

## Union Calendar No. 289

112<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

# H. R. 3834

[Report No. 112-420]

To amend the High-Performance Computing Act of 1991 to authorize activities for support of networking and information technology research, and for other purposes.

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### IN THE HOUSE OF REPRESENTATIVES

JANUARY 27, 2012

Mr. HALL (for himself, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. BROOKS, Mr. LIPINSKI, Mrs. BIGGERT, and Mr. LUJÁN) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

MARCH 22, 2012

Reported with an amendment, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed

[Strike out all after the enacting clause and insert the part printed in *italie*]

[For text of introduced bill, see copy of bill as introduced on January 27, 2012]

# **A BILL**

To amend the High-Performance Computing Act of 1991 to authorize activities for support of networking and information technology research, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 *This Act may be cited as the “Advancing America’s*  
5 *Networking and Information Technology Research and De-*  
6 *velopment Act of 2012”.*

7 **SEC. 2. PROGRAM PLANNING AND COORDINATION.**

8 *(a) PERIODIC REVIEWS.—Section 101 of the High-*  
9 *Performance Computing Act of 1991 (15 U.S.C. 5511) is*  
10 *amended by adding at the end the following new subsection:*

11 *“(d) PERIODIC REVIEWS.—The agencies identified in*  
12 *subsection (a)(3)(B) shall—*

13 *“(1) periodically assess the contents and funding*  
14 *levels of the Program Component Areas and restruc-*  
15 *ture the Program when warranted, taking into con-*  
16 *sideration any relevant recommendations of the advi-*  
17 *sory committee established under subsection (b); and*

18 *“(2) ensure that the Program includes large-*  
19 *scale, long-term, interdisciplinary research and devel-*  
20 *opment activities, including activities described in*  
21 *section 104.”.*

22 *(b) DEVELOPMENT OF STRATEGIC PLAN.—Section 101*  
23 *of such Act (15 U.S.C. 5511) is amended further by adding*  
24 *after subsection (d), as added by subsection (a) of this Act,*  
25 *the following new subsection:*

1       “(e) *STRATEGIC PLAN.*—

2               “(1) *IN GENERAL.*—*The agencies identified in*  
3 *subsection (a)(3)(B), working through the National*  
4 *Science and Technology Council and with the assist-*  
5 *ance of the National Coordination Office described*  
6 *under section 102, shall develop, within 12 months*  
7 *after the date of enactment of the Advancing Amer-*  
8 *ica’s Networking and Information Technology Re-*  
9 *search and Development Act of 2012, and update*  
10 *every 3 years thereafter, a 5-year strategic plan to*  
11 *guide the activities described under subsection (a)(1).*

12               “(2) *CONTENTS.*—*The strategic plan shall speci-*  
13 *fy near-term and long-term objectives for the Pro-*  
14 *gram, the anticipated time frame for achieving the*  
15 *near-term objectives, the metrics to be used for assess-*  
16 *ing progress toward the objectives, and how the Pro-*  
17 *gram will—*

18                       “(A) *foster the transfer of research and de-*  
19 *velopment results into new technologies and ap-*  
20 *plications for the benefit of society, including*  
21 *through cooperation and collaborations with net-*  
22 *working and information technology research,*  
23 *development, and technology transition initia-*  
24 *tives supported by the States;*

1           “(B) encourage and support mechanisms for  
2           interdisciplinary research and development in  
3           networking and information technology, includ-  
4           ing through collaborations across agencies, across  
5           Program Component Areas, with industry, with  
6           Federal laboratories (as defined in section 4 of  
7           the Stevenson-Wydler Technology Innovation Act  
8           of 1980 (15 U.S.C. 3703)), and with inter-  
9           national organizations;

10           “(C) address long-term challenges of na-  
11           tional importance for which solutions require  
12           large-scale, long-term, interdisciplinary research  
13           and development;

14           “(D) place emphasis on innovative and  
15           high-risk projects having the potential for sub-  
16           stantial societal returns on the research invest-  
17           ment;

18           “(E) strengthen all levels of networking and  
19           information technology education and training  
20           programs to ensure an adequate, well-trained  
21           workforce; and

22           “(F) attract more women and underrep-  
23           resented minorities to pursue postsecondary de-  
24           grees in networking and information technology.

