake@stonyfield.com



Senator SHAHEEN. Thank you, Lisa.

Josh.

**STATEMENT OF JOSHUA CYR, DIRECTOR OF ACCELERATION AND EDUCATION, ALPHA LOFT, PORTSMOUTH, NH**

Mr. CYR. Thank you, Senator. I really appreciate everyone's comments so far. I just want to point out that there are so many familiar faces in the audience here who are helping businesses in New Hampshire, and I really appreciate everything you've done and that you're here today and listening to this as well.

I've worked with many startups throughout the State of New Hampshire over the past several years, and there's a unique aspect of a startup that makes them their own type of small business. Startups, by definition, are attempting a new business with many unknowns in their model.

I have to remove my glasses so I can read here.

Senator SHAHEEN. We sympathize.

Mr. CYR. It's a new thing for me.

So startups, by default, startups have to do something that's new, that's not a traditional business model. So they're going to change their model, their product, or their approach. Startups create opportunities through innovation. That innovation lies either in new spin on an old business model or on innovative products themselves.

Startups also have high growth potential. They don't typically focus on a small geographic area, at least not at the start. Ultimately, this means that competition is not their local businesses but large businesses with broad interests. Almost always, this competition has a substantially larger financial resource. The repeal of net neutrality protections enables a small handful of very powerful internet providers tremendous control over what is delivered to consumers' homes and the speed at which it's delivered. Without net neutrality, the power and control these internet providers have will allow them to create artificial market barriers. These barriers stifle innovation and competition and serve to only protect powerful incumbents and extract higher fees from consumers.

Startups may find the price to be paid for preferred access to be too great at their earliest and most vulnerable stages, yet many will feel that they have no choice as slow website speeds will hurt their bottom line.

So study after study has shown that user balance rate, which is the percentage of people who leave a site immediately, rises tremendously—we've heard some stats on that, so I'm going to skip what I had written here and just come to the short part of this, which is that page speed is so important that Google factors it into their search rankings. While search rankings will not be impacted by speed shifting of internet service providers, the intent of the ranking focused on page speed still remains. Speed has an immediate impact on user engagement.

Now, some may suggest that if consumers felt strongly about the issues of net neutrality, they could simply vote with their dollars, picking a provider in line with their needs. That would presume consumers fully understood the detail of internet plans, and even if consumers did, a responsive market would require a healthy

marketplace of options. Many U.S. consumers do not have a choice in their high-speed broadband. Those that do often find themselves in long-term contracts, limiting their options. The FCC's own Internet Access Services Report this February of 2018 showed that in many areas there's no high-speed broadband at all. However, in areas with broadband speeds of 25 megabits per second or higher, between 30 and 40 percent of homes have only one option for a provider, and that's true of the State I grew up in, Idaho, but also true of my home State now, New Hampshire.

Consumers have little to no choice for their provider, which means the market isn't being driven by consumer net neutrality concerns. Consumers need high-speed internet access even if the provider isn't providing the kind of service the consumers want.

In summary, any net neutrality protections will be detrimental to a healthy competition for small businesses, including startups. Thank you.

[The prepared statement of Mr. Cyr follows:]

Joshua Cyr
Director of Acceleration and Education
Alpha Loft

**NET NEUTRALITY: IMPACTS ON NEW HAMPSHIRE SMALL BUSINESSES**
Durham, New Hampshire
May 3rd, 2018

Dear Senate Committee Members, thank you for the opportunity to speak today about the very important topic of net neutrality and it's direct impact on small business. I have worked with many startups throughout the state of New Hampshire over the past several years. There is a unique aspect of a startup that makes them their own type of small business.

Startups by definition are attempting a new business with many unknowns in their model, product, or approach. Startups create opportunities through innovation. That innovation lies in either a new spin on an old business model, or in innovative products themselves. Startups also have high growth potential. They do not typically focus on a small geographic area. Ultimately this means that their competition are not other local businesses, but large business with broad interests. Almost always this competition has substantially larger financial resources.

The repeal of net neutrality protections enables a small handful of very powerful internet providers tremendous control over what is delivered to a consumer's home, and the speed at which it is delivered. Without net neutrality the power and control these internet providers have will allow them to create artificial market barriers. These barriers stifle innovation and competition and serve only to protect powerful incumbents and exact higher fees from consumers.

Startups may find the price to be paid for preferred access to be too great at their earliest and most vulnerable stages, yet may feel they have little choice as slow website speeds will hit their bottom line. Study after study has shown that the user bounce rate, which is the percentage of people who leave a site immediately, rises tremendously with increased page load times. One estimate from Akamai stated that just a 1-second slowdown results in an 8% increase in bounce rate[1]. This could result in tremendous financial loss for ecommerce and startups. Similar reports have been made from many other well known companies and researchers. Page speed is so important that Google factors it into their search rankings[2]. While the search rankings will not be impacted by speed shifting of internet providers, the intent of the ranking focused on page speed still remains. Speed has an immediate impact on user engagement.

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[1] https://www.soasta.com/your-2017-guide-to-retail-performance-success/
[2] https://searchengineland.com/google-speed-update-page-speed-will-become-ranking-factor-mobile-search-289904

Some may suggest that if consumers felt strongly about the issues of net neutrality they could simply vote with their dollars, picking a provider inline with their needs. That would presume consumers fully understood the details in their internet plans. Even if consumers did a responsive market to consumer demand would require a healthy marketplace of options. However many US consumers do not have a choice in their high speed broadband. Those that do often find themselves in long term contracts limiting their options.

The FCC's own Internet Access Services[3] report released in February 2018 shows that in many areas there is simply no high speed broadband as an option. However in areas with broadband speeds of 25mbs or greater between 30% and 40% of homes had only one option for a provider. Consumers have little to no choice in provider, which means that the market isn't being driven by consumer net neutrality concerns. Consumers still need high speed internet access, even if the provider isn't providing the kind of service the consumer really wants.

In summary ending net neutrality protections will be detrimental to healthy competition for small business, including startups.

[3] https://transition.fcc.gov/Daily_Releases/Daily_Business/2018/db0207/DOC-349074A1.pdf

Senator SHAHEEN. Well, thank you all very much. You've obviously given us a lot to think about, and I'd like to now explore a little bit in further detail some of the issues that you've raised.

I want to start with you, MJ, because one of the things you said, and I hadn't heard this before, is that you think it's not enough for us just to repeal what the FCC did, that you think we really need bipartisan legislation that puts in place net neutrality rules. So what should those include, and why do you think that's so important? And I'm going to ask everybody to jump in on that.

Mr. SHOER. Well, to the importance, it's simply that it shouldn't be at the whim of who's in the White House, and that's not a slam on the current Administration.

Senator SHAHEEN. Sure.

Mr. SHOER. But we're in this cycle now, this unfortunately sustained cycle that every time the party in the White House turns, various legislation is rolled back and put back in place, oftentimes even without any modification. So the only way to hedge that is with permanent legislation.

I also think, just because I consider myself a lost soul in our political system, if you will—when I was here on campus I was a diehard Reagan Republican, conservative as could be. Then I had kids. Then I matured a little bit and I became an independent because while I am socially very liberal, I am fiscally and in foreign policy very conservative. There's no home for me in our political system today. There needs to be, and the only way we're going to get there is if we can find anything that Congress can come together on across aisles and pass.

While I recognize that this really has some true partisan division, that the Republicans by and large favor the repeal, the Democrats by and large favor retaining the rules, if we really step back and look at the engine of our economy, we all know it's small business, and we have got to protect it. We have seen innovation like we have never seen in our human existence since the internet came to be in its current form, and anything that changes that free and open access and limits the competitive opportunities for that access will damage our economy. There's no question about it. There are so many studies.

So that's really why. I mean, I think it rises to the level of warranting that kind of legislation. Quite frankly, we're not here to talk about data privacy, but data privacy regulations are the same thing. We've got every State in the Nation creating their own regulations, and if we want to kill small business and entrepreneurship, let's let every State create their own regulation, and then let's go and explain to every small business that those businesses in multiple states have to comply with each State's set of laws. It's not a sustainable model for growth.

Senator SHAHEEN. Can I ask if others want to jump in on this?

Ms. PEARSON. Sure. I would like to add that the best-case scenario would be not only bipartisan legislation but a diverse group of bipartisan legislation so that we have the voices and perspectives of women business owners, minority business owners, and other underserved, because unless you have the perspective and the experience, the life experience and the understanding of the barriers that each demographic, each constituency creates, you're

only going to have legislation from one point of view, and one size does not fit all.

Senator SHAHEEN. Anyone else?

Ms. DRAKE. I would just add support for legislation to create consistency for businesses in policy and the stability that's needed for businesses to make decisions to determine investments, in which communities they're going to settle in, and knowing what resources they're going to have, including internet as a tool.

Mr. SHOER. I think that's a great point, Lisa, because I know the folks I've talked to with CompTIA have said the biggest concern that they're hearing across the membership is consistency, a consistent message so that they can plan, because it's very difficult, even for the large companies, ironically. You know, we're talking about the small businesses, but even for the large companies out there, it's very difficult for them to plan for uncertain futures.

Senator SHAHEEN. Right. Uncertainty, whether it's around the internet or budgets or whatever it is, is a real problem for business in general, and particularly for small businesses that have less ability to weather ups and downs.

Anything else anybody wants to address with respect to what ought to be in a piece of legislation around net neutrality?

[No response.]

