

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

A National Broadband Plan for Our Future

GN Docket No. 09-51

Comments of the Computer & Communications Industry Association

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I. Introduction and Executive Summary

The Commission has before it a singular opportunity to develop and implement a holistic, forward-looking National Broadband Plan that will make affordable, high-speed and open Internet access the norm for all Americans. Running water, electricity, and even basic phone service were once considered luxuries, but we have left those days far behind. As we endure one of the greatest economic crises in our nation's history, we must have the vision and resolve to provide economic opportunity, improve political discourse, and increase access to education and health care by ensuring bits flow as freely as drinking water. Simply put, broadband is opportunity, and we must embrace broadband deployment and adoption as signature challenges of our age.

The National Broadband Plan should not be confined to just what the FCC can do within the constraints of its jurisdiction. No single agency can address our vast need for broadband to stimulate economic development, educate our citizenry, and improve access to healthcare and other critical services. Instead, the National Broadband Plan should be

a broad charter that can be used to cut across the federal government to create a coordinated, multiagency approach to deploying a twenty-first century broadband network across the length and breadth of the United States. As such, these comments address not just matters within the FCC's jurisdiction, but steps that could be pursued by other agencies or through legislation.

The National Broadband Plan must set ambitious goals and chart a clear path forward that will bring broadband to all of our citizenry. As the Federal Government faces the myriad challenges necessary to fulfill this vision, it must ground its choices in core principles that reflect our national values and recognize the importance of broadband to our society. The National Broadband Plan must therefore ensure that:

- All Americans have access to broadband;
- The Internet is open and free from discrimination and censorship;
- Citizens and consumers have the widest possible range of choices among providers and services;
- First Amendment rights and privacy are protected;
- Competition is encouraged, while barriers to innovation and entry are systematically removed;
- All elements of the government work cooperatively and transparently to adopt policies that increase broadband deployment and adoption.

The Plan should provide that anchor institutions such as schools, libraries and hospitals have “future-proof” fiber optic connections to the Internet. Public housing projects, community colleges, and other demand clusters should also have the same “future-proof” connectivity. Such institutions can serve as points of interconnection for broadband service to neighborhoods and small businesses by commercial and/or

municipal providers. Likewise, broadband should be accessible in the home. The Commission should endeavor to ensure that every household – or at least every household with school-age children – has a broadband connection. People in other households should have, at a minimum, access to broadband at a library or community center within a short distance. By creating a Broadband Plan that enables such access, the Commission will improve the personal, economic, educational and political life of all Americans. We need to ensure that on the Internet, the world’s greatest tool for communications and speech, the First Amendment is vigorously protected.

The National Broadband Plan must ensure that the openness of the Internet that has long fueled adoption and innovation continues. After the federal government via DARPA and major universities launched the Internet – over what were at that time largely common carrier underlying facilities – it was the open standards nature of the Internet, unimpeded by patents and claims of ownership, that allowed innovation to develop and spread quickly. As Sir Timothy Berners-Lee has explained, “[w]hen I designed the Web . . . I did not have to ask anyone’s permission.”¹ Barrier-free, inexpensive access to high-speed Internet continues to create incentives for innovators to develop and distribute their inventions and opportunities for users to enjoy the vast and ever-expanding array of Internet services and applications. The National Broadband Plan should recognize the value of an open and usable Internet by preserving content and

¹ Testimony of Sir Timothy Berners-Lee, CSAIL Decentralized Information Group, Massachusetts Institute of Technology, before the United States House of Representatives, Committee on Energy and Commerce, Subcommittee on Telecommunications and the Internet, <http://dig.csail.mit.edu/2007/03/01-ushouse-future-of-the-web.html#L384> (last visited June 8, 2009).

application neutrality while recognizing a need for reasonable network management, ensuring transparency for users, and safeguarding privacy.

The Plan should focus both on the deployment of robust facilities in unserved and underserved areas and on dismantling existing last- and middle-mile bottlenecks that impede the provision of competitive, affordable and robust broadband services. The Commission should favor no technology or provider, but instead should harness the power of competition and innovation to improve services and reduce costs for all. Where weak markets fail to support facilities-based competition, government subsidies along with wholesale capacity or network sharing requirements may be necessary. There is no single approach to address these broad concerns, and the Commission must work creatively with all of the tools at its disposal to drive broadband adoption and deployment.

The Computer & Communications Industry Association (CCIA) submits these comments in response to the Commission's Notice of Inquiry² about the creation of a National Broadband Plan. CCIA is a nonprofit membership organization comprised of a wide range of computer, Internet, information technology, and telecommunications companies. Our members include computer and communications companies, equipment manufacturers, software developers, service providers, re-sellers, integrators, and financial service companies. Together, our members employ almost one million workers and generate nearly \$250 billion in annual revenue. For over thirty years, CCIA has advocated for open markets, open systems, open networks, and full, fair, and open competition.

² *A National Broadband Plan for Our Future*, Notice of Inquiry, GN Docket No. 09-51, 24 FCC Rcd. 4342 (rel. April 8, 2009) (NOI).

Part II of these comments addresses the Commission's inquiry about how to define certain terms key to a National Broadband Plan. Part III discusses several mechanisms the Commission can use to ensure that all Americans receive access to broadband. Part IV addresses the need for open networks and explains why privacy protection will advance consumer welfare and how the Commission should protect privacy. Part V discusses how the Commission's spectrum policies should be used to further national broadband. Part VI explains how the Commission should use broadband mapping to formulate and implement its National Broadband Plan. Part VII addresses several policy goals that the National Broadband Plan can advance and discusses Commission coordination with other governmental entities and with other statutory provisions.