1           “(3) *NATIONAL RESEARCH INFRASTRUCTURE.*—  
2           *The strategic plan developed in accordance with para-*  
3           *graph (1) shall be accompanied by milestones and*  
4           *roadmaps for establishing and maintaining the na-*  
5           *tional research infrastructure required to support the*  
6           *Program, including the roadmap required by sub-*  
7           *section (a)(2)(E).*

8           “(4) *RECOMMENDATIONS.*—*The entities involved*  
9           *in developing the strategic plan under paragraph (1)*  
10          *shall take into consideration the recommendations—*

11                   “(A) *of the advisory committee established*  
12                   *under subsection (b); and*

13                   “(B) *of the stakeholders whose input was so-*  
14                   *licitated by the National Coordination Office, as*  
15                   *required under section 102(b)(3).*

16          “(5) *REPORT TO CONGRESS.*—*The Director of the*  
17          *National Coordination Office shall transmit the stra-*  
18          *tegic plan required under paragraph (1) to the advi-*  
19          *sory committee, the Committee on Commerce, Science,*  
20          *and Transportation of the Senate, and the Committee*  
21          *on Science, Space, and Technology of the House of*  
22          *Representatives.”.*

23          “(c) *ADDITIONAL RESPONSIBILITIES OF DIRECTOR.*—  
24          *Section 101(a)(2) of such Act (15 U.S.C. 5511(a)(2)) is*  
25          *amended—*

1           (1) in subparagraph (A) by inserting “edu-  
2           cation,” before “and other activities”;

3           (2) by redesignating subparagraphs (E) and (F)  
4           as subparagraphs (F) and (G), respectively; and

5           (3) by inserting after subparagraph (D) the fol-  
6           lowing new subparagraph:

7           “(E) encourage and monitor the efforts of the  
8           agencies participating in the Program to allocate the  
9           level of resources and management attention necessary  
10          to ensure that the strategic plan under subsection (e)  
11          is developed and executed effectively and that the ob-  
12          jectives of the Program are met;”.

13          (d) *ADVISORY COMMITTEE*.—Section 101(b)(1) of such  
14          Act (15 U.S.C. 5511(b)(1)) is amended—

15                 (1) after the first sentence, by inserting the fol-  
16                 lowing: “The co-chairs of the advisory committee shall  
17                 meet the qualifications of committee membership and  
18                 may be members of the President’s Council of Advi-  
19                 sors on Science and Technology.”; and

20                 (2) in subparagraph (D), by striking “high-per-  
21                 formance” and inserting “high-end”.

22          (e) *REPORT*.—Section 101(a)(3) of such Act (15 U.S.C.  
23          5511(a)(3)) is amended—

24                 (1) in subparagraph (C)—

1           (A) by striking “is submitted,” and insert-  
2           ing “is submitted, the levels for the previous fis-  
3           cal year;”; and

4           (B) by striking “each Program Component  
5           Area;” and inserting “each Program Component  
6           Area and research area supported in accordance  
7           with section 104;”;

8           (2) in subparagraph (D)—

9           (A) by striking “each Program Component  
10           Area,” and inserting “each Program Component  
11           Area and research area supported in accordance  
12           with section 104;”;

13           (B) by striking “is submitted,” and insert-  
14           ing “is submitted, the levels for the previous fis-  
15           cal year;”; and

16           (C) by striking “and” after the semicolon;

17           (3) by redesignating subparagraph (E) as sub-  
18           paragraph (G); and

19           (4) by inserting after subparagraph (D) the fol-  
20           lowing new subparagraphs:

21           “(E) include a description of how the objectives  
22           for each Program Component Area, and the objectives  
23           for activities that involve multiple Program Compo-  
24           nent Areas, relate to the objectives of the Program



1 *identified in the strategic plan required under sub-*  
2 *section (e);*

3 *“(F) include—*

4 *“(i) a description of the funding required*  
5 *by the National Coordination Office to perform*  
6 *the functions specified under section 102(b) for*  
7 *the next fiscal year by category of activity;*

8 *“(ii) a description of the funding required*  
9 *by such Office to perform the functions specified*  
10 *under section 102(b) for the current fiscal year*  
11 *by category of activity; and*

12 *“(iii) the amount of funding provided for*  
13 *such Office for the current fiscal year by each*  
14 *agency participating in the Program; and”.*