Let me then go to another issue that came up, and that is the need to optimize websites and reduce load times for customers. Zach, you talked about the importance of this. Can you talk about why this is such an issue for small business?

Mr. LUSE. Yes, definitely. It's a big issue because, frankly, slow websites are less effective, and if you slow some down, there's nothing those people can do, aside from paying the providers to be in a fast lane, to make it faster beyond a certain point.

Senator SHAHEEN. Talk, if you would—I think everybody here knows what we mean when we say pay-to-play and fast lanes versus slow lanes, but can you explain that a little more for people who may not be familiar with this conversation?

Mr. LUSE. Yes. Fast lanes would allow players who have deep pockets to go purchase faster speeds. Their websites and their content are delivered to consumers faster, whereas the businesses that are particularly startups and small businesses may not have the ability to do that, especially startups who are just scraping together the funds to make their ideas happen. So it puts them at a severe disadvantage, and it also allows those big players to block competition and stifle competition, which is detrimental to our economy because so many of those great ideas and innovations come out of small businesses and startups.

Senator SHAHEEN. I'm always impressed with the fact that small businesses have 16 times more patents per employee than large businesses, which is an eye-opener, I think, for most people.

Josh, talk about what—I mean, you and Nancy, and you too, because you work with a lot of startups, are in a position to be able to see what they could sustain in terms of increased costs. So if net neutrality means an increased cost for access to the internet, is there a percentage or a level at which you think you then begin to price small businesses out of their ability to continue to have access to the internet?

Mr. CYR. It's a great question, and I think it would probably really vary given the business. Let's say for a startup, but I think the same would be true for any business, if I'm having to pay—if we step back a second and think about what Zach was saying about the fast lanes, all the traffic is going through the internet service provider to the consumer through the same pipe, right? There's not technically a separate lane. But we know that the traffic from this website is somebody that pays us so we can go faster than the others that are going through the same pipe, so it gets channeled.

So if I'm a startup and I want to make sure I have really good performance because people bounce off my website if I don't have really good performance, I have to divert some sort of money to that. Well, for every dollar I'm diverting to pay for consumers to have a better experience on the exact same thing that everybody else is using, that's one less dollar I can spend for digital marketers to help provide really great in-bound marketing services for me, or to hire a software developer to finally build or modify my minimum viable product, or to pay for advertising, or anything else, right?

The two most valuable resources that a startup founder has, a small business owner has, is their time and their money, and anything we're diverting that isn't adding value back and creating better value for consumers is a waste. It's a wasted resource. Right now, we know what those are. We have a level playing field and we know exactly how to plan for the future. If I don't know what I'm going to have to spend, and I don't know what to even tell startups what they're going to have to plan and budget because we just don't know, that's a really scary place.

So I guess the answer is that every single dollar that's spent could have been put in a better place which could have gotten them further along. If a startup I'm working with runs out of money before they can build a new and viable product or they can find the love with the customer, the product market fit, they're not in business anymore, right?

And it's not simply a matter of a few hundred dollars a month or a thousand dollars a month or whatever that is. That's sort of making it about the money, and it's really about can I survive long enough to get to a place where everybody wants to buy what I have to sell, and then once I get there, do I have enough money to actually get it into consumers' hands and funnel the growth. We can talk about growth and investment and all that stuff later on, but it's not a simple formula. It's really complicated and scary.

Senator SHAHEEN. Robert, and then Zach.

Mr. ZAKON. Sure. So, I'll pick up on the theme that you heard a little bit there, uncertainty. That's a huge concern for small businesses, something that I keep hearing over and over again. Just a few weeks ago, touring a harness manufacturer up in the Mt. Washington Valley——

Senator SHAHEEN. Harmon? Harness?

Mr. ZAKON. Harness. They make leashes, those kinds of products, and one of the big concerns for them is now having more than half their sales online. But the other one is things like sales tax, as well, and the concern about what can happen there. So even though we're being told that if it goes away and we no longer have a neutral internet, it does not necessarily mean the next day that

you're going to be charged that much more. But it's the uncertainty that down the road it might happen. As my colleagues mentioned, that could mean the investment that could have been going somewhere else, or perhaps a funder, as I mentioned in my intro, wouldn't be willing to invest in your company because there's too much uncertainty of whether you will really be in a position to offer your service if someone comes in and charges much more for them.

Senator SHAHEEN. Zach.

Mr. LUSE. I would just add to that. That issue is compounded by taking money away from whatever their core business is because the marketing and advertising dollars are going to be less effective because less of those people are going to convert. Google's advertising platform actually charges you more if you have a slow landing page. So you pay more for the ads than your competitors with a faster website, and then less of those people turn into customers. So it really snowballs.

Senator SHAHEEN. It's a double whammy.

Mr. LUSE. Yes.

Ms. PEARSON. Some of the clients that we see are even before this stage. They're operating their businesses using already-existing platforms like Sea, like Facebook, like Instagram, with the hopes that they can invest to the point where they get to their own website and their own internet sales. What I see as a great concern is that they will never get there. That's just a whole class of businesses that are not going to be able to work their way up into even the small business community.

Senator SHAHEEN. Robert, you talked about how you have seen work impeded, and you've seen that in some other countries because of the way the internet operates in other countries. Did I understand that correctly? And can you give us some examples of what you've seen?

Mr. ZAKON. Sure. So, our software initiative and application, it integrates with software and services from other companies. At times, these services that we utilize as part of our software have been blocked in certain locations, in some other countries around the world. When this happens, it appears to be an issue of our software, so the client will contact us. This can be pretty burdensome from an impact standpoint in terms of tracking down the issue, providing support, trying to develop workarounds, if that's even possible when we're dealing with another nation altogether.

I expect if a U.S. internet provider ends up blocking or throttling a service that we integrate with, or even our own, the effect is going to be truly burdensome for us and for our clients as well, even more so when you consider the number of providers that we're really talking about here. I'm certain that some large companies will evolve to offer a service to bypass some of this, but that would likely mean us not being as agile, as lean in the services that we're currently really able to engineer for ourselves.

I realize that Nancy is talking about a different type of small business. Our business, we understand the technology. We can often kind of work around it. But again, with my score hat on, and I do not speak for the organization, only for myself as a counselor, I've seen too many businesses that can't even get started with

what's out there. When you talk about looking at what are the terms of service, they have no way of even comparing things like that. So it very much becomes an impact, and when we look at it globally or internationally, it's a non-starter.

Senator SHAHEEN. We had a small roundtable with a number of businesses at Alpha Loft earlier this year, and we had this whole conversation about the workaround because there were a couple of people who said, well, if this happens, technology will help us develop a workaround so we can avoid it. And we had this conversation that lasted probably 20 to 30 minutes about this whole issue, and at the end of it one of the participants said look how much time we've been spending just talking about this. Imagine if it happened how much time it would take businesses to focus on this, to deal with it, and the time it would take away from other things that they need to do. So it's really not an option at this point, and it doesn't make sense for us to do that.

Mr. ZAKON. It certainly hits the bottom line.

Senator SHAHEEN. Absolutely.

So, several of you have talked about the challenges that startups have with getting funding. I know it's a particular concern for women-owned businesses, Nancy, but it's obviously a concern for most startups. Can you elaborate on the impact on startups with a repeal of net neutrality, what that would mean for things like crowd funding and access to other investors who might be interested in a startup?

Mr. CYR. I'll go ahead, if you don't mind.

If you think about what investors are looking for, at the very early stages they're investing in the team. They believe the team has an excellent idea and they're going to be able to make it, and they're going to use the resources they're given, this investment, in a reasonable fashion to be able to get there.

They're also, through all their due diligence and research, seeking to reduce risk wherever they can. That's why they do the due diligence. It would be the same for anybody giving out money, really. So if you see a really compelling team and an awesome startup and a great idea, and then realize it's going to be enormously expensive just to pay-to-play to be able to compete because of whatever constraints are put onto the network, more barriers, is that a good use of those resources?

The reality is for a typical investor, it's not like they only hear a dozen good ideas a year. A lot of ECs will receive 100 solicitations a day. They're evaluating hundreds of thousands over the course of a year. So they're making good decisions, and if they're seeing possible barriers, possible issues, they have all these other good ideas. So it's just knocking good ideas right from the start.

I think we don't want to see resources put to use simply to pay fees when we could see those put to use to see growth or build product. Those are the two things that any business has to do at the very beginning stages, small businesses, and specifically for startups. You're either building something or you're selling something, and a lot of the other stuff that you do around that is supporting that. If you're not doing those two things or something that supports those two things, you're probably putting resources at the

wrong time. So you want to make sure that money is put to those two things.

Senator SHAHEEN. Anybody else?

Ms. PEARSON. Well, for us, the majority of our clients are not really good candidates for that kind of startup funding opportunity. But I will say that we spend a lot of time with our clients exploring all the possible revenue streams and sales channels. So if you take a whole channel away because of the unknowns, that is a huge concern for the potential viability of their business. So again, it's the unknown and the barrier to entry.

Senator SHAHEEN. I think platforms like Ebay and Etsy have really made a difference and provided opportunities. I have a staff here that says 87 percent of Etsy sellers are female, and we heard from one Etsy seller in New Hampshire, Gail Kimble, who is from New Hampshire Bowl and Board. Some of you may be familiar with that. They're in Webster. And she wrote—and I think her quote is worth repeating here. She said, "The e-commerce world is super competitive, and the big guys have all the advantages." You've all alluded to that in some way. "Net neutrality at least keeps the door open. Without net neutrality, I'm quite sure my margin will shrink to the place where I'll have no choice but to close up and give up." So it really shows the impact on small business owners who are looking at what will happen if we repeal net neutrality.