II. Definitions

Broadband

The Commission requested comment on how it should define broadband in its National Broadband Plan.³ First and foremost, the goal of the National Broadband Plan should be to shoot high – to ensure access to broadband with a minimum bandwidth of 100 mbps symmetrical for anchor institutions, and 4 mbps symmetrical for households, by 2012. This will support critical applications for students and small businesses. But the plan should also be flexible and account for the varying needs and technological solutions that may be suitable for varying geography and demographics, and recognize that existing network topologies may not be able to deliver these speeds at this time. The Commission should avoid adopting any definition that would exclude technological

³ NOI at ¶¶ 15-22.

solutions that may be appropriate to serve different topologies, including particularly hard-to-serve areas, or fail to recognize these inherent difficulties. But the Commission must, nonetheless, articulate aggressive goals and vision designed to maximize Americans' access to broadband.

Mobile wireless broadband exemplifies why the Commission should be careful not to inadvertently disfavor some technologies as it crafts its National Broadband Plan. Mobile wireless broadband allows people to connect to the Internet wherever they are, and at a relatively affordable price point – opening up a wide range of anywhere-you-are applications and innovative services. And mobile wireless broadband can also be an affordable way to provide broadband to hard-to-serve areas. These benefits may offset its lower speeds and more limited bandwidth, and the Commission should craft rules that allow consumers and the market to decide what solution best meets their needs.

The Commission can gain assistance in setting the definition of broadband, especially with regard to speed, from the Measurement Lab or “M-Lab” and similar tools. M-Lab is an open, distributed server platform that enables researchers to deploy Internet measurement tools designed to test broadband connections thereby increase Internet transparency.⁴ The Commission can utilize this tool to determine what broadband speeds consumers are actually realizing and to determine the actual speeds consumers need for various applications. The Commission should encourage continued development of tools like M-Lab that place information in the hands of consumers and policymakers, and should work to ensure that broadband data gathered by the government is made broadly available to the citizenry.

⁴ See <http://measurementlab.net/about>.

Broadband Access

The Commission also sought comment on what it means to have access to broadband capability.⁵ A household should be considered to be “served” or to have broadband access if it could have affordable, operational broadband within a week. Affordability should be determined by nationwide averages and prices in other industrialized nations. In addition, the Commission should take steps to ensure that physical access is accompanied by programs designed to reduce the digital divide. For many citizens, broadband will remain inaccessible without additional digital literacy and computer training or access to affordable wireless devices, such as netbooks.

III. Mechanisms for Ensuring Access

The Commission requested comment on effective and efficient mechanisms for ensuring access to broadband.⁶ The Commission requested general comment about policies, programs or issues that “stand as impediments to further broadband deployment[.]”⁷ CCIA has identified several steps the Commission should take to ensure that broadband is widely available.

Crucial Infrastructure

The Commission must focus on both last- and middle-mile infrastructure, and work to eliminate bottlenecks that impede access and drive up the cost of broadband. Last-mile infrastructure – the local on and off ramps to the Internet – must be systematically added and improved to broaden access and support very high-speed

⁵ NOI at ¶ 23.

⁶ NOI at ¶ 36.

⁷ NOI at ¶ 50.

connections to the Internet needed to future-proof our networks. In underserved areas, the Commission should encourage competition in the provision of last-mile connections and thereby allow the market to help drive improved service, lower costs, and greater openness and transparency. In unserved areas, attracting the first reliable broadband provider is paramount.

The Commission should also actively promote improvements in middle-mile infrastructure. By linking unserved and underserved communities to the Internet backbone, additional high-capacity middle mile infrastructure can and will remove economic and network barriers that limit broadband access today.⁸ Without high-capacity middle-mile infrastructure, a local network or service provider cannot provide broadband connectivity to end users at higher rates of throughput, and local networks will not connect at multimegabit speeds with national and international networks. To create a truly National Broadband Plan, the Commission must address the need for high-capacity middle-mile infrastructure.

The Commission must also take steps to encourage competition in the provision and deployment of all broadband facilities. Communities and localities should be free to deploy their own broadband networks and facilities, and the Commission should systematically remove obstacles to deployment by addressing barriers such as limits and unreasonable delays on tower siting and restrictions on pole attachments and access to public rights of way. The Commission should likewise avoid premature deregulation through forbearance where sustainable competition has not yet taken hold. The

⁸ Comments of The New America Foundation at 5, Report on Rural Broadband Strategy, GN Docket No. 09-29 (filed Mar. 25, 2009).

Commission should look critically, as well, at billing or marketing practices that may appear neutral but that would not be sustainable in a truly competitive environment.

Universal Service

The Universal Service statute establishes “access to advanced telecommunications and information services . . . in all regions of the Nation” as bedrock principle of the Universal Service Fund.⁹ Today, this principle is more critical than ever, as broadband availability can level the economic playing field, bring jobs to all corners of the nation, lower health care costs, and drive participation in our 21st century democracy. In addition to adopting this principle, Congress has mandated that the Commission “encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans.”¹⁰ Universal Service is a critical tool in this effort, and the Universal Service Fund must transition from its current focus on supporting the provision of basic telephone service to support for broadband access and network infrastructure.

But today’s Universal Service Fund needs an overhaul to fulfill these mandates. Today, for the high cost fund, which is the largest part of the Universal Service Fund, no one has defined the market outcomes – what services at what price – subsidies are meant to achieve.¹¹ To effectively support broadband, the Commission must be clear about (1)

⁹ 47 U.S.C. § 254(b).

¹⁰ 47 U.S.C. § 157 nt.