15 *(f) DEFINITION.—Section 4 of such Act (15 U.S.C.*  
16 *5503) is amended—*

17 *(1) by redesignating paragraphs (1) through (7)*  
18 *as paragraphs (2) through (8), respectively;*

19 *(2) by inserting before paragraph (2), as so re-*  
20 *designated, the following new paragraph:*

21 *“(1) ‘cyber-physical systems’ means physical or*  
22 *engineered systems whose networking and information*  
23 *technology functions and physical elements are deeply*  
24 *integrated and are actively connected to the physical*

1 *world through sensors, actuators, or other means to*  
2 *perform monitoring and control functions;”;*

3 *(3) in paragraph (3), as so redesignated, by*  
4 *striking “high-performance computing” and inserting*  
5 *“networking and information technology”;*

6 *(4) in paragraph (4), as so redesignated—*

7 *(A) by striking “high-performance com-*  
8 *puting” and inserting “networking and informa-*  
9 *tion technology”; and*

10 *(B) by striking “supercomputer” and in-*  
11 *serting “high-end computing”;*

12 *(5) in paragraph (6), as so redesignated, by*  
13 *striking “network referred to as” and all that follows*  
14 *through the semicolon and inserting “network, includ-*  
15 *ing advanced computer networks of Federal agencies*  
16 *and departments;”;* and

17 *(6) in paragraph (7), as so redesignated, by*  
18 *striking “National High-Performance Computing*  
19 *Program” and inserting “networking and informa-*  
20 *tion technology research and development program”.*

21 **SEC. 3. LARGE-SCALE RESEARCH IN AREAS OF NATIONAL**  
22 **IMPORTANCE.**

23 *Title I of such Act (15 U.S.C. 5511) is amended by*  
24 *adding at the end the following new section:*

1 **“SEC. 104. LARGE-SCALE RESEARCH IN AREAS OF NA-**  
2 **TIONAL IMPORTANCE.**

3       “(a) *IN GENERAL.*—*The Program shall encourage*  
4 *agencies identified in section 101(a)(3)(B) to support large-*  
5 *scale, long-term, interdisciplinary research and develop-*  
6 *ment activities in networking and information technology*  
7 *directed toward application areas that have the potential*  
8 *for significant contributions to national economic competi-*  
9 *tiveness and for other significant societal benefits. Such ac-*  
10 *tivities, ranging from basic research to the demonstration*  
11 *of technical solutions, shall be designed to advance the devel-*  
12 *opment of research discoveries. The advisory committee es-*  
13 *tablished under section 101(b) shall make recommendations*  
14 *to the Program for candidate research and development*  
15 *areas for support under this section.*

16       “(b) *CHARACTERISTICS.*—

17               “(1) *IN GENERAL.*—*Research and development*  
18 *activities under this section shall—*

19                       “(A) *include projects selected on the basis of*  
20 *applications for support through a competitive,*  
21 *merit-based process;*

22                       “(B) *involve collaborations among research-*  
23 *ers in institutions of higher education and in-*  
24 *dustry, and may involve nonprofit research in-*  
25 *stitutions and Federal laboratories, as appro-*  
26 *priate;*

1           “(C) when possible, leverage Federal invest-  
2           ments through collaboration with related State  
3           initiatives; and

4           “(D) include a plan for fostering the trans-  
5           fer of research discoveries and the results of tech-  
6           nology demonstration activities, including from  
7           institutions of higher education and Federal lab-  
8           oratories, to industry for commercial develop-  
9           ment.

10          “(2) COST-SHARING.—In selecting applications  
11          for support, the agencies shall give special consider-  
12          ation to projects that include cost sharing from non-  
13          Federal sources.

14          “(3) AGENCY COLLABORATION.—If 2 or more  
15          agencies identified in section 101(a)(3)(B), or other  
16          appropriate agencies, are working on large-scale re-  
17          search and development activities in the same area of  
18          national importance, then such agencies shall strive  
19          to collaborate through joint solicitation and selection  
20          of applications for support and subsequent funding of  
21          projects.