Lisa, one of the things, again, that people have referred to—and we've got people here from all over the State—Keene, Londonderry, North Conway, Nashua. But you talked about the real impact for your rural providers for Stonyfield, and with the exception of the cows, can you talk a little more about what this means for rural entrepreneurs who really are often in places in New Hampshire where they don't have access to good internet, much less what it would mean if that access totally goes away and costs more?

Ms. DRAKE. These are small family owned operations that we work with. You may think of dairy farming as low tech. It's cows eating grass. But really, technology is influencing farming as much as it is many other areas of our economy. So technology is a tool that farmers are using more and more to manage their farm, to improve their operations, and to improve the economic aspects of their operation. They use it to monitor feed and monitor markets where they're buying feed. They're using robotic milkers. They have all kinds of technology around milk quality, and lots of communication needs with both vendors and customers.

So all of this is an important means of functioning as a business, and to add on top of living in rural areas don't have necessarily consistently strong cell service either, so the internet really, truly is—reliable internet is a connection to the community. And just to go further on the technology front, we continue to work on developing better software and tools for farmers for data collection and monitoring and trending so that they really have more intelligence about the operation of their farm.

Mr. SHOER. Senator, I can share a story about a customer in a rural part of the State. Their business is somewhat unique, but what often gets lost is you have to think about the supply chain of the business, which is somewhat what Lisa is talking about. But

in this case, this business found that over a period of years all of their technical manuals, all of their resources all went online. This used to be a business that could order—I think back to when I was a kid and the World Book would show up. They used to have the bookshelf full of their technical resources. That's all online now, and they found themselves in a very difficult position because there was no competition for access, and their access was dreadfully slow, and it was significantly showing impact.

Now, this business had to negotiate with a broadband provider and had to spend over six figures to get that provider to bring access to them, and it was a choice of spend it or close the doors.

So back to the access piece of the equation, we have got to find a way to get the competitive geographies expanded because we've got businesses that are at significant disadvantage on a regional scale, national, and in some cases global.

Senator SHAHEEN. Robert.

Mr. ZAKON. I'll continue with the rural theme here, just to give another view of it. It's been mentioned that oftentimes, especially up in the North Country, some of the rural counties in New Hampshire, there is no alternative. There is hopefully one high-speed provider that you can rely on. For a client we have who they pipe music and video from the internet into their waiting area, if they can't get internet for that, not critical. They still have radios around. They can turn it on. But another client in the medical profession sends blood work over the internet and instantaneously receives results on their mobile app. So if they don't have the ability to do that anymore because net neutrality is not in place, it becomes too cost prohibitive for them. There is no alternative service. The quality of care is going to suffer.

So as we look into tele-medicine and all the other wonderful innovations that we have, and innovation has been a theme here, it's much less likely for us to be able to deal with that in a State like New Hampshire.

Senator SHAHEEN. Absolutely, and I want to get back to the telemedicine piece because it is so important in New Hampshire. But before I do that, I have a statistic here that the University of New Hampshire has done. They have a report on the state of broadband in New Hampshire from 2015, and they asked New Hampshire residents about their limited provider options. When asked why they're using their current provider, 39 percent said it's the only option available to them. So, think about that. Almost 40 percent of the State says we have no other choice, and that doesn't count the people who don't have a choice, who don't have a provider at all. There are some parts of New Hampshire that don't really have a provider at all unless it's dialup or so slow that it's really hard to use.

But I want to go back to the tele-medicine because that's a really important issue that you raised. For, again, so much of the State, because we're rural, it's the one way we have access to different specialties and to information and expertise and physicians that we wouldn't have otherwise.

I had a chance to visit the VA clinic up in Littleton, and what they're doing, they're using tele-medicine to bring in psychiatrists and psychologists for counseling there because they can't afford it

otherwise. But if they can do it through their tele-health, they're able to make it available to all of the veterans who come in. So, as you say, this would have real implications for being able to do that in parts of New Hampshire because if it costs more, what does that mean for the physicians? They're either going to have to charge their patients more or they're not going to be able to afford it.

So, do you want to elaborate on that a little more?

Mr. ZAKON. Sure. I'll actually give the example that I keep hearing, which is more from the opposite side of the argument, which is, well, if we do away with net neutrality, the large internet providers can now offer that high-speed route so that you can have those kinds of services. Unfortunately, I don't think that really pans out, because if I'm going to provide a remote surgery, for example, I'm going to want a dedicated circuit to be able to do that. I am not simply going to want that network traffic going through the public internet overall without some major paring agreements in there.

Just yesterday, there was a router outage in the internet backbone. I think it was in Florida. And we got calls from clients who couldn't access one of our data centers there. It was not life and death, but again, that's where it really comes in. So I think the whole remote surgery, tele-medicine, all of that becomes a critical service, and I think necessarily it means that it really should not just be a part of the standard internet as we generally know it. You're looking more at internet 2 capabilities that are out there.

Mr. SHOER. I think the other elephant in the room around tele-health is that we've seen the consolidation going on in the health care system and how few private practices are still able to survive with hospital systems or insurance systems buying up practices. So imagine a world without net neutrality where either an insurer or a hospital system that has significant cash resources can make deals with ISPs to prioritize their preferred end tele-health provider. It could significantly change that entire industry.

Right now, that is somewhat of an upstart level playing field industry. We have clients that are using remote radiologists that are in the United States, as well as all around the world. For various reasons, that could go away or it could change dramatically, and it could absolutely impact quality of care.

Mr. ZAKON. And an example from another industry, if all of a sudden the electrical industry decides to say, you know, we're going to start charging more to one brand of computer or appliance going to the wall and the plug behind me here to get your electrical service, I don't think we generally stand for that. But that is, in large part, what we're talking about here. It's limiting the choice. I may now no longer be able to use one appliance brand but now have to use another one.

Or going back to when we had multiple phone services, and I'm going back many, many years, before my time, I think——

Senator SHAHEEN. Some of us remember that.

[Laughter.]

Mr. ZAKON [continuing]. Where you may have had multiple telephones depending on who you wanted to talk to. So it's between the party line and where we are today.

Senator SHAHEEN. We heard from an occupational therapist named Rachel who is in Litchfield, and she wrote to us about her concerns. She said, "Ending net neutrality will cut off resources from individuals who can't afford to pay extra for internet services. It will be harder for these people to communicate with others and receive information they desperately need about their health. Additionally, ending net neutrality will make it harder for my clients to access resources that help them to cope with PTSD, depression, and other challenges." You all have said it very well.

So, the one topic that we haven't yet covered is around the argument that we should repeal net neutrality rules and let the Federal Trade Commission do the actual enforcement. So when there's a problem, small businesses can go through the FTC and they can have their concerns addressed. Do you all think that's realistic?

Zach.

Mr. LUSE. My understanding is it's a terrible idea, because the FTC is just going to be enforcing when somebody files a complaint. They're not going to be out there policing. And the process, from what I understand, is pretty tedious. Maybe small business associations might be able to handle that, but a small business isn't going to have time to really do that.

Mr. SHOER. It's a reactive stance.

Ms. DRAKE. I would agree. Our farmers need to stay on the farm and focus on farming and not submitting complaints about their internet service. It's really too much to ask of the small business owner.

Mr. SHOER. It's shifting the burden in the wrong place, and there are other laws on the books in states where they've relied on FTC practice and precedence, and those laws have not played out well because of that.

Senator SHAHEEN. Absolutely.

Anything else, as we're getting close to wrapping up here? Are there any other points that folks wanted to make that haven't been made yet?

Nancy.

Ms. PEARSON. I actually want to add to the health care conversation. I just tallied up some clients that I'm currently working with right now, in 2018. One is a physical therapist who delivers pain management services online. I have two nutritionists that deliver their services online. I have a personal trainer, and I have a fertility coach. All of them are working through tele-conferencing with their clients across northern New England. The physical therapist who deals with pain management has found a niche in addiction recovery.

So these are real implications that we're talking about, because if people don't have access to these services that their insurance won't necessarily pay for but it's cost effective, it just has real-life consequences to more than just small business but the quality of life for people and some major, major issues going on in the State.

Senator SHAHEEN. Yes, it does, and we also don't really know what all those implications are, as many of you have said. We've asked the GAO to do a study on what the potential impact is going to be on small businesses. Of course, we don't have that report yet, but just among the concerns that you all have raised, you can see

the potential impact on small businesses and the ripple effect that has through the economy as we're thinking about job creation and development of new technologies and innovation.

One of the things that we haven't talked about because we've been focused on small businesses, but I think it's important to think about as we look at the workforce challenges that we have in New Hampshire right now. Everywhere I've been in the last two years, the number-one issue has been workforce.

What does it mean for young people and for workers if net neutrality changes and they aren't able to get information, Josh?

Mr. CYR. The way I see it is that states with more rural residents will probably suffer the most. I mean, if you think about I'm graduating from UNH and I'm looking to make my mark in the world, internet access is really going to be important to me. It's sort of foundational for how I grew up and what I expect. I start shopping around and I find that there's no broadband in certain areas, they're out. I'm not moving to the North Country. I'm not moving to all these other areas. I'm going to be moving to a place that has an internet service provider with a record I know and want. Maybe there's somebody who is voluntarily continuing with the net neutrality rules. That's probably in really competitive markets.