¹¹ U.S. Government Accountability Office, Telecommunications: FCC Needs to Improve Performance Management and Strengthen Oversight of the High-Cost Program, GAO-08-633 (2008) and *Comprehensive Review of Universal Service Fund Management, Administration, and Oversight*, Notice of Proposed Rulemaking and Further Notice of Proposed Rulemaking, Docket No. 05-195, 20 FCC Rcd. 11,308 (2005).

the connections that it wishes to support (*e.g.*, how fast) and (2) at what price those connections are affordable. Without clear and objective goals, the Commission cannot know where subsidies are needed to achieve affordable broadband availability and where they are not. Universal Service support is provided by consumers – every subsidy dollar is a dollar out of a consumer’s pocket. It is therefore essential that the Fund provide only the subsidies that are truly necessary to ensure that consumers have access to supported services at affordable rates. And to do that, the National Broadband Plan and the Commission need to be clear about the outcomes they seek to achieve through any universal service program.

To develop concrete goals, the Commission should focus on the specific access needs of consumers in both rural high cost areas and disadvantaged inner city neighborhoods. Chief among these, of course, is access to the broadband connections that will allow these consumers to share equally in economic and educational opportunities available to most urban and suburban Americans. As Interim Chairman Copps has explained, rural America must not be “left behind” while “more densely populated parts of the country go online for work, education, entertainment, healthcare, civic participation, and much more.”¹² Universal Service funds, if correctly targeted toward broadband infrastructure for access to advanced services, have the potential to spur broadband deployment to some of the most chronically unserved areas of the country, such as Indian reservations. Rural, isolated regions of the country, including tribal lands, have the most to gain from broadband technology. Besides economic and

¹² Michael J. Copps, Acting Chairman, Federal Communications Commission, Bringing Broadband to Rural America: Report on a Rural Broadband Strategy, GN Docket No. 09-29 at ¶ 2 (May 22, 2009) (“Rural Broadband Report”).

commercial benefits, broadband can help deliver health care and education, and slow or reverse the growing digital divide between the privileged and underprivileged. By the same token, these regions may have the most to lose if they remain offline, because persistent isolation will only worsen existing cultural and economic gaps.

The current Universal Service Fund is statutorily limited to mass market last-mile providers and thus should focus on availability of local broadband connections to unserved homes and small businesses. These local connections are crucial to broadband access but remain substandard in many areas, and thus warrant vigorous and targeted support. This support should not be conditioned or vary based on technology used, but should instead be available for any technology that provides supported and sufficiently advanced service, including fiber optic lines, fixed wireless connections, or 3G mobile wireless connections with data card access for laptop computers.

To the extent subsidies may be necessary to ensure adequate middle-mile facilities, Congress and the Commission should separately examine that market, again fully defining the outcomes sought to be achieved and taking care not to provide subsidies where they are not needed to achieve those outcomes. Lowering barriers to deployment of middle mile facilities – whether terrestrial or wireless – is critical and must be a part of any solution addressing middle-mile facilities. It may be helpful to review the early results of BTOP and RUS projects to help evaluate needs that may persist beyond 2011.

The Commission has already adopted Lifeline and Link-Up programs that focus on user need by subsidizing the cost of telephone service for low income consumers. By narrowly targeting support to those consumers with demonstrated need, these programs

effectively deliver support without unnecessary subsidies. The existing Lifeline and Link-Up Plans should be converted to support broadband connections, and the Commission should consider additional programs to bring computers and broadband access to low income families, school children, the unemployed, and central community facilities such as schools, libraries, hospitals, public housing and community colleges. Similarly, subsidies that benefit companies rather than consumers should be retired in favor of targeted support of actual users of broadband.

Support must be competitively and technologically neutral. The market and the consumer, not the USF program, should drive commercial viability. Incumbents and competitors should therefore receive the same support when support is available, and that support should be portable, creating incentives for both incumbents and new entrants to compete vigorously for each and every customer. Absent neutral rules, support will distort the marketplace and undermine the power of competition to fuel innovation and reduce prices. The Commission should also take steps to ensure that recipients are fully accountable for USF funds received.

Critically, consumers should not be forced to subsidize service that is not open or limits choice. All broadband connections, including those supported by the USF, must provide consumers with access to everything the public Internet has to offer.

Special Access

The lack of expected competition in the special access market has created a bottleneck that has contributed to the lack of ubiquitous broadband – a market failure that the Commission cannot ignore in its Plan for either the middle or last mile. The situation “is akin to a small businessman trying to open a grocery store, and the only supplier of

beef, dairy, poultry and produce for this new grocery store is Safeway.”¹³ This bottleneck has allowed incumbents in some markets to earn rates of return of 700 percent.¹⁴

The Commission should reform the existing special access structure as part of its National Broadband Plan. For CLECs to provide DSL broadband to rural businesses and communities, they need reasonably priced business broadband connections. One solution would be revised price regulation, including a more precise assessment of competition than by Metropolitan Statistical Area (MSA). Co-location within an MSA does not predict actual competition, and may mistakenly assume competition in situations where the competitor cannot actually provide service, and may mistakenly ignore actual competition from wireless service from outside the MSA. The Commission should consider how it can foster needed competition by considering policies such as mandatory wholesale interconnection. In addition, the Commission should move to preclude copper wire retirement as fiber is laid, so that ISPs and end users may retain DSL as a lower-cost broadband option.

Government Investment and Recovery Act Awards

The National Broadband Plan should also support government investment, including investment fueled by Broadband Technology Opportunities Program (BTOP) and RUS awards made pursuant to the American Recovery and Reinvestment Act (“Recovery Act”) The American taxpayers are providing billions of dollars that will be invested to increase the deployment of broadband through the BTOP and RUS Recovery

¹³ S. Derek Turner et al, *Changing Media: Public Interest Policies for the Digital Age* 183 (Free Press 2009), <http://www.freepress.net/summit/book>. (“Changing Media”).

¹⁴ *Id.*

initiatives. The Commission should ensure that this investment fuels long-term growth by dismantling roadblocks that have impeded broadband deployment in the past and that may limit the sustainability and continued expansion of these new projects beyond the Recovery Act funding period. These policy choices are likely to be wide-ranging, touching on issues of competition, access, and openness needed to foster deployment driven by private as well as public funds. As the Commission weighs these policy decisions, it must be mindful of the need to safeguard the American taxpayer's investment and ensure that that investment can continue to deliver broadband benefits for the for the next decade and beyond.