22          “(4) INTERDISCIPLINARY RESEARCH CENTERS.—  
23          Research and development activities under this sec-  
24          tion may be supported through interdisciplinary re-  
25          search centers that are organized to investigate basic

1        *research questions and carry out technology dem-*  
2        *onstration activities in areas described in subsection*  
3        *(a). Research may be carried out through existing*  
4        *interdisciplinary centers, including those authorized*  
5        *under section 7024(b)(2) of the America COMPETES*  
6        *Act (Public Law 110–69; 42 U.S.C. 18620–10).”.*

7        **SEC. 4. CYBER-PHYSICAL SYSTEMS.**

8        *(a) ADDITIONAL PROGRAM CHARACTERISTICS.—Sec-*  
9        *tion 101(a)(1) of such Act (15 U.S.C. 5511(a)(1)) is amend-*  
10       *ed—*

11                *(1) in subparagraph (H), by striking “and”*  
12        *after the semicolon;*

13                *(2) in subparagraph (I), by striking the period*  
14        *at the end and inserting a semicolon; and*

15                *(3) by adding at the end the following new sub-*  
16        *paragraphs:*

17                *“(J) provide for increased understanding of the*  
18        *scientific principles of cyber-physical systems and im-*  
19        *prove the methods available for the design, develop-*  
20        *ment, and operation of cyber-physical systems that*  
21        *are characterized by high reliability, safety, and secu-*  
22        *rity; and*

23                *“(K) provide for research and development on*  
24        *human-computer interactions, visualization, and big*  
25        *data.”.*

1       (b) *TASK FORCE*.—Title I of such Act (15 U.S.C.  
2 5511) is amended further by adding after section 104, as  
3 added by section 3 of this Act, the following new section:

4 **“SEC. 105. UNIVERSITY/INDUSTRY TASK FORCE.**

5       “(a) *ESTABLISHMENT*.—Not later than 180 days after  
6 the date of enactment of the Advancing America’s Net-  
7 working and Information Technology Research and Devel-  
8 opment Act of 2012, the Director of the National Coordina-  
9 tion Office shall convene a task force to explore mechanisms  
10 for carrying out collaborative research and development ac-  
11 tivities for cyber-physical systems, including the related  
12 technologies required to enable these systems, through a con-  
13 sortium or other appropriate entity with participants from  
14 institutions of higher education, Federal laboratories, and  
15 industry.

16       “(b) *FUNCTIONS*.—The task force shall—

17               “(1) develop options for a collaborative model  
18 and an organizational structure for such entity under  
19 which the joint research and development activities  
20 could be planned, managed, and conducted effectively,  
21 including mechanisms for the allocation of resources  
22 among the participants in such entity for support of  
23 such activities;

24               “(2) propose a process for developing a research  
25 and development agenda for such entity, including

1 *guidelines to ensure an appropriate scope of work fo-*  
2 *ocused on nationally significant challenges and requir-*  
3 *ing collaboration and to ensure the development of re-*  
4 *lated scientific and technological milestones;*

5 *“(3) define the roles and responsibilities for the*  
6 *participants from institutions of higher education,*  
7 *Federal laboratories, and industry in such entity;*

8 *“(4) propose guidelines for assigning intellectual*  
9 *property rights and for the transfer of research results*  
10 *to the private sector; and*

11 *“(5) make recommendations for how such entity*  
12 *could be funded from Federal, State, and non-govern-*  
13 *mental sources.*

14 *“(c) COMPOSITION.—In establishing the task force*  
15 *under subsection (a), the Director of the National Coordina-*  
16 *tion Office—*

17 *“(1) shall appoint an equal number of individ-*  
18 *uals with knowledge and expertise in cyber-physical*  
19 *systems from—*

20 *“(A) institutions of higher education, in-*  
21 *cluding minority-serving institutions and com-*  
22 *munity colleges; and*

23 *“(B) industry; and*

24 *“(2) may appoint not more than 2 individuals*  
25 *from Federal laboratories.*

1       “(d) *REPORT.*—Not later than 1 year after the date  
2 of enactment of the *Advancing America’s Networking and*  
3 *Information Technology Research and Development Act of*  
4 *2012, the Director of the National Coordination Office shall*  
5 *transmit to the Committee on Commerce, Science, and*  
6 *Transportation of the Senate and the Committee on*  
7 *Science, Space, and Technology of the House of Representa-*  
8 *tives a report describing the findings and recommendations*  
9 *of the task force.*

10       “(e) *TERMINATION.*—The task force shall terminate  
11 upon transmittal of the report required under subsection  
12 (d).

13       “(f) *COMPENSATION.*—Members of the task force shall  
14 serve without compensation.”.