So I think what we're going to see is new generations moving, primarily motivated because of reasons like that, to go to heavy competitive markets and skipping over the places that may not be able to offer those sorts of services if they find it's so important. And I think that we've heard time and time again that they do. So I think it's going to be specifically impactful for rural areas in a very negative way.

Senator SHAHEEN. Zach, did you want to comment on that?

Mr. LUSE. Yes. I think for my business in particular, it will impact it heavily. It's already hard enough to attract and retain young workers in Keene. When they go home and they only have one option, if they have one option, of a provider, and you layer net neutrality on top of that where they might not be able to stream the content they want, it just compounds the issue.

Senator SHAHEEN. Lisa, you wanted to say something.

Ms. DRAKE. Yes. Just to take Josh's comments one step further, I think that what he is describing about young people making choices about where they're going to live, this is about the vitality of our rural communities. We're already seeing an exodus of young people from our rural areas, and it has a great impact on the vitality and the longevity of those communities and their health as a community. So I think if we don't want the exodus of all our young people to urban areas, this is something really important to consider.

Senator SHAHEEN. Yes, absolutely.

Mr. SHOER. I think there is also a significant risk to the diversification of our workforce. In the tech industry, we are very, very concerned about getting more women and disadvantaged minorities into that workforce because it's typically been coming out of those who can afford four-year college, but we've proven with any one of a number of initiatives that those other communities can more easily access the education to get them a foothold in to build a career.

If net neutrality regulations are not in place, the large providers are going to start to get into the areas of the business that, quite frankly, they don't have any business getting into, and it could directly impact our ability to encourage young women, young minorities to get into technology fields.

Even in our case, we've had a handful of employees over the last 18 months relocate for family reasons, and we've been able to retain them because, thank God, they've been able to get to an area where they had unfettered good broadband internet access. If that weren't the case, we would have lost some wonderful employees that we've actually been able to retain.

Senator SHAHEEN. Robert.

Mr. ZAKON. And I would actually like to add another category of individuals to the list, and that is the disabled. Homebound individuals had startups before where we've had 20-plus homebound individuals that were doing meaningful work for us, for our company, in large part because there was an equal-access internet. They were able to come use the services that we have been using. There was no concern about, well, you're with a different provider, you can't use the service that we offer and therefore we cannot hire you. And that's really critical across the board.

Senator SHAHEEN. That's a great point.

Mr. SHOER. Very good point.

Senator SHAHEEN. And, you know, the frustration for me is the responses to all of the points that all of you have made this morning have really been nonexistent. I mean, the biggest argument that I've heard for repealing net neutrality has been that, well, it will provide for more innovation. But, in fact, I think what we've heard from all of you is that you all think it would be less innovation. And the other implications for what we might be looking at are some unknown but certainly much more impactful than what we've heard from anybody at the FCC and for those who are proponents of this repeal.

Robert.

Mr. ZAKON. Yes. For me it really comes down to there was a lot that internet providers could be doing already that they're not, that we are in the world we are today with regard to cyber security and privacy. That is something that they are empowered to take actions on. They are our tunnel to the internet. They can protect us, in large part, with regards to that. That is not something that I think, in large part, is done. The internet of things, we hear about how insecure they are. That is something that internet providers are in a position, in large part, to potentially help with. Yes, there are potential privacy issues and the like in there, but the leadership has not been there, and that will go a very long way with regard to saying, yes, there may be some leeway here. But as of right now, at least, I don't see it.

Senator SHAHEEN. You mentioned the phone company and the changes when we deregulated the telephone industry, and the innovations that developed as a result of that. We're seeing that in the utility industry with the change in the way we provide electricity and utility service to folks.

It seems to me that this goes in the wrong direction, that instead of opening things up to provide more innovation and more access,

what we're talking about is closing things in a way that reduces access, reduces innovation, and that's not going to be good for anybody, I think, except the big players who have the potential to make money and really have a monopoly over what goes on.

Well, thank you, everybody, again. Any final comments that someone wants to make that you haven't had a chance to?

Mr. LUSE. I would just reiterate that with repealing net neutrality, you're kind of changing the underlying fabric of the internet that's been there since the beginning, and there are probably so many implications that we can't even imagine. If you look at where we were 10 years ago and where we're going, we don't really even know how it could be detrimental to the future.

Senator SHAHEEN. Well, again, thank you all very much. Special thanks to our panelists and for those of you who came. Many of you traveled long distances to get here, so we really appreciate that, your willingness to be here.

I am looking forward to being able to take back what I've heard this morning and share that with my colleagues in Washington. I'm pleased that we'll have it as part of the record of the Small Business Committee and look forward to working to address both what the FCC has done and to think about how we can do bipartisan legislation that will really provide some certainty in the future.

As I said, we have, I think, two weeks for additional questions and statements. So anyone in the audience who would like to weigh in, we have two weeks to do that, and you can get them—Chris, where should they send those?

Mr. NEARY. They can send them to Kathryn, or they can send them to me.

Senator SHAHEEN. So you can send it to our office or to the committee. Both of those are available online, fittingly.

[Laughter.]

Yes, unrestricted, at least for the time being.

[Laughter.]

Thank you all for coming to join us in this conversation, and I look forward to seeing how things progress because I am, like all of you, very concerned about what the implications may be.

Thanks very much. This hearing is now closed.

[Applause.]

[Whereupon, at 11:22 a.m., the hearing was adjourned.]

# APPENDIX MATERIAL SUBMITTED

# Why We Need Net Neutrality Legislation, and What It Should Look Like

BY DOUG BRAKE | MAY 2018

*Instead of relying on near-impossible mechanisms to restore deeply flawed rules, policymakers should be negotiating in earnest to settle the net neutrality debate, ultimately making both political parties, and more importantly, U.S. citizens and businesses, much better off.*

A key reason for the contentious fight over net neutrality regulation, and the source of its partisan strife, is that the way we classify broadband Internet access for legal purposes could have weighty long-term implications: Do we want a broadband system more like a public utility under Title II of the Communications Act, or do we want to rely on private companies to drive the evolution of broadband, with relatively light oversight from the Federal Trade Commission (FTC)? But this is a false dilemma predicated on outdated law, and it has resulted in a ping-ponging of broadband regulations. Congress can and should act to end this "long national nightmare" that is the net neutrality war. There is ample room for a bipartisan compromise on net neutrality that would not only lock in noncontroversial ex ante protections and finally end the absurd back-and-forth on Federal Communications Commission (FCC) jurisdiction, but also secure funding to help close the digital divide with programs that promote digital literacy and broadband adoption—while also accelerating deployment in rural areas.

With the *Restoring Internet Freedom Order* having hit the Federal Register, broadband Internet access will once again be considered an "information service" under the law—just as it was from 1998 to 2016.[1] With it comes a host of implications, the most important of which is the FCC in effect deciding Congress has not given it the authority to act as the

primary regulator of broadband—while in the same process repealing the 2016 net neutrality rules grounded in common carriage.

A subset of net neutrality stalwarts has worked hard to tie its preferred legal authority over implementing net neutrality—Title II of the Communications Act—to net neutrality rules themselves. This notion of Title II being necessary to achieve "real" net neutrality is fiction, especially when it comes to legislation. Congress can craft FCC authority as narrow or broad as it sees fit. Same goes for net neutrality proper: Congress can create its own specific regime, or leave it to the FCC to develop specific rules.

Net neutrality litigation to date has focused, with minor exception, on statutory interpretation of the FCC's authority to create particular kinds of rules, and are not limited by constitutional concerns.[2] Congress is free to address both the question of authority and the substance of those rules, free from the constraints of the old FCC Title I and Title II silos—silos designed during and for an era of fax machines, circuit-switched telephony, and CompuServe email.

A Congressional Resolution of Disapproval (under the Congressional Review Act, or CRA) to stop the FCC is highly unlikely to prove fruitful. It instead serves primarily as a political messaging tool for Democrats. It also makes little sense to wait for the various legal challenges to wind their way through the courts. The Supreme Court and the D.C. Circuit Court of Appeals have made it clear that the statute is ambiguous and the FCC has broad authority to interpret it as it wishes—it is highly unlikely an appeal of the *Restoring Internet Freedom Order* will see Title II regulations restored. As such, the only real hope advocates of Title II-grounded net neutrality rules have is a Democrat in the White House in 2021—and presumably in perpetuity after that if they want to avoid a repeat of the 2017 repeal.

Instead of relying on near-impossible mechanisms (or risky political bets) to restore deeply flawed rules, policymakers should be negotiating in earnest to end the debate on net neutrality, and in the process make serious advances to close the digital divide—ultimately making both political parties and, more importantly, U.S. residents and businesses, much better off.

The deal proposed here is relatively simple: Instead of focusing narrowly on net neutrality issues, expand the scope of legislation to include funding for broadband adoption and digital-literacy programs, while at the same time establishing baseline rules to protect and promote the open Internet.

Harvard Law scholars Roger Fisher and William Ury are famous for the principled negotiation strategy they encapsulated in their bestseller Getting to Yes. One of the key principles they espouse for successful win-win negotiations is inventing options for mutual gain—expanding the number of bargaining chips available to find opportunities where one side benefits while the other gives up little.