In addition, to the extent that NTIA and RUS funding of projects is still in progress when the Commission issues the National Broadband Plan, the Commission should encourage funding of sustainable projects – projects that private investment, consumer demand and existing support will keep operational after the Recovery Act funding is gone. The Commission should therefore encourage NTIA and RUS to look at the financial stability of the applicant, the financial viability of the project, and the applicant's history of successfully implementing comparable endeavors in making award decisions.¹⁵

Public-Private Partnerships

The National Broadband Plan should call for participation from federal and state governments and from private companies and industry associations to best succeed in providing affordable broadband to all Americans. This approach is necessary to leverage “[t]he vast majority of our critical information infrastructure in the United States” that “is

¹⁵ However, once an acceptable threshold is met, an applicant should not lose points for not having the strongest financial position in the field.

owned and operated by the private sector.”¹⁶ So, the private sector must play a key role in working with government to expand broadband access.

The Commission should look to the success of existing public-private partnership programs, and should likewise use its National Broadband Plan to encourage continued development of public-private partnerships. For example, the North Carolina e-NC Authority is providing matching funds to telephone service providers Verizon and Embarq to increase broadband access in rural North Carolina.¹⁷ Through use of a public-private partnership between e-NC, other state government entities, and private sector providers, North Carolina was able, within one year, to connect all 115 K-12 school districts in the state to the North Carolina Research and Education Network.¹⁸

Corpus Christi, Texas has embarked on a similar partnership with Earthlink Municipal Networks to provide high-speed Internet to its residents and visitors. This is a “true public-private partnership . . . [t]he Corpus Christi Digital Community Development Corp. established the underlying fibre-optic and mesh technology utilized in the city’s network; EarthLink expanded the network’s Wi-Fi footprint and increased its

¹⁶ President Barack Obama, Remarks on Cyber Security, available at <http://www.nytimes.com/2009/05/29/us/politics/29obama.text.html?pagewanted=2&r=1&ref=politics>.

¹⁷ LocalTechWire.com, e-NC expands broadband reach with \$945,185 incentive grants to Embarq, Verizon, at http://localtechwire.com/business/local_tech_wire/news/story/4729816/ (last visited June 8, 2009).

¹⁸ LocalTechWire.com, N.C.’s network: One N.C. backbone, one year, 115 school district connections, Noah Garret, available at http://localtechwire.com/business/local_tech_wire/news/story/4919590/ (last visited June 8, 2009).

throughput speeds.”¹⁹ The wireless network covers the entire city and has benefitted citizens both through their ability to access high-speed Internet and by increasing the city government’s efficiency enough to pay for the system and to likely save the taxpayers millions of dollars in the coming years.²⁰

Keene Valley, New York demonstrates the benefit of using partnerships to reach hard-to-serve communities. Three years ago, the High Peaks Education Foundation and Keene Central School recognized that to reverse enrollment declines, Keene Valley needed to upgrade and expand Internet access in order to attract and keep young families.²¹ The solution was to raise funds partially from NY state to subsidize the broadband expansion and, in so doing, expand the number of customers so the local Internet provider could sustain the business. The benefits have been profound: in the words of Keene Town Supervisor Bill Ferebee “[i]t makes it possible for people to move here and work from their homes. Everyone will benefit, especially the school children.”²² The Commission should support partnerships like these that have the potential to spread the benefits of broadband beyond the highly profitable areas where larger providers are likely to focus their deployment efforts.

Technological Neutrality and Interconnection

¹⁹ Information Week, Earthlink Dedicates Wi-Fi Network in Corpus Christi, W. David Gardner, at <http://www.informationweek.com/news/mobility/showArticle.jhtml?articleID=201400236>.

²⁰ See <http://www.connectcc.com/community.html>.

²¹ LakePlacidNews.com, Getting up to speed in Keene; town to get nearly \$100,000 for broadband, Naj Wikoff, <http://www.lakeplacidnews.com/page/content.detail/id/501174.html?nav=5005&showlayout=0> (last visited June 8, 2009).

²² *Id.*

The Commission must prioritize technological neutrality in its Plan. The Commission should let the market decide which technologies will succeed, and avoid policies that may inadvertently place limits on future innovation. Mobile and fixed broadband offer different benefits and can each play an important role in serving all Americans. As discussed above, mobile wireless broadband can be an affordable and flexible solution that offers numerous benefits. Satellite can play a key role in reaching areas that otherwise would have no broadband at all. But the Commission's Plan must permit existing and emerging technologies to be used, rather than favoring only fixed wireline services, for example, because of their speed and bandwidth characteristics.

Finally, the Commission should require ILECs to establish direct IP to IP interconnection with other IP voice networks. IP to IP interconnection can maximize user choice and network benefits, minimize any distortion or restriction of competition, prevent barriers to innovation, and encourage network investment.

IV. Open Networks, Privacy and Advancing Consumer Welfare

The Commission requested comment on the value of open networks in ensuring broadband access for all Americans and whether open network principles, including the four principles from the Commission's Internet policy statement, should be incorporated into a National Broadband Plan.²³ The Commission also requested comment about privacy implications in connection with the National Broadband Plan, including how the Commission should treat issues such as deep packet inspection in its National Broadband Plan.²⁴ The Commission further asked how to interpret the Recovery Act's requirement

²³ NOI at ¶¶ 47-48.