15 **SEC. 5. CLOUD COMPUTING SERVICES FOR RESEARCH.**

16       Title I of such Act (15 U.S.C. 5511) is amended further  
17 by adding after section 105, as added by section 4(b) of  
18 this Act, the following new section:

19 **“SEC. 106. CLOUD COMPUTING SERVICES FOR RESEARCH.**

20       “(a) *INTERAGENCY WORKING GROUP.*—Not later than  
21 180 days after the date of enactment of the *Advancing*  
22 *America’s Networking and Information Technology Re-*  
23 *search and Development Act of 2012, the Director of the*  
24 *National Coordination Office, working through the Na-*



1 *tional Science and Technology Council, shall convene an*  
2 *interagency working group to examine—*

3 *“(1) the research and development needed—*

4 *“(A) to enhance the effectiveness and effi-*  
5 *ciency of cloud computing environments;*

6 *“(B) to increase the trustworthiness of cloud*  
7 *applications and infrastructure; and*

8 *“(C) to enhance the foundations of cloud ar-*  
9 *chitectures, programming models, and interoper-*  
10 *ability; and*

11 *“(2) the potential use of cloud computing for fed-*  
12 *erally-funded science and engineering research, in-*  
13 *cluding issues around funding mechanisms and poli-*  
14 *cies for the use of cloud computing services for such*  
15 *research.*

16 *“(b) CONSULTATION.—In carrying out the tasks in*  
17 *paragraphs (1) and (2) of subsection (a), the working group*  
18 *shall consult with academia, industry, Federal laboratories,*  
19 *and other relevant organizations and institutions, as ap-*  
20 *propriate.*

21 *“(c) REPORT.—Not later than 1 year after the date*  
22 *of enactment of the Advancing America’s Networking and*  
23 *Information Technology Research and Development Act of*  
24 *2012, the Director of the National Coordination Office shall*  
25 *transmit to the Committee on Science, Space, and Tech-*

1 *nology of the House of Representatives and the Committee*  
2 *on Commerce, Science, and Transportation of the Senate*  
3 *a report describing the findings and any recommendations*  
4 *of the working group.*

5 “(d) *TERMINATION.*—*The interagency working group*  
6 *shall terminate upon transmittal of the report required*  
7 *under subsection (c).”.*

8 **SEC. 6. NATIONAL COORDINATION OFFICE.**

9 *Section 102 of such Act (15 U.S.C. 5512) is amended*  
10 *to read as follows:*

11 **“SEC. 102. NATIONAL COORDINATION OFFICE.**

12 “(a) *OFFICE.*—*The Director shall continue a National*  
13 *Coordination Office with a Director and full-time staff.*

14 “(b) *FUNCTIONS.*—*The National Coordination Office*  
15 *shall—*

16 “(1) *provide technical and administrative sup-*  
17 *port to—*

18 “(A) *the agencies participating in planning*  
19 *and implementing the Program, including such*  
20 *support as needed in the development of the stra-*  
21 *tegic plan under section 101(e); and*

22 “(B) *the advisory committee established*  
23 *under section 101(b);*

24 “(2) *serve as the primary point of contact on*  
25 *Federal networking and information technology ac-*

1 *tivities for government organizations, academia, in-*  
2 *dustry, professional societies, State computing and*  
3 *networking technology programs, interested citizen*  
4 *groups, and others to exchange technical and pro-*  
5 *grammatic information;*

6 *“(3) solicit input and recommendations from a*  
7 *wide range of stakeholders during the development of*  
8 *each strategic plan required under section 101(e)*  
9 *through the convening of at least 1 workshop with*  
10 *invitees from academia, industry, Federal labora-*  
11 *tories, and other relevant organizations and institu-*  
12 *tions;*

13 *“(4) conduct public outreach, including the dis-*  
14 *semination of findings and recommendations of the*  
15 *advisory committee, as appropriate; and*

16 *“(5) promote access to and early application of*  
17 *the technologies, innovations, and expertise derived*  
18 *from Program activities to agency missions and sys-*  
19 *tems across the Federal Government and to United*  
20 *States industry.*

21 *“(c) SOURCE OF FUNDING.—*

22 *“(1) IN GENERAL.—The operation of the Na-*  
23 *tional Coordination Office shall be supported by*  
24 *funds from each agency participating in the Pro-*  
25 *gram.*