This "Negotiation 101" principle means legislation to solve glaring deficiencies in the Communications Act should not be narrowly focused on issues where there is significant

daylight between the two political parties—namely paid prioritization and the scope of FCC authority. Instead, other policy objectives that broaden the potential benefits for either side should be explored.

| Broadband Framework Options | 2016 Open Internet Order | 2018 *Restoring Internet Freedom Order* | ITIF Proposal |
|---|---|---|---|
| **Description of Framework** | "Title II for the 21st Century"; common carrier regulation of broadband providers | FCC reverts to Title I for broadband markets, leaving oversight to the FTC | Compromise, uniting appropriate jurisdiction for open Internet rules with broadband adoption and rural deployment funding |
| **Impact on Investment** | Likely a drag on investment | Likely a modest improvement in network investment environment, but with long-term uncertainty remaining | Predictable, light-touch rules and increased broadband users will encourage infrastructure investment |
| **Impact on Internet Openness** | Attempt to protect was short-lived | Likely none | Locks in jurisdiction to protect and promote |
| **Impact on Innovation** | Chills network innovation | Promotes innovative traffic differentiation, but uncertainty may chill innovation at application layer | Stable clarity for innovation in both networks and applications |
| **Immediate Impact on Individuals** | None | None | Greatly expanded programs for digital literacy and broadband adoption |

## A BIPARTISAN COMPROMISE ENDING THE NET NEUTRALITY DEBATE IS IN EVERYONE'S BEST INTEREST (EXCEPT TITLE II ZEALOTS)

Despite all the noisy wrangling over net neutrality, there is real opportunity for this embarrassing ping-ponging about the scope of FCC authority over broadband to result in a true bipartisan achievement for both parties.

### Democrats

Those left of center often argue that the relatively concentrated market for broadband Internet access, combined with the existing communications and media on offer, give providers the incentive and ability to restrict output in ways that harm consumers or competition. More specifically, Democrats on the Hill have taken issue with the FCC recently putting the FTC in charge of overseeing net neutrality issues, and have been

attempting to roll back the FCC's *Restoring Internet Freedom Order* through an obscure legislative mechanism known as the Congressional Review Act—an attempt even net neutrality advocates acknowledge is a long shot.

In a push to gain a key additional vote, Senate Democrats adopted the messaging of some of the more hardline advocates, proclaiming Internet users' favorite websites would become noticeably "slower" unless the 2015 net neutrality rules were restored. But if this were true, why then did the ISPs not "slow down" traffic at any point during the previous years when Title II rules did not apply to broadband? The Democrat's assertion saw Salvador Rizzo award them "three Pinocchios" in his "The Fact Checker" column at *The Washington Post*.[3] And Rizzo is right: Net neutrality fears are often overstated, and the examples of unfair conduct advocates rely on are not only vastly exaggerated, but few and far between.

*"Negotiation 101" would dictate that to solve the glaring deficiencies in the Communications Act, legislators should seek other policy objectives, aside from net neutrality, that broaden the potential benefits for either side.*

If Democrats really believe in these apocalyptic scenarios, they should attempt to craft a legislative solution that ties the hands of the current and future administrations.
A new law would effectively lock in permanent net neutrality protections that are stronger than those that exist now. They could also secure support for bridging the digital divide—a far more concrete and serious problem than the theoretical fears of net neutrality harms.

Democrats have also advanced a specific plan under the LIFT (Leading Infrastructure for Tomorrow's) America Act to improve broadband infrastructure.[4] Arguing, "America needs a Roosevelt Plan to bring [I]nternet to every farm, school, and neighborhood," Democrats from the House and Senate have called for $40 billion in direct federal funding for high-speed broadband infrastructure.[5] The Trump administration's recent infrastructure plan rightly received cool support from Democrats when it came to broadband funding.[6] The block-grant, state-led proposal would likely see broadband funding lost in the cracks. As Blair Levin argued in a Brookings blog post, "The proposed approach will end up delivering little of the abundant bandwidth the country's rural areas need to thrive in the digital age."[7] Democrats should demand a bipartisan net neutrality legislation that includes funding for an effective acceleration of rural broadband.

Beyond rural network availability, the digital divide continues to be a serious issue facing the country. While the focus of the last several months has been on infrastructure availability in rural areas, urban subscription rates remain unevenly distributed. Brookings Institute research examining broadband adoption at the neighborhood level across a number of metropolitan areas found that "geography and income levels are the two greatest drivers of broadband subscription gaps, perpetuating the digital divide in even the most connected metro areas."[8] While the digital divide has been a key focus for Democrats, it does not receive nearly the same level of attention as net neutrality, resulting in an unfortunate misalignment of policy.

The Obama administration attempted to address broadband adoption and digital literacy through a number of programs. The Obama Council of Economic Advisors seriously examined the digital divide, with research that could continue to guide policy efforts.[9] This

research, consistent with many other studies, found "substantial disparities in both Internet use … concentrated among older, less-educated, and less-affluent populations."[10]

The Obama administration also made efforts to help address the digital divide through the ConnectHome initiative, which sought to bring together ISPs, nonprofits, and other private-sector actors to "offer broadband access, technical training, digital literacy programs, and devices for residents in assisted housing units."[11] Unfortunately, despite being a productive program, it was never funded, and instead was forced to rely on the charity of the private sector.

Democrats should use their net neutrality leverage to extract meaningful appropriations to help close the digital divide. In addition to programs like ConnectHome, funding could go directly to local digital-literacy nonprofits that help provide low-cost computers, access, and training.

**Republicans**

Republicans tend to prefer an antitrust approach to net neutrality issues, favoring general-practice enforcement bodies, like the FTC, or court action under antitrust laws. They are generally happy with the status quo under the current FCC as far as net neutrality rules go. But they should realize the pendulum will almost certainly swing back to Title II with the next Democratic administration—and it could very well be "Title II-medium" (rather than the supposed "Title II-lite" claimed under then-chairman of the FCC, Thomas Wheeler).

Republicans have made clear their backing of the *Restoring Internet Freedom Order*, including over 100 GOP members of Congress who wrote in their support of the FCC's plan to restore broadband to a lighter-touch jurisdiction, treating the technology as an information service under the Communications Act. They acknowledged the important effect of the order lies in its jurisdiction, but pointed to the need for legislation to secure settled rules long-term:

> After broadband is restored to its rightful regulatory home, under the light-touch approach that guided federal oversight … for decades, the stage will be set for Congress to determine how best to enact permanent protections for the bipartisan net neutrality principles on which we all agree.[12]

Most notably, chair of the House Communications and Technology Subcommittee, Rep. Marsha Blackburn (R-TN) has introduced the Open Internet Preservation Act, which would prohibit broadband providers from blocking lawful applications or nonharmful devices, or degrading lawful Internet traffic—in other words, no blocking or throttling.[13] While there is almost no real-world risk of either happening, it is important to send a message to edge innovators that this practice will be prohibited by statute. The Act would also allow specialized services that go above and beyond "best efforts" Internet service for compensation (i.e., a "yes" to voluntary paid prioritization).

Despite the demonization of paid prioritization by many net neutrality advocates, a small share of applications (think high-bandwidth, low-latency applications, like quality video

conferencing) that would gain from voluntary paid prioritization, to the consumer's benefit. Blackburn's bill is an excellent place to start with open Internet legislation, but it will have to do more to bring Democrats on board.

Republicans have the opportunity to lock in reasonably constrained FCC authority, and take the potential for onerous common carrier regulation off the table. They can preserve the dynamic, market-led communications sector by finding common ground on the limits of FCC jurisdiction and specific rules on paid prioritization, and authorizing funds for broadband adoption and digital literacy.

Republicans are generally more comfortable with allowing paid prioritization overseen by antitrust law—the regime in place today. Acting Chair of the Federal Trade Commission Maureen Ohlhausen, for example, argues, "Net neutrality proponents too easily dismiss antitrust," explaining that in addition to economic values, "Competition law can indeed protect noneconomic goals like free speech and democratic participation, ... to the extent that consumers actually value those goals above others."[14] But while antitrust could help, any legislation that allows paid prioritization should have regulatory guardrails, including a ban on exclusive deals and a requirement to provide similar terms to similar customers.

However, Republicans should not make the same mistake Democrats did in early 2016, as the next Democrat-controlled FCC will likely have the political capital to reinstate Title II. It is in both parties' interest to end the national nightmare that is the net neutrality wars, particularly given only a small number of hardcore Title II advocates vociferously resist such a bipartisan legislative solution.

## WE SHOULD NOT RETURN TO TITLE II

As we have previously argued, the hardline Title II advocates, like Free Press or Demand Progress, fight for their preferred policy approach not because it would secure better broadband performance, robust competition, or outcome for consumers.[15] Rather, they want to see broadband provided as a public utility because of a broader political ideology grounded in a deep distrust of the private sector. For them, broadband is too important to be trusted to private companies.[16] Unfortunately, their campaign of fearmongering has attracted sizable support online.

Common carriage regulation of the type found in Title II is best reserved for explicit monopoly markets with little room for innovation—not dynamic services like Internet access provision. Common carriage, where used, has proven difficult to implement and enforce, risks dramatically reducing the incentive to economize on costs or innovate new technologies or business models, and inevitably raises barriers to entry. In short, this is not a preferable route to go down for regulating a dynamic, evolving, and competitive service like Internet access. The current FCC was right to correct the error of the 2015 Open Internet Order.

It should be remembered that Wheeler's initial net neutrality proposal did not involve subjecting broadband to Title II regulation. It was only after pressure from net neutrality

advocates and eventually the Obama White House that he relented and sought Title II. To be sure, in the Open Internet Order, the former chairman did forbear from a wide array of onerous Title II common carriage provisions, such as price regulation and open access requirements.17 While this forbearance in and of itself exposed Title II as a kludge of a legal mechanism for supporting open Internet rules, it also presented a dangerous slippery slope policymakers should avoid. The Title II Order's "for now" language clearly leaves the possibility of these legal tools, intended for a then-monopoly telephone network, being applied in the future.

The most onerous regulations—price regulation and mandated sharing—would be difficult for the FCC to implement as a political matter, although perhaps not if both branches of Congress and the White House are Democratic in 2021. Considering both how certain aspects of telecommunications policy have become markedly more political, and the partisan, populist roil U.S. politics is currently experiencing, these fears are not unfounded.

What is more, this step—in the direction of this much more onerous regime—Title II classification represented may well have depressed investment in the sort of long-term, sunk-cost infrastructure that supports the open Internet. The FCC was right to return to a less onerous regime, but legislation would undoubtedly provide more lasting certainty.

*"Investments in infrastructure depend critically on a stable, predictable, and light-touch regulatory regime." — Jason Furman, then-chairman of the White House Council of Economic Advisers.*

Policy uncertainty raises both risk and investment costs. Broadband infrastructure is particularly affected by uncertainty, as it requires enormous fixed-cost investment—and companies typically scale down risk whenever the level of future returns is unpredictable.[18] In 2013, Jason Furman, then-chairman of the White House Council of Economic Advisers, explained, "Investments in infrastructure depend critically on a stable, predictable, and light-touch regulatory regime." While there are many legitimate goals of regulation, this need for stability and predictability has historically been "the motivation for the approach this administration and the Federal Communications Commission have taken in a wide range of areas like the Open Internet."[19]

Common carriage has had a challenged history in telecommunications, especially when it comes to investment.[20] Democrats should recognize that supporting strong, enforceable net neutrality rules should not and need not come at the cost of onerous regulations that move us in the direction of heavily regulated monopoly, rather than innovation-generating competition. Policymakers should not seek to return to Title II regulation of Internet access, and attempts to reinstate the 2015 Open Internet Order are highly unlikely to succeed. Serious negotiations for a bipartisan legislative compromise should begin now.

**Neither the Congressional Review Act nor Litigation Is Likely to Succeed**

The Congressional Review Act allows Congress a streamlined legislative process to repeal recently passed regulations.[21] Within 60 legislative days after a new regulation is published in the Federal Register and transmitted to Congress, a simple majority of both chambers can vote to strike down the new rules, assuming the bills were signed by the president. Within telecommunications policy circles, this mechanism is best known for rescinding the broadband privacy rules passed under President Obama.[22]

Any reasonable analysis of the current attempt to roll back the *Restoring Internet Freedom Order* through a CRA vote must recognize it is virtually impossible. Even Title II advocate Harold Feld says he "doesn't want to oversell" when remarking he "wouldn't classify it as *impossible*."[23] Not impossible, but darn close. Feld strongly supported the Title II Order and the pending CRA to effectively reinstate those rules—he would have every reason to help build its momentum by stretching the odds of its passage.

The CRA is not a legitimate tool to advance open Internet policy, but rather a purely political messaging tool. It is regrettable that something so critical to U.S. economic policy—regulation of the key communications platform of today—is such a political football.

Litigation is also unlikely to see the return of the 2015 Open Internet Order rules. A collection of 22 state attorneys general, as well as a handful of nonprofit organizations, has filed a petition for review.[24] The case is now under the purview of the U.S. Court of Appeals for the D.C. Circuit.

Supreme Court precedents *Brand X* and *Chevron* make clear this challenge is a real uphill battle. The courts have given the FCC broad deference to interpret its ambiguous statute, and *Brand X* has already found the classification of broadband access as a lightly regulated information service to be a reasonable interpretation. As respected lawyer and former FTC policy director David Balto explains:

> Generally speaking, the FCC just needs to articulate facts that demonstrate the reasonableness of their interpretation in order to receive *Chevron* deference. It shouldn't matter that the FCC has whipsawed back and forth or is presenting entirely different conclusions than the [Open Internet Order]. Here the Supreme Court is clear...[25]

Litigation is unlikely to change the FCC's ability to change broadband classification with every new administration. Democrats would be wrong to hold out for an upset in the courts or to wait until a possible Democrat-controlled FCC in 2021. However, Republicans likewise should realize that if a deal is not achieved before the next change in administration, a return to Title II is very plausible.

## WE SHOULD ALSO NOT BE CONTENT WITH FTC OVERSIGHT

Not only is the claim of Title II being necessary for net neutrality simply false, there is little evidence the FCC's involvement is even necessary for an open Internet. However, neither is the FTC alone sufficient to ensure a flourishing Internet ecosystem. FTC oversight, while certainly a more powerful tool to keep broadband providers honest than some Title II advocates claim, is not sufficient to give web innovators confidence their new products and services will be allowed to scale unimpeded.

Access to high-speed Internet is a powerful force for democracy, education, and commerce. Any enforcement regime should acknowledge that there are more than purely economic harms at stake when a free and open Internet is challenged. Furthermore, the critical role

the Internet plays in enabling innovation throughout the U.S. economy deserves a forward-looking regulatory approach. Antitrust enforcement actions are often only focused on the particulars of the cases involved in enforcement proceedings, and lack a proactive approach. Relying solely on antitrust principals does not ensure the interests of future innovators are represented. Moreover, the responsiveness of antitrust enforcement is often insufficient to thwart potential threats to business models in real time.

The Internet is an incredibly complex system that supports an amazing array of services and applications. It is possible—perhaps even likely—problems will eventually arise that implicate open Internet concerns. These problems may be legitimate threats to Internet openness or innocuous, unpredictable changes to the system, such as unintended consequences of subtle technical changes to the network. It would be better if the FCC were to design an institutional process that collaboratively uncovers the truth in a complex and contentions technical environment, rather than rely on adversarial processes. The specific harms that may be of concern are relatively subtle, and, as economist Hal Singer has persuasively argued, difficult to address through antitrust alone.[26]

*The responsiveness of antitrust enforcement is often insufficient to thwart potential threats to business models in real time.*

### Federal Legislation Should Supersede State Efforts

Today's relatively hands-off approach of leaving it to the FTC to oversee broadband access has left a perceived void some states have been eager to fill. It is unclear whether these state-level efforts are legal considering the FCC's explicit claim to preemption within the *Restoring Internet Freedom Order*. Regardless, a uniform federal framework that allows network services to scale, without being limited by arbitrary boundaries, would be better overall.

Multiple conflicting or diverse state laws would unnecessarily add to compliance costs and the complexity of operations. Broadband technology allows for many communications functions to be abstracted away from the physical hardware (if not shifted to the edge altogether) and can achieve scale far beyond any state's borders.[27] The right balance on net neutrality should be struck at the national level, and allow networks to achieve scale with low cost from compliance complexity.[28]

## CONGRESS SHOULD START NOW ON BIPARTISAN LEGISLATION

While it may be unlikely the political will exists to pass significant open Internet legislation before the next midterm elections, the time for good-faith negotiations is now.

Democrats should not allow themselves to be influenced by a small number of highly vocal activists, and instead recognize the benefits of light-touch, but effective, open Internet protections can be had with the significant upside of securing funding for broadband adoption, digital literacy, and rural deployment, among other policy objectives. Similarly, Republicans should recognize that, absent legislation, there is a risk of Title II—and all its problems—returning. They should, however, cede ground to allow for expert-agency oversight and enforcement at the FCC, as well as authorize spending that furthers the adoption and use of broadband.

Granted, heading into midterms with a Republican-controlled government does little to whet the political appetite for "Kumbaya" compromises. But it is important for Congress to begin having earnest conversations about how to secure bipartisan legislation, work through the sticking points, and broaden the scope of the potential bargaining chips that can be used to achieve win-win negotiations.

**No Blocking, No Throttling: Protection of Best-Efforts Internet Is Widely Agreed Upon**

The concerns about Internet access providers blocking and throttling Internet traffic are wildly overstated. There is no evidence of any major broadband provider ever having blocked or slowed traffic in an anticompetitive fashion. Even the facts at issue in the widely misunderstood case of *Comcast Corp. v. FCC* (2010) is no cause for alarm, as it was resolved by the offending Internet application rightly changing its protocols so as to prevent harming broadband customers' online experience.[29]

Regardless, the arguments for allowing legal traffic to be blocked are thin, and application-layer innovators deserve confidence their new products or services will be allowed to compete unimpeded. A rule against capricious blocking or slowing of legal Internet traffic is widely favored.

**Legislation Should Allow for Some Forms of Paid Prioritization**

Most of the conversation around innovation and network neutrality is frustratingly narrow. Unfortunately, only one, very specific type of innovation has gained cachet in the broader public conversation: edge application layer innovation. Policymakers should appreciate and promote innovation both at the application layer and within networks.

Johannes Bauer and Günter Knieps, of Michigan State University and the University of Freiburg respectively, made exactly this point in their recent paper "Complementary Innovation and Network Neutrality."[30] Discussing the popular "permission-free" innovation at the application layer, they wrote:

> Yet, not all types of Internet-based innovation fit into this framework. The growing relevance of video, cloud computing, and Internet of Things (IoT) applications requires that innovations in traffic service networks meet quality of service (QoS) needs, which cannot be met in the historical, best-effort network. Because such innovations will become more important in the future, the provision of differentiated QoS in traffic networks becomes a precondition for expanding the innovation opportunities for applications and services in higher layers.[31]

The Quality of Service mechanisms Bauer and Knieps discuss are needed to expand the opportunity for innovation because of basic limitations in network resources. Users' demand for broadband capacity is "bursty" in that it rapidly changes as they perform different tasks on the Internet.[32] Progressing from a single user's link deeper into the network different IP-based communications are joined together in a process called multiplexing.[33] But each piece of equipment and link of a network has a limitation on the capacity it can handle. In order to economize performance, operators make sophisticated predictions about how much capacity will be needed at any given point within the

network, setting it to a level that total instantaneous peak demand will only occasionally exceed capacity. This is much more efficient than building the equivalent of a 20-lane freeway to handle the occasional Sunday traffic coming from the football game. Yet even these predictions cannot entirely prevent random combinations of traffic spikes coming together to create congestion.[34]

In most circumstances, and for most applications, unpredictable congestion is no cause for alarm, as operators can take steps to minimize it, and the basic protocols of the Internet detect packets being dropped as a result of congestion and send them again. However, these protocols are not a cure-all. In fact, the relatively large control loop built into these protocols can sometimes exacerbate the problem.[35] The resulting increase in delay from a few lost packets is so slight that users generally do not even notice—let alone care about—as it might take a few extra milliseconds to, say, receive an email or load a web page.

*Many of the exciting innovations that lie around the corner will increasingly require reliable, low-latency connections that demand specialized treatment by the network.*

The key problem is some applications simply cannot tolerate too much delay (latency) or variance in delay (jitter). Generally these are real-time services—such as Voice over Internet Protocol (VoIP) or teleconferencing. Of course, real-time services can be made functional to some degree without specialized prioritization, with Skype and FaceTime being obvious examples (who has not at one point or another had a Skype call gone awry?). When on a poor connection, or calling someone far away, it is difficult to use real-time applications with much confidence. For example, a high-resolution teleconference with attendees in different countries is unlikely to go well without some form of prioritization.[36]

Although this "best-efforts" system has to date been reasonably sufficient, many of the exciting innovations that lie around the corner, including those that rely on virtual reality, will increasingly require reliable, low-latency connections. And while some applications affirmatively need prioritization or some kind of differentiation, other applications can easily tolerate delay or jitter. For example, bulk file transfers such as software and operating-system updates do not care about delay. Whether a given operating system is updated now or two minutes from now—or even in two hours—makes no difference to most users, and hence the vast majority of applications, including the "next Google" born in some garage will be more than satisfied with the best-efforts Internet, especially as average broadband speeds continue to increase on the order of 25 percent annually.[37]

Indeed, these enhanced quality-of-service applications are anticipated to be a key component of 5G networks. Non-zero-sum trade-offs around technical requirements of different types of applications are an obvious, economical way to achieve radical improvements in perceived end-user performance, and have therefore been designed into specifications related to 5G.

The U.K. telecom regulator Ofcom has pointed to concerns that the EU net neutrality regime is too strong and could unduly constrain the evolution of 5G services.[38] In a section titled "Net neutrality regulation may need to evolve to facilitate innovations in networks," Ofcom discusses capabilities unlocked in next-generation networks that will enable network operators to provide dedicated virtual networks and better quality of experience to

different customers over common network elements. Ofcom states, "It will be important to ensure that regulation does not prove an impediment to such innovation, particularly net neutrality rules," and proposes working with the EU body recommending net neutrality regulations to tweak the rules and ensure innovation continues to flourish.[39]

The key is establishing rules that protect best-efforts delivery of traffic while allowing for competition to drive improvements in speed and other performance metrics, and providing networks the space to innovate with new, dynamic services that go above and beyond basic broadband. As tech columnist for the *Boston Globe*, Hiawatha Bray, put it in a recent piece arguing for legislation on net neutrality, "As long as companies are forbidden from actively slowing down Internet services that don't pay extra for superior service, I don't see a problem."[40]

*Facile arguments that a lack of strong rules would allow ISPs to "pick winners and losers" would be easily countered by simple rules around what kinds of paid prioritization should be allowed.*

The proposal for network neutrality made a lot more sense when first articulated almost 16 years ago.[41] Back in the early days of broadband Internet, bandwidth was far more constrained. For example, in 2003, when Tim Wu called for nondiscrimination in Internet traffic, the FCC defined high-speed broadband as 200 kbps (according to Ookla, the average U.S. speed for the first half of 2017 was over 64 Mbps—more than 300 times faster).[42] Much of the economic concern behind net neutrality has traditionally revolved around video, as activists worried that incumbent video distributors would make it difficult for over-the-top video providers. But today's significantly increased bandwidth, which is available to the vast majority of U.S. consumers, has proven more than sufficient for streaming high-definition entertainment on multiple devices.

The relative abundance of bandwidth available today is likely the reason, at least in part, why Netflix CEO Reed Hastings stated during the development of the *Restoring Internet Freedom Order* that net neutrality was not the company's "primary battle."[43] He explained, "Where net neutrality is really important is the Netflix of 10 years ago."[44] This is not only the result of Netflix having successfully negotiated favorable, long-term interconnection agreements during the 2014–15 net neutrality debate, but because the broadband infrastructure provided by Internet access providers is sufficient for their business model, and the potential for capricious throttling of their popular service is virtually null.[45]

This does not, however, mean that some traffic differentiation is not still needed to improve the consumer experience for a particular, albeit small, share of applications, particularly those that are latency sensitive.[46] These include, for example, high-quality real-time video, shared virtual reality spaces, and robotics control—generally wherever humans interact, at a certain distance, with short time-scale feedback requirements. Basic websites or buffered video should not require prioritization at all. Compromise is needed and should be easily achievable on paid prioritization, whereby prioritization that unlocks new possibilities for real-time applications flourishes, while anticompetitive abuses are prohibited. These practices could be overseen by a multistakeholder, such as the Broadband Internet Technical Advisory Group, or BITAG.[47]

Before the truly difficult questions need to be unknotted by a multistakeholder group, simple rules around prioritization could be established. Straightforward guardrails can easily eliminate the majority of stated concerns from those skeptical of paid prioritization. For example, Congress should prohibit any exclusive deals for prioritization. Congress or the FCC should require operators to offer like terms to similarly situated users.

Facile arguments from net neutrality advocates that a lack of strong rules would allow ISPs to "pick winners and losers" would be easily addressed by simple rules around what kinds of paid prioritization should be allowed. Specifically, paid prioritization should be offered on fair terms, ideally through open and transparent APIs, and be available to all comers on the similar terms.[48] This is the same position ITIF laid out in response to so-called zero-rating or "free-data" arrangements.[49] And of course, with strong rules on degrading or throttling in place, all applications would still enjoy "best-efforts" transit at ever-increasing speeds.

**Scope of FCC Jurisdiction Is a Sticking Point**

FCC Chairman under President Clinton, William Kennard, in a 1999 speech titled "The Unregulation of the Internet: Laying a Competitive Course for the Future" argued why it was in "the national interest that we have a national broadband policy ... a de-regulatory approach, an approach that will let this nascent industry flourish."[50] We continue to believe a light-touch approach like Kennard articulated is the best. However, not everyone agrees.

Many Title II activists want to secure the power to regulate broadband providers as common carrier, not for the sake of "strong" net neutrality, but because it is the only feasible route to broadband as a public utility. They lobby Democrats in hopes they will hold out for a return to Title II, rather than work for legislation that can lock in effective net neutrality protections and secure new benefits that cannot be achieved through current laws. They are willing to give up broadband being a dynamic service that is provided through market competition, in order to turn it into a static public utility.

For example, Harold Feld of Public Knowledge, in a speech titled "Broadband as a Public Utility," explicitly framed the net neutrality wars as a critical turning point (comparing the *Title II Order* to Stalingrad) within a much broader ideological battle (which he calls "one big culture war").[51] He says:

> "Public utility" is the ultimate heresy to this culture of caveat emptor our opponents have worked so hard and spent so much to create. It is an affront to the worship of the gods of the marketplace by declaring that a society cannot reach its true potential, morally or economically, without some government oversight and intervention in the marketplace. It is for this reason that our opponents are so desperate to undermine the concept of public utility, and why it is so critical that we embrace it.[52]

Mr. Feld's argument that the extreme of public utility regulation is necessary in order to achieve effective government oversight and reach society's true potential is misguided. There is no reason the innovation-producing and investment-inducing competition-led

communications sector cannot be preserved, while simultaneously providing meaningful oversight and enforcement that enables a robust ecosystem of edge innovation. This is not a binary choice between public utility and laissez-faire. Utility-style regulation is not necessary for society to reach its goal of enabling edge Internet innovation.

Those right of center, on the other hand, are generally skeptical of giving the FCC an inch, lest it take a mile. Indeed, some on the right advocate doing away with the FCC altogether. Take, for example, Brent Skorup of the Mercatus Center, who argues in a piece titled "Who Needs the FCC?" that, "Congress needs to pave a path toward not only limiting the agency's power over the [I]nternet but eliminating most FCC authority outright."[53] Many Republicans see the FCC's vague charge to advance telecommunications policy "in the public interest" as an increasingly outdated and ever-growing mandate that makes less and less sense as the predominant communications platform transitions from regulated local monopoly to heated competition.

However, proposed Republican legislation tends to offer relatively narrow bright-line rules and little other FCC authority over broadband access providers. Considering the rather limited number of examples of net neutrality concerns that have risen to the level of necessitating government intervention to resolve—and the success of the market-driven broadband system in the United States under prior light-touch oversight—relatively constrained FCC authority is reasonable. There is simply no need for the FCC to get involved in broadband privacy, for example.[54]

But at the same time, the FCC does need real authority to mediate disputes with expert insight, untangling responsibility for unintended consequences in a complex system, and giving confidence in its ability to police abuses, as unlikely as they are to arise.

## THE GRAND BARGAIN ON NET NEUTRALITY AND ITS BENEFITS

There is a good deal of flexibility for a potential deal that would end the back and forth on net neutrality inherent to changes in administration. The proposed outline that follows basically pairs relatively constrained FCC oversight of light-touch but effective net neutrality rules with expanded programs for broadband adoption and digital literacy, as well as funding for rural broadband to best promote an innovative Internet ecosystem going forward. This is a deal both parties should be proud to claim victory from.

- **Clarify that broadband Internet access service is not a "telecommunications service" under Title II of the Communications Act.** Congress should first and foremost remove Title II from the broadband picture, and add a new section to the Communications Act to cover broadband with rules that are properly tailored to the dynamic, competition-driven communications network that is the Internet—not to old-fashioned telephone service.

- **Put widely agreed upon open Internet protections, including no-blocking, no-throttling, and transparency requirements, on firm legal ground.** These bright-line rules are low-hanging fruit that can, if implemented properly, do most of the heavy lifting of protecting the open Internet without negatively impacting innovation or

investment in the network—while also giving application-layer services certainty to invest.

- **Allow pro-competitive traffic differentiation for applications that require it, while preventing anticompetitive abuses of prioritization.** Legislation should allow clear flexibility for traffic differentiation for applications that require it, avoiding an overbroad flat ban on prioritization, while clearly prohibiting anticompetitive conduct. Legislation should put some restrictions on paid prioritization to limit the potential for abuse, such as a simple ban on exclusive dealing or a requirement to offer similar terms to all customers.

- **Give the FCC reasonable, but bounded, jurisdiction to enforce open Internet rules.** Specifically, a new broadband title of the Communications Act should find a compromise regarding the scope of the FCC's jurisdiction, but focus narrowly on open Internet rules and bridging the digital divide—leaving a broader update to the Communications Act for another day.

- **Expand the scope and funding of existing digital-literacy and broadband-adoption programs.** Legislation should expand support for existing adoption programs, such as NTIA's Broadband Adoption Toolkit, the ConnectHome initiative, and expansion of the FCC's Lifeline program, while also establishing a national clearinghouse to support local digital-literacy and adoption initiatives. Authorizing real funding for demand-side broadband adoption and digital literacy would greatly help in closing the digital divide.

While these proposals represent a potentially fruitful starting point, there is certainly potential for other policy priorities that cannot lawfully be achieved under the current Communications Act to broaden the scope of negotiations. These include prison-phone-rate reform, E-Rate-funded middle-mile access reform, solidifying and modernizing the Lifeline program, etc. There are numerous policy objectives in both parties that could be achieved through legislation that are not allowed under current law (regardless of how broadband is classified).

The opportunity to turn what appears to be an intractable partisan debate into a win for both parties, and more importantly, make U.S. consumers and businesses significantly better off, is at hand. Taking the FCC off the seesaw of over- and under-regulation by removing the constraint of outdated legal classifications can be done. It will require combining balanced, even-handed net neutrality rules that allow for innovation while cutting off the potential for abuse; reasonably constrained, but not non-existent FCC authority; and significant programs and real spending to address the digital divide and need for greater rural broadband infrastructure. The current trench warfare that is the net neutrality debate is helping no one other than the most entrenched advocates who benefit from constant conflict. It is time for détente. Congress, in taking up a net neutrality compromise, has an opportunity to demonstrate to the American public that it can move beyond partisan stalemates. Advocacy-group extremists may not like it, but the American people will certainly benefit from it, should a solution come to pass.

## ENDNOTES

1. Although similar questions regarding the line between basic and enhanced services date back to the Computer Inquiries of the 1960s and onward, the first clear articulation that Internet access was not a telecommunication service is in a 1998 report to Congress from the FCC, which states "As a legal matter, the Commission is renewing its determination that the Telecommunications Act should be read to affirm the unregulated status of information services, including Internet access services." Federal-State Joint Board on Universal Service, *Report to Congress,* FCC 98-67, 13 FCC Rcd. 11501 (1998) https://transition.fcc.gov/Bureaus/Common_Carrier/Reports/fcc98067.pdf.
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    Streaming video adds considerably to this load, putting a constant stream of data onto the channel. As consumer's broadband subscriptions have been increasing in speed, the demands of the average websites have grown, with more and more streaming video advertisements and resource-intensive designs, resulting in large, random spikes of capacity demand over short time scales.
33. This technique allows for a single communication channel to be shared by a number of different data streams at the same time. Multiplexing results in tremendous gains to efficiency, as the down time between any one user's bursts of traffic are smoothed out and available capacity is more fully taken advantage of.

34. Similarly, denial-of-service attacks, network failures or unexpected routing changes, or cell overload in the mobile context can all cause congestion. For the most part, users' instantaneous capacity demands are not correlated—we are talking much shorter time scales than the general ebb and flow of traffic patterns throughout the day. Intermittent congestion is perhaps more likely when everyone comes home from work and flips on their favorite streaming service, but this type of congestion, while fleeting, is largely unpredictable, and different from the more lasting congestion at points of interconnection that has been in the news. For good discussion of congestion at points of interconnection, see David Clark et al., "Measurement and Analysis of Internet Interconnection and Congestion," (paper, CSAIL, MIT & CAIDA, University of California, San Diego, September 9, 2014), http://groups.csail.mit.edu/ana/Measurement-and-Analysis-of-Internet-Interconnection-and-Congestion-September2014.pdf.
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36. One way to think about some types of applications effectively ruled off the public Internet by the strict net neutrality rules is by comparing a VoIP call to carrier-grade voice. Indeed, it's odd that net neutrality advocates celebrate a flat ban on paid prioritization when it effectively locks entrepreneurs out of providing carrier-grade services. Daniel Berninger, who has challenged the new FCC regulations in court, is a prime example of those hit by this chill on innovation. Berninger, who did early work on VoIP technology at Bell Laboratories and founded the Voice Exchange Communication Committee to promote IP-based HD Voice service, is familiar with the engineering it takes to offer new types of high-quality services. In his court filings, Berninger explains: "Because latency, jitter, and packet loss in the transmission of a communication will threaten voice quality and destroy the value proposition of a high-definition service, it is imperative that network operators prioritize this traffic.... The best efforts model associated with existing IP interconnection agreements does not enable the relevant implementation requirements necessary to support high-definition voice." *U.S. Telecom Association,* et al., *v. Federal Communications Commission and United States of America,* Case No. 15–1063, U.S. Court of Appeals for the District of Columbia Circuit (declaration of Daniel Beringer), http://transition.fcc.gov/Daily_Releases/Daily_Business/2015/db0730/DOC-334664A1.pdf.
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## ABOUT THE AUTHOR

Doug Brake is the director of broadband and spectrum policy with the Information Technology and Innovation Foundation. He previously served as a research assistant at the Silicon Flatirons Center at the University of Colorado. Doug holds a law degree from the University of Colorado Law School and a Bachelor's in English Literature and Philosophy from Macalester College.

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May 9, 2018

The Honorable Jeanne Shaheen
Senator
United States Congress
Washington, DC 20510

**Re: Senate Small Business and Entrepreneurship Committee May 3, 2018 Hearing – "Net Neutrality: Impacts on New Hampshire Small Businesses"**

Dear Senator Shaheen:

We are group of smaller Internet Service Providers (ISPs) that operate in your homestate of New Hampshire and neighboring Maine. On May 3rd, as a member of the Senate Small Business and Entrepreneurship Committee, you hosted a field hearing "Net Neutrality: Impacts on New Hampshire Small Businesses." While none of us appeared at the hearing, as small businesses, we want you to know that the Federal Communications Commission's (FCC) recent *Restoring Internet Freedom* decision was very positive for our businesses and we believe for our customers and their communities.

Smaller ISPs have long played a key role in our communities. Our customers are our friends and neighbors, and we pride ourselves on giving them reliable, high-performance broadband service. We do not block, degrade, or otherwise inhibit our customers gaining access to any lawful content over the Internet. Moreover, we have no incentive to harm upstream edge and content providers, and, quite frankly, just as in the video programming world, we are more likely to be leveraged by them to the detriment of our customers. All of this explains why we opposed the FCC's *2015 Open Internet Order* turning us into common carriers, subject to heavy-handed regulation, and why we now oppose Senate Joint Resolution 52, which provides for Congressional disapproval of the rule adopted by the FCC in the *Restoring Internet Freedom* decision.

What is needed is for Congress to settle the open Internet debate by enacting legislation that codifies the key open Internet principles of no blocking or impairing of service for ISPs and edge providers alike. This legislation should also ensure we are not regulated as common carriers and permits us to engage in reasonable network management and offer specialized services. We believe such a bill could find consensus, and we are prepared to discuss this further with you or any other Senator at any time.

Finally, we ask that a copy of this letter be entered into record for your hearing. Thank you.

Sincerely,

_/s/_____
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Fibercast
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_/s/_____
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_/s/_____
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_/s/_____
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Cc: The Honorable Maggie Hassan
The Honorable Susan Collins
The Honorable Angus King

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