²⁴ NOI at ¶¶ 58-60.

that the National Broadband Plan advance consumer welfare, and specifically about whether privacy protections can play a part in that effort.²⁵

The National Broadband Plan should be characterized by openness and nondiscrimination. It should build upon the President’s statement that “[w]e will preserve and protect the personal privacy and civil liberties that we cherish as Americans. Indeed, I remain firmly committed to net neutrality so we can keep the Internet as it should be – open and free.”²⁶

In its *Comcast Order*, the Commission enforced and made binding the principles it announced in its 2005 Internet Policy Statement, and the Commission should now establish a fifth principle of non-discrimination. The concepts of openness, non-discrimination, equality of access and non-exclusivity lie at the heart of an open and innovative Internet and need to continue to be protected through rule. Also critical is clear consumer disclosure involving network management practices. Finally, the Commission must spur greater broadband competition – whether intermodal or intramodal, or by finding more efficient ways to utilize spectrum – to ensure that consumers have a greater range of choices and that the market itself encourages consumer-friendly openness.

This does not mean that network operators can or should be precluded from engaging in reasonable network management – including establishing reasonable pricing tiers to allow consumers to select the speeds and service quality they desire. And different technological environments present different network management challenges.

²⁵ NOI at ¶¶ 64, 66.

²⁶ President Barack Obama, Remarks on Cyber Security, available at <http://www.nytimes.com/2009/05/29/us/politics/29obama.text.html?pagewanted=2&r=1&ref=politics>.

The idea that a prohibition on unreasonable discrimination means that all bits must always be treated identically and can never be managed is just a strawman created solely for demolition. But just as nondiscrimination cannot be interpreted to preclude multiplexing and digital compression or other imperceptible delays in delivery or loss of packets, reasonable network management cannot be so broadly defined that network operators can allow managed services to trump reliable and predictable consumer access to the public Internet. Neither should a network operator try to become a law enforcement entity. These issues of network management are also related to eliminating barriers to the deployment of adequate middle-mile and last-mile broadband networks, including reforming the existing special access structure and ensuring competitors and others are free to add capacity, particularly for transport, cost-effectively and as needed.

There is an undeniable middle ground. It is beneficial to consumers for network operators to ease congestion as they add new capacity and to combat viruses and other network disruptions. As the *Comcast Order* began to delineate, legitimate network management involves these practices of routing traffic to mitigate negative impacts on the network and to preserve all consumers' ability to use the networks, but does not go beyond to target particular services, applications, content or technologies. The Commission should prohibit network operators from using deep packet inspection (DPI) technology and other network management techniques for any illegitimate purpose, while making clear that it is legitimate for network operators to use this technology to ensure the integrity or security of data.

CCIA offers, as it has before, examples to illustrate the difference between acceptable and unacceptable discrimination. Acceptable bit discrimination could include:

treating all packets of one type differently from all packets of another type, based on varying degrees of tolerance for delay (e.g., voice versus streaming video versus e-mail messages); delayed transmission or blocking of all packets from the same untrusted source as an anti-virus or cybersecurity remedy; or network peak load routing and management techniques.²⁷ Unacceptable discrimination includes: outright blocking; disparate treatment of otherwise same-category transmissions that exploit the dependence of the end-user on the broadband access supplier to limit the availability of content or applications or impose surcharges for “out of network” content; treating content as unlawful based on the mere allegation that a particular use is unauthorized;²⁸ or exploiting end user dependence by tying or bundling competitive services with less competitive services, effectively withholding stand-alone broadband service.²⁹

The Commission should empower users by requiring stringent consumer disclosure requirements for all network management and billing practices. For example, network operators should be required to inform consumers meaningfully if the network will limit customer usage to keep so-called bandwidth hogs from negatively impacting the network. ISPs should not be able to shroud information about metered billing, charges to third-party content providers, additional fees, or management practices, as such lack of transparency will distort consumer choice and depress incentives to adopt

²⁷ CCIA Broadband Industry Practices Reply Comments, WC Docket No. 07-52 , at 8 (filed July 16, 2007) (“CCIA BIP Reply Comments”).

²⁸ “Even unauthorized uses of a copyrighted work are not necessarily infringing.” *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 447 (1984).

²⁹ CCIA BIP Reply Comments at 8.

broadband.³⁰ The broadband principles require that broadband access providers inform end users of download and upload speeds, latency, and other quality factors.³¹

These issues are directly tied to privacy concerns as well. Indeed, much of the success of the National Broadband Plan in spurring economic growth will depend on protecting consumer privacy and fostering consumer confidence. Consumer confidence is imperative for technological innovation and growth in electronic commerce. DPI has vast implications for personal privacy and business confidentiality – and if consumers feel their private information is threatened, be it by hackers or by the businesses or network providers handling their information or by widespread government surveillance, they will be slow to rely on broadband networks. Such reticence is directly contrary to our vision of a connected citizenry, and it is therefore essential that the Commission preserve consumer trust by limiting the use of DPI, requiring explicit consumer disclosure, and taking additional steps to build confidence in our broadband networks.

It is during this time, as Congress and the Commission work to ensure that all Americans have access to broadband and that consumers and businesses have a choice of network providers, that such regulations are most important. Many homes have only one, or possibly two, facilities-based wired Internet providers available to them: a single telephone company and a single cable operator, with mobile broadband serving a functionally different market. If and when competition improves, the need for neutrality

³⁰ Xavier Gabaix and David Laibson, *Shrouded Attributes and Information Suppression in Competitive Markets* (2004), http://www.aeaweb.org/annual_mtg_papers/2005/0109_0800_1103.pdf.

³¹ CCIA Broadband Industry Practices Comments, WC Docket No. 07-52, at 4 (filed June 15, 2007).

and net access rules could be mitigated by market forces. But today, protecting users should be the Commission's highest policy priority.

V. Spectrum Policy and Reform

The Commission requested comment on how its wireless service policies may relate to broadband access and deployment and if and how the Commission should reevaluate its policies.³² Spectrum is critical as a means of reaching hard-to-serve populations and of providing mobile broadband services. There can be no doubt that we need additional spectrum to deliver more and better broadband services to our citizenry. The Commission must therefore work to use our national spectrum assets as effectively and efficiently as possible.

The first step in this process is a comprehensive spectrum inventory to determine precisely what resources are available. The result of this inventory should be a public database of frequencies by geographic location that includes licensee and contact information, type of use, availability of the spectrum for lease or other sharing, and availability of the spectrum for unlicensed use. This information should be made public, so that the widest possible range of potential spectrum users can identify available spectrum and develop new and innovative approaches to sharing spectrum or partnering with existing licensees. As part of this process, the National Telecommunications and Information Administration and the Federal government as a whole, working with the FCC, should identify government spectrum that can be migrated to public use.

³² NOI at ¶¶ 42-46.

The Commission also requested comment about if and how unlicensed wireless, cognitive radio and the rules set forth in the *White Spaces Order*³³ can be a part of the National Broadband Plan.³⁴ CCIA believes that these policies are vital to introducing and increasing competition and deployment in the broadband market. Spectrum will always be scarce, so in addition to maximizing the available spectrum, the country needs to squeeze the maximum use out of the spectrum. As part of this, more spectrum must continue to be made available for unlicensed uses to encourage reliance on this spectrum by small-business ISPs and other competitors and new entrants. Wi-Fi, operating on unlicensed spectrum, represents a broadband policy success,³⁵ and the Commission should strive to duplicate this success with other technologies. Cognitive sensing technologies, for example, have the potential to bring tremendous value to American consumers by taking advantage of otherwise-dormant spectrum and increasing the competitive landscape. CCIA encourages the Commission to continue this effort and to remain open to new technologies that allow us to make fuller use of our spectrum resources.

CCIA further encourages the Commission to consider reforming auction policies by looking at measures of auction success other than the value of the revenue that an auction brings, provided that such measures are quantifiable. Such measures should value competition as the fundamental goal of auctions. In keeping with this goal, the Commission also should allow third parties to acquire wireless services from license

³³ Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band, Second Report and Order, 23 FCC Rcd. 16807 (2008).

³⁴ NOI at ¶¶ 44-45.

³⁵ Changing Media at 184; *see also supra* n.13.

holders on reasonable and non-discriminatory terms. Finally, the Commission should consider whether it should recommend that auction proceeds be used to serve public interest goals such as improving public safety communications.

VI. Broadband Mapping

Obtaining detailed information about broadband availability and competition is an essential first step in developing a National Broadband Plan. The Commission does not yet have this capability,³⁶ but has already taken steps to improve its data collection. The National Broadband Plan should build on this effort and ensure that the FCC can “detail where broadband facilities are deployed, their speeds, and the number of broadband subscribers throughout . . . America.”³⁷ The Commission and policymakers in federal, local and state governments must have access to reliable, street-level mapping of broadband availability in order to make informed and effective policy choices.

Less precise information – such as broadband availability by county or zip code – is simply insufficient. Consumers know this well, as the ability to obtain broadband somewhere within a county or zip code is little comfort if your home cannot connect. The Commission should collect the best data possible on broadband availability and corresponding speeds in order to effectively target its policies at areas that are not adequately served.

But the Commission should not stop there. Consistent with the Obama Administration’s recognition that “[i]nformation maintained by the Federal Government

³⁶ Rural Broadband Report at ¶ 26.

³⁷ *Id.*

is a national asset,”³⁸ the FCC should make broadband mapping data available to the public, including consumers, public interest groups, state and local governments, and policymakers, to the maximum extent possible. While providers should not be forced to divulge where they intend to build, locations where service can already be provided and where it is currently not provided shouldn’t be state secrets. Empowering groups and individuals to share and use, through Open APIs or other means, broadband mapping data will improve a wide range of decisions from routine broadband service purchases to complex research and policy determinations.

With better data, the Commission will have an opportunity to identify and better respond to market failures. Where it discovers such failures, the Commission should consider regulatory responses that will ensure these market failures do not deprive some consumers of the same access to an open Internet enjoyed by consumers that do not face market failure. Such vigilance is necessary to ensure that the Internet – which the federal government, through DARPA, helped found – remains a tool for economic development and opportunity at this critical time, and despite the significant deregulatory effect of the former Commission’s decision to classify broadband Internet access as an information service.

VII. Policy Goals and Government and Statutory Coordination

The Commission requested comment about how the National Broadband Plan can meet the Recovery Act’s requirements to advance “a series of public policy goals,”³⁹ how

³⁸ Transparency and Open Government: Memorandum for the Heads of Executive Departments and Agencies, 74 Fed. Reg. 4685 (Jan. 21, 2009).

³⁹ NOI at ¶ 63.

the Act interrelates with other statutory provisions,⁴⁰ and how to improve intra-government coordination and coordinate with private entities to best accomplish ubiquitous broadband.⁴¹ CCIA applauds the Commission for recognizing that a National Broadband Plan must be a coordinated effort, not just a Commission effort. The Commission should reach out to executive branch agencies, to Congress and to the states, both to give these entities the benefit of the Commission's expertise and to let these entities know where and how their efforts can help drive broadband deployment and adoption.

Civic Participation and Economic Growth

The Commission requested comment about how to implement the Recovery Act's requirement to create a National Broadband Plan to advance civic participation,⁴² how the goals of open and accessible government can be amplified by access to broadband, and how to encourage applications of broadband technology that can improve civic participation.⁴³ The Commission also requested comment on how the National Broadband Plan can advance and stimulate economic growth.⁴⁴ To meet these requirements of the Recovery Act, CCIA encourages the Commission to coordinate with Chief Technology Officer (CTO) Aneesh Chopra and Chief Information Officer (CIO) Vivek Kundra with respect to (1) the importance of infrastructure to the innovation that

⁴⁰ NOI at ¶ 106.

⁴¹ NOI at ¶¶ 112-122.

⁴² NOI at ¶¶ 70-71.

⁴³ NOI at ¶¶ 70-71, 104.

⁴⁴ NOI at ¶¶ 102.

will revitalize and grow the American economy and (2) how best to create and build e-government initiatives.

Information technology is a key driver of productivity gains in today's economy, and plays a critical role in enabling innovation and entrepreneurship across all sectors. Information technology innovation depends on broadband infrastructure, and the infrastructure needed to bring broadband to all Americans and to improve the broadband offerings that already exist will be key to revitalizing, strengthening and growing America's economy. As the Commission adopts and implements its National Broadband Plan, it should work closely with the CTO and CIO to ensure that our national broadband infrastructure needs are met.

CCIA supports e-government initiatives that bring greater transparency to government and thereby enable and empower greater civic participation. E-government initiatives will be aided by deployment of broadband to all Americans. CCIA urges the Commission to recognize this in drafting its National Broadband Plan, and to recommend to Congress that e-government initiatives are best undertaken by collaboration between the public and private sectors. For example, CCIA participated in developing the e-government project Free File Alliance, a public-private partnership between the IRS and industry that provides lower-income, disadvantaged and underserved taxpayers with free federal income tax preparation and electronic filing services. This is precisely the kind of partnership that leverages the reach of government with the expertise of industry to innovate and deliver superior services while minimizing government expenditures and preserving market competition. For this reason, CCIA again encourages the Administration to "commit to using public-private partnerships as the e-government

innovation model rather than building massive, expensive new government e-commerce systems or inserting the government into the private marketplace.”⁴⁵

Public Safety and Cybersecurity

The Commission requested comment about how the Broadband Plan can advance public safety and homeland security, including the extent to which the National Broadband Plan should address cybersecurity and what agency within the government is best positioned to lead government coordination in this area.⁴⁶ CCIA encourages the Commission to coordinate with the Department of Homeland Security and the Federal Emergency Management Agency to ensure that the Broadband Plan addresses needs of those agencies, and also to inform those agencies about the opportunities the Broadband Plan can provide to assist them.

In the arena of cybersecurity, the Obama Administration has announced that it will appoint a Cybersecurity Coordinator who will be responsible for orchestrating and integrating all cybersecurity policies for the government.⁴⁷ The President has acknowledged that “America’s economic prosperity in the 21st century will depend on cybersecurity. And this is also a matter of public safety and national security.”⁴⁸ Indeed, the Administration plans to treat the nation’s “digital infrastructure . . . as a strategic national asset. Protecting this infrastructure will be a national security priority.”⁴⁹

⁴⁵ Technology Policy Recommendations for the Obama Administration, Computer & Communication Industry Association, 16-17 (Jan. 7, 2009).

⁴⁶ NOI at ¶ 73.

⁴⁷ President Barack Obama, Remarks on Cyber Security, at http://www.nytimes.com/2009/05/29/us/politics/29obama.text.html?pagewanted=3&_r=1&ref=politics.

⁴⁸ *Id.*

⁴⁹ *Id.* at 3.

The Administration announced it was creating this new office because “when it comes to cybersecurity, federal agencies have overlapping missions and don’t coordinate and communicate nearly as well as they should – with each other or with the private sector . . . This status quo is no longer acceptable – not when there’s so much at stake. We can and we must do better.”⁵⁰ The Administration is seeking to change this and to “work with all the key players . . . to ensure an organized and unified response to future cyber incidents.”⁵¹

The Commission can and should play an important role in informing this new office with its experience and knowledge about the nation’s broadband networks. The Commission should also coordinate with this office as it creates the National Broadband Plan because, as the President announced, the Cybersecurity Coordinator is connected to the Administration’s overall approach to the nation’s technological investment and infrastructure, including “laying broadband lines to every corner of America[.]”⁵² The goals of national security and economic development can and should go hand-in-hand, as a secure and reliable network will foster the confidence and innovation that drive the market. The FCC should make its expertise available to the Cybersecurity Coordinator to inform development of our cybersecurity policies.

Energy Independence and Efficiency

The Commission requested comment on how to interpret the Recovery Act’s directive that the National Broadband Plan advance energy independence and

⁵⁰ *Id.* at 2.

⁵¹ *Id.* at 3.

⁵² *Id.*

efficiency.⁵³ The Commission can share its experience with broadband development with the Department of Energy as it works to create the smart grid.⁵⁴ Like the Internet, the smart grid will have to deal with a high number of network requests and huge variations in service load and so it will need to develop capabilities similar to Internet servers.⁵⁵ The smart grid will need to connect diverse component types and so it will need a protocol similar to the Internet Protocol Suite (TCP/IP) to reduce the role of the network and shift responsibility to the hosts.⁵⁶ In developing smart grid security, DOE can borrow from the ideas used for the layered security and encryption standards used for the Internet.⁵⁷ In addition, the smart grid can benefit from a task force similar to the Internet Engineering Task Force, which can produce technical and engineering documents to help people design, use and manage the smart grid and which would include protocol standards, best current practices and other information.⁵⁸

⁵³ NOI at ¶¶ 86-87.

⁵⁴ “An automated, widely distributed energy delivery network, the Smart Grid will be characterized by a two-way flow of electricity and information and will be capable of monitoring everything from power plants to customer preferences to individual appliances. It incorporates into the grid the benefits of distributed computing and communications to deliver real-time information and enable the near-instantaneous balance of supply and demand at the device level.” *The Smart Grid: An Introduction*, U.S. Dep’t of Energy 13.

⁵⁵ Balaji Natarajan, A Dozen Things the Smart Grid Can Learn from the Internet (April 30, 2009), at <http://www.reuters.com/article/earthToTech/idUS381316330820090430>.

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.*

Health and Education

The Commission requested comment about how it could work with the Department of Health and Human Services⁵⁹ to maximize the penetration of telehealth initiatives and to increase health awareness, diagnosis and treatment, and how it could work with the Department of Education to maximize the positive impact that the Plan can have on its education initiatives.⁶⁰ CCIA encourages the Commission to work with these two agencies to coordinate the reliance on schools, community colleges, hospitals and health clinics as anchor institutions that provide broadband access to their communities. The Commission should also coordinate with the Department of Education to increase digital literacy to encourage broadband adoption and with HHS on the development of health IT and telehealth initiatives, to be enabled by the National Broadband Plan.

Recovery Act in Relation Other Statutory Provisions and National Purposes

The Commission requested comment on recommendations it could make to Congress about proposed policies or programs to be overseen by other governmental or non-governmental agencies.⁶¹ The Commission should encourage Congress to enable the Department of Transportation to condition funding for new road construction on laying fiber at construction sites. One of the biggest disincentives to laying new fiber is the cost of digging up streets and highways. Representative Anna Eshoo (D-CA) has introduced a bill that addresses this problem in a simple, straightforward way. The Broadband Conduit Deployment Act of 2009 (H.R. 2428) provides that when the Department of Transportation funds new road construction, fiber conduit would be installed along the

⁵⁹ NOI at ¶¶ 81-85.

⁶⁰ NOI at ¶ 93.

⁶¹ NOI at ¶ 106.

roads as part of the construction. Enough conduits would be installed to provide for multiple broadband providers, and the conduits would contain pull tapes for access. The bill also recognizes the federal coordination that is needed to make the project a success by directing coordination with the Commission to determine the existing access for broadband in an area and the potential demand in order to determine how much fiber to deploy. Other public works programs funded by the Recovery Act could be similarly coordinated with broadband deployment.

The Commission should also recommend to Congress that it permit tax credits to be provided to real estate developers and new home buyers for construction of broadband infrastructure, including “fiber tails”⁶² and broadband “on ramps.” This is a simple step to target the difficulties posed by the expense of deploying fiber infrastructure. The Commission should likewise work with the IRS and SEC to consider tax changes that will facilitate sale of local exchange networks by large national incumbents to local or regional providers that may be better able to address particular community needs and topologies.

Further, the Commission should work with Congress, the Department of Justice and the Federal Trade Commission to ensure that antitrust and competition policy help shape a vibrant broadband market. High-tech and Internet industries are characterized by a heavy reliance on legacy facilities, network effects, economies of scale, standardization, and interoperability. These inherent features often make anticompetitive actions difficult to detect, harder to remedy, and more detrimental to innovation and venture capital

⁶² See Derek Slater and Tim Wu, *Homes with Tails: What if You Could Own Your Internet Connection?*, Working Paper 23, New America Foundation Wireless Future Program (November 2008).

allocation. Because of the unique challenge of anticompetitive actions in this area, Commission input can assist these other bodies in making policy decisions so that they fit the information economy.

Coordination with states

As part of its National Broadband Plan, the Commission should recommend that Congress preempt outright bans on municipal broadband networks. A handful of states prevent cities and towns from installing and operating broadband networks. This, however, serves to undermine competition and maintain incumbent control to the detriment of consumers. “By partnering with private industry, community broadband networks offer the promise of increased economic development and job creation . . . [and] foster even more competition and choices for consumers across the nation.”⁶³

The argument against municipality-owned and -operated broadband networks has been that the municipalities could give themselves preferential treatment.⁶⁴ That concern can be easily addressed by statute or regulation.⁶⁵ By contrast, banning these networks entirely would harm the public interest by depriving communities of a crucial avenue to broadband deployment, particularly in communities that commercial providers have neglected.

⁶³ Rep. Upton quoted in Eric Bangeman, Community Broadband Act would Overturn Bans on Municipal Broadband, Ars Technica (Aug. 3, 2007), at <http://arstechnica.com/tech-policy/news/2007/08/community-broadband-act-would-overturn-bans-on-municipal-broadband.ars> (speaking about Community Broadband Act of 2007).

⁶⁴ Eric Bangeman, Community Broadband Act would Overturn Bans on Municipal Broadband, Ars Technica (Aug. 3, 2007), at <http://arstechnica.com/tech-policy/news/2007/08/community-broadband-act-would-overturn-bans-on-municipal-broadband.ars>

⁶⁵ *Id.*

Finally, the Commission should coordinate with the states in the National Broadband Plan to facilitate approval of new satellite broadband options. For example, a satellite provider cannot apply for BTOP funds in one state because it would need approval in all other states before it could provide service. No agencies or programs intended to facilitate broadband access should shut out a technology because of such regulatory hurdles or because of specific technical requirements. There are people living in extremely hard-to-serve areas who, for topological and cost reasons, simply may never be served by wireline broadband. Satellite service offers significant benefits for these areas. And as innovation continues, next-generation satellites have the potential to reach hard-to-serve areas at ever-increasing speeds. For example, the Japanese Aerospace Exploration Agency has, in tests, achieved both downlink and uplink speeds of 155 mbps for Ka-band satellites. But the existing barriers to providing service maintain the status quo for under- and unserved areas. The National Broadband Plan must focus on removing barriers to new broadband solutions and should be wary of regulatory requirements or definitions that may inadvertently limit the availability of services and the incentives to innovate.

VIII. Conclusion

As the birthplace of the Internet, the United States should take the lead in developing public policies that promote open, nondiscriminatory broadband access; online economic opportunity, privacy and security; and First Amendment rights. CCIA encourages the Commission to adopt far-reaching and ambitious broadband goals, and to act aggressively to ensure that all Americans have access to open and affordable

broadband connections. At a time when other nations are struggling with thorny Internet policy issues, our new National Broadband Plan should provide a sound model through which the United States can lead the global community by example.

Respectfully submitted,



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