1           “(2) *SPECIFICATIONS.*—*The portion of the total*  
2           *budget of such Office that is provided by each agency*  
3           *for each fiscal year shall be in the same proportion*  
4           *as each such agency’s share of the total budget for the*  
5           *Program for the previous fiscal year, as specified in*  
6           *the report required under section 101(a)(3).”.*

7   **SEC. 7. IMPROVING NETWORKING AND INFORMATION**  
8           **TECHNOLOGY EDUCATION.**

9           *Section 201(a) of such Act (15 U.S.C. 5521(a)) is*  
10 *amended—*

11           (1) *by redesignating paragraphs (2) through (4)*  
12 *as paragraphs (3) through (5), respectively; and*

13           (2) *by inserting after paragraph (1) the fol-*  
14 *lowing new paragraph:*

15           “(2) *the National Science Foundation shall use*  
16 *its existing programs, in collaboration with other*  
17 *agencies, as appropriate, to improve the teaching and*  
18 *learning of networking and information technology at*  
19 *all levels of education and to increase participation*  
20 *in networking and information technology fields, in-*  
21 *cluding by women and underrepresented minorities;”.*

22   **SEC. 8. CONFORMING AND TECHNICAL AMENDMENTS.**

23           (a) *SECTION 3.*—*Section 3 of such Act (15 U.S.C.*  
24 *5502) is amended—*

1           (1) in the matter preceding paragraph (1), by  
2 striking “high-performance computing” and inserting  
3 “networking and information technology”;

4           (2) in paragraph (1)—

5           (A) in the matter preceding subparagraph  
6 (A), by striking “high-performance computing”  
7 and inserting “networking and information tech-  
8 nology”;

9           (B) in subparagraphs (A), (F), and (G), by  
10 striking “high-performance computing” each  
11 place it appears and inserting “networking and  
12 information technology”; and

13           (C) in subparagraph (H), by striking  
14 “high-performance” and inserting “high-end”;  
15 and

16           (3) in paragraph (2)—

17           (A) by striking “high-performance com-  
18 puting and” and inserting “networking and in-  
19 formation technology and”; and

20           (B) by striking “high-performance com-  
21 puting network” and inserting “networking and  
22 information technology”.

23           (b) *TITLE I.*—The heading of title I of such Act (15  
24 U.S.C. 5511) is amended by striking “**HIGH-PER-**  
25 **FORMANCE COMPUTING**” and inserting “**NET-**

1 **WORKING AND INFORMATION TECH-**  
2 **NOLOGY**".

3 (c) SECTION 101.—Section 101 of such Act (15 U.S.C.  
4 5511) is amended—

5 (1) in the section heading, by striking "**HIGH-**  
6 **PERFORMANCE COMPUTING**" and inserting  
7 "**NETWORKING AND INFORMATION TECH-**  
8 **NOLOGY RESEARCH AND DEVELOPMENT**";

9 (2) in subsection (a)—

10 (A) in the subsection heading, by striking  
11 "NATIONAL HIGH-PERFORMANCE COMPUTING"  
12 and inserting "NETWORKING AND INFORMATION  
13 TECHNOLOGY RESEARCH AND DEVELOPMENT";

14 (B) in paragraph (1) of such subsection—

15 (i) in the matter preceding subpara-  
16 graph (A), by striking "National High-Per-  
17 formance Computing Program" and insert-  
18 ing "networking and information tech-  
19 nology research and development program";

20 (ii) in subparagraph (A), by striking  
21 "high-performance computing, including  
22 networking" and inserting "networking and  
23 information technology";

1                   (iii) in subparagraphs (B) and (G), by  
2 striking “high-performance” each place it  
3 appears and inserting “high-end”; and

4                   (iv) in subparagraph (C), by striking  
5 “high-performance computing and net-  
6 working” and inserting “high-end com-  
7 puting, distributed, and networking”; and

8 (C) in paragraph (2) of such subsection—

9                   (i) in subparagraphs (A) and (C)—

10                   (I) by striking “high-performance  
11 computing” each place it appears and  
12 inserting “networking and information  
13 technology”; and

14                   (II) by striking “development,  
15 networking,” each place it appears and  
16 inserting “development,”; and

17                   (ii) in subparagraphs (F) and (G), as  
18 redesignated by section 2(c)(1) of this Act,  
19 by striking “high-performance” each place  
20 it appears and inserting “high-end”;

21 (3) in subsection (b)—

22                   (A) in paragraph (1), in the matter pre-  
23 ceding subparagraph (A), by striking “high-per-  
24 formance computing” both places it appears and

1           inserting “networking and information tech-  
2           nology”; and

3                   (B) in paragraph (2), in the second sen-  
4           tence, by striking “2” and inserting “3”; and

5                   (4) in subsection (c)(1)(A), by striking “high-  
6           performance computing” and inserting “networking  
7           and information technology”.

8           (d) SECTION 201.—Section 201(a)(1) of such Act (15  
9           U.S.C. 5521(a)(1)) is amended by striking “high-perform-  
10          ance computing” and all that follows through “net-  
11          working;” and inserting “networking and information re-  
12          search and development;”.

13          (e) SECTION 202.—Section 202(a) of such Act (15  
14          U.S.C. 5522(a)) is amended by striking “high-performance  
15          computing” and inserting “networking and information  
16          technology”.

17          (f) SECTION 203.—Section 203(a) of such Act (15  
18          U.S.C. 5523(a)(1)) is amended—

19                   (1) in paragraph (1), by striking “high-perform-  
20          ance computing and networking” and inserting “net-  
21          working and information technology”; and

22                   (2) in paragraph (2)(A), by striking “high-per-  
23          formance” and inserting “high-end”.

24          (g) SECTION 204.—Section 204 of such Act (15 U.S.C.  
25          5524) is amended—



1           (1) *in subsection (a)(1)—*

2                   (A) *in subparagraph (A), by striking “high-*  
3 *performance computing systems and networks”*  
4 *and inserting “networking and information tech-*  
5 *nology systems and capabilities”;*

6                   (B) *in subparagraph (B), by striking*  
7 *“interoperability of high-performance computing*  
8 *systems in networks and for common user inter-*  
9 *faces to systems” and inserting “interoperability*  
10 *and usability of networking and information*  
11 *technology systems”;* and

12                   (C) *in subparagraph (C), by striking “high-*  
13 *performance computing” and inserting “net-*  
14 *working and information technology”;* and

15           (2) *in subsection (b)—*

16                   (A) *in the heading, by striking “HIGH-PER-*  
17 *FORMANCE COMPUTING AND NETWORK” and in-*  
18 *serting “NETWORKING AND INFORMATION TECH-*  
19 *NOLOGY”;* and

20                   (B) *by striking “sensitive”.*

21           (h) *SECTION 205.—Section 205(a) of such Act (15*  
22 *U.S.C. 5525(a)) is amended by striking “computational”*  
23 *and inserting “networking and information technology”.*

24           (i) *SECTION 206.—Section 206(a) of such Act (15*  
25 *U.S.C. 5526(a)) is amended by striking “computational re-*

1 *search” and inserting “networking and information tech-*  
2 *nology research”.*

3 (j) *SECTION 207.—Section 207(b) of such Act (15*  
4 *U.S.C. 5527(b)) is amended by striking “high-performance*  
5 *computing” and inserting “networking and information*  
6 *technology”.*

7 (k) *SECTION 208.—Section 208 of such Act (15 U.S.C.*  
8 *5528) is amended—*

9 (1) *in the section heading, by striking “HIGH-*  
10 *PERFORMANCE COMPUTING” and inserting*  
11 *“NETWORKING AND INFORMATION TECH-*  
12 *NOLOGY”; and*

13 (2) *in subsection (a)—*

14 (A) *in paragraph (1), by striking “High-*  
15 *performance computing and associated” and in-*  
16 *serting “Networking and information”;*

17 (B) *in paragraph (2), by striking “high-*  
18 *performance computing” and inserting “net-*  
19 *working and information technologies”;*

20 (C) *in paragraph (3), by striking “high-*  
21 *performance” and inserting “high-end”;*

22 (D) *in paragraph (4), by striking “high-*  
23 *performance computers and associated” and in-*  
24 *serting “networking and information”;* and

1                   (E) in paragraph (5), by striking “high-  
2                   performance computing and associated” and in-  
3                   serting “networking and information”.

Union Calendar No. 289

112<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

**H. R. 3834**

[Report No. 112-420]

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## **A BILL**

To amend the High-Performance Computing Act of 1991 to authorize activities for support of networking and information technology research, and for other purposes.

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MARCH 22, 2012

Reported with an amendment, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed