

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

In the Matter of)	
)	
Preserving the Open Internet)	GN Docket No. 09-191
)	
Broadband Industry Practices)	WC Docket No. 07-52
)	

COMMENTS OF GOOGLE INC.

Richard S. Whitt, Esq.,
Washington Telecom and Media
Counsel

Megan Anne Stull, Esq.,
Telecom Policy Counsel

GOOGLE INC.
Public Policy Department
1101 New York Avenue NW
Second Floor
Washington, DC 20005

Donna N. Lampert
Mark J. O'Connor
E. Ashton Johnston
Jennifer P. Bagg

LAMPERT, O'CONNOR & JOHNSTON, P.C.
1776 K Street NW, Suite 700
Washington, DC 20006
(202) 887-6230 tel
(202) 887-6231 fax

Counsel for Google Inc.

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Executive Summary

Our interest in this proceeding is straightforward: to keep the Internet awesome for everybody.

The Internet was designed to empower users. They are in control of the applications and content and services they use and create. And they – not network providers or anyone else – decide what ultimately succeeds in the online market.

One of Google's guiding principles is to “focus on the user and all else will follow.” It is a core value that we believe has served us and our users well. It's also what guides our involvement in this proceeding. We believe the FCC's proposed rules on broadband network openness put users first, and represent a balanced, flexible, and minimally intrusive approach to safeguarding the Internet's openness.

The open design of the Internet has led to mind-blowing innovation, and more consumer choice than ever before. It has created a steady stream of novel offerings that attract users and usage, and in turn feed the entire Internet ecosystem.

The economic and social opportunities created by the open Internet can't be overstated. The Net adds as much as \$2 trillion to our Gross Domestic Product (GDP), creates millions of American jobs, has created entirely new sectors, and reimagined others. Equally important, it's a place where a blogger can capture the attention of the world, and where anyone with a good idea, enough smarts, and a little luck can become the next big thing.

It is essential that the Commission take action now to protect this openness. Broadband providers uniquely have the incentive and ability to abuse their physical gateway control over end-users. As the President has stressed, “The Internet is perhaps the most open network in history. We have to keep it that way.” The Commission needs to establish the basic “rules of the road” necessary to ensure that the future evolution and uses of broadband infrastructure fulfill the broader public interest, rather than the broadband providers' narrower private interests.

Three fundamental reasons provide a sound basis for the Commission to assert its oversight authority in this area: *First*, broadband-driven Internet access uses basic communications infrastructure; it is not simply another product or service. It is becoming the dial tone of the 21st century, and a critical input into myriad activities, with wide ranging benefits to our economy and society. *Second*, our nation's broadband networks also are scarce resources, due to the enormous up-front capital investments and government-granted benefits like public rights-of-way, spectrum, and subsidies necessary for their construction. For these and other reasons, users have limited choices in the broadband market. *Third*, broadband providers have a unique and powerful technical ability to control all activities that operate at higher layers of the networks -- that is, the Internet applications and content that ride “over the top” of the infrastructure. Unlike the

rest of the Internet community, broadband networks constitute the essential gateways that stand between users and everything else on the Internet.

The proposed broadband openness rules are not the proverbial “solution in search of a problem.” Rather, certain wireline and wireless providers already have engaged in discriminatory practices, including inhibiting the use of particular applications. Deep Packet Inspection (DPI) and other sophisticated tools are providing broadband providers with increasingly fine-grained control over what users do online. Moreover, broadband providers have existing voice and video businesses that are threatened by the rise of innovative Internet-based competitors. Along with protecting these core revenue streams, network providers have natural incentives to favor other affiliated Internet applications and content over those of competitors.

The Commission has ample authority under the Communications Act to proceed here. As the Supreme Court repeatedly has acknowledged, broadband providers’ transmission networks are “communications by wire or radio” directly within the FCC’s mandate. The services made available via broadband Internet access significantly impact nearly all aspects of federally regulated communications, including services falling under Title II (telecommunications regulations), Title III (radio transmission) and Title VI (cable services) of the Act. The Commission also possesses the discretion to utilize those provisions as separate grants of authority. Furthermore, Congress, in both the Communications Act and the 2009 Recovery Act, has underscored the FCC’s mandate to preserve the openness of the Internet. However, there is no principled legal basis or demonstrated need to support extending the broadband openness rules to Internet applications and content.

While the Commission has a number of regulatory tools at its disposal to help guarantee access to an open and robust Internet, Google believes that a relatively light-touch, targeted, and flexible policy framework is appropriate. We believe that the proposed broadband openness rules provide just such a framework. In particular:

The Commission should codify the four existing Internet policy principles.

The Commission should adopt a general nondiscrimination rule. This is a well-settled standard that Congress and the FCC have applied in numerous instances to mitigate threats of anticompetitive conduct due to communications providers’ abilities and incentives to discriminate. In this context, “simple nondiscrimination” should prevent a broadband provider from using its control over the network to favor or disadvantage particular sources of content or applications. The standard also should prohibit imposing new charges on Internet application and content providers to reach end-users, including charges for enhanced or prioritized access.

The Commission should adopt a rule ensuring transparency. Consumers have every right to know the features and limitations of the broadband services they purchase,

especially if their broadband provider intends to engage in network management practices that could degrade or impair Internet communications to or from other users or applications. Likewise, for the hundreds of thousands of applications and content developers to engineer and design services that will work, they also need to understand the limits of broadband providers' services.

The Commission should adopt a carefully-defined reasonable network management exception. Broadband network providers still should be free, of course, to address genuine network sharing and congestion issues, as well as to protect against malware, spamming, and similar issues. At the same time, such network management should be tailored to address valid engineering and consumer protection issues.

The policy framework adopted in this proceeding should be network agnostic, applying across both wireline and wireless broadband infrastructure. As FCC Chairman Genachowski has noted, "Even though each form of Internet access has unique technical characteristics, they are all different roads to the same place. It is essential that the Internet itself remain open, however users reach it." Consumers enjoy services and applications across networks and expect seamless integration, usage and utility, regardless of whether the underlying networks are wired or wireless. That said, there is little doubt that the wireless sector has its own unique characteristics, and its own unique technical challenges and constraints in dealing with Internet traffic flows. The Commission's framework certainly can and should account for these factors in evaluating "reasonable network management."

Finally, the FCC should adopt clear, quick, and effective enforcement mechanisms. If a violation of the rules occurs, the FCC should have streamlined mechanisms in place to provide expeditious redress. By thoroughly explaining its adjudication procedures, including discovery practices, the elements of a *prima facie* case, and the range of remedies available (whether injunctive relief, contract modification, or other measures), the FCC will be able to resolve disputes rapidly and deter future abuses. In conjunction with this government enforcement mechanism, Google also suggests looking to the development and sharing of technical expertise from the best thinkers in the private and public sectors. Such "technical advisory groups" (TAGs) could help guide future thinking about optimal ways to manage broadband networks so as to preserve and promote the open and robust Internet.

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APPENDIX A: Nicholas Economides, WHY IMPOSING NEW TOLLS ON THIRD-PARTY CONTENT AND APPLICATIONS THREATENS INNOVATION AND WILL NOT IMPROVE BROADBAND PROVIDERS’ INVESTMENT

APPENDIX B: Christiaan Hogendorn, SPILLOVERS AND NETWORK NEUTRALITY

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Google Inc., by its attorneys, submits these comments in response to the FCC’s Notice of Proposed Rulemaking seeking comment on proposed rules to preserve the open Internet.¹ The FCC should adopt tailored, flexible, and enforceable broadband network openness rules to enable the broadband-driven Internet to reach its full potential to promote economic opportunity, transform lives and provide novel avenues for human expression.

INTRODUCTION AND SUMMARY

The Internet is an unprecedented accomplishment of human achievement, and the very roots of its success are in jeopardy. Google’s interest here is straightforward: to preserve and promote open and robust access to the Internet over our nation’s broadband infrastructure.² In

¹ *In the Matter of Preserving the Open Internet*, Notice of Proposed Rulemaking, 24 FCC Rcd. 13064 (2009) (“NPRM”).

² Google has a longstanding commitment to openness in its policy advocacy and commercial actions. *See, e.g.*, Reply Comments of Google at 31-32, GN Dkt. 09-51 (filed Jul. 21, 2009) (“Openness is needed at the ‘last mile’ broadband network layer because it (1) serves the greater societal purposes of enabling consumer access to a myriad of broadband services, (2) re-affirms the necessary access to the end user marketplace for content/applications innovators and businesses, and (3) generates productivity and service revenues benefits for all, including networks *and* edges.”) (emphasis in original); Comments of Google at 25, 28, GN Dkt. 09-51 (filed Jun. 18, 2009) (“Internet access that is unimpeded by the underlying network provider maximizes the end users’ potential to produce inspired applications, content, and technologies. Connectivity rooted in open and accessible broadband networks is most likely to breed

our view, there are few matters more important in communications and technology policy today than ensuring that the Internet remains an open platform for all users.

These comments will discuss why and how the Commission should act to preserve the open Internet. In Section I, we touch on the extensive economic, social, democratic, and personal benefits brought about by the Internet. At the same time, these benefits are vulnerable to considerable risks that stem from several inherent attributes of broadband networks. As basic communications infrastructure, broadband rapidly is becoming the dial tone of the 21st Century. Unsurprisingly, at the same time, providers of such infrastructure – particularly providers that are vertically integrated suppliers of video and voice services – have economic incentives to control access to the Internet in ways that reflect only their own bottom lines, rather than the much broader social value of the positive externalities and “spillovers” generated by the Internet.³ These fundamental structural and economic realities, buttressed by recent unfortunate examples of bad behavior, require at least some oversight role for government, and a tailored policy framework for addressing legitimate concerns about the future development of broadband infrastructure in our national economy.

In Section II, we examine the Commission’s ample legal authority to be involved in overseeing broadband providers. That authority stems in part from the Commission’s decades-

innovation and ideas, create spillover effects, and generate positive externalities. . . . Openness should be a component of all broadband networks.”); Comments of Google at 2, GN Dkt. 07-52 (filed Jun. 2, 2007) (stating that “[t]he FCC should adopt a national broadband policy that seeks to further network neutrality as a market environment.”). Google’s commitment to openness also is apparent in its commercial activities, including its substantial investment in Clearwire, its promotion of and investments in the Android operating system, and its founding of the Open Handset Alliance.

³ Throughout these comments, we use the terms “broadband providers,” “last-mile providers,” and “broadband network providers” interchangeably to mean all network providers of last-mile broadband transmission facilities when those providers offer retail or wholesale broadband Internet access services.

long statutory jurisdiction over all “communications by wire or radio,” including the broadband networks underlying the Internet access services provided to consumers. That jurisdiction is further confirmed by the governing statutory provisions in Titles II, III and VI of the Communications Act. Government oversight also would preserve the Internet as a platform for speech and expression, in furtherance of the First Amendment.

After establishing the ample need and statutory authority for FCC action, we discuss in Section III the precise steps that the Commission should take to protect and preserve open and robust broadband access to the Internet. We believe that, in carefully crafting and honing its proposed broadband openness framework, the Commission can combine the virtues of bringing greater certainty to the Internet ecosystem, while allowing for greater flexibility as broadband technology and markets continue to evolve.

Section III first summarizes some of the more prescriptive regulatory tools that the Commission theoretically could utilize, many of which are being employed today by governments abroad to some good effect. In Google’s view, however, such tools need not be relied on here. Instead, we favor more tailored, flexible, and minimally-intrusive approaches to achieving broadband openness, much like what the NPRM has laid out. That approach includes (1) codifying the four existing *Internet Policy Statement* principles as enforceable rules, (2) adding two more enforceable principles to promote “nondiscrimination” and “transparency,” and (3) ensuring broadband providers’ abilities to employ reasonable network management techniques. In particular, the “simple nondiscrimination” rule we endorse should be based on an all-inclusive standard that prevents broadband providers from blocking, degrading, or prioritizing Internet traffic, especially in ways that are inconsistent with the provisioning of open and robust broadband access.

Google also agrees with the Commission’s proposal to include wireless broadband networks as part of its overall regulatory framework, although in a manner that respects the pertinent market, technical, and structural distinctions from the wireline space. Moreover, the Commission again should acknowledge that its legal authority in this space necessarily extends only to last-mile broadband networks, and no further. Finally, we note that the proposal to consider including a “managed/specialized services” category, ostensibly outside the reach of the six principles, requires much greater clarity before any definitive conclusions can be rendered.

Finally, Section IV discusses the best ways to enforce this proposed new broadband openness framework. Here, we provide some ideas about structuring the case-by-case adjudication process so as to protect consumer interests, promote speedy resolution of complaints, and provide guidance and clarity to all stakeholders. We also suggest the judicious use of technical advisory groups to supplement and buttress these FCC processes.

DISCUSSION

I. THERE IS A COMPELLING NEED FOR COMMISSION ACTION

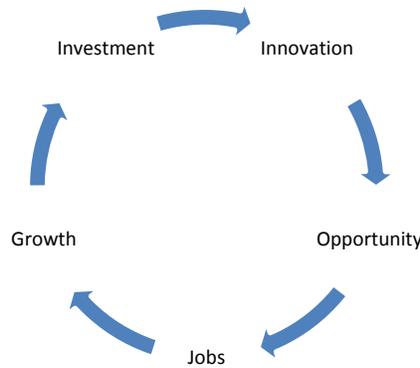
The Internet, accessible through our nation’s broadband infrastructure, is a unique and extraordinary source of economic, social, and democratic benefits. At the same time, the openness at the very root of the Internet’s success increasingly is at risk today. These two fundamental facts together produce a compelling need for the FCC to act in this proceeding.

A. THE OPEN INTERNET CREATES UNMATCHED INNOVATION, INVESTMENT AND SOCIETAL BENEFITS THAT MUST BE PRESERVED

The Internet has created unprecedented benefits and opportunity for every facet of our society. For this reason, the FCC must take the broadest view when assessing how the assurance of open broadband networks affects risks, investment and innovations associated with broadband infrastructure, and the overlay services, content and applications that ride upon it.

In brief, the open Internet drives overall investment and innovation in technology and in other sectors, maximizes free speech and civic participation, and engenders more sources to create the fastest and greatest innovations. As history teaches, innovation is more likely to spring from many sources than from one or few sources.⁴ Data also shows that open platforms such as the Internet create jobs and foster economic growth,⁵ with all sides benefiting materially from the resulting economic, social, and free information flow benefits.

The Open Internet Investment and Innovation Cycle



1. *The Open Internet Drives Investment in Technology and Related Industries.*

The Internet’s astounding growth has had a substantial impact on technology-related industries and market sectors, including applications and software, devices, advertising, content, network hardware and other non-carrier infrastructure, and all of the frameworks supporting

⁴ See *Next Generation Connectivity*, Draft, 12, Berkman Center for Internet & Society, Harvard University (Oct. 2009) (“*Berkman Center Study Draft*”). See also, *Next Generation Connectivity*, Memorandum Describing Intended Updates to Final Report, Berkman Center for Internet & Society, Harvard University (Dec. 2009) (“*Berkman Center Study Memo*”).

⁵ “Innovation thrives on open platforms with expansive bandwidth for new applications.” *Network Developments In Support of Innovation and User Needs*, DSTI/ICCP/CISP, Organization for Economic Cooperation and Development (“OECD”) Working Party on Communications Infrastructure and Services Policy (Dec. 9, 2009), available at [http://www.oilis.oecd.org/oilis/2009doc.nsf/LinkTo/NT0000889E/\\$FILE/JT03275973.PDF](http://www.oilis.oecd.org/oilis/2009doc.nsf/LinkTo/NT0000889E/$FILE/JT03275973.PDF) (“*OECD Innovation Paper*”).

them. According to IDC, global information technology employment will grow to 42 million jobs by the end of 2013 (from approximately 36 million now).⁶ Most new jobs are generated by small businesses and entrepreneurs, providing the best hope for economic recovery.⁷ Notably, today's largest Internet applications providers, including Google, formerly were small start-ups and are now major employers and contributors to the U.S. economy.⁸

Consumer electronics, computers and other devices, especially those fostering mobility and convergence (voice, data and video), are all growing because of the Internet. The U.S. consumer electronics industry is expected to generate more than \$166 billion in 2010,⁹ with roughly 1 billion wireless Internet access devices accessing the Internet this year alone.¹⁰ All of these products and devices help drive retail sales, both online and bricks and mortar. The larger Internet ecosystem also includes content delivery networks, chip manufacturers, data processing, storage and hosting, cloud computing, tower and base stations, fiber, microwave backhaul

⁶ See *The Economic Impact of IT, Software, and the Microsoft Ecosystem on the Global Economy*, 2, IDC White Paper (Oct. 2007), available at www.idc.com ("IDC Study on Economic Impact of IT").

⁷ See *Where Will the Jobs Come From?*, Kauffman Foundation Research Series (Nov. 2009), available at <http://www.kauffman.org/newsroom/kauffman-foundation-analysis-emphasizes-importance-of-young-businesses-to-job-creation-in-the-united-states.aspx> ("*Kauffman Foundation Research Series*"). See also, Julius Genachowski, Chairman, FCC, Prepared Remarks at FCC Broadband Field Hearing on Small Business, Chicago, IL (Dec. 21, 2009); Executive Office of the President, National Economic Council, *Recovery Act Investments in Broadband: Leveraging Federal Dollars to Create Jobs and Connect America*, 11 (Dec. 17, 2009) ("*Recovery Act Investments in Broadband*").

⁸ Among these companies are eBay, Amazon, and Facebook. Their estimated U.S. employment is: Amazon.com (12,750 U.S. employees), Google (15,100 U.S. employees), and eBay (15,500 U.S. employees). There are also roughly 768,000 independent professionals who sell on eBay as their primary or secondary source of income. See Hamilton Consultants, Inc., John Deighton et al., *Economic Value of the Advertising Supported Internet Ecosystem*, 56, Internet Advertising Bureau (Jun. 10, 2009), available at <http://www.iab.net/economicvalue> ("*Hamilton Study*").

⁹ See *CE Industry Forecasts*, Consumer Electronics Association (Jan. 2010), available at http://www.ce.org/Research/Sales_Stats/Forecasts.asp.

¹⁰ See *IDC Predictions 2010: Recovery and Transformation*, 7, IDC (Dec. 2009), available at www.idc.com ("*IDC Predictions 2010*").

facilities and more, generating \$18 billion in revenues in 2008 and growing at a rate of close to 30% per year.¹¹

It is no secret that the Internet content marketplace (which includes new independent video content, content integration, aggregation and sharing applications, social networking, and numerous spillover industries) and the jobs that it supports have grown exponentially.¹² The Internet now accounts for approximately 20% of overall media consumption,¹³ and every minute, 20 hours of video are uploaded to YouTube.¹⁴ Individuals, not corporations, upload more than 60% of Internet content.¹⁵ Internet advertising alone is responsible for \$300 billion of U.S. economic activity and has generated more than 3 million jobs that did not exist two decades ago.¹⁶ Internet applications, services and content companies also spend billions of dollars annually on R&D to create and deploy compelling content, applications, and services (including news, data, video, music, gaming, and ecommerce services) for American consumers.¹⁷

¹¹ See *Tier1Research Names Leaders and Laggards in the Internet Infrastructure Sector*, Tekrati, Jan. 10, 2008, available at <http://telecom.tekrati.com/research/9839/>.

¹² In 2008, Google indexed its trillionth webpage. The first Google index in 1998 consisted of 26 million URLs. Jesse Alpert & Nissan Hajaj, *We knew the web was big.* . . , Official Google Blog, Jul. 25, 2008, available at <http://googleblog.blogspot.com/2008/07/we-knew-web-was-big.html>.

¹³ See *U.S. Online Advertising Market to Reach \$50B in 2011*, MediaBuyerPlanner, Jan. 23, 2008, available at <http://www.mediabuyerplanner.com/entry/35154/us-online-advertising-market-to-reach-50b-in-2011/>.

¹⁴ See YouTube, Fact Sheet, available at http://www.youtube.com/t/fact_sheet (last visited Jan. 05, 2010).

¹⁵ See Robin Lee & Tim Wu, *Subsidizing Creativity Through Network Design: Zero-Pricing and Net Neutrality*, 23 J. OF ECON. PERSP. 61, 66 (2009) (“*Subsidizing Creativity Through Network Design*”).

¹⁶ See *Hamilton Study* at 4, 24.

¹⁷ These massive amounts of material typically are deployed on millions of servers around the country. Intel, for example, is committing nearly 20% of its 2009 research and development budget to bringing Internet content to televisions and other consumer devices. See *Intel's R&D Aims to Bring Internet to TV.* . . . “*Pretty Radical Innovation in the Next Five Years,*” beet.tv, Apr. 9, 2009, available at <http://www.beet.tv/2009/04/intel-spending-1-billion-in-rd-to-bring-pc-content-to-tvspretty-radical-innovation-in-the-next-five-.html>.

Last-mile infrastructure investment also occurs with open broadband networks. Clearwire, Sprint, T-Mobile, Verizon and others have committed to network investment even as they embrace openness.¹⁸ In the current *de facto* environment of openness, broadband providers have continued to invest tens of billions of dollars in their networks. For instance, broadband providers were estimated to have invested \$64 billion in 2008,¹⁹ creating or retaining at least 2.5 million jobs in the near term.²⁰

2. *The Open Internet Creates Innovation and Investment in Other Sectors of the Nation's Economy.*

The Internet also produces significant positive externalities and spillovers beyond the technology sectors that should be central to the FCC's deliberations, including creating more open government, consumer and business benefits, advances in health care, energy and education, helping to close our nation's digital divide, and promoting greater global cooperation.

President Obama, in his first Executive action, committed to an unprecedented level of government openness.²¹ This initiative seeks to make the federal government more transparent, participatory and collaborative, and especially encourages use of the public Internet. Many agencies, including the FCC, already have enhanced their methods of interacting with the public,

¹⁸ See, e.g., Elizabeth Woyke, *Verizon's Open Network Strategy*, FORBES, Mar. 30, 2008, available at http://www.forbes.com/2008/03/19/verizon-developers-mobile-tech-wire-cx_ew_0320verizon.html.

¹⁹ See Patrick S. Brogan, *The Economic Benefits of Broadband and Information Technology*, 18 MEDIA L. & POL'Y 65, 74 (2009), available at http://www.nyls.edu/user_files/1/3/4/30/84/187/245/Brogan,%20SPRING%202009,%2018%20MEDIA%20L.%20&%20POL%E2%80%99Y.pdf.

²⁰ One study calculates that every dollar invested in broadband results in a ten-fold return on investment. *Expanding and Accelerating the Adoption & Use of Broadband Throughout the Economy*, 24, US Broadband Coalition (Nov. 13, 2009), available at http://www.baller.com/pdfs/US_Broadband_Coalition_AandU_Report_11-13-09.pdf.

²¹ Memorandum from President Obama for the Heads of Executive Departments and Agencies, *Transparency and Open Government*, Jan. 21, 2009, available at http://www.whitehouse.gov/the_press_office/TransparencyandOpenGovernment/.

creating blogs, Twitter and Facebook accounts, and improving web access to events through audio and video streaming.²² State and local governments also have become more participatory, offering video streaming, RSS feeds, data searches, hearings, legislative calendars, information on laws, benefits, community events, education, health and safety issues, as well as outlets for citizen feedback and idea sharing on topics of interest. These developments also drive government investment in technology to achieve greater transparency; government demand for cloud computing, virtualization, open source software and geospatial technology is expected to be \$2.2 billion by 2014.²³

The Internet has enabled personal communication to a degree unmatched in human history. The Internet is growing exponentially because anyone can create a website, blog, forum, mashup, online store, social networking profile, or upload music, video and pictures. A recent study estimated that of all this activity creates net consumer benefits of approximately \$32 billion per year.²⁴

The broadband-based Internet also is revolutionizing access to health services by, among other things, reducing costs and expanding care through telemedicine, allowing for online medical consulting, and improving access to medical information. As Chairman Genachowski

²² The FCC has created links to make information sharing easy for all users, linking to popular services such as Digg, Blogger, MySpace, Linked In, Delicious and hundreds more from around the world.

²³ See Media Release, INPUT, *INPUT Forecasts Emerging Technology Markets for State & Local Governments*, Dec. 22, 2009, available at <http://www.input.com/corp/press/detail.cfm?news=1446>.

²⁴ Mark Dutz et al., *The Substantial Consumer Benefits of Broadband Connectivity for U.S. Households*, 7, Internet Innovation Alliance (Jul. 2009), available at http://internetinnovation.org/library/consumer_benefits_broadband_study/ (“*The Substantial Benefits of Broadband Connectivity*”). There are an estimated 20 million U.S. bloggers and 1.7 million make money from their blogs. Mark Penn, *America’s Newest Profession: Bloggers for Hire*, WALL ST. J., Apr. 21, 2009, available at <http://online.wsj.com/article/SB124026415808636575.html>.

noted, “facilitating the sharing of electronic medical records and making remote diagnostics and monitoring possible”²⁵ is saving billions of dollars and human lives.²⁶

The broadband-enabled Internet also creates dramatic energy-related savings. For instance, Google PowerMeter provides consumers with near real-time energy consumption information that is estimated to reduce overall energy usage from 5-15%.²⁷ Telecommuting via the Internet also saves energy and reduces the burden on transportation systems and the environment. Some estimate that savings from telecommuting will total \$20-40 billion over the next decade.²⁸

The digital divide threatens to fragment our country and undermine our productivity, growth and success. Closing this gap should be a top national goal. As Commissioner Clyburn has stressed, “The Internet’s openness is also particularly important for minority voices, which have traditionally encountered a whole host of barriers to reaching audiences through traditional

²⁵ Julius Genachowski, Chairman, FCC, Statement at FCC All-Hands Meeting on Broadband Workshops (Aug. 5, 2009).

²⁶ See Gus G. Sentementes, *Telehealth use gains due to physician shortages, insurance acceptances*, BALTIMORE SUN, Sept. 14, 2009.

²⁷ Sarah Darby, *The Effectiveness of Feedback on Energy Consumption: A Review for DEFRA of the Literature on Metering, Billing and Direct Displays*, 3 (2006), available at <http://www.eci.ox.ac.uk/research/energy/electric-metering.php>.

²⁸ John Eggerton, *Markey: National Broadband Plan Can Have Positive Implications on Global Warming*, BROADCASTING & CABLE, Nov. 30, 2009, available at http://www.broadcastingcable.com/article/391079-Markey_National_Broadband_Plan_Can_Have_Positive_Implications_on_Global_Warming.php?rssid=20103&q=Markey:+National+Broadband+Plan+Can+Have+Positive+Implications+on+Global+Warming.

media.”²⁹ The Internet helps improve literacy, create digital skills and promote entrepreneurship,³⁰ especially for populations that have been traditionally at-risk.³¹

The Internet also has created a paradigm shift in education with virtual classrooms, distance learning, increased access to research institutions, and online employee training programs. As President Obama stated, “Here, in the country that invented the Internet, every child should have the chance to get online...that’s how we’ll strengthen America’s competitiveness in the world.”³²

These benefits extend beyond America’s borders, empowering individuals, communities and nations around the world. By promoting openness and transparency, the United States serves as an exemplar and facilitator of global cooperation and democratic values. The Internet allows everyone, no matter where they live, to bring their ideas and solutions forward, limited only by the bounds of the human imagination.

3. *The Open Internet Maximizes Free Speech and Civic Participation.*

The Internet is revolutionizing information flow and increasing civic discourse. The U.S. should champion free speech on the Internet. More than 60 years ago, the Supreme Court explained, “Freedom to publish is guaranteed by the Constitution, but freedom to combine to

²⁹ Mignon L. Clyburn, Commissioner, FCC, Remarks at FCC Workshop on Speech, Democracy and the Open Internet (Dec. 15, 2009).

³⁰ See, e.g., Comments of One Economy at 5, GN Dkt. 09-51 (filed Nov. 3, 2009) (discussing need to expand digital literacy programs of young “technology ambassadors” to promote digital literacy and teach others).

³¹ These populations include generally low-income and minority individuals, persons who speak English as a Second Language, the elderly, Americans with Disabilities, and tribal communities. See Letter from Rey Ramsey, CEO, One Economy to Julius Genachowski, Chairman, FCC, GN Dkt. 09-51 (Nov. 3, 2009)

³² See President Obama, Radio Address on the Economy (Dec. 6, 2008), available at http://change.gov/newsroom/entry/the_key_parts_of_the_jobs_plan/. See also, *Recovery Act Investments in Broadband* at i.

keep others from publishing is not. Freedom of the press from governmental interference under the First Amendment does not sanction repression of that freedom by private interests.”³³ Our national approach to the Internet should not pressure exercises of First Amendment rights.

4. *The Open Internet Engenders More Sources to Create the Fastest and Greatest Innovation.*

Timing of innovation is vital. Historically, last-mile providers have been slow to innovate, and generally have done so only in response to competitive forces. For instance, last-mile broadband providers in many instances have been sluggish to upgrade their networks, roll out technologies like wi-fi, and make available enhanced messaging services.³⁴ More open networks will support more innovators, who can rapidly bring new innovations to the market to the benefit of consumers. The FCC also should consider the investment incentives of these innovators, who must rely on last-mile broadband connections to reach consumers.³⁵ Entrepreneurs will not make steep economic investments without assurances that broadband network providers will not stymie their likelihood of achieving commercial success.

³³ *Associated Press v. U.S.*, 326 U.S. 1, 20 (1945).

³⁴ Telephone companies’ failure to deploy DSL because it could “cannibalize” lucrative T1 services is a well-known example. *See, e.g., Telephone Company-Cable Television Cross-Ownership Rules, Sections 63.54–63.58, Second Report and Order, Recommendation to Congress, and Second Further Notice of Proposed Rulemaking*, 7 FCC Rcd. 5781, n.50 (1992) (noting that DSL technology existed as early as 1992, stating that “[o]ne example of a recent advance in video compression technology and electronic transmission of data over copper wire pairs is HDSL (high-bit-rate digital subscriber line) and ADSL (asymmetric digital subscriber line) technology, that permits existing copper wire pairs within the network to carry a video signal with the quality of a VCR, either two ways or one way”). The failure of U.S. cable operators to deploy DOCSIS 3.0 rapidly and on a widespread basis is yet another example.

³⁵ *See* Shane Greenstein, *Glimmers and Signs of Innovative Health in the Commercial Internet*, forthcoming in U. COLO. L. REV., 22 (2009), available at <http://www.kellogg.northwestern.edu/faculty/greenstein/images/htm/Research/WP/Greenstein%20-%20Glimmers%20and%20Signs.pdf> (“*Glimmers and Signs of Innovative Health*”) (“Other firms will not make long-term investments if they fear not making a return on that investment due to changes by others, which are out of their control.”).

B. BROADBAND INFRASTRUCTURE’S UNIQUE ROLE AS AN ESSENTIAL, SCARCE, AND MODULAR RESOURCE DEMANDS GOVERNMENT OVERSIGHT

At bottom, the end-to-end, open architectural principles underlying the Internet are its true genius, and the source of its unparalleled power.³⁶ While the incredible benefits from an open Internet cannot seriously be challenged, they are increasingly vulnerable to the commercial designs of broadband network providers. This vulnerability stems in large part from the unique role of broadband networks as an essential input, a scarce resource, and a means of controlling Internet traffic. The government’s interest in overseeing the broadband infrastructure needed to access the Internet derives from the fundamental characteristics of these last-mile communications networks.³⁷

In particular, the very fact that broadband infrastructure is the essential transport medium to access the Internet creates risks that it can be manipulated to erode and diminish the Internet’s broad benefits. Due to the layered physical structure of networks, broadband providers have the ability to shape traffic and adopt practices that impede the free flow of Internet content and applications. This is of particular concern where, as here, broadband providers are increasingly

³⁶ The Internet has been described as a “network of networks,” modular in nature, with end-to-end design (supporting edge innovation), interconnected, and using the agnostic Internet Protocol (IP), all of which have contributed to its success as a “virtuous feedback network.” See Richard S. Whitt & Stephen J. Schultze, *The New “Emergence Economics” of Innovation and Growth, and What it Means for Communications Policy*, 7 J. ON TELECOMM. & HIGH TECH. L. 217, 256-262 (2009) (“*Emergence Economics*”).

³⁷ Government-imposed safeguards against discrimination and anticompetitive practices by those who control the facilities to access the consumer have long contributed to the growth and innovation of the information services and applications arena, as well as to promote maximum diversity of ideas. This approach is reflected in numerous provisions of the Communications Act (e.g., 47 U.S.C. §§ 201(b), 202(a), 628, 611, 612), FCC regulations and decisions (e.g., the *Computer Inquiries*) and significant judicial antitrust decisions regarding the AT&T monopoly dating from the dawn of telephony, culminating in the 1982 AT&T divestiture and related “information services” and other restrictions. See, e.g., *U.S. v. AT&T*, 552 F. Supp 131 (D.D.C. 1982). Not surprisingly, incumbent network providers (including cable and telephone companies) typically have opposed these proscriptions, arguing, as they do here, that only if they have unfettered control will they invest and innovate.

vertically integrated (*i.e.*, they control both conduit and content) and the escalating video, voice and data convergence on the Internet only heightens their incentives to monetize closed, rather than open, networks. Rather than continue the “policy of freedom” that aims at pluralism of expression and enormous innovation from the network edges,³⁸ there is a real and imminent threat that these incentives and opportunities will fragment and undermine the Internet’s openness.³⁹ For this reason, just as in the past,⁴⁰ government oversight should guarantee that last-mile broadband infrastructure is not operated in ways that thwart our nation’s collective public interest.

³⁸ ITHIEL DE SOLA POOL, *TECHNOLOGIES OF FREEDOM* 8 (Belknap Press 1983). See *Regulatory and Policy Problems Presented by the Interdependence of Computer and Communications Services and Facilities*, Notice of Inquiry, 7 F.C.C. 2d 11 (1966); Tentative Decision, 28 F.C.C. 2d 291 (1970); Final Decision and Order, 28 F.C.C. 2d 267 (1971) (“*Computer I*”) (subsequent history omitted); Amendment of Section 64.702 of the Commission’s Rules and Regulations, Final Decision, 77 F.C.C. 2d 384 (1980) (“*Computer II*”) (subsequent history omitted); Report and Order, 104 F.C.C. 2d 958 (1986) (“*Computer III*”) (subsequent history omitted) (herein “*Computer Inquiries*”). The FCC foresaw that emerging information services would be the cornerstone of future economic growth, stressing that the computer industry “has become a major force in the American economy,” and emphasizing that “its importance to the economy will increase in both absolute and relative terms in the years ahead.” *Computer I* at ¶ 7.

³⁹ Starting in the early 1990s, easy, affordable and ubiquitous dial-up Internet access helped fuel Internet growth and innovation in consumer services, bringing email, web services, instant messaging and other interactive features to a mass audience. *Glimmers and Signs of Innovative Health* at 5-6. Ironically, although it is far less beneficial to society at large due to speed and other technical limitations, dial-up Internet access still enjoys legally enforceable nondiscrimination guarantees. *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd. 14853, n.15 (2005) (“*Wireline Broadband Order*”).

⁴⁰ Government oversight of communications has been clear and consistent since the FCC’s inception, with the notable exception of the deviations that occurred in the FCC’s deregulation of facilities-based, last-mile providers over the past eight years. As Professor Robert Frieden explains, “the Commission applies more comprehensive regulatory oversight where facilities-based, last-mile providers have the incentive and ability to use their control of network infrastructure in ways that interfere with competition and innovation in services that depend on that infrastructure.” See Rob Frieden, *Why The FCC’s Proposed Openness Principles Cannot and Should Not Apply to Internet Application and Content Providers*, 13 (2010), available at <http://www.personal.psu.edu/faculty/r/m/rmf5/Net%20Neutrality%20White%20Paper.pdf>.

1. *Broadband is an Essential Input, Necessary to Unlock the Benefits of the Internet.*

The first telling characteristic of last-mile broadband networks is that they increasingly are becoming the sole means of accessing the Internet. Without access via broadband, the full richness of the Internet simply vanishes.

The General Nature of Broadband: Public Interest in GPTs: Broadband networks are the necessary conduit to access the Internet.⁴¹ In the terms used by technologists, this makes them a general purpose technology (GPT), like electricity or railroads. GPTs have broad-ranging enabling effects⁴² and are inputs into a wide range of uses across many sectors of the economy.⁴³ Through broadband access, the Internet generates huge positive externalities affecting every vital sector of the country's civic, cultural, and commercial life.⁴⁴

Like transportation, communications networks have been subject to unique treatment in the common law because they are critical inputs to many important market and non-market

⁴¹ For this reason, it is important to bear in mind that keeping GPTs "general" can be directly at odds with maximizing profits by the firms that control access to them. It has been explained that, "[t]he more general purpose the technology, the greater are the growth-dampening effects of allowing it to be locked down in the interest of a particular economic agent." *Emergence Economics* at 277.

⁴² Professor Timothy Bresnahan has been quoted by the FCC describing GPTs as follows: "GPTs are characterized by pervasiveness (they are used as inputs by many downstream sectors), inherent potential for technical improvements, and innovational complementarities, meaning that the productivity of R&D in downstream sectors increases as a consequence of innovation in the GPT. Thus, as GPTs improve they spread throughout the economy, bringing about generalized productivity gains." See Scott Wallsten, *Is broadband a general purpose technology?*, FCC Blogband, (Sept. 28, 2009), available at <http://blog.broadband.gov/?entryId=10844>.

⁴³ See Christiaan Hogendorn, *Spillovers and Net Neutrality*, 7-9 (Jan. 2010) attached at Appendix B ("*Spillovers and Net Neutrality*").

⁴⁴ GPTs also have been described as creating "innovational complementarities," magnifying the effects of innovation, spawning even greater innovation downstream. See *Emergence Economics* at 275-278 (discussing economic literature of GPTs).

activities.⁴⁵ Rather than hinging solely on the level of market power or degree of competition in a market, duties of carriage and nondiscrimination have “been imposed on industries when they have been considered to be affected with the public interest.”⁴⁶

The Generative Nature of Broadband: Public Interest in Spillovers: As the necessary conduit to access the Internet, last-mile broadband infrastructure helps generate larger social and economic benefits. Internet user connectivity has the “capacity to produce unanticipated change through unfiltered contributions from broad and varied audiences.”⁴⁷ The open Internet also generates tremendous “externalities” and “network effects,” magnified by the fact that many of the applications, service and content overlays are themselves interconnected springboards for further innovation.⁴⁸ In economic terms, last-mile broadband networks, as the necessary infrastructure to access the Internet, allow huge innovation “spillovers” to be realized.⁴⁹ These spillovers positively improve the U.S. and global economies, and also advance core free

⁴⁵ See Susan P. Crawford, *Transporting Communications*, 89 B.U. L. REV. 871, 877 (2009) (“*Transporting Communications*”).

⁴⁶ *Transporting Communications* at 883. See *Nat’l Ass’n of Regulatory Utility Commc’ns v. FCC*, 525 F.2d 630, 640-43 (D.C. Cir. 1976) *cert. denied*, *Nat’l Ass’n of Radiotelephone Sys. v. FCC*, 425 U.S. 992 (1976) (“*NARUC I*”) (court looked to “the common law of carriers to construe the Act”). See also, *Nat’l Ass’n of Regulatory Utility Commc’ns v. FCC*, 533 F.2d 601, 609-610 (D.C. Cir. 1976) (“*NARUC II*”). Under this precedent, the Commission may regulate an entity as a common carrier if “there is or should be any legal compulsion to serve the public indifferently.” *Hughes Communications, Inc.*, Order and Authorization, 12 FCC Rcd. 7534, ¶ 17 (1997) (citing *NARUC I*).

⁴⁷ Jonathan Zittrain, *The Future of the Internet and How to Stop It*, 70 (2008), available at <http://futureoftheinternet.org/download> (“*The Future of Internet and How to Stop It*”).

⁴⁸ *Spillovers and Net Neutrality* at 5-7, 9-14 (“An *externality* usually refers to an exception to the marginal efficient result. . . .” Network effects occur when “the value of the network as a whole rises as the number of users increases.”).

⁴⁹ In general, spillovers can be understood as benefits flowing from a given transaction between two individuals, A and B, to a third party, C, with C paying no direct costs for the benefits received. *Spillovers and Net Neutrality* at 5-7. See also, *OECD Innovation Paper* at 5.

expression and democratic values.⁵⁰ The significant role of the generative qualities, network effects and spillovers from the Internet is central to understanding why it is in our nation's overall economic interest to preserve and promote a neutral and open Internet.⁵¹

From a societal perspective, spillovers produce direct consumer surpluses and drive new businesses into the marketplace, creating additional innovation.⁵² Spillovers also instigate competitive responses to build on and improve the processes and ideas already in the market. Scholars have explained that “these entrepreneurs aren’t engaging in incentive-draining free riding; rather, they are part of a virtuous circle because they are in turn creating new knowledge spillovers that support still more entrepreneurial activity.”⁵³

⁵⁰ See Brett Frischmann and Mark Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 268 (2007) (“*Frischmann and Lemley Spillovers*”) (“[A] wealth of economic evidence teaches us that spillovers are good for society. There is no question that inventions create significant social benefits beyond those captured in a market transaction. Statistical evidence repeatedly demonstrates that innovators capture only a small proportion of the social value of their inventions.”).

⁵¹ As then-Acting FCC Chairman Michael J. Copps concluded in the FCC’s report on rural broadband strategy, “The positive externalities and network effects of ubiquitous broadband will not be realized if consumers are all constrained by careful bundling, packaging, and discriminatory practices that whittle away the end-to-end structure of the public Internet. ‘Openness’ is not just another bromide, but a principle we must tenaciously preserve.” *Bringing Broadband to Rural America: Report on a Rural Broadband Strategy*, Report, 24 FCC Rcd. 12791, ¶ 139 (2009) (“*Bringing Broadband to Rural America*”).

⁵² See, e.g., Rob Tai, *Measuring the Impact of the Internet on the Economy*, Google Public Policy Blog, Jun. 10, 2009, available at <http://googlepublicpolicy.blogspot.com/2009/06/measuring-impact-of-internet-on-economy.html> (“the Internet is responsible for 3.1 million American jobs and \$300 billion in economic activity spread throughout the United States.”).

⁵³ See *Frischmann and Lemley Spillovers* at 269 (“Harhoff finds empirical evidence that firms in high-technology industries (the most innovation-intensive ones) are likely to increase rather than decrease their R&D investment in the face of significant intra-industry spillovers. Acs et al argue that this is because the spillovers are creating opportunities to be exploited by entrepreneurs. . . . This is consistent with other work finding that spillovers may increase incentives for private investment in R&D due to complementarities in spillover processes.”). See also, Robert Atkinson, *Framing a National Broadband Policy*, 16 COMMLAW CONSPECTUS 145, 154-64 (2007) (large scale societal benefits are not captured by the infrastructure provider).

The Expressive Nature of Broadband: Public Interest in Free Expression: Just as important as economic effects, by enabling free expression, the Internet embodies a central purpose of the First Amendment – to promote “diverse and antagonistic sources of information.” As the Supreme Court has stated, “a free press is a condition of a free society. Surely a command that the government itself shall not impede the free flow of ideas does not afford non-governmental combinations a refuge if they impose restraints upon that constitutionally guaranteed freedom.”⁵⁴ YouTube video uploads, Twitter (tweets) and other online tools promote speech; witness the world being informed about the widespread civil unrest surrounding the controversial Iranian elections.⁵⁵

2. *Broadband is a Scarce Resource, Deployed by Relatively Few Providers Using Valuable Public Rights and Benefits.*

Broadband networks, by their nature, are relatively few in number, and are specially intertwined with government-bestowed rights and benefits. This provides another reason why such communications networks are affected with the public interest and imbued with special responsibilities.

The Economics of Broadband: Many Barriers, Few Providers: The fundamental economics of broadband networks include extremely high entry barriers and other characteristics

⁵⁴ *Associated Press*, 326 U.S. at 20.

⁵⁵ See, e.g., Helen A.S. Popkin, *Social Networks Support Iran Election Protests, Technology’s Power To Usurp Government Censorship Continues To Evolve*, MSNBC, Jun. 17, 2009, available at http://www.msnbc.msn.com/id/31409312/ns/technology_and_science-tech_and_gadgets/ns/technology_and_science-tech_and_gadgets/. See also, Rebecca Santana, *Iran Activists Work To Elude Internet Crackdown*, MSNBC, Jul. 24, 2009, available at http://www.msnbc.msn.com/id/32129823/ns/tech_and_science-tech_and_gadgets.

that auger for a government role.⁵⁶ Similar to other basic infrastructure such as roads, railroads, sewers, water or gas lines, and electrical grids, broadband networks require enormous fixed, upfront costs with relatively modest marginal costs.⁵⁷ These considerable and often irretrievable costs, together with significant economies of scale and scope, make new network entry exceedingly difficult or even impossible.⁵⁸ Thus, even the potential creation of new broadband networks would not constrain pricing and other decisions of broadband network providers.⁵⁹

These basic economic realities explain why most Americans face (at best) a persistent broadband duopoly.⁶⁰ Earlier this month, the U.S. Department of Justice (Antitrust Division) and the NTIA agreed with the recent FCC's Broadband Status Report that "[a]t most 2 providers

⁵⁶ "[N]etworks can be distinguished from typical goods by reference to their increasing returns to scale, making network markets resistant to discipline of competition." Thomas B. Nachbar, *The Public Network*, 17 COMMLAW CONSPECTUS 67, 100-01 (2008) ("*The Public Network*").

⁵⁷ See Richard S. Whitt, *Evolving Broadband Policy: Taking Adaptive Stances to Foster Optimal Internet Platforms*, 17 COMMLAW CONSPECTUS 417, 433 (2009) ("*Evolving Broadband Policy*") ("Broadband is characterized most centrally by the requirement for exceedingly high up-front fixed capital investments").

⁵⁸ See *Evolving Broadband Policy* at 487-88; Mo Xiao and Peter Orazem, *Do Entry Conditions Vary over Time? Entry and Competition in the Broadband Market: 1999-2003*, 3 (2005), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=895177; *The Public Network* at 100-01 (scale and economics of networks make them resistant to the discipline of competition).

⁵⁹ See Stephen Martin, *The Theory of Contestable Markets* (2000), available at <http://www.krannert.purdue.edu/faculty/smartin/aie2/contestbk.pdf>. In contrast, the content, applications and services that ride upon the broadband networks are provided in a competitive arena, so that virtually anyone can create and disseminate software, video, voice or service applications. Competitors can easily emerge to gain customers and market share. Once online, each website and application is equally accessible to all Internet users. In economic terms, unlike the broadband network, contestability is high for these applications and services. For these businesses, even the threat of potential entry by new entities affects behavior and constrains pricing, underscoring why broadband network infrastructure should be treated differently from the services that utilize it.

⁶⁰ Economists and others have long noted that a duopoly, while arguably more competitive than a monopoly, is less than optimal. See William P. Rogerson, *The Regulation of Broadband Telecommunications, The Principle of Regulating Narrowly Defined Input Bottlenecks, and Incentives for Investment and Innovation*, 2000 U CHI. LEGAL F. 119, 139-40 (2000) ("There is a long tradition of skepticism among economists and antitrust enforcers as to whether two firms are sufficient to create effective competition. When there are only two competitors, the two often achieve some sort of implicit accommodation with one another not to compete vigorously.").

of fixed broadband services will pass most homes.”⁶¹ This echoes earlier findings that American consumers have “only limited alternatives to the cable and telephone broadband duopoly for the foreseeable future. . . .”⁶² The persistent and apparently unchallenged broadband facilities duopoly, combined with high entry barriers and switching costs, provide a strong reason for some form of government oversight.⁶³ In fact, it is also entirely possible that a broadband monopoly could be the next reality in many more markets in the future.⁶⁴

⁶¹ *Ex Parte* Submission of the United States Department of Justice at 13-14, GN Dkt. 09-51 (Jan. 4, 2010) (“*DoJ NBP Submission*”); Letter from Lawrence Strickling, Assistant Secretary for Communications and Information, Department of Commerce, to Julius Genachowski, Chairman, FCC, at 3, GN Dkt. 09-51, (Jan. 4, 2010) (“*NTIA NBP Letter*”) (citing “Commission Open Meeting Presentation on the Status of the Commission’s Processes for Development of a National Broadband Plan,” 135 (Sept. 29, 2009), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-293742A1.pdf). See also, *NTIA NBP Letter* at 3 (asking the Commission to examine anticompetitive behavior where “in many areas of the country is at best a duopoly market. . .”). Summing up the available data, Professor Robert Atkinson wrote: “In most local markets, there are only two principal competitors: telephone and cable broadband. Indeed, for the foreseeable future, the ‘last mile’ of broadband services is, for most consumers, at best a duopoly, and sometimes a monopoly.” Robert Atkinson, *The Role of Competition in a National Broadband Policy*, 7 J. ON TELECOMM & HIGH TECH. L., 11 (forthcoming), available at <http://www.itif.org/files/JTHTL.pdf> (“*Role of Competition in Broadband Policy*”).

⁶² *Access to Broadband Networks*, CRS-17, CRS Report for Congress (Jun. 26, 2006), available at http://www.ipmall.info/hosted_resources/crs/RL33496_060629.pdf. The U.S. Government Accountability Office (“GAO”) has likewise “found that of those households subscribing to a broadband service, roughly half purchase DSL service and half purchase cable modem service.” U.S. Government Accountability Office, *Telecommunications: Broadband Deployment is Extensive Throughout the United States, but It Is Difficult to Assess the Extent of Deployment Gaps in Rural Areas*, 11 (May 2006), available at <http://www.gao.gov/new.items/d06426.pdf>.

⁶³ *FTC v. H.J. Heintz*, 246 F.3d 708, 724, n.23 (D.C. Cir. 2001) (“[i]n a duopoly, a market with only two competitors, supracompetitive pricing at monopolistic levels is a danger”). See also, *Application of Echostar Communications Corp.*, Hearing Designation Order, 17 FCC Rcd. 20559, ¶ 100 (2002) (“courts have generally condemned mergers that result in duopoly”); *id.* at ¶ 103 (“existing antitrust doctrine suggests that a merger to duopoly or monopoly faces a strong presumption of illegality”); U.S. D.O.J. Antitrust Div. and Federal Trade Commission, 1992 Horizontal Merger Guidelines, 57 Fed. Reg. 41552, § 0.1 (1992) (“where only a few firms account for most of the sales of a product, those firms can exercise market power, perhaps even approximating the performance of a monopolist. . .”).

⁶⁴ Facing a limited competitive threat from ADSL, and an overall lack of price competition between the duopolists, cable operators in the United States have been slow to roll out DOCSIS 3.0 technology on a widespread basis despite its low per-subscriber costs. See *CITI Study* at 70 (noting that broadband providers do not compete on pricing); *id.* at 21, 22 (Cable DOCSIS 3.0 upgrade is “a relatively quick and inexpensive task for cable companies compared to the telcos’ current infrastructure deployments of FTTH

Even the steady rise in the FCC's data of mobile wireless does not change the limited number of available broadband networks.⁶⁵ Both the U.S. Department of Justice and NTIA observed: "[w]e do not know, however, whether wireless broadband offerings will be able to exert a significant degree of competitive constraint on cable modem, DSL or fiber optic-based services."⁶⁶ Wireless networks generally enable speeds that can only reach the low end of "high speed."⁶⁷ Not surprisingly, a recent study found that "analysts expect wireless substitution to have a relatively minor impact on wired broadband adoption," relying on a recent study by Morgan Stanley (with which Goldman Sachs generally agreed) that found that wireless substitution will occur in no more than 5 percent of households within five years.⁶⁸

There are also many constraints that the average consumer faces even if they do have a choice of broadband providers. Consumers are typically "locked-in" to multi-year service

or FTTN"). As cable does finally deploy DOCSIS 3.0 with speed levels up to 50 Mbps, however, they could be the "only game in town" in communities serviced by AT&T's slower U-Verse service, with speeds only one-third of what the cable network provider offers.

⁶⁵ Gone from serious consideration in today's marketplace are the "predictive judgments" of several years ago of the emergence of broadband-over-powerline (BPL) or satellite as a strong third-pipe competitor. "Satellite is generally not a full substitute for DSL or cable modem service, because it has higher prices, slower speeds, and high latency." *Role of Competition in Broadband Policy* at 11. FCC data shows satellite-based broadband and BPL, in aggregate, are less than 1/10 of one percent of all advanced services lines in the U.S. See FCC Report, *High-Speed Services for Internet Access: Status as of June 30, 2008*, Table 4 (Jul. 2009) ("*FCC July 2009 High-Speed Report*").

⁶⁶ *DoJ NBP Submission* at 8. *NTIA NBP Letter* at 4 ("it is premature to predict when, or even whether, these wireless broadband services will provide the competitive alternatives that can benefit consumers of all services, including wireline").

⁶⁷ According to FCC data, only 33.9% of wireless end users can achieve 200 kbps in both directions. *FCC July 2009 High-Speed Report*, Tables 1, 2. More detailed information was withheld from the FCC's report. *Id.*, Table 5.

⁶⁸ Robert C. Atkinson & Ivy E. Schultz, *Broadband in America, Where It Is and Where It Is Going (According to Broadband Service Providers)*, 60-61 n.241, Columbia Institute for Tele-Information ("CITI") (Nov. 11, 2009), available at <http://www4.gsb.columbia.edu/citi/> ("*CITI Study*"). Finally, the FCC's data reveals that incumbent LECs and their affiliates provision approximately 81.3% of all mobile high-speed services, and so these services cannot be accurately said to offer a competitive alternative to the incumbent LEC's own wireline services. *FCC July 2009 High-Speed Report* at 3.

contracts that carry early termination fee penalties. The break-up of service bundles also can create steep price increases and possibly entail the loss of other services bundled with the Internet access services (including video and voice triple play offerings). There is also the hassle, cost and inconvenience of a new installation and the costs and inconveniences associated with abandoning and switching email accounts. All of these factors underscore why broadband network competition by itself does not, and cannot be expected to, adequately discipline broadband provider conduct.

The “Publicness” of Broadband: Government-Bestowed Rights and Benefits: Today’s last-mile broadband networks also have been shaped extensively by the government-bestowed franchises and related benefits that enabled incumbent telephone and cable companies to build out their networks to a large share of households and businesses.⁶⁹ Over a century ago, when telephony services were in their infancy, regulation was a tool explicitly used to the advantage of last-mile telephone network providers – as insulation from the pressures of competition, including rate wars, market instability, and similar “disruptive” influences.⁷⁰

Last-mile network providers also have received a steady stream of public benefits, including monopoly and protected statuses; access to rights-of-way and poles; depreciation and tax breaks; direct government subsidies; and regulated rates with their consistent return. These

⁶⁹ *Role of Competition in Broadband Policy* at 11; GERALD W. BROCK, *THE TELECOMMUNICATIONS INDUSTRY: THE DYNAMICS OF MARKET STRUCTURE* 155-156 (Harvard University Press 1981) (“*Brock*”).

⁷⁰ Regulated monopoly status enabled incumbent telephone companies to extend and upgrade their networks using regulated, government authorized rates. Notably, Bell’s chief executive, Theodore Vail, urged that: “I am not only a strong advocate for control and regulation but I think I am one of the first corporation managers to advocate it. It is as necessary for the protection of corporations from each other as for protection to, or from, the public.” *See Brock at 159. See also, Richard Gabel, The Early Competitive Era in Telephone Communication, 1893-1920*, 34 *LAW & CONTEMP. PROBS.* 340, 358 (1969).

include substantial sums from the Federal Universal Service Fund (now over \$7 billion), the Department of Agriculture RUS loan and subsidies programs, and state universal service funds.⁷¹

As the Supreme Court has observed, wireline broadband providers have enjoyed “an almost insurmountable competitive advantage” in local markets as a result of their ownership of network facilities.⁷²

Cable broadband providers also have enjoyed government-sanctioned exclusive franchising status with its attendant benefits. They too have been able to leverage their legacy position (along with their tight grip on the entertainment program supply) to create today’s cable broadband networks.⁷³ Wireless broadband networks likewise share an analogous history, with the nucleus of the largest wireless networks stemming directly from the government’s decision to award, without charge, one of the original two cellular licenses in a market automatically to the incumbent wireline telephone company.⁷⁴

⁷¹ For example, incumbent telephone companies typically make significant use of universal service and RUS subsidies to build out, repair, and maintain a host of facilities, including: last mile loops, central offices, inter-office facilities, and remote terminals. These subsidized facilities, in turn, support both the incumbent’s PSTN services and its deregulated broadband Internet access services. AT&T has been the largest recipient of Federal Universal Service Funds. *See* Letter from Kevin J. Martin, Chairman, FCC, to Hon. Harry Waxman, Chairman, Committee on Oversight and Government Reform, U.S. House of Rep. (Jun. 23, 2008), *available at* <http://oversight.house.gov/images/stories/documents/20080728094935.pdf>.

⁷² *Verizon Commc’n. Inc. v. FCC*, 535 U.S. 467, 490 (2002).

⁷³ Notably, early recommendations for cable regulatory policy (which were not pursued because the cable industry alleged they were “premature”) were directed at a complete separation of control between content and conduit, and included proposals to impose nondiscrimination requirements and mandate independent voices. *See* Cabinet Committee on Cable Communications, *Report to the President*, 29-30 (1974); On the Cable, *Report of the Sloan Commission on Cable Communications*, 142-144 (1971).

⁷⁴ The resulting first mover advantage allowed these wireless providers to leverage an existing customer base, construct the foundation of their network, take advantage of public resources and otherwise use the economies of scope and scale to form the underpinning of their current broadband networks. *See Inquiry Into the Use of the Bands 825-845 MHz and 870-890 MHz for Cellular Communications Systems, Report and Order*, 86 FCC 2d 469, ¶ 15 (1981).

At their core, today's broadband networks are the result of government-sanctioned monopolies, the grant of public benefits and their attendant enormous market advantages and economies of scale, scope and ubiquity. The government should have a role to ensure that all of these public contributions are put toward serving the public interest.

3. *Broadband Providers Have a Unique Ability to Control Network Traffic.*

Broadband providers are also uniquely positioned to control Internet traffic through their privileged status in the overall architecture of the Internet. This "network layer" position creates notable opportunities for controlling and intruding on the content and applications layers of the Internet.

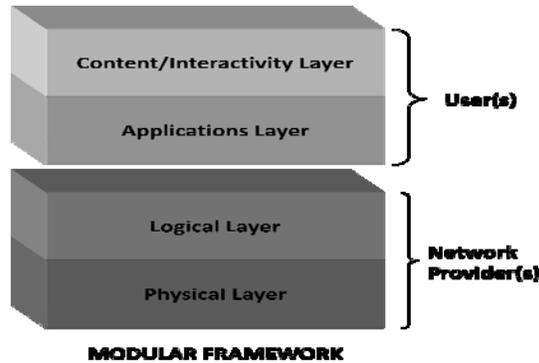
The Physics of Broadband: Unique Control of Network Layer

The Internet has emerged as an exceptional public resource. Some have posited that the private sector on its own likely would not have created the Internet as we know it,⁷⁵ due to its unique end-to-end design and agnostic protocols (in contrast to the early "walled garden" online services like CompuServe, Prodigy and AOL). The Internet's modular nature has meant that applications or protocols at higher layers can be developed or modified with little or no impact on lower layers.⁷⁶ This layering results in tremendous efficiencies in creating or upgrading applications and services that make extensive use of underlying physical infrastructure; it also

⁷⁵ Today's open Internet is an unexpected, contingent event of history likely not to be repeated. *Emergence Economics* at 254.

⁷⁶ See Richard S. Whitt, A Horizontal Leap Forward: Formulating a New Communications Public Policy Framework Based on the Network Layers Model, 56 FED. COMM. L.J. 587, 604 (2004) ("*Network Layers Model*"). See also, Joseph Farrell & Philip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust Regulation in the Internet Age*, 17 HARV. J.L. & TECH. 85, 90-93 (2003) ("*Modularity, Vertical Integration, and Open Access Policies*").

facilitates communications between disparate communications networks.⁷⁷ The result is an environment of “innovation without permission.”⁷⁸



At the same time, this modular framework also creates some unique control opportunities at the lower layers. After all, there is no such thing as a stand-alone software application without the means of conveying that application between different points in a network. Because the physical network layer is able to “see” and interact with all the layers above it, that modular capability alone can confer the ability to manage and control the flow of the packets through the network.

In the particular case of last-mile broadband networks, the physical layer provider is uniquely positioned to impede, hinder or deter consumer access to other applications providers. Applications layer providers obviously do not have a comparable ability. Practically speaking, this means that while no user must utilize software applications like Google or Bing for Internet

⁷⁷ *Network Layers Model* at 604. It is widely understood and accepted – even by network providers – that the Internet’s value derives from what rides on top of the network layer. *See, e.g.*, Comments of Comcast at 8, GN Dkt. 09-51 (filed Jun. 8, 2009) (“broadband networks often serve as a platform for the delivery of a multiplicity of services, including broadband Internet services”); Comments of Verizon at 21, GN Dkt. 09-51 (filed Jun. 8, 2009) (“The Internet, for example, is often praised for its modular structure, which allows for innovation at the application layer independent of the underlying layers.”).

⁷⁸ *See* Vinton Cerf, Vice President and Chief Internet Evangelist, Google, Prepared Statement to U.S. Senate Committee on Commerce, Science, and Transportation, Hearing on Network Neutrality at 4 (Feb. 7, 2006).

search, *all* users must use their last-mile broadband network to access everything on the Internet. This stark functional difference warrants government scrutiny of lower layer activities.

The Integration of Broadband: Combining Conduit and Content

Last-mile providers have both the ability and incentives to use their power at the network layer to advantage themselves in other markets. They can use their control over the last-mile broadband conduit to favor their own content, applications, and services that ride over the top. As will be discussed in the next section, government policy has long recognized this unique problem, and broadband providers have core, vertically-integrated services that face serious competition from Internet-based providers.

C. RECENT MARKET AND TECHNICAL CHANGES HIGHLIGHT THE NEED FOR FCC ACTION NOW

By themselves, the essential nature, relative scarcity, and network control characteristics of broadband infrastructure justify government oversight. Four additional factors underscore why FCC action is needed now. First, the substantial vertical integration of broadband providers now has been buttressed with the rapidly accelerating convergence of voice, video and content that is occurring on the Internet. Second, advances in network layer technology for the first time allow substantial intrusion into the flow of Internet traffic. Third, the prospect of a new system of “broadband access charges” only will exacerbate the incentives and abilities to engage in discriminatory conduct. Finally, all Internet stakeholders – including consumers, businesses, non-profits and policymakers – increasingly need regulatory certainty regarding the status of broadband network openness. Given these recent market and technical changes, and the rise of broadband-based Internet as the dial tone of the 21st Century, an affirmative FCC role will help encourage broadband networks to evolve over time using practices that will promote positive investment, innovation and societal benefits.

1. *Escalating Convergence of Video, Voice and Other Services and Broadband Provider Vertical Integration Heighten Incentives to Discriminate.*

Chairman Genachowski has aptly observed that we live in an “age of convergence.”⁷⁹

No longer tied to a particular screen, consumers increasingly are able to search and access the content, video and applications of their choice, through web services such as YouTube or blinkx, using a variety of devices, including computers, wireless handsets, netbooks and television sets.⁸⁰

The improving quality of Internet audio⁸¹ and video is leading, in turn, to a concomitant increase in the amount of video viewed on the Internet.⁸²

Convergence of services can be an enormously positive engine for innovation and increase broadband adoption and usage; consolidation also can be suitable in a changing

⁷⁹ Julius Genachowski, Chairman, FCC, Prepared Remarks, Innovation in a Broadband World (Dec. 1, 2009). *See also*, Meredith Baker, Commissioner, FCC, Keynote Remarks at 3G Americas Wireless Broadband Technology Briefing (Oct. 15, 2009) (“we are at a time of full scale convergence of the mobile industry and the Internet”).

⁸⁰ *See, e.g.*, CTIA, *CEA Submit Proposal for Reallocating Broadcast Spectrum*, COMM. DAILY, Dec. 24, 2009 at 1-3 (News Corp. announced its plan to introduce mobile content delivery services over the next two years that will deliver print and video news and other programming to devices that may include smartphones, e-readers, laptops and netbooks.). Smartphones, tablet products and other mobile devices with Internet access will grow to approximately 1 billion in 2010. *See* Robert Evans, *1.1 Billion Smartphones by 2003*, 14U NEWS, Jun. 30, 2009, available at <http://www.i4u.com/article25633.html>.

⁸¹ Consumers are turning from traditional voice services offered over traditional telecommunications networks to online voice services such as VoIP and other voice enhanced service, evidencing the growth that convergence is driving. *See* Roy Mark, *VOIP Growth Remains Strong Despite Recession*, EWEEK, Mar. 30, 2009, available at <http://www.eweek.com/c/a/VOIP-and-Telephony/VOIP-Growth-Remains-Strong-Despite-Recession-207028/> (stating that a new survey completed by industry research firm IBISWorld “shows Internet voice services topping the list of industries that are defying the recession. With a projected revenue growth of 20.1 percent, VOIP services easily outdistance e-commerce and online auctions.”).

⁸² Suzanne Choney, *Online Video Watching Nearly Doubles Since '06*, MSNBC, Jul. 29, 2009, available at http://www.msnbc.msn.com/id/32201850/ns/technology_and_science-tech_and_gadgets/. A recent study reveals that half of all Americans (158 million people) watched video on the Internet in July 2009. Press Release, comScore, *U.S. Video Market Soars in July as Summer Vacation Drives Pickup in Entertainment and Leisure Activities Online* (Aug. 27, 2009), available at http://www.comscore.com/Press_Events/Press_Releases/2009/8/U.S._Online_Video_Market_Soars_in_July_as_Summer_Vacation_Drives_Pickup_in_Entertainment_and_Leisure_Activities_Online.

marketplace. Yet, these same forces raise important policy implications for the vast majority of unaffiliated content and application sources on the Internet, including those that have yet to emerge. The twin forces of vertical integration and the convergence of formerly separate service offerings enhance the significant financial incentives of last-mile broadband providers to protect and promote their own revenue streams using control over the broadband network conduit at the expense of competitors and users. The problem is inherent in the concentrated nature and economics of the broadband market itself, rather than in a roster of actual or potential “bad acts.”

These trends are having a measurable impact on consumers’ behavior. An April 2009 Nielsen report found that: the number of American users frequenting online video destinations has climbed 339 percent since 2003; time spent on video sites has increased almost 2,000 percent over the same period; and in the last year alone, unique viewers of online video grew 10 percent, the number of streams grew 41 percent, the streams per-user grew 27 percent and the total minutes engaged with online video grew 71 percent.⁸³ This “exaflood” of online video content poses a serious challenge to businesses of the major broadband providers.⁸⁴ Whether the last-mile is wireless, wireline or cable, online video content increasingly competes for viewers’ attention.

At the same time, last-mile broadband providers are deriving significant revenues and healthy margins from a variety of communications services and service bundles, including

⁸³ *The Global Online Media Landscape: Identifying Opportunities in a Challenging Market*, 6-7, Nielsen Study (Apr. 2009), available at <http://blog.nielsen.com/nielsenwire/wp-content/uploads/2009/04/nielsen-online-global-lanscapefinal1.pdf>.

⁸⁴ According to Cisco, global online video will represent 60% of consumer Internet traffic - up from 32% this year. See *Cisco Visual Networking Index: Forecast and Methodology, 2008-2013* (Jun. 9, 2009), available at http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481360_ns827_Networking_Solutions_White_Paper.html.

proprietary video content, commercially licensed wireless services,⁸⁵ and traditional wireline telephony. Each of these lines of business, with their high-margin revenues, is subject to enormous competitive pressure from “edge” providers usually offering consumers better, cheaper, unbundled, or more useful IP-based alternatives.⁸⁶

Consistent with the FCC’s policies for decades, last-mile broadband providers should be permitted to offer edge services and applications for both their own network customers and those connected to other networks.⁸⁷ Yet, where broadband providers are vertically integrated with other businesses (voice, video, data content and applications), there is a natural business incentive to undercut and diminish the growth of more diverse content, services and applications, so as to maximize private interests, to the detriment of the public interest. Service convergence on the Internet only compounds these inherent incentives.

These facts mean that the broadband providers’ financial incentives – while understandable in most other types of markets – actually skew the wrong way as they project their more “closed” commercial models onto the Internet. Unlike companies that grew up in the dynamic, highly competitive open Internet, companies operating from the “closed” network model mindset seek to lock-in consumers and lock out competitors. There are numerous reasons why the internalizing complementary efficiencies (ICE) theory of economics may not apply in

⁸⁵ See *Phone Bill Survey of UCAN Customers*, Teletruth, New Networks Institute and LTC Consulting (Mar. 2009), available at <http://www.teletruth.org/docs/UCANteletruth.pdf>.

⁸⁶ See, e.g., *Network Layers Model* at 647-48.

⁸⁷ See, e.g., *Computer III* at ¶¶ 4-5.

this context.⁸⁸ Because price discrimination and other anticompetitive practices can maximize profits and forestall competition,⁸⁹ it is critical to anticipate and prevent these outcomes.

The history of cable television, with its vertical integration of content and conduit,⁹⁰ illustrates the problems that can occur, and is particularly relevant given the growing convergence of television and the Internet.⁹¹ It is now well-understood that when cable operators control both the programming and the physical distribution network, they have strong incentives to discriminate, block access, adjust prices and otherwise engage in anticompetitive practices.⁹²

⁸⁸ See *Modularity, Vertical Integration, and Open Access Policies* at 105-119.

⁸⁹ See *id.* at 108 (“[p]latform monopolist’s desire to price discriminate can outweigh ICE and lead it to exclude efficient innovation or price competition in complementary products”).

⁹⁰ There have been attempts since the infancy of cable television in the 1970s to address concerns about cable vertical integration through various policy proposals, including limiting cable-affiliated content and full structural separation (see Cabinet Committee on Cable Communications, *Report to the President*, 3 (1974); On the Cable, *Report of the Sloan Commission on Cable Communications*, 142-144 (1971)). Since the 1960s the FCC had attempted to adopt numerous rules “[i]n view of the importance of an informed electorate and speech concerning public affairs to self government, the right of the public to receive suitable access to social, political, aesthetic, moral and other ideas and experiences, and the CATV systems’ monopoly position over cable access to the subscribers’ premises. . . .” See Donna N. Lampert, *Cable Television: Does Leased Access Mean Least Access*, 44 FED. COMM. L. J. 245, 249 (1992) (citing *Amendment of Part 74, Subpart K of the Commission’s Rules and Regulations Relative to Community Antenna Television Systems, First Report and Order*, 20 FCC 2d 201, ¶ 20 (1969)).

⁹¹ See *Comment Sought on Video Device Innovation*, NBP Public Notice #27, DA 09-2519 (rel. Dec. 3, 2009). See also, e.g., *Comments of News Corp. – NBP Public Notice # 26* at 4, GN Dkt. 09-51 (filed Dec. 22, 2009) (referencing plans to introduce mobile content delivery services to bring print, video news and other programming to devices including smartphones, e-readers, laptops, and netbooks).

⁹² See Hal J. Singer & J. Gregory Sidak, *Vertical Foreclosure in Video Programming Markets: Implications for Cable Operators*, 6 REV. OF NETWORK ECON. 372, 376 (2007) (“*Vertical Foreclosure in Video Programming Markets*”) (discussing goals of vertically integrated cable provider to maximize the joint profits of the upstream content division and the downstream distribution network, incentives to engage in “content discrimination” by refusing to carry unaffiliated programming, associated costs and benefits for cable provider, including foreclosure the downstream distribution rivals, allowing the cable provider to charge higher prices). See also, Jerry Hausman et al., *Residential Demand for Broadband Telecommunications and Consumer Access to Unaffiliated Internet Content Providers*, 18 YALE J. ON REG. 129, 158 (2001) (“*Consumer Access to Unaffiliated Internet Content Providers*”) (“an integrated provider could engage in content discrimination. . . . [I]nsulating its own affiliated content from competition by blocking or degrading the quality of outside content. Content discrimination could

As a result, practices such as exclusive dealing by programming networks vertically integrated with cable operators were prohibited in most instances.⁹³ The rationale for these and similar government actions⁹⁴ is instructive here: oversight and intervention has been targeted so that vertically-integrated network providers cannot use their market power (control deriving from affiliation with content plus physical conduit) to the ultimate detriment of consumers.⁹⁵

Decades of government intervention and oversight, ranging from the Communications Act to the FCC's *Computer Inquiries* to the AT&T divestiture, have been grounded in a similar need to safeguard the public from anticompetitive abuses that arise from concentrated networks and the effects of vertical integration.⁹⁶ The concerns echo FCC intervention in broadcasting to

involve a range of strategies, from blocking outside content entirely, to affording affiliated content preferential caching treatment.”).

⁹³ 47 U.S.C. § 548(b).

⁹⁴ *Applications for Consent to the Assignment and/or Transfer of Control of Licenses; Adelphia Communications Corporation, Assignors, to Time Warner Cable Inc., Assignees, Memorandum Opinion and Order*, 21 FCC Rcd. 8203, Appendix B (2006) (prohibiting Time Warner and Comcast from entering into exclusive contracts with regional sports networks for six years as a condition of their acquisition of Adelphia Communications Corporation).

⁹⁵ See Cable Television Consumer Protection and Competition Act of 1992, Pub. L. No. 102-385, §§ 2(b) (1)-(3), and (5) (1992). Professors Farrell and Weiser have explained the implications of cable vertical integration in considering streaming video applications: “ICE would suggest that cable providers should happily endorse this use of their platform, as it would make the platform more valuable to users and therefore more profitable. But a cable provider who allows video streaming will find it harder to engage in the profitable and customary price discrimination that sets high markups for premium cable programming. Thus, a cable provider might rationally, but inefficiently, try to stop this innovative method of distribution.” *Modularity, Vertical Integration, and Open Access Policies* at 109.

⁹⁶ See, e.g., *Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorizations Therefor, Further Notice of Proposed Rulemaking*, 84 FCC 2d 445, ¶ 6 (1981) (the regulatory scheme in Title II “was primarily enacted to constrain the exercise of substantial market power possessed by firms providing communications services in 1934.”).

ensure that the public was not adversely affected by decisions made to advance the private interests of those who control the nation's airwaves.⁹⁷

2. *The Emergence of Network Management Technologies Heightens Broadband Providers' Ability to Discriminate.*

As the NPRM suggests,⁹⁸ increasing claims of network congestion, and the emergence of technologies to facilitate examination of, and differentiation between, types of traffic, also support action now.⁹⁹ These newer technologies promise to give broadband providers unparalleled power over all traffic flows to and from their networks.

The major technology driving service provider packet prioritization lays in deep packet inspection (DPI), which looks at the payload of the packet to identify particular applications, content, or services. DPI vendors have established varied systems for "signature analysis" that help these services correlate certain packets with specific applications. Thus, DPI can be more accurate than, for example, simply looking at ports.

⁹⁷ See, e.g., *Nat'l Broad. Co. v. United States*, 319 U.S. 190, 218 (1943) ("Congress moved under the spur of a widespread fear that in the absence of governmental control the public interest might be subordinated to monopolistic domination in the broadcasting field.") (citing *FCC v. Pottsville Broad. Co.*, 309 U.S. 134, 137 (1940); *Associated Press*, 326 U.S. at 20 ("Freedom of the press from governmental interference under the First Amendment does not sanction repression of that freedom by private interests."); *Red Lion Broad. Co. v. FCC*, 395 U.S. 367, 390 (1969) ("It is the right of the viewers and listeners, not the right of the broadcasters, which is paramount."); *Metro Broad., Inc. v. FCC*, 497 U.S. 547, 567 (1990) ("Congress may. . . seek to assure that the public receives through this medium a balanced presentation of information on issues of public importance that otherwise might not be addressed if control of the medium were left entirely in the hands of those who own and operate broadcasting stations.") (citing *FCC v. League of Women Voters of California*, 468 U.S. 364, 377 (1984)).

⁹⁸ See NPRM at ¶¶ 57-58.

⁹⁹ Even if claims of network congestion and capacity constraints are not overstated – which is not at all clear – they can and should be addressed through nondiscriminatory mechanisms. "Traffic management" actually can increase delays because prioritization produces more dropped and delayed packets, causing more packet retransmission, creating additional packet load and therefore leading to additional congestion in the network. See Robb Topolski, New American Foundation, and Chris Riley, Free Press, *A Free Press/New America Foundation Policy Brief: The Hidden Harms of Application Bias*, 4-5 (Nov. 9, 2009), available at http://www.newamerica.net/publications/policy/the_hidden_harms_of_application_bias ("Hidden Harms of Application Bias").

Products like PacketShaper¹⁰⁰ from Packeteer/Bluecoat, Packetlogic¹⁰¹ from Procera Networks, or eSeries¹⁰² from Arbor Networks can be used as a tool by broadband providers to discriminate among applications.¹⁰³ Once DPI identifies what applications are running, it can be used to prioritize or delay the transmission of packets belonging to certain applications. And, this all can be done without user knowledge or consent.¹⁰⁴

Rather than allow these practices to further take root and increase the difficulty and burden of trying to correct them later (which may be impossible), the FCC should act now to

¹⁰⁰ See <http://www.bluecoat.com/products/packetshaper> (last visited Jan. 13, 2010) (“Deep Packet Inspection – Classify more than 600 applications on your network with Layer 7 Plus technology, which automatically identifies applications and allows you to separate business from recreational applications. Prioritize Applications and Provision Sessions – Prioritize more important applications over less important ones using PacketShaper's application-intelligent QoS technologies. Also, provision per call or per session bandwidth for critical applications.”).

¹⁰¹ See <http://www.proceranetworks.com/broadband-service-providers.html> (last visited Jan. 13, 2010).

¹⁰² See http://www.arbornetworks.com/index.php?option=com_content&task=view&id=1780&Itemid=790 (“The Arbor Networks eSeries is a carrier-class solution for broadband service optimization that supports millions of subscribers. The eSeries enables providers to dramatically increase the return on their network investment by managing traffic at both the subscriber and application level. Based upon [DPI] technology, the eSeries also enables carriers to identify and manage each packet of network traffic – by subscriber and application – in order to prioritize network activity, enforce policies and develop new service plans.”) (last visited Jan. 13, 2010).

¹⁰³ As Procera explains, these products “are deployed by hundreds of ILECs, CLECs, PTTs and other broadband service providers worldwide to meet these goals through patent-pending next-generation technology that provides deep visibility into and control over network traffic.... PacketLogic solutions provide deep packet inspection capabilities that allow highly accurate identification of network traffic such as BitTorrent, YouTube, Skype and others,” <http://www.proceranetworks.com/broadband-service-providers.html> (last visited Jan. 13, 2010).

¹⁰⁴ See Nate Anderson, *Deep Packet Inspection Meets ‘Net neutrality, CALEA*, Jul. 26, 2007, available at <http://arstechnica.com/hardware/news/2007/07/Deep-packet-inspection-meets-net-neutrality.ars> (“[w]hen major ISPs deploy these products in their networks, they suddenly know a whole lot more about their users and their traffic. They also gain the ability to block, shape, monitor, and prioritize that traffic—in any direction. That makes it suddenly simple to, say, prioritize all incoming traffic from any web site that has handed over a briefcase stuffed with unmarked bills while leaving every other site to fight its way through the tubes as best it can. It also becomes trivial to start blocking or actively degrading services that a company dislikes—like VoIP, for example.”).

ensure the proper evolution of broadband networks and nondiscriminatory solutions to network congestion.

3. *A New System of “Broadband Access Charges” Would Further Exacerbate Broadband Provider Incentives and Abilities to Undermine the Internet’s Benefits.*

Permitting broadband providers to impose “last-mile” charges on content and applications for equal access to consumers is the equivalent of imposing new, unregulated “broadband terminating access charges”¹⁰⁵ and will create numerous negative impacts for all Internet users and the Internet as a whole.¹⁰⁶ Priority charges raise a host of concerns, including:

- Dampens Innovation and Competition: Paid prioritization opens the door to broadband providers picking winners and losers in the market. Moreover, new tolls create additional barriers to entry that will likely “hurt consumers and diminish innovative activities in complementary sectors such as computer applications and content dissemination.”¹⁰⁷
- Raises Transaction Costs: Along with the priority charges themselves, there will be substantial transaction costs stemming from the need to negotiate with a legion of last-mile providers.¹⁰⁸ Indeed, as a practical matter, it is hard to understand how broadband

¹⁰⁵ Even if competitive last-mile broadband alternatives exist for a particular user, for practical purposes the last-mile provider still retains bottleneck control over broadband access and that provider can exert control to charge excess amounts on the termination of Internet content. *See Access Charge Reform, Seventh Report and Order and Further Notice of Proposed Rulemaking*, 16 FCC Rcd 9923, ¶ 30-31 (2001); Comments of Google at 19-20, WC Dkt. 07-52 (filed Jun. 15, 2007) (citing Noel D. Uri, *Monopoly Power and The Problem of CLEC Access Charges*, 25 TELECOMM. POL’Y 8 (2001) (“A CLEC acts like a monopolist because it controls an essential component of the telephone network. . . . Once a customer has chose a LEC, calls to or from that customer cannot be completed without that LEC’s involvement.”)).

¹⁰⁶ *See* Comments of Google at 23-25, WC Dkt. 07-52 (filed Jun. 15, 2007).

¹⁰⁷ Nicholas Economides, “*Net Neutrality, Non-Discrimination and Digital Distribution of Content Through the Internet*,” 4 I/S: J.L. & POL’Y FOR INFO. SOCIETY 209, 232 (2008) (“*Non-Discrimination and Digital Distribution of Content*”). *See also*, Barbara van Schewick, *Towards an Economic Framework for Network Neutrality Regulation*, 5 J. ON TELECOMM. & HIGH TECH. L. 329, 387-80 (2007) (“*Towards an Economic Framework*”) (discussing reduction of incentives to innovate and loss of potential innovation). *See also*, NPRM at ¶ 63.

¹⁰⁸ *See* Nicholas Economides, *Why Imposing New Toll on Third-Party Content and Applications Threatens Innovation and Will Not Improve Broadband Providers’ Investment*, 7 (Jan. 2010) attached at Appendix A (“*Broadband Providers’ New Toll*”).

providers would determine who and what to charge.¹⁰⁹ The more complex the system – and the greater number of last-mile providers involved – the higher the transaction costs on the rest of the Internet.

- Creates a Two-Tiered Internet: While broadband providers’ own services and incumbent players who can afford to pay will get access to a special “fast lane,” start-up innovators, small businesses, non-profits, individual users, and many other players will be effectively consigned to the “slow lane.” Rather than an Internet in which new ideas succeed or fail based solely on their own merits and what users desire, innovation will be driven by which entrenched entities can cut the best deals with broadband providers.
- Favors Broadband Providers’ Affiliated Services: Broadband providers will have a natural incentive to use prioritization to favor their own services. Moreover, even if the broadband provider charges affiliated and non-affiliated services equally, the affiliated service still has a huge advantage. After all, as Professor Nicholas Economides explains, “charges to the affiliated content division are merely accounting entries for the last-mile provider, and do not reflect a real additional cost to the company as a whole.”¹¹⁰
- Constitutes a “Zero-Sum” Game: By definition, favoring one class of traffic in a router disfavors other classes. An Internet packet moved to the front of the line pushes back every other packet in the queue. In a shared network environment, then, prioritization creates greater delay and lower throughput for less favored traffic. Eventually different classes of prioritized service can result in infinite delay and zero throughput for everybody else. When done for commercial purposes, rather than as an even-handed network management practice, prioritization can constitute undue discrimination.
- Fails to Reflect Spillovers: As Professor Christiaan Hogendorn discusses in Appendix B, broadband providers’ prices for paid prioritization may be suboptimal from a social welfare perspective because they will not take into account the positive spillovers from the Internet.¹¹¹
- Subverts Existing Efficiencies of Internet Transit Market: Priority charging arrangements circumvent the currently unregulated Internet transit marketplace, where pricing on backbones today reflects the value of traffic.¹¹² In this way, such schemes threaten to negate the market efficiency of the existing arrangements.
- Reduces Incentives to Invest in Expanded Capacity: While broadband providers claim that new tolls will lead to more network investment, there are many reasons to doubt this.

¹⁰⁹ In fact, in light of the increasing reliance on video by governments and public advocacy groups, it would be extremely problematic if last-mile network providers were allowed to charge these vital public information providers for access to citizens and consumers. On the other hand, if these entities were exempt, it creates further fragmentation of the Internet experience, further undermining its overall utility as an open medium where all ideas can be pursued.

¹¹⁰ See *Broadband Providers’ New Tolls*, at 7.

¹¹¹ See *Spillovers and Net Neutrality*.

¹¹² See *Broadband Providers’ New Tolls* at 4-5.

For one thing, if prioritization becomes a profit center for broadband providers, they will have a financial incentive to maintain capacity constraints. In this way, paid prioritization constitutes nothing more than monetizing scarcity, and actually robs broadband providers of their incentives to build out greater broadband capacity.¹¹³ Collecting new priority fees also could simply end up in fatter profit margins.

- Lacks Clear Technical Necessity or Utility: There are sound reasons to question the utility of paid prioritization. As one example, the engineers at Internet2 conducted a detailed technical analysis of prioritization in broadband networks, finding that adding capacity was a cheaper, more effective technical solution to performance issues.¹¹⁴ Furthermore, in order for prioritization to have any meaningful impact on a particular stream of Internet traffic, it must be activated all the way through the Internet. Because last-mile providers only can control the traffic on their own networks, it is difficult to see the utility of prioritization.
- Threatens to Embroil Government in Pricing Decisions: New broadband access charges inevitably would require government oversight into the fine details of pricing. Fees on content and applications providers for the network transport to the end user would constitute the provision of a telecommunications service.¹¹⁵ Like any terminating access service, the rates would raise regulatory concerns that the charges are excessive or anticompetitive, and that the terms and conditions of the underlying telecommunications service are not just and reasonable.¹¹⁶ This means the FCC would have a statutory responsibility to regulate to ensure that no supra-competitive rates were charged and that no discriminatory or unreasonable acts occurred.
- Invites Foreign Carriers to Impose Own Priority Charges: The direct costs and transaction costs from a domestic priority charging system could be multiplied many times over should foreign broadband providers adopt a similar approach. By signaling to the rest of the world that priority charges are acceptable, the U.S. would be opening the door wide to significant new financial obstacles for innovative American companies trying to operate overseas.

¹¹³ See *id.* at 12-14.

¹¹⁴ B. Teitelbaum, S. Shalunov, *Why Premium IP Service Has Not Deployed (and Probably Never Will)*, Internet2 QoS Working Group Informational Document (May 3, 2002), available at <http://qos.internet2.edu/wg/documents-informational/20020503-premium-problems-non-architectural.html>.

¹¹⁵ Nothing about such transport suggests that the service offered would be considered an “information service.”

¹¹⁶ As Professor Weiser notes, the Federal Trade Commission has recognized this “economic phenomenon as the ‘terminating access monopoly.’” As firms raise terminating access fees higher than competitive and incremental cost levels, “[s]uch higher prices, to the extent that regulation allows them, harm society insofar as they distort the demand for the product.” See, e.g., Philip J. Weiser, *The Next Frontier for Network Neutrality*, 36 (2007), available at <http://www.siliconflatirons.org/neutralitylaw/WeiserNextFrontier.pdf> (“*The Next Frontier for Network Neutrality*”).

All of these reasons highlight why a new system of broadband access charges on content and applications providers would only further encourage broadband providers to act in ways detrimental to investment, growth and innovation.

4. *The Pressing Need for Greater Regulatory Certainty and Balancing Investment Incentives Demands Commission Action Now.*

Finally, greater market certainty reduces risk and provides greater incentives for all stakeholders to innovate and invest. Last-mile network providers, other broadband infrastructure hardware companies, web overlay content and applications providers and users all need to know the normative standards, mechanisms and policies that are appropriate for addressing network congestion, and which practices are impermissible because they limit the usefulness and benefits of the Internet to the public as a whole.¹¹⁷ Transparent and forthright government oversight at this particular juncture will allow all parties to plan and invest appropriately.

Broadband providers often argue that if broadband openness rules are codified, they will have diminished incentives to invest in their networks, resulting in overall public harm.¹¹⁸

¹¹⁷ See John Eggerton, *Cohen: Clear Internet Rules Would be Better than Confusion*, BROADCASTING & CABLE, Jan. 11, 2010, available at http://www.broadcastingcable.com/article/443396-Cohen_Clear_Internet_Rules_Would_Be_Better_Than_Confusion.php. The FCC has long agreed that regulatory certainty is tied to investment. See, e.g., *1998 Biennial Regulatory Review Spectrum Aggregation Limits for Wireless Telecommunications Carriers, Report and Order*, 15 FCC Rcd. 9219, ¶ 51 (1999) (“[r]egulatory certainty is critical to providing the industry with incentives to make investments, including in new technologies such as 3G service.”). Broadband network providers have also consistently heralded regulatory certainty when it suits their purposes. See, e.g., *Cable Executive Continue to Hit 9th Circuit Decision on Modems*, COMM. DAILY (Dec. 5, 2003) (“Investment follows regulatory certainty” (quoting Terry Bienstock, Executive Vice President, Government Affairs, Comcast)); Comments of NCTA at 14, WC Dkt. 09-154 (filed Sept. 24, 2009) (regulatory certainty “drives broadband investment and provides customers more meaningful choices among providers.”). See also, e.g., Comments of AT&T - NBP Public Notice # 23 at 1-2, GN Dkt. 09-51 (filed Dec. 4, 2009) (“broadband providers are investing billions to expand their networks and to bring fast, reliable broadband service to American households. ...the Commission should facilitate those efforts by providing regulatory certainty and stability.”).

¹¹⁸ See *NPRM* at ¶ 65. Under the circumstances, this argument is somewhat puzzling since last-mile network providers generally are free to set their prices to consumers for broadband Internet access,

However, broadband providers already have strong incentives to invest in their networks because “the science and engineering base is more developed” than with software applications, and because they have “larger markets than individual applications. . . all users need the general purpose technology.”¹¹⁹ In the FCC’s ongoing National Broadband Plan (NBP) proceeding, broadband providers acknowledged that the *Internet Policy Statement* has not deterred their incentives to make network investments.¹²⁰ Available data also confirm this¹²¹ and are consistent

constrained only by what the market will bear. There are a few, meager exceptions. For instance, in the AT&T-BellSouth merger, the FCC required AT&T to offer a stand-alone ADSL service for \$19.95 per month as well as \$10/month 768 Kbps ADSL to new AT&T broadband consumers. *See AT&T Inc. and BellSouth Corp., Application for Transfer of Control, Memorandum Opinion and Order*, 22 FCC Rcd. 5662, Appendix F (2007) (“*AT&T-BellSouth Merger Order*”). It is therefore difficult to credit arguments, historically made in the context of price-regulated incumbent network providers, that last-mile network providers are not being fairly compensated because here there is no price regulation. *Compare Berkman Center Study Memo* at 7 (describing arguments where carriers are “forced to share their networks at inappropriately low rates”). Ironically, to the extent these arguments and threats are effective, it simply underscores how little competition there is for last-mile broadband access. *See supra* note 62. Deregulation has not necessarily led to increased last-mile broadband infrastructure investment, despite what was promised, as some last-mile broadband providers have instead chosen to back away from increased long-term network capacity investments such as fiber. *See Reply Comments of Free Press* at 21-22, GN Dkt. 09-51 (filed Jul. 21, 2009).

¹¹⁹ *Towards an Economic Framework* at 387-88.

¹²⁰ *See Comments of Comcast* at 2, GN Dkt 09-51 (filed Jun. 8, 2009) (“[t]he cable industry alone has invested \$145 billion in broadband networks” since the mid-1990s); *Comments of AT&T* at vii, n.13, GN Dkt. 09-51 (filed Jun. 8, 2009) (“For its part, AT&T has invested \$38 billion over the past two years to enhance our wireline and wireless networks, and we plan to spend another \$17 to \$18 billion in 2009, with approximately two-thirds of this new investment slated to support broadband.”); *Comments of Verizon* at 18, GN Dkt. 09-51 (filed Jun. 8, 2009) (“Verizon has invested more in capital expenditures over the last several years – more than \$80 billion from 2004 through 2008 – than any other company in the United States in any industry.”). Verizon also has announced that it is investing nearly \$19 billion in its wireless network and is ready to support anticipated wireless data growth. *See Spencer E. Ante, Verizon Wireless Prepares for the iPhone*, BUS. WK., Dec. 17, 2009, available at http://www.businessweek.com/print/technology/content/dec2009/tc20091217_788391.htm.

¹²¹ *See Shane Greenstein & Ryan C. McDevitt, The Broadband Bonus: Accounting for Broadband Internet’s Impact on U.S. GDP*, NBER Working Paper No. 14758, 5, National Bureau of Economic Research (Feb. 2009), available at <http://www.nber.org/papers/w14758>. There is strong evidence that infrastructure investment and network upgrades will continue to grow even with requirements mandating open and nondiscriminatory treatment. USTelecom states that cumulative capital expenditures by broadband providers from 2000-2008 were over half a trillion dollars. *See Comments of USTelecom* at 3, GN Dkt. 09-51 (filed Jun. 8, 2009). Of course, the mere fact that broadband providers can and do employ

with the experience of other countries, where openness and nondiscriminatory networks are correlated with more bandwidth at lower prices.¹²²

The FCC already has encountered *Internet Policy Statement*¹²³ violations in the Comcast-BitTorrent¹²⁴ and the Madison River-Vonage¹²⁵ cases. In the *Comcast* case, the FCC's policy implementations face a challenge in the D.C. Circuit, which is considering whether the Commission was correct to enforce a policy statement without the adoption of a rule. With *Madison River*, the Commission chose not to rely solely on its policy principles, basing its authority in Title II precedent that forbids call-blocking. While Google believes that the FCC had ample authority to act in both instances, these situations underscore that it is far from clear

these "incentives to invest" threats with regularity demonstrates that they possess market power. Otherwise, any number of competitors could step into their shoes to provide service. Interview with Ed Whitacre, *At SBC, It's All About "Scale and Scope,"* BUS. WK, Nov. 7, 2005, available at http://www.businessweek.com/@n34h*IUQu7KtOwgA/magazine/content/05_45/b3958092.htm ("The Internet can't be free in that sense, because we and the cable companies have made an investment and for a Google or Yahoo! or Vonage or anybody to expect to use these pipes [for] free is nuts!").

¹²² See, e.g., OECD Report, *The Role of Communication Infrastructure Investment in Economic Recovery*, 25 (May 19, 2009), available at <http://www.oecd.org/dataoecd/4/43/42799709.pdf> (stating that "[o]pen access networks play an important role promoting competition. . ."). See also, Press Release, Infocomm Development Authority of Singapore, *Singapore's Next Generation National Broadband Network To Be Nationwide by 2012* (Sept. 26, 2008), available at <http://www.ida.gov.sg/News%20and%20Events/20080926174755.aspx?getPagetype=20> (Singapore to deploy national high-speed network by 2012 with fiber services on an open, nondiscriminatory basis at attractive prices to drive usage and vibrant competition).

¹²³ *In the Matters of Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, Policy Statement*, 20 FCC Rcd. 14986 (2005) ("*Internet Policy Statement*").

¹²⁴ See *Formal Complaint of Free Press and Public Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications, Memorandum Opinion and Order*, 23 FCC Rcd 13028 (2008) ("*Comcast-BitTorrent Order*").

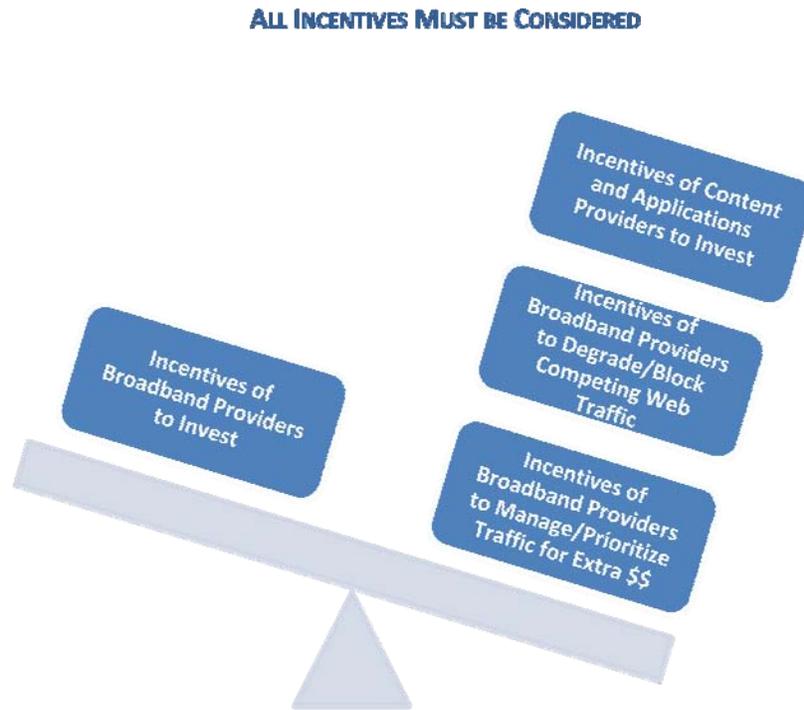
¹²⁵ *Madison River Communications, LLC, Order*, 20 FCC Rcd 4295 (2005) ("*Madison River-Vonage Order*").

precisely how the FCC's policy statements apply. There is increasing uncertainty about whether particular practices, such as blocking of applications on wireless handsets, are permissible,¹²⁶ and merger conditions that made the *Internet Policy Statement* legally binding for several broadband providers have since expired.¹²⁷

Thus, it is even more important that the FCC clarify the rules of the road going forward. Rather than continued uncertainty, the Commission should establish clearly to whom the rules apply, and what conduct is proscribed or permitted. FCC action *before* improper practices are further entrenched is vital. Otherwise, the FCC will face the much more odious task of "unscrambling the eggs" of improper practices and invasive discriminatory network techniques and processes.

¹²⁶ See, e.g., Letter from Ben Scott & Chris Riley, Free Press, to Chairman Copps, FCC, at 12, WC Dkt. 07-52 (Apr. 3, 2009) (to resolve "lingering uncertainty" and "alleged ambiguity" regarding who the *Internet Policy Statement* applies to, "the Commission should confirm [it] applies to wireless service providers that offer broadband Internet access service."). Further, in responding to the FCC's NOI on *Broadband Industry Practices* (WC Dkt. 07-52), several parties' responses clearly indicated their belief that the *Internet Policy Statement* did not currently apply to wireless providers. See, e.g., Comments of CTIA at 2, WC Dkt. 07-52 (filed Jun. 15, 2007) (arguing that application of the *Internet Policy Statement* to wireless carriers would have a negative impact on consumers); Comments of Wireless Communications Association International at 2, WC Dkt. 07-52 (filed Jun. 15, 2007) (arguing that wireless broadband providers remain free to manage their networks in whatever way they desire).

¹²⁷ The commitments to abide by the *Internet Policy Statement* made during the AT&T-SBC and Verizon-MCI mergers expired on Nov. 15, 2007, and Jan. 6, 2008, respectively, while the commitments to abide by the *Internet Policy Statement* made in the subsequent AT&T-BellSouth merger expired on June 29, 2009. See *AT&T-BellSouth Merger Order*, Appendix F; *SBC Communications Inc. and AT&T Corp. Applications for Approval of Transfer of Control, Memorandum Opinion and Order*, 20 FCC Rcd. 18290, Appendix F (2005) ("AT&T-SBC Merger Order"); *Verizon Communications Inc. and MCI, Inc. Applications for Approval of Transfer of Control, Memorandum Opinion and Order*, 20 FCC Rcd. 18433, Appendix G (2005) ("Verizon-MCI Merger Order").



In providing much-needed regulatory certainty, the FCC must fashion a policy framework that appropriately balances the incentives of the major Internet stakeholders. For example, the typical focus on broadband providers’ incentives to invest in their last-mile networks should be expanded to include: (1) their incentives to manage/prioritize broadband traffic for pay; (2) their incentives to degrade/block competing web traffic that threatens providers’ many business interests; and (3) incentives for content and applications providers to invest and innovate in their offerings.¹²⁸ By affirming that the Internet of tomorrow will be open,

¹²⁸ See *Subsidizing Creativity Through Network Design* at 67 (“[g]iven that the returns to content production are skewed and the expected value of a new online venture is low, sufficiently low costs of entry may have been and continue to be crucial.”) See also, *Towards an Economic Framework* at 390 (“[d]ue to the potentially enormous benefits of application-level innovation for economic growth, increasing the amount of application-level innovation through network neutrality regulation is more important than the costs associated with it.”). These incentives roughly correspond to the three dimensions of broadband infrastructure as an optimal Internet platform – availability, robustness and openness. See Comments of Google at 10, GN Dkt. 09-51 (filed Jun. 8, 2009); Reply Comments of Google at 8, GN Dkt. 09-51 (filed Jul. 21, 2009).

the FCC can best ensure that it will continue to serve as the optimal foundation of our knowledge economy.

II. THE FCC POSSESSES THE REQUISITE STATUTORY AUTHORITY TO ENACT RULES TO ENSURE THAT BROADBAND NETWORKS ARE OPEN

As discussed above, we now are at a crucial turning point where the Internet's fundamental openness can no longer be assured. A loss of open and robust broadband access would undermine the Internet's potential to drive innovation, creativity, and free expression.

This section explains the FCC's ample, well-recognized legal authority to prevent these harms by asserting its regulatory jurisdiction to impose market safeguards on broadband providers.¹²⁹ This authority also is consistent with common law doctrine, appropriately noted in the NPRM,¹³⁰ under which providers of basic infrastructure (including those who operated railroads, docks, toll bridges, and later, communications facilities) were regulated in the public interest and required to act in a nondiscriminatory manner.¹³¹

¹²⁹ The FCC's regulatory authority is not unfettered. The FCC's jurisdiction extends only as "necessary to ensure the achievement of the Commission's statutory responsibilities." *Fed. Comm'n Comm'n v. Midwest Video Corp.* 440 U.S. 689, 706 (1979) ("*Midwest Video II*").

¹³⁰ NPRM at n.157 ("Providers of key infrastructure and services, such as innkeepers, freight carriers, and railroads, have traditionally had an obligation to serve all customers upon reasonable request, on a nondiscriminatory basis, and with 'an adequate amount of care.'"). *See also*, William Jones, *The Common Carrier Concept as Applied to Telecommunications: A Historical Perspective* (1980), available at <http://www.cybertelecom.org/notes/jones.htm>.

¹³¹ In these cases, infrastructure providers were required to act in a nondiscriminatory manner, with a high standard of care, as common carriers. *See Evolving Broadband Policy* at 472-73 (citing *The Public Network* at 76, 103, 106, 124-25). *See also*, *Transporting Communications* at 882-83; Barbara A. Cherry, *The Political Realities of Telecommunications Policies in the U.S.: How the Legacy of Public Utility Regulation Constrains Adoption of New Regulatory Models*, 2003 MICH. ST. DCL L. REV. 757, 762-63 (2003). Cherry describes nondiscrimination in dealing with retail customers as the hallmark requirement in the common law, derived from the Roman law notion of inherent fairness; this general concept then carried through to the statutory world of communications regulation.

A. THE FCC HAS ANCILLARY AUTHORITY TO REGULATE BROADBAND NETWORK PROVIDERS

The FCC has Title I authority to promulgate regulations reasonably ancillary to its statutory mandates, allowing it to enact regulations that otherwise are not explicitly directed by the Communications Act.¹³² A two-prong test determines whether the Commission’s use of ancillary authority is permissible:

(1) The regulation must fall within the Commission’s general grant of jurisdiction under Title I of the Communications Act, which encompasses “all interstate and foreign communication by wire or radio;”¹³³ and

(2) The “subject of the regulation must be ‘reasonably ancillary to the effective performance of the Commission’s various responsibilities.’”¹³⁴

Put simply, for FCC action to be “reasonably ancillary” to its statutory mandates, it “must be reasonably ancillary to *something*,”¹³⁵ meaning there must be a statutory “hook” upon which to hang an exercise of ancillary jurisdiction.¹³⁶

¹³² The FCC's prior interpretations of its Title I authority over broadband providers misses the larger, more fundamental point. The FCC always has possessed explicit and clear Title II authority over the transmission component of broadband provider services. It is well within the FCC’s authority to revisit the findings of the *Wireline Broadband Order*, the *Cable Modem Declaratory Ruling (Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, Declaratory Ruling and Notice of Proposed Rulemaking*, 17 FCC Rcd. 4798 (2002) (“*Cable Modem Declaratory Ruling*”) and the *Wireless Broadband Classification Order (Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks, Declaratory Ruling*, 22 FCC Rcd. 5901 (2007) (“*Wireless Broadband Classification Order*”) to rediscover Title II authority to regulate. This approach is wholly consistent with the Supreme Court’s *Brand X* decision and eminently reasonable in light of additional marketplace facts showing (i) a duopoly market structure, as well as other structural concerns, as discussed above, and (ii) consumers actually use broadband service primarily as a transmission service. While it may be unnecessary now to pursue this approach given the FCC’s Title I authority here, the FCC certainly could do so under all relevant precedent. See Reply Comments of Google at 19-21, GN Dkt. 09-51 (filed Jul. 21, 2009). See also, *NARUC I* at 640-43; *NARUC II* at 609-10 (the Commission may determine whether there should be a legal compulsion to serve indifferently).

¹³³ 47 U.S.C. § 152(a); *Am. Library Ass’n v. Fed. Comm’n Comm’n*, 406 F.3d 689, 692-93 (D.C. Cir. 2005) (quoting *United States v. Sw. Cable*, 392 U.S. 157, 167 (1968)).

¹³⁴ *Am. Library Ass’n*, 406 F.3d at 693 (quoting *Sw. Cable*, 392 U.S. at 178).

It is beyond question that the first prong of the ancillary jurisdiction test is met for broadband networks. Communications using last-mile broadband facilities – whether copper, fiber, or wireless – constitute “interstate. . . communication by wire or radio.”¹³⁷ In the *Wireline Broadband Order* and *Cable Modem Declaratory Ruling*, the Commission held that it had ancillary jurisdiction over wireline and cable broadband Internet access service providers, explaining that their “services are unquestionably ‘wire communications’ as defined in [the Act].”¹³⁸ The FCC also has determined in the *Wireless Broadband Classification Order* that wireless broadband Internet access service, offered using mobile, portable or fixed technologies, is “interstate . . . communications by radio.”¹³⁹

¹³⁵ *Midwest Video Corp. v. Fed. Comm’n Comm’n*, 571 F.2d 1025, 1040 (8th Cir. 1978) (“*Midwest Video I*”), *aff’d*, *Midwest Video II* (emphasis added).

¹³⁶ *See Motion Picture Ass’n of Am. v. Fed. Comm’n Comm’n*, 309 F.3d 796, 804 (D.C. Cir. 2002) (“MPAA”).

¹³⁷ Section 153(52) defines the term “wire communication” or “communication by wire” to mean:

the transmission of writing, signs, signals, pictures, and sounds of all kinds by aid of wire, cable, or other like connection between the points of origin and reception of such transmission, including all instrumentalities, facilities, apparatus, and services (among other things, the receipt, forwarding, and delivery of communications) incidental to such transmission.

47 U.S.C. § 153(52). *See also*, Letter of Kathryn A. Zachem, Vice Pres. Regulatory Affairs, Comcast Corp., to Marlene Dortch, FCC, WC Dkt. 07-52 (Jul. 10, 2008) attaching “Response of Comcast Corporation to Free Press’ June 12, 2008 *Ex Parte* Letter and Legal ‘Memorandum.’” (asserting that “[w]ith respect to the first prong of the ancillary authority test. . . the FCC has ‘subject matter jurisdiction’ over the Internet and services that provide access to it, because the Communications Act gives the agency authority over ‘communications by wire and radio.’”) *Id.* at 28.

¹³⁸ *Wireline Broadband Order* at ¶ 110. *See also*, *Cable Modem Declaratory Ruling* at ¶ 7 (concluding that cable modem service is an interstate information service).

¹³⁹ The FCC also has recognized that Title III’s spectrum allocation and licensing provisions apply to wireless broadband Internet access services and has used its Title III authority to assert ancillary jurisdiction over wireless carriers’ last-mile broadband Internet access services. *See, e.g.*, *Wireless Broadband Classification Order* at ¶ 36; *Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services*, Memorandum Opinion and Order on Reconsideration, 14 FCC Rcd. 16340, ¶ 27 (1999)).

As for the second prong, broadband provider Internet access is used for services that significantly impact nearly all aspects of federally-regulated communications, including services falling under Title II (telecommunications), Title III (radio transmission, including wireless and broadcast television) and Title VI (cable services) of the Act. As traditional forms of communications converge on the Internet, consumers increasingly can utilize a range of voice, content and video services, all of which affect the FCC's regulation of services under Titles II, III and VI of the Act.¹⁴⁰ The Act expressly provides the FCC with broad regulatory authority to ensure that it can fulfill its statutory mandate under these provisions.¹⁴¹

Internet-based video programming is now significantly impacting both television broadcasting and cable, altering the economics of these marketplaces and affecting local programming, diversity of viewpoints, service delivery, and the FCC's overall regulation in these areas.¹⁴² Broadband Internet access services also enable consumers to place Internet-based VoIP calls to "traditional land-line telephone[s] connected to the public switched telephone network."¹⁴³ The widespread use of VoIP and related services as cheaper and more feature-rich alternatives to Title II services has significant effects on traditional telephone providers' practices and pricing, as well on network interconnection between Title II and IP networks that

¹⁴⁰ As recognized in the NPRM, "[v]oice and video are increasingly delivered over the Internet. . ." and consumers' ability to access the Internet via wireless devices continues to increase dramatically. NPRM at ¶¶ 85, 158.

¹⁴¹ *See, e.g.*, 47 U.S.C. § 154(i) (giving FCC authority as necessary to execute its functions); 47 U.S.C. § 303(r) (providing authority to enact rules to carry out provisions of the Act). As the Supreme Court has said, the FCC's authority to ensure that the public interest is not subordinated to private interests is "not niggardly but expansive." *Nat'l Broad. Co.*, 319 U.S. at 219.

¹⁴² *Cf., e.g., Sw. Cable*, 392 U.S. at 173-76 (upholding the Commission's assertion of jurisdiction over CATV due, in large part, to its impact on television broadcasting).

¹⁴³ *Comcast-BitTorrent Order* at ¶ 19 (finding authority over the complaint reasonably ancillary to the Commission's authority under Section 256, in part, because a customer who subscribes to VoIP can use the service to call a traditional telephone connection).

consumers use to reach each other,¹⁴⁴ going to the heart of the Commission's Title II responsibilities.¹⁴⁵ In light of the impact of these Internet-based services on services regulated under Titles II, III and VI, as well as the effect upon the FCC's regulatory framework under those Titles, precedent confirms the FCC may exercise its ancillary jurisdiction to fulfill its explicit mandates.¹⁴⁶

Courts consistently have affirmed that the Communications Act empowers the Commission to regulate communications facilities under Title I where regulation is targeted to achieving Congressional goals. The FCC's *Computer Inquiry* decisions, and the various consumer and pro-competition safeguards adopted during their decades-long reign, are a classic case. In adopting *Computer II*, the Commission determined that CPE and enhanced services should be outside the full panoply of Title II common carrier regulation,¹⁴⁷ but still claimed

¹⁴⁴ See *IP-Enabled Services, Notice of Proposed Rulemaking*, 19 FCC Rcd. 4863, ¶ 11-12 (2004) (noting that "market entry by IP service providers such as Vonage appears to have spurred deployment of IP-enabled voice services by established telephony providers. . . . Cable operators, wireline carriers, and wireless providers have announced that they have begun to deploy, or intend to deploy, IP networks to transmit IP telephony services to their subscribers.").

¹⁴⁵ The FCC's Enforcement Bureau addressed these concerns when it entered into a Consent Decree whereby Madison River, a last-mile broadband provider, agreed to cease blocking users of its broadband Internet access service from making VoIP calls on its network. *Madison River-Vonage Order* at ¶ 4. The FCC noted that its investigation, in part, took place pursuant to its authority to make "inquiries into management of the business of all carriers," and to investigate Madison River's compliance with Section 201(b) of the Act. *Id.* at ¶ 1; 47 U.S.C. § 218.

¹⁴⁶ *Sw. Cable*, 392 U.S. at 178 (upholding the Commission's authority to regulate CATV as "reasonably ancillary to the effective performance of the Commission's various responsibilities for the regulation of television broadcasting"); *Midwest Video I* at 571 F.2d 1038.

¹⁴⁷ See *Computer II* at ¶¶ 121-29, 168-72. The distinction between a carrier's offering of basic service (the transmission of information without computer processing such as telephone voice service) and enhanced service (computer processing applications such as data storage and communication between networks) was subsequently codified in the Telecommunications Act of 1996 with Congress creating the analogous "telecommunications services" (regulated under Title II) and "information services." See 47 U.S.C. §§ 153(20) & (46). See also, *Non-Accounting Safeguards of Sections 271 and 272, First Report and Order*, 11 FCC Rcd. 21905, ¶ 102 (1997) ("*Non-Accounting Safeguard Order*") ("all of the services that the Commission has previously considered to be 'enhanced services' are 'information services'").

jurisdiction pursuant to its Title I authority. The FCC also was authorized to impose a number of regulatory restrictions, such as structural separation and nondiscrimination obligations, on providers of telecommunications facilities that provided CPE or enhanced services.¹⁴⁸ The FCC's ancillary authority to impose such requirements was upheld in *CCIA*, with the court noting that it is "settled beyond peradventure that the Commission may assert jurisdiction under Section 152(a) of the Act over activities that are not within the reach of Title II."¹⁴⁹

In *Brand X*, the Supreme Court expressly reviewed the Commission's ancillary jurisdiction, drawing on the historical treatment and distinction the Commission had made between basic and enhanced services in *Computer II*.¹⁵⁰ The *Brand X* Court acknowledged that the Commission's action was well grounded in concerns that last-mile providers could abuse their market power over bottleneck facilities and that the Commission has long exercised its discretion to "regulate more stringently. . . certain entities that provided enhanced service;" crucially, the Court noted that the FCC "remains free to impose special regulatory duties on *facilities-based ISPs* under its Title I ancillary jurisdiction."¹⁵¹

¹⁴⁸ *Computer II* at ¶¶ 170-71. The Commission found that the assertion of jurisdiction over CPE pursuant to these sections was justified because including CPE charges in tariffs has a direct effect on rates for interstate telecommunications transmission services.

¹⁴⁹ *Computer and Comm'n Indus. Ass'n v. FCC*, 693 F.2d 198, 213 (D.C. Cir. 1982) (finding reasonable the Commission's decision to exercise jurisdiction over CPE and enhanced services under its Title I authority in order to carry out its duty to assure the availability of transmission services at reasonable rates).

¹⁵⁰ *Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 993-97 (2005) ("*Brand X*").

¹⁵¹ *Brand X*, 545 U.S. at 976, 996 (emphasis added). While the *Brand X* Court did not rule on the exercise of ancillary jurisdiction, it strongly suggested that Title I provides authority to regulate last-mile information service providers.

The proposed rules are ancillary to the Commission’s ability to effectuate other responsibilities under the Communications Act.¹⁵² FCC action here also furthers the same policy objectives underpinning the Commission’s *Wireline Broadband Order* and *Cable Modem Declaratory Ruling*. In those decisions, broadband providers sought and received substantial deregulation from their statutory obligations on the basis of assurances that they would invest in and provide consumers with Internet access services offering a seamless connection to the open Internet.¹⁵³ Asserting jurisdiction going forward will help ensure that the broadband providers live up to their commitments.¹⁵⁴

Separate and apart from the Communications Act, the proposed regulations would effectuate Congress’ most recent Recovery Act provisions for a National Broadband Plan. In the Recovery Act, Congress established broadband deployment and usage as a national priority and entrusted the Commission with the task of developing a comprehensive plan for broadband to

¹⁵² See, e.g., 47 U.S.C. § 151 (authority to promote “a rapid, efficient, nationwide, and world-wide wire and radio communication service with adequate facilities at reasonable charges”); § 157 (encouraging “the provision of new technologies and services”); § 256 (ensuring the ability of users and information providers to seamlessly and transparently transmit and receive information between and across telecommunications networks, to promote nondiscriminatory accessibility by the broadest number of users and vendors of communications products and services, and to establish interconnectivity standards that promote access to networks and services); § 257(b) (directing the FCC to identify and eliminate market entry barriers for entrepreneurs and other small businesses in the provision and ownership of telecommunications services and information services to favor a diversity of media voices, vigorous economic competition, and technological advancement). Blocking, degrading and similar discrimination also conflicts, in a general sense, with the Section 251 duty “not to install network features, functions, and capabilities that do not comply with the guidelines and standards established pursuant to . . . [S]ection 256.” *Id.* § 251(a)(2).

¹⁵³ See *Wireline Broadband Order* at ¶ 72 (The Commission concluded that eliminating the *Computer Inquiry* rules “will make it more likely that wireline network operators will take more risks in investing in and deploying new technologies than they are willing and able to take under the existing regime”); *Cable Modem Declaratory Ruling* at ¶ 97 (“we seek to remove regulatory uncertainty that may discourage investment and innovation.”).

¹⁵⁴ Conversely, a refusal to do so should serve as grounds for the FCC to reverse the earlier deregulation.

serve as a lynchpin for the nation’s economic recovery and social and civic revival.¹⁵⁵ To achieve these goals, the Recovery Act expressly codifies the *Internet Policy Statement*, plus a nondiscrimination principle, as a condition of receiving Recovery Act funding for broadband projects.¹⁵⁶ This express affirmation by Congress of the very substance of the proposed rules confirms that the Commission would be acting within its mandate and jurisdiction by engaging in regulatory oversight of broadband providers.¹⁵⁷

B. FIRST AMENDMENT VALUES OF FREE EXPRESSION ALSO SUPPORT THE COMMISSION’S AUTHORITY

The First Amendment to the U.S. Constitution also buttresses the Commission’s authority to adopt a broadband openness policy framework. Longstanding legal precedent affirms that the right of the public to receive suitable access to social, political, aesthetic, moral, and other ideas and experiences is crucial to the First Amendment.¹⁵⁸ For nearly a century,¹⁵⁹ the Supreme Court

¹⁵⁵ American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 § 6001(k)(2)(D) (2009) (“Recovery Act”) (“use of broadband infrastructure and services” is to “advanc[e] consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, worker training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes”).

¹⁵⁶ Recovery Act, § 6001(j) (“non-discrimination and network interconnection obligations shall be contractual conditions of grants, including, at a minimum, adherence to the principles contained in the Commission’s [*Internet Policy Statement*]”).

¹⁵⁷ More generally, the courts have upheld numerous exercises of the Commission’s ancillary jurisdiction in enacting regulations that were aimed at preventing anticompetitive conduct. *See, e.g., N.C. Utils. Comm’s v. FCC*, 552 F.2d 1036, 1051 (1977) (upholding preemption of state regulations of terminal equipment despite “absence of explicit statutory authority”); *New England Tel. & Tel. Co. v. FCC*, 826 F.2d 1101, 1107-1108 (1987) (requiring incumbent carriers to refund excessive fees to customers); *See NARUC v. Fed. Comm’n Comm’n*, 880 F.2d 422, 430 (D.C. Cir. 1989) (holding that “[t]he FCC may preempt state regulation of the installation and maintenance of simple inside wiring, but only to the extent that such regulation negates the federal policy of ensuring a competitive market in such services” and remanding to the Commission for further consideration); *Gen. Tel. Co. of the Sw. v. U.S.*, 449 F.2d 846, 850 (1971) (upholding FCC regulation preventing carriers from providing cable service in their local areas based on concern that carriers would leverage control of underlying facilities).

¹⁵⁸ *See* J. Brennan, Jr., *The Supreme Court and the Meiklejohn Interpretation of the First Amendment*, 79 Harv. L. Rev. 1 (1965).

has repeatedly upheld government actions intended to ensure that the people “retain their interest in free speech” because the rights of “viewers and listeners” are paramount.¹⁶⁰

The Court has agreed that the FCC possesses ample authority to enforce the public’s “collective right” to have communications media “function consistently with the ends and purposes of the First Amendment,”¹⁶¹ noting that the public interest “necessarily invites reference to First Amendment principles.”¹⁶² These principles are just as or even more vital as society makes the collective shift to the digital world with the electronic marketplace of ideas.

III. THE FCC SHOULD CODIFY OPEN BROADBAND NETWORK RULES

Having established the rationale and bases for broadband openness rules, we now explore the substance of such a policy. As an initial matter, we note that, despite the availability of other more prescriptive options, the Commission should adopt a tailored set of enforceable rules that will maximize certainty and flexibility, while only minimally intruding on broadband providers’ business practices.

¹⁵⁹ See *Abrams v. U.S.*, 250 U.S. 616, 630 (1919) (Holmes, J. Dissenting) (The “ultimate good desired is better reached by free trade in ideas--that the best test of truth is the power of the thought to get itself accepted in the competition of the market, and that truth is the only ground upon which their wishes safely can be carried out. That at any rate is the theory of our Constitution. It is an experiment, as all life is an experiment.”).

¹⁶⁰ See *Red Lion Broad. Co.*, 395 U.S. at 390.

¹⁶¹ *Id.* (citing *Fed. Comm’n Comm’n v. Sanders Bros. Radio Station*, 309 U.S. 470, 475, (1940); *FCC v. Allentown Broadcasting Corp.*, 349 U.S. 358, 361-362,(1955); 2 Z. Chafee, *Government and Mass Communications* 546 (1947)).

¹⁶² *Metro Broad., Inc.*, 497 U.S. at 567 (citing *Fed. Comm’n Comm’n v. Nat’l Citizens Comm. for Broad.*, 436 U.S. 775, 795 (1978), *Columbia Broad. Sys., Inc. v. Democratic Nat’l Comm.*, 412 U.S. 94, 122 (1973)).

A. THE PROPOSED RULES ARE A NARROW, FLEXIBLE AND MINIMALLY INTRUSIVE REGULATORY TOOL TO ENSURE OPEN AND ROBUST ACCESS TO THE INTERNET

The FCC's proposed rules are eminently reasonable and minimally intrusive, especially when compared with other potential approaches that regulators have taken to address similar problems. The FCC has a broad range of regulatory tools at its disposal, each of which differently balances the costs and benefits of regulating broadband providers. Historically, the FCC has exercised this authority using a variety of approaches (some of which were later abandoned), many of which other nations have employed. Additional options adopted by regulatory authorities abroad also remain available to the Commission.

Going forward, the FCC possesses the authority to:

- Prohibit broadband network providers from participating in the “upstream” Internet access, applications and content marketplaces – This extreme option harkens back to the pre-*Computer I* era and restricts network providers only to providing transmission. This approach featured, prominently in the MFJ, sharply curtailed the divested Baby Bells' activities, including their provisioning of information services.¹⁶³
- Require Structural Separation – The FCC could mandate full structural separation between the incumbent's transmission services from its other lines of business, as previously required in the *Computer II* decisions. Structural separation of content and conduit also was proposed in the cable context, beginning in the 1970s.¹⁶⁴ By using completely separate subsidiaries, the network provider is required to treat all information, applications and other network overlay services in a nondiscriminatory manner. Detailed oversight and regulation is required to ensure continued nondiscrimination. While largely disfavored in the U.S., this is the preferred approach in many nations.¹⁶⁵

¹⁶³ See, e.g., *United States v. Western Elec. Co.*, 552 F. Supp. 131, 226-32 (D.D.C. 1982) (citing terms of the original AT&T Modified Final Judgment (“MFJ”)), *aff'd sub nom. Maryland v. United States*, 460 U.S. 1001 (1983); *United States v. Western Elec. Co.*, 569 F. Supp. 1057 (D.D.C. 1983) (Plan of Reorganization), *aff'd sub nom. California v. United States*, 464 U.S. 1013 (1983).

¹⁶⁴ *Computer Inquiry II* at ¶ 233-60 (1980) (requiring the then-integrated Bell System to establish structurally separate affiliates for the provision of enhanced services in order to address the concern over AT&T's incentive and ability to engage in anticompetitive activity.). See also, *supra* note 73, describing recommendations for complete separation of content and conduit in cable regulatory policy.

¹⁶⁵ See, e.g., Comments of CCIA, GN Dkt. 09-191 (filed Jan. 13, 2010) Attachment A: Kip Meek & Robert Kenny, *Net Neutrality Rules in Comparative Perspective: A Relatively Limited Intervention in the*

- Require “Computer III” Nonstructural Separation – This evolutionary approach was first advocated by the Regional Bell Operating Companies, embodying the view that “joint efficiencies” may be gained by allowing network providers to integrate information services, applications and features into their network architectures and management organizations. To promote independent innovation and overlay service growth, this framework requires network providers to afford “comparably efficient” terms and conditions for unaffiliated entities to develop and deploy information services and applications.¹⁶⁶
- Impose “Computer IV” Nonstructural Separation – This approach would create a split between the lower layer broadband network and Internet Service Provider component (OSI Layers 3 and below), and upper-layer content, applications, and devices (Layers 4 and above). Internet access would be redefined as a telecommunications service – at least when provided by a facilities-based broadband provider – and labeled as “Internet carriage.”¹⁶⁷ This approach recognizes today’s almost complete melding of broadband networks and Internet access functionality that the FCC has sanctioned.
- Enact Detailed Access Regulations – This approach includes mandated price and access regulations, including unbundling at numerous levels (local loop unbundling (LLU), sub-loop unbundling (SLU), Bitstream access, and similar network-specific regulations) to ensure connectivity and access at regulated, cost-justified rates. These regimes, which have been adopted by other countries, have been more “regulatory” than any approach the FCC has employed for broadband networks.¹⁶⁸
- Enact Detailed Broadband Openness Regulations – This approach would attempt to determine ahead of time all potential policy concerns related to broadband providers, and establish a comprehensive set of regulations designed to prohibit or limit all such delineated behavior. Such regimes typically end up being over-inclusive and/or under-inclusive, and do not stand the test of time well.
- Codify NPRM Principles – The NPRM’s approach would require straightforward nondiscrimination and transparency standards, but does not attempt to adopt detailed implementation parameters. Instead, a case-by-case adjudicatory approach is

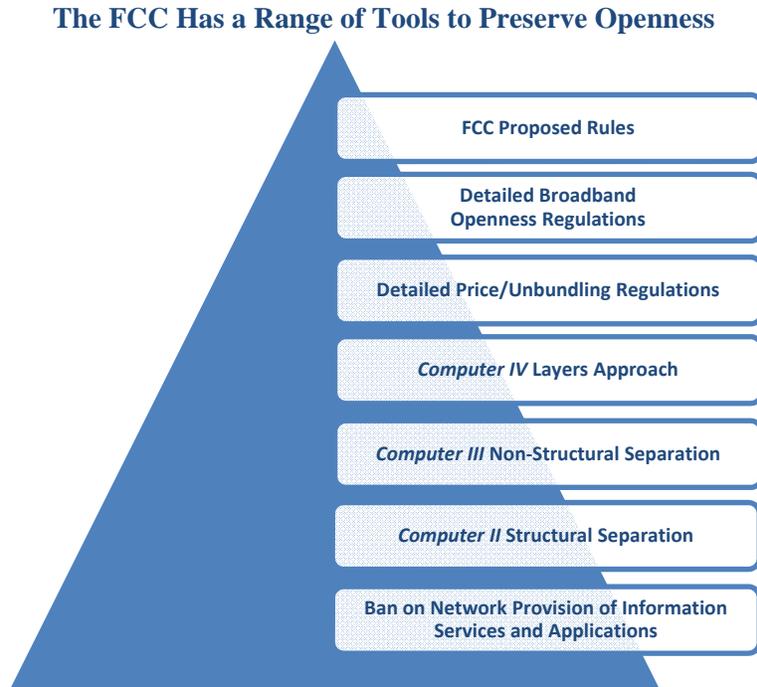
Market, 11-17 (describing that many countries “have undertaken structural interventions to vertically separate the incumbent”) (“*Net Neutrality Rules in Comparative Perspective*”).

¹⁶⁶ *Computer Inquiry III* at ¶¶ 3-6 (1986) (“In this Order, we replace structural separation for the enhanced services operations of AT&T and the BOCs with nonstructural safeguards. . . .”); 47 C.F.R. § 64.702(b).

¹⁶⁷ See *Evolving Broadband Policy* at 519-520.

¹⁶⁸ See, e.g., *Net Neutrality Rules in Comparative Perspective* at 12 (noting that the virtually all of the OECD other than the U.S. already has made much more significant interventions to regulate telecoms bottlenecks, and it is believed that these interventions make traffic discrimination (of the type that broadband openness regulations would seek to prevent) highly unlikely in practice)).

recommended. The proposal neither allows unfettered control by broadband network providers, nor requires broadband network providers to seek government permission to innovate and invest in their own applications, content and web overlay services.



There is well-founded evidence that many of these regulatory regimes have proven successful at driving network competition, reducing retail prices, increasing broadband speeds, and boosting network-based innovation. For example, the Berkman Center recently issued a report that found that a number of these market-opening measures were correlated with more competitive broadband markets and robust broadband networks.¹⁶⁹

¹⁶⁹ The *Berkman Center Study Draft* demonstrates that open access policies drive investment in broadband facilities, lead to lower prices and higher capacity services. *Berkman Center Study Draft* at 11-12. (“Our most surprising and significant finding is that “open access” policies—unbundling, bitstream access, collocation requirements, wholesaling, and/or functional separation—are almost universally understood as having played a core role in the first generation transition to broadband in most of the high performing countries; that they now play a core role in planning for the next generation transition; and that the positive impact of such policies is strongly supported by the evidence of the first generation broadband transition. . . . Open access rules are intended to encourage entry by those competitors, who can then focus their own investments and innovation on electronics and services that use that basic infrastructure.”)

Nonetheless, Google believes that the time is not ripe for adopting such measures. Extensive structural or behavioral regulation should be considered a last resort, after less intrusive measures have been tried and proven unsuccessful. The NPRM's approach is optimal for all stakeholders, because it is minimally intrusive, promotes certainty and supports Congressional and policy objectives, while encouraging investment in all sectors of the broadband marketplace.

It is worth noting here Google's belief that antitrust laws by themselves are insufficient to police the broadband communications market adequately. The public interest in maintaining Internet openness -- including guarding core First Amendment values -- is too significant to rely solely on antitrust laws. As such, communications regulation and antitrust are complementary methods for regulating the broadband sector, not substitutes.¹⁷⁰

B. THE FOUR EXISTING *INTERNET POLICY STATEMENT* PRINCIPLES SHOULD BE CODIFIED

At the outset, Google believes that the FCC should codify all four *Internet Policy Statement* principles as regulations. Since 2005, the Commission has followed through on its commitment to incorporate and apply the principles in its decisions and policy considerations, including in enforcement actions,¹⁷¹ conditions in merger approval orders,¹⁷² a final

¹⁷⁰ See *Evolving Broadband Policy* at 497 (citing Timothy J. Brennan, *Essential Facilities and Trinko: Should Antitrust and Regulation Be Combined?*, 61 FED. COMM. L.J. 133, 135 (2009)). Some public interest groups recently have raised allegations that broadband providers are attempting to collude with the goal of segregating particular content onto certain networks, rather than the public Internet. See Request for Investigation into Potential Antitrust Violations Regarding "TV Everywhere" from Free Press et al., to the Honorable Christine Varney, Assistant Attorney General, Antitrust Division, U.S. Department of Justice (Jan. 4, 2010); see also, Marvin Ammori, *TV Competition Nowhere: How the Cable Industry Is Colluding to Kill Online TV*, 3 (Jan. 2010) ("TV Everywhere appears to be a textbook example of collusion."). It appears those concerns will be addressed initially via competition law provisions at the U.S. Department of Justice or the Federal Trade Commission.

¹⁷¹ See *Comcast-BitTorrent Order* at ¶ 13; *Madison River-Vonage Order*.

rulemaking,¹⁷³ formal rulemaking proposals,¹⁷⁴ and workshops and other Commission forums. Certainly all affected last-mile providers have had opportunity to understand the principles, consider how they would apply, and prepare for and develop appropriate business models.

Even the largest last-mile broadband providers agree that the four principles have enhanced Internet usage and not impeded broadband deployment.¹⁷⁵ Equally significant, since the issuance of the *Internet Policy Statement*, no party has requested waiver of the principles or presented a cogent factual case demonstrating that the principles have skewed incentives to invest or impeded consumer Internet usage or activity.¹⁷⁶

¹⁷² See *AT&T-BellSouth Merger Order* at Appendix F; *AT&T-SBC Merger Order* at Appendix F; *Verizon-MCI Merger Order* at Appendix G. Indeed, even prior to the *Internet Policy Statement*, the Commission imposed an “open access” condition on the approval of cable MSO Time Warner’s merger with America Online to ensure that Time Warner’s broadband last-mile facilities were open to competition from Internet access providers. *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations by Time Warner Inc. and America Online, Inc.*, Memorandum Opinion and Order, 16 FCC Rcd. 6547, ¶¶ 99-100 (2001).

¹⁷³ See *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Second Report and Order, 22 FCC Rcd. 15289, ¶ 203 (2007) (imposing open platform requirements on 700 MHz C Block license winners).

¹⁷⁴ *Broadband Industry Practices*, Notice of Inquiry, 22 FCC Rcd. 7894, ¶ 1 (2007) (asking parties to submit specific examples of beneficial or harmful behavior by network platform providers and seeking comments on whether regulatory intervention is necessary).

¹⁷⁵ Verizon Comments at 86, WC Dkt. 09-51 (filed Jun. 8, 2009) (“These principles have helped to guide wireline providers’ practices and to ensure that consumers’ expectations for their public Internet access services are met.”); AT&T Comments at 98, 102, WC Dkt. 09-51 (filed Jun. 8, 2009) (“The Commission’s oversight of industry adherence to the principles embodied in the *Internet Policy Statement* has been more than sufficient to ensure compliance with those principles and to foster an open Internet. . . . In short, the vibrant and open Internet market is promoting precisely the virtuous cycle that the National Broadband Plan hopes to advance – and there is no evidence of harm to cloud the horizon. Thus, the Commission should reaffirm that the current oversight formula—which relies on targeted enforcement of the *Internet Policy Statement* to safeguard openness in the Internet ecosystem—strikes the right balance and should be relied on going forward. The Plan should endorse the Commission’s proven post hoc enforcement policies and oversight to serve as a backstop to a market that is functioning well and producing desired, beneficial results.”).

¹⁷⁶ For example, AT&T has twice committed in merger proceedings to adhere to *Internet Policy Statement* principles in provisioning DSL and other services. See *AT&T-BellSouth Merger Order* at Appendix F; *AT&T-SBC Merger Order* at Appendix F. Since then, AT&T has not approached the

Google supports the FCC's proposed clarifications to the language of the *Internet Policy Statement* principles, including that all principles should be subject to the demonstrated needs of law enforcement, public safety and homeland security. In addition, we offer the following specific comments on the first and fourth principles.

First Principle: User Control of Content. Google agrees that the first principle should be clarified to provide users the right to *send and receive* content of their choice, so that “users are unconstrained by broadband Internet access service providers in their ability to participate in the marketplace of ideas.”¹⁷⁷ Users’ ability to speak freely by receiving, sending, publishing and distributing content with as few constraints as possible is an essential function of Internet communications. As we have seen, individuals who are empowered through blogs, websites and the ability to upload and share video and other information sources directly to the Internet have made valuable contributions to the world’s understanding of political events and natural disasters.¹⁷⁸ This system of “expression without permission” allows us to enjoy more

Commission with any implementation difficulties (*e.g.*, merger condition waiver or modification requests) associated with the principles.

¹⁷⁷ NPRM at ¶ 95.

¹⁷⁸ Some of the first images of US Airways Flight 1549 crash-landing on the Hudson River were taken by Janis Krums on his iPhone and posted to his twitter account. See Shira Ovide, *Twittering the USAirways Plane Crash*, Wall Street Journal Blog, Jan. 15, 2009, available at <http://blogs.wsj.com/digits/2009/01/15/twittering-the-usairways-plane-crash/>. During the Southern California wildfires in 2007, evacuees and local residents utilized YouTube and other websites to tell their stories and share photos. See Mark Glaser, *California Wildfire Coverage by Local Media, Blogs, Twitter, Maps and More*, MediaShift, Oct. 25, 2007, available at <http://www.pbs.org/mediashift/2007/10/california-wildfire-coverage-by-local-media-blogs-twitter-maps-and-more298.html>. Some of the most dramatic footage of the 2007 Virginia Tech massacre was captured by Virginia Tech graduate student Jamal Albarghouti on his cell phone and was watched by millions of viewers on cnn.com. *Student shot video of campus shooting*, CNN.com, Apr. 16, 2007, <http://www.cnn.com/2007/US/04/16/vtech.witness/index.html>. Further, despite government censorship, use of microblogging websites in China is steadily increasing. See Lara Farrar, *Micro-blogs in China: Tweeting through the 'Great Firewall'*, CNN.com, Dec. 27, 2009, available at <http://www.cnn.com/2009/TECH/12/24/china.micro.blogging/index.html>.

expeditious access to information, greatly enhancing its utility for people around the world. As one proponent of “Internet citizen journalism” notes, “[a]verage Joes can take their own photos, record their own video and recount a story through blogs or other [Internet] social media, often more quickly than a media organization can begin to report and in a more organic way than is usually presented by mainstream media.”¹⁷⁹

Fourth Principle: Competitive Options. Google agrees that the Commission should not further define or limit the meaning of “content, application or service provider” in the fourth principle because the phrase should be understood broadly to include “any user of the Internet,”¹⁸⁰ whether a large media company, an independent video producer or an individual creating a family website. Attempts to define or cabin the type or variety of content and information sources would likely be futile and leave little room for yet-to-be-developed types of content. Most importantly, anything other than the broadest reading (“any user”) could frustrate the fourth principle’s underlying purpose – to ensure that broadband providers do not deny users the ability to access as many competing content and applications sources as possible.

C. THE FCC SHOULD CODIFY A PRINCIPLE OF NONDISCRIMINATION

1. A General Nondiscrimination Rule Would Be Targeted, Effective, and Balanced.

Discrimination by a broadband provider is unacceptable: “The minute that anyone, whether from government or the private sector, starts to control how people use the Internet, it is

¹⁷⁹ *Landmark moments in citizen journalism*, 10,000 Words, Mar. 30, 2009, available at <http://www.10000words.net/2009/03/landmark-moments-in-citizen-journalism.html>.

¹⁸⁰ NPRM at ¶99.

the beginning of the end of the Net as we know it.”¹⁸¹ The fundamental principle is that it should be the consumer – not the broadband provider – that chooses what content and applications he or she interacts with, and which Internet services, applications and content will be the winners and losers.

Thus, as the Commission has proposed, the core affirmative function of the nondiscrimination rule should be to prevent a broadband provider from using its control over the network to favor or disadvantage (by blocking, degrading, prioritizing, throttling or other means) particular sources of content or applications.¹⁸² Applicable precedent reinforces that a clear, unequivocal nondiscrimination standard will best attain this goal. This is especially true here, in light of broadband providers’ clear incentives and abilities to engage in discrimination in price and terms of service for application or content providers.¹⁸³ The nondiscrimination rule should be focused on preventing competitive harms or harm to users. Such harm should be measured broadly, over time and across all users and competitors, and not limited to evaluations of short-term or complainant-specific harms. In other words, “harm” should encompass all of the various ways that the openness of the Internet can be curtailed or eliminated through a broadband

¹⁸¹ See Eric Schmidt, Chairman and CEO, Google, and Lowell McAdam, President and CEO, Verizon Wireless, *Finding Common Ground on an Open Internet*, Google Public Policy Blog, Oct. 21, 2009, available at <http://googlepublicpolicy.blogspot.com/2009/10/finding-common-ground-on-open-internet.html> (“It’s essential that the Internet remains an unrestricted and open platform – where people can access any content (so long as it’s legal), as well as the services and applications of their choice.”).

¹⁸² See, e.g., NPRM at ¶ 11 (broadband providers are prohibited from “favoring or disfavoring lawful content, applications, or services”); *id.* at ¶ 104 (broadband providers are prohibited from “discriminating against, or in favor of, any content, applications, or services”).

¹⁸³ As Professors Hausman, Sidak and Singer explain, “an integrated provider could engage in content discrimination – insulating its own affiliated content from competition by blocking or degrading the quality of outside content. Content discrimination could involve a range of strategies, from blocking outside content entirely, to affording affiliated content preferential caching treatment.” *Consumer Access to Unaffiliated Internet Content Providers* at 158. See *supra* Section I.

provider's conduct. "Users" should be read to include not just one particular end-user customer but other end-users adversely affected by a provider's actions, and indeed, other users like content and applications providers and non-profit entities.

Discrimination in today's concentrated marketplace by broadband providers against applications, services and content providers raises broadband access costs, inhibits private and public innovation and investment in applications, content and software and imposes direct costs on consumers.¹⁸⁴ Consumer welfare losses from diminished content diversity on the Internet alone would be very significant.¹⁸⁵

Moreover, as Professor Hogendorn has explained, discrimination has a significant negative impact on the Internet's positive spillover effects, including by dampening the Internet's substantial direct and indirect network effects and impeding the positive effects of innovation occurring at its edges.¹⁸⁶ As aptly put by a member of the venture capital community, "[u]nless [network] neutrality is enforced, capitalism on the Internet is in serious jeopardy."¹⁸⁷

¹⁸⁴ These harms parallel those that would result from cable operators' exercise of their incentives and abilities to foreclose competitive video programming providers from access to their systems. *See Vertical Foreclosure in Video Programming Markets: Implications for Cable Operators* at 375 ("In addition to the competitive injury of unaffiliated video programming providers, the abuse of that market power by cable operators would harm consumers of video programming through less competition (resulting in higher prices and less choice) in the downstream MVPD market, as unaffiliated video programming becomes affiliated programming, which is then withheld to rival MVPDs, particularly DBS operators.").

¹⁸⁵ *See The Public Network* at 120 ("The problem of discrimination is not so much simple rent extraction but rather distortion of the market for application and content innovation") (citing Mark A. Lemley & Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era*, 48 UCLA L. Rev. 925, 945-46 (2001)); Tim Wu, *Why Have a Telecommunications Law?: Anti-Discrimination Norms in Communications*, 5 J. Telecomm. & High Tech. L. 15, 16 (2006) (The goal is "not the maximization of the value of infrastructure for its own sake, but maximization of its value as a catalyst for other activities.").

¹⁸⁶ *Spillovers and Net Neutrality* at 10-14 (describing the direct and indirect network effects from broadband provider discrimination).

¹⁸⁷ Allen Leinwand, *Why Startups and Web Innovation Need Net Neutrality*, BUS. WK (Dec. 8, 2009), available at http://www.businessweek.com/technology/content/dec2009/tc2009124_648661.htm.

Discrimination also erodes fundamental First Amendment values by imposing direct costs on free expression and by making speech harder or impossible to disseminate.

Broadband providers do not bear the costs of these significant societal harms and lost opportunities,¹⁸⁸ making their actions rational as profit-driven entities. Moreover, discriminatory conduct in the network can be subtle and difficult to isolate and detect, with the evidence largely residing within the broadband provider's control. Under these circumstances, the most sensible way for the Commission to address these harms is with a general and simple nondiscrimination standard that also authorizes use of specific and narrow acceptable network management practices related to valid engineering or security concerns. This approach provides certainty to stakeholders, but retains case-by-case flexibility.¹⁸⁹

The FCC's proposed rules should apply to "that portion of the connection between a broadband Internet access service subscriber and the Internet for which the broadband [I]nternet access service provider ... may have the ability and the incentive to favor or disfavor traffic destined for its end-user customers."¹⁹⁰ As the NPRM recognizes, the broadband provider's "ability and incentive" to discriminate can extend beyond the connection between its network and the end-user's premises to other portions of its network infrastructure. For example, broadband providers have incentives and ability to favor their affiliated content or to offer

¹⁸⁸ *Spillovers and Net Neutrality* at 9 (describing benefits discrimination brings to broadband providers, including increased profits).

¹⁸⁹ NPRM at ¶ 109. Notably, the NPRM's most vocal opponents were widely supportive of this same approach of codification and case-by-case implementation in the Digital Age Communications Act legislation. See Digital Age Communications Act, S.2113, 109th Cong. (2005) ("DACA"). In the DACA, Congress would have the Commission adopt certain regulations to define unfair acts of competition or deceptive acts, and then proceed with implementation of those rules and the DACA through case-by-case adjudications. *Id.*, §§ 102(b), 103.

¹⁹⁰ NPRM at ¶107, Diagram 2.

services at anticompetitive terms to unaffiliated providers through special access circuit provisioning, services that aggregate traffic before it reaches the Internet backbone (*e.g.*, ATM or Frame Relay), and interoffice circuits.¹⁹¹ The Commission should affirm that its authority to examine potential discriminatory behavior extends to all of these components of the broadband provider's network.

A simple nondiscrimination requirement, in conjunction with delineated permissible network management practices, strikes a more appropriate balance than an “unjust and unreasonable discrimination” standard coupled with a reasonable network management exception.¹⁹² Nondiscrimination is a well-settled standard under the Communications Act.¹⁹³ The Commission's rules¹⁹⁴ historically and appropriately have applied the general nondiscrimination standard to circumstances of heightened concerns of anticompetitive conduct due to entities' enhanced abilities and incentives to discriminate, particularly with regard to more competitive adjacent markets.¹⁹⁵ It follows that the proposed nondiscrimination rule would

¹⁹¹ Moreover, broadband providers' access to customer information also raises concerns that this information could be used to discriminate and favor the providers' affiliated content.

¹⁹² NPRM at ¶¶ 109-110.

¹⁹³ *See, e.g.*, 47 U.S.C. § 251(c)(2)(D) (incumbent LEC has duty to provide interconnection on “nondiscriminatory” terms); § 252(d)(1)(A)(ii) (unbundled element rates to competitors must be “nondiscriminatory”); § 271(c)(2)(B) (competitive checklist includes “nondiscriminatory access to network elements” and “nondiscriminatory access” to poles, ducts, conduits and rights-of-way). *See also*, 47 U.S.C. §§ 224(f)(1), 275(b)(1), 260(a)(2), and 222(c)(3). Notably, the nondiscrimination standard has been explained as particularly needed when a provider has ownership or control of a facility.

¹⁹⁴ *See, e.g., Computer III* at ¶ 4 (BOCs required to offer access to network elements and interconnection in a manner that was “nondiscriminatory,” meaning “functionally equal” in all respects from what the BOC itself had or could use).

¹⁹⁵ *See, e.g., Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, First Report and Order*, 11 FCC Rcd. 15499, ¶ 307 (1996) (“*Local Competition First Report and Order*”) (Section 251(c) nondiscrimination standard is appropriate due to “the fact that incumbent LECs have the incentive and the ability to engage in many kinds of discrimination.”). *See also, Non-Accounting Safeguard Order* at ¶ 197 (“Congress did not intend section 272's prohibition against discrimination in the

prevent analogous discrimination here, including favoring affiliated or particular content or applications.¹⁹⁶ Importantly, a clear and straightforward bar against discrimination alleviates the need for the FCC to apply a First Amendment strict scrutiny standard to assess broadband providers' activities.

To be clear, Google submits that network practices such as paid prioritization or other acts that degrade, impair or throttle Internet content and applications are unlawful and discriminatory, regardless of whether the FCC uses a standard of general nondiscrimination or a standard of “unjust,” “unreasonable,” or “undue” preference or discrimination.¹⁹⁷ Adopting an “unjust and unreasonable discrimination” standard and reasonable network management exception would establish a more murky, complex, and likely ineffectual legal standard. This would give broadband providers potentially two independent defenses for discriminatory conduct: (i) the practice was a “reasonable network management” technique; and (ii) while the practice was discriminatory, it was not unreasonably so given the facts and circumstances. There is no reason to enact this overly complex and more ambiguous standard, which only begs

1996 Act to be synonymous with the ‘unjust and unreasonable’ discrimination language used in the 1934 Act, but rather, intended a more stringent standard,” an “unqualified prohibition against discrimination”). *Id.* at ¶ 206 (“The section 272 safeguards, among other things, are intended to protect competition in these markets from the BOCs' ability to use their existing market power in local exchange services to obtain an anticompetitive advantage.”).

¹⁹⁶ In similar contexts, the Commission has explained this standard as follows: “the term ‘nondiscriminatory,’ as used throughout Section 251, applies to the terms and conditions an incumbent LEC imposes on third parties as well as on itself.” *Local Competition First Report and Order* at ¶¶ 218. (“[W]e recognize that new entrants, including small entities, would be denied a meaningful opportunity to compete if the quality of the access to unbundled elements ... were lower than what the incumbent LECs provide to themselves. Thus, we conclude it would be insufficient to define the obligation of incumbent LECs to provide ‘nondiscriminatory access’ to mean that the quality of the access and unbundled elements incumbent LECs provide to all requesting carriers is the same.”). *Id.* at ¶ 312.

¹⁹⁷ 47 U.S.C. §§ 201(b), 202(a). Further, it should be noted that AT&T is simply playing word games when it asserts that Google endorses any standard other than the simple nondiscrimination standard. *See* Letter from James W. Cicconi, Sr. Executive Vice Pres. – External and Legislative Affairs, AT&T, to Julius Genachowski, Chairman, FCC, GN Dkt. 09-191, WC Dkt. 07-52 (Jan. 12, 2010).

questions regarding the scope of permissible practices and creates additional opportunities to use litigation to insulate harmful practices from enforcement.

By comparison, the general and simple nondiscrimination standard is easier to understand and requires less enforcement expense and resources.¹⁹⁸ It is also identical to the standard, reflecting Congressional guidance, adopted by NTIA and RUS to implement Recovery Act broadband stimulus grants.¹⁹⁹ The high level of participation in those programs proves that the standard is neither unworkable nor a deterrent for industry investment.²⁰⁰

1. *New Last-Mile Network Provider “Broadband Access Charges” for Content and Applications Providers Are Discriminatory and Inefficient.*

Nondiscrimination means that, among other things, a broadband provider “may not charge a content, application, or service provider for enhanced or prioritized access to subscribers....”²⁰¹ The Commission correctly notes that permitting broadband providers to charge content and application providers additional fees for equal access to consumers would stifle innovation and consumer choice among competitive applications offerings. *See* Section I.C.3, above.

¹⁹⁸ The FCC’s extensive experience with its *Computer Inquiry* rules highlights the need for a clear nondiscrimination standard in these circumstances. There, the FCC stated this standard “most clearly advances our policy that basic facilities be available on the same terms to all participants in the enhanced services marketplace. We have long recognized that the basic network is a unique national resource, and our policies have been designed to promote nondiscriminatory utilization of that resource’s capabilities.” *See Computer III* at ¶¶ 148 -149.

¹⁹⁹ *Broadband Initiatives Program; Broadband Technology Opportunities Program Notice, Notice of Funds Availability*, 74 Fed. Reg. 33104, 33110–11 (Jul. 9, 2009) (“*BIP/BTOP NOFA*”).

²⁰⁰ *NTIA NBP Letter* at 6 (“For the first round of grants, NTIA and RUS have received nearly 1,500 infrastructure applications requesting more than \$23 billion in funds. These applications suggest that there are a significant number of commercial and noncommercial network operators that are prepared to provide Internet access service under nondiscrimination rules.”).

²⁰¹ *NPRM* at ¶ 106.

Key Reasons Not to Allow Network Providers to Impose New Charges on Web Applications, Services and Content Providers:

- ✓ *Dampens Innovation and Competition*
- ✓ *Raises Transaction Costs*
- ✓ *Creates a Two-Tiered Internet*
- ✓ *Favors Broadband Providers' Affiliated Services*
- ✓ *Constitutes a "Zero-Sum" Game*
- ✓ *Fails to Reflect Spillovers*
- ✓ *Subverts Existing Efficiencies of Internet Transit Market*
- ✓ *Reduces Incentives to Invest in Expanded Capacity*
- ✓ *Lacks Clear Technical Necessity or Utility*
- ✓ *Threatens to Embroil Government in Pricing Decisions*
- ✓ *Invites Foreign Carriers to Impose Own Priority Charges*

D. THE FCC SHOULD CODIFY A PRINCIPLE OF TRANSPARENCY

Google supports the Commission's proposed rule of transparency and agrees that accurate information concerning a last-mile provider's practices "plays a vital role in maintaining a well-functioning marketplace that encourages competition, innovation, low prices, and high-quality services."²⁰² Markets rely on information in order to function properly. Giving market agents access to adequate information allows them to make informed choices, and to hold private actors accountable for their actions.²⁰³ At its core, transparency is a consumer protection issue: consumers should know what they are paying for, and should get what they pay for.²⁰⁴

²⁰² NPRM at ¶118.

²⁰³ Richard S. Whitt, *Adaptive Policymaking: Evolving and Applying Emergent Solutions for U.S. Communications Policy*, 61 FED. COMM. L.J. 483, 585 (2009) ("*Adaptive Policymaking*").

²⁰⁴ See Comments of Google at 34-35, WC Dkt. 07-52 (filed Jun. 15, 2007). See also, *DoJ NBP Submission* at 25 ("One attractive policy alternative for the Commission is to seek to improve the quality

At the outset, broadband providers should inform consumers about the features and limitations on their service; this includes explaining how the service may affect other services or applications, and identifying choices consumers have in how the service operates and interacts with their devices and applications. Disclosure must be sufficient (clear, conspicuous, and in ordinary language) to permit consumers to understand the broadband provider's network and pricing practices, as well as the technical features and limitations of the services.²⁰⁵

Broadband providers also should disclose relevant technical information including: (i) traffic prioritization; (ii) traffic blocking or throttling; (iii) processes to address traffic congestion, such as usage download or upload restrictions; (iv) any content/message examination processes (*e.g.*, DPI); (v) traffic routing processes based on sender/receiver or type of traffic; (vi) actual transmission and capacity rates of the service, including median speed, as well as actual maximum and minimum transmission and capacity rates that consumers may experience in a given day.²⁰⁶ Moreover, broadband network providers should disclose when and where these mechanisms are employed, and any other information that would allow the consumer to know what she is getting and what to expect.

of competition by ensuring that consumers get better information about their choices, so that they can compare offers and select broadband service that best suits their needs.”).

²⁰⁵ *Cf.* Network Reliability and Interoperability Council VI, *Focus Group 4 – Broadband*, 10 (Dec. 5, 2003), *available at* www.nric.org/fg/charter_vi/fg4/NRIC6FG4-Completed.pdf (recommending that service providers make information available to their customers regarding traffic policies, content filtering, expected upstream and downstream performance.).

²⁰⁶ *Berkman Center Study Draft* at 48 (“Advertised average download speeds are a coarse measure of capacity as actually used and experienced by users.”). *See also*, *CITI Study* at 69-70 (“Service providers’ claims for broadband speeds should be taken with great skepticism since the actual speed obtained by consumers is generally dependent on a number of variables so that the claimed speed is likely to be achieved in the rare instances when all the variables are most favorable. Because service providers are engaged in a ‘speed competition’ rather than price competition, they have an incentive to make optimistic claims for broadband speeds.”).

Applications, services and content providers also should have access to timely and accurate information about network practices that will affect innovation and service functionality. While some broadband providers have started to embrace the “open standards” approach,²⁰⁷ it is apparent that in too many cases the closed system mentality retains a hold in the broadband network provider community.²⁰⁸ It is critically important for information about broadband network providers’ practices to be clear and complete,²⁰⁹ so that applications developers can rely on this information when designing and investing in their applications. As NTIA recently noted,

Developers of devices, services and applications need basic information about the way that broadband networks operate so that developers can ensure that their products will work effectively and efficiently on those networks. As importantly, developers need information about how broadband networks change to ensure compatibility over time. NTIA therefore recommends that, in addition to prescribing service disclosure requirements for the benefit of consumers, the Commission should adopt network disclosure rules to promote innovation in devices, services, and applications.²¹⁰

As Professor Greenstein has observed in the context of open standards:

Transparent processes are those in which policies let participants know what change is imminent. It informs others openly and vocally. In other words, these

²⁰⁷ Google’s Android initiative in the wireless ecosystem is one example. Android is an open mobile operating system built on the Linux Kernel that enables applications developers to create mobile applications that have equal access to a phone’s capabilities. See Android, Official Website, <http://www.android.com/about/> (last visited Jan. 13, 2010).

²⁰⁸ Even AT&T acknowledges that the open nature of Android encourages application innovation, although its needless attack on the “inferiority” of open platforms misses the point. See Comments of AT&T at 119, GN Dkt. 09-51 (filed Jun. 8, 2009).

²⁰⁹ Cf. *Computer III* at ¶¶ 246, 250 (describing the virtually complete agreement among parties to require carriers to “disclose information about their networks to their enhanced services competitors to enable those competitors to develop compatible enhanced services” and, thus, requiring carriers to provide notice at the time a “make/buy” decision occurred so that enhanced service providers had “adequate time to develop new services based on changes in the network.”).

²¹⁰ *NTIA NBP Letter* at 7.

are processes participants' actions make it known—sometimes well in advance—when their change will diminish the returns on others' innovative investments.²¹¹

By contrast, incomplete or outdated information inhibits innovation and investment and leads to a decline in applications and services available to consumers on the Internet. Withholding network information also will preclude applications from being designed to work properly on broadband infrastructure, causing consumer confusion and frustration.

Disclosure of broadband network information to the FCC (accompanied by a public online posting on the FCC's website) also would advance transparency by allowing consumers and content and applications providers to determine and compare providers' practices using a single data source. Further, FCC filing requirements would help to ensure that providers supply complete and accurate information about their services due to the "fish bowl effect" – by which regulators and the public would scrutinize the contents of the disclosure. Disclosure to the FCC also would promote effective and swift enforcement of the rules. In the event of a dispute, the agency and the parties involved would have access to the disclosed information and could rely upon the description of the practices at issue. To ensure continuing accuracy, the Commission should mandate that broadband providers supplement and update their disclosures with the FCC on a timely basis – at least thirty days prior to the implementation of any change of practices.

Finally, Google believes that the creation of industry best practices and standards can greatly enhance transparency. These efforts could be informed by the Federal Trade Commission's expertise and experience, including its work with self-regulatory bodies.

²¹¹ *Glimmers and Signs of Innovative Health* at 22.

E. THE RULES SHOULD EMBRACE REASONABLE NETWORK MANAGEMENT, AND ALLOW FOR LAW ENFORCEMENT, PUBLIC SAFETY, AND SECURITY CONCERNS

The Commission should make clear that its proposed rules are subject to reasonable network management, along with the needs of law enforcement, public safety and homeland security.

1. *The Exception for Reasonable Network Management Practices Must Be Narrowly Tailored and Clearly Defined.*

As an exception to the Commission’s proposed rules, the NPRM recommends allowing broadband providers to engage in certain “reasonable” network management practices that address various network/traffic issues; these include congestion and Quality of Service (QoS) management, harmful and unwanted traffic, unlawful conduct on the Internet, and maintaining the proper functioning of the networks.²¹² Only some of these network management practices should be deemed reasonable, however, and would support the continued growth and evolution of the broadband-based Internet ecosystem. Google urges the FCC to establish a clear but narrow set of reasonable network management practices, limited solely to engineering practices legitimately related to network congestion. Network management practices also should not expand or contract existing legal rights and protections. Any other approach would allow broadband providers easily and subtly to abuse this exception.

2. *Reasonable Steps To Reduce or Mitigate the Effects of Congestion on its Network or To Address Quality-of-Service Concerns.*

Google agrees that “[w]hat constitutes congestion, and what measures are reasonable to address it, may vary” depending on the provider’s technology.²¹³ Broadband providers’ actions

²¹² NPRM at ¶¶ 137-140.

²¹³ *Id.* at ¶137.

taken to address alleged congestion problems must be examined thoroughly and critically because of their potential to impinge fundamentally on the consumer and societal benefits of an open Internet. As such, the FCC should employ the following three principles to evaluate reasonable network management practices used ostensibly to address network congestion.

First, network management techniques to address congestion should not become permanent solutions to network capacity issues. The addition of capacity on the network level should be the optimal solution for recurring congestion problems. Differentiation of traffic should not become a long-term excuse for a broadband provider's failure to make appropriate and continuing network investments to resolve capacity issues.²¹⁴

Second, network management techniques should address legitimate ends through tailored means – that is, they should address actual performance and congestion problems in a way that minimizes collateral harm to innovation, competition and consumer choice. For instance, differentiation of network traffic to address congestion issues should occur only during the time period of congestion, and be limited solely to the portion of the network experiencing congestion.²¹⁵ Furthermore, as suggested by Professor Jordan at the Commission's December 8, 2009, Technical Advisory Process Workshop, techniques using DPI to differentiate network traffic should be deemed reasonable only after less restrictive and intrusive methods have failed

²¹⁴ This concept has been accepted and agreed to by Japanese broadband network providers. See Japan Internet Providers Association et al., *Guideline for Packet Shaping, 4* (May 2008), available at http://www.jaipa.or.jp/other/bandwidth/guidelines_e.pdf.

²¹⁵ Similarly, the recently-adopted Internet Traffic Management Practices of Canada emphasize that, where such technical practices involve any discrimination or preference, the last-mile provider must “explain why ... network investment or economic approaches alone would not reasonably address the need and effectively achieve the same purposes. . . .” *Telecom Regulatory Policy*, CRTC 2009-657, 4 (Oct. 21, 2009), available at <http://www.crtc.gc.ca/eng/archive/2009/2009-657.htm>. (“*CRTC ITMP Order*”).

to address the congestion issue.²¹⁶ Network congestion techniques also should be consistent with

Internet layers architecture:

If a technique is applied at or above the [OSI] transport layer, then good network design recommends that it be applied only at an endpoint. Therefore, techniques that are applied at or above the transport layer *and* in a transit node likely violate this design principle; although this violation is not sufficient to make a traffic management practice unreasonable, it should raise a red flag.²¹⁷

Third, for a network congestion management technique to be reasonable, it must be applied in a neutral and nondiscriminatory manner with respect to the identity of the users and to the affiliation of the content and applications affected. For example, packet blocking or delay of a particular content or application source creates a risk of abuse and anticompetitive activity cloaked under the rubric of network congestion.²¹⁸ Further, traffic prioritization techniques to

²¹⁶ Scott Jordan, *Traffic Management and the Open Internet*, Univ. of California, Irvine (Dec. 8, 2009), available at http://www.openinternet.gov/workshops/docs/ws_tech_advisory_process/JordanFCC2009.pdf. See also, Scott Jordan & Arijit Ghosh, *How to Determine Whether a Traffic Management Practice is Reasonable* (Sept. 2009), available at <http://www.ics.uci.edu/~sjordan/papers/tprc09.pdf>. (“*How to Determine Whether a Traffic Management Practice is Reasonable*”).

²¹⁷ *How to Determine Whether a Traffic Management Practice is Reasonable* at 6. See also, *Network Layers Model* at 660 (discussing how layers-violating regulatory or business practices should be closely scrutinized as suspect). This same concept of the need to employ the least intrusive means possible is incorporated in the Canadian framework of the *CRTC ITMP Order*, by the framework principle to “demonstrate that any harm to a secondary ISP, end-user, or any other person is as little as reasonably possible.” *CRTC ITMP Order* at ¶ 43.

²¹⁸ Tiered pricing – offering consumers different capacity tiers of services that are priced to attract end users that make greater demands on the network – can be a legitimate congestion management technique. For example, a pricing model that would offer to all residential end users a 5 Mbps service for \$X per month, and a 20 Mbps for \$X+ per month would be a reasonable response to congestion concerns. This pricing technique encourages heavier users to purchase service at higher-speed tiers while not inhibiting broadband Internet usage or prioritizing, blocking, or delaying traffic. Of course, a determined broadband provider could set its tiered pricing arrangements in a way that, for example, inhibits the end user’s incentive to access competing services.

address congestion problems for services sensitive to latency or jitter (e.g., VoIP, some forms of real-time video, interactive gaming) also may be acceptable.²¹⁹

Google agrees that groups like “the IETF, other standards bodies, or other third parties could help define more precisely what [network congestion management] practices are reasonable” and minimally intrusive to the user experience.²²⁰ One approach would utilize standards groups, including technically-adept representatives of broadband providers, content and applications suppliers, public interest groups, and users working collaboratively and transparently toward eliminating and mitigating legitimate congestion and service quality concerns.²²¹ Another model would emulate engineering-focused bodies similar to the FCC’s Network Reliability & Interoperability Council. No matter what model is used, the FCC should set the baseline legal and normative standards for acceptable practices, from which these bodies can develop collaborative network standards implementing the Commission’s rules and goals.

The three congestion-management principles suggested above are balanced and provide last-mile network providers with flexibility to address network congestion issues. Using this balanced approach alleviates the need for an exception to the broadband network openness rules to address quality of service concerns. An unlimited “QoS exception” would be far too broad

²¹⁹ For example, it may be a reasonable network management practice to prioritize all packets of a certain type, so long as the provider is not assessing additional fees on third party content or applications providers. As Google indicated in 2007, however, such type-based prioritization could be used in anticompetitive ways. Comments of Google at 39-40, GN Dkt. 07-52 (filed Jun. 15, 2007). To be deemed “reasonable,” this particular form of traffic prioritization has to be both (i) user-requested, and (ii) applied to all traffic of the same type, regardless of source or affiliation. Even so, the definition of the “type” of traffic may be arbitrarily drawn in ways that enshrine preferences for current services and, concomitantly, block access to new innovations. For instance, if network operators prioritized only Web video, then forms of video delivered through P2P applications and innovative new video delivery systems would be disadvantaged.

²²⁰ NPRM at ¶ 141.

²²¹ For a brief discussion of the possible role of technical advisory groups (TAGs), see Section IV below.

and would threaten to become a gaping loophole. For example, broadband providers could delay all Internet video traffic to discourage transmission and consumption of video on the Internet and promote usage of the provider's multichannel video service offerings, all in the name of QoS. To provide further clarity, the FCC also could permit broadband providers to seek prior Commission approval before instituting management techniques in the name of QoS.²²²

3. *Address Traffic that is Unwanted by Users or is Harmful.*

Broadband providers should be able to take reasonable and nondiscriminatory steps to offer consumers the ability to prevent malware and denial of service attacks, to block "spam," and to protect children from offensive materials (*e.g.*, pornography). However, broadband providers should not require users to accept these network filters as a condition of service. Foisting these filters upon consumers would contradict the second proposed rule by inhibiting users' abilities to send and receive communications of their choice. If consumers want these features, they should be permitted to "opt in" to them.

4. *Prevent the Transfer of Unlawful Content and Prevent the Unlawful Transfer of Content.*

A separate network management exception for "unlawful content" and the "unlawful transfer of content" is unnecessary. First, the principles only apply to lawful content; they do not implicate actions that merely block unlawful content or transfers. Second, these issues are not related to network management at all, but rather are properly matters of law enforcement and compliance with the law.²²³ Broadband providers already are subject to other laws and obligations, including compliance with federal laws restricting transmission of child

²²² This approach would be consistent with that taken by Canadian regulators. *See CRTC ITMP Order.*

²²³ NPRM at ¶ 96, 105 and proposed rules §8.21 and §8.23.

pornography, compliance with duly authorized court subpoenas restricting the dissemination or other use of copyright infringing materials, and court orders concerning compliance with law enforcement intercept requests.

An additional “unlawful transfer of content” or “unlawful content” exemption also threatens to undermine the six principles. The aim of blocking unlawful content should not excuse practices that also impede lawful content. While the Commission should not impede legitimate compliance with the law, it also should not permit invidious practices under the guise of “network management” or “law enforcement.”

Importantly, the Commission should not interfere with the existing copyright legal framework, including the role of online intermediaries as determined by the Digital Millennium Copyright Act (“DMCA”). Copyright law is designed to ensure robust protections for rights holders and robust exceptions and limitations for users and innovators -- a delicate balance, carefully crafted by Congress and adjudicated through the courts. In the digital environment, there are already many cooperative efforts between content owners and intermediaries to prevent infringement. As such, the Commission should not mandate copyright filtering, monitoring, or other activities, and it should not prohibit the development of future voluntary cooperative efforts.

5. *Other Reasonable Network Management Practices.*

Google also disagrees with an open-ended exception for “other” practices, which holds the potential to swallow the rule. It is not necessary to expressly permit all practices in the evolving network until they are categorically deemed to be unreasonable by the FCC. Instead, the Commission should eliminate this proposed exception and establish a process, such as an expedited declaratory ruling or waiver process, by which providers may seek prior permission to

engage in otherwise discriminatory network management practices that do not fall within the enumerated exceptions to the rules.

F. THE FCC SHOULD SEEK FURTHER INFORMATION BEFORE CONSIDERING CREATING A SEPARATE CATEGORY OF MANAGED OR SPECIALIZED SERVICES

Broadband providers today supply more than best efforts access to the public Internet over their infrastructure.²²⁴ The FCC has proposed describing at least some of these non-Internet access services as “managed or specialized” services, explaining that they may provide consumer benefits and lead to increased deployment of broadband networks.²²⁵ Google believes that the FCC must carefully and deliberately consider how these non-Internet access services should fit within its overall regulatory framework. The FCC’s chief challenge here is to allow broadband providers to offer certain non-Internet access services in ways that do not detract from incentives to continue providing open and robust broadband Internet access.²²⁶

The potential benefits derived from non-Internet access revenues include improving last-mile providers’ profitability and heightening incentives to invest in broadband infrastructure

²²⁴ NPRM at ¶ 148.

²²⁵ *Id.* at ¶ 148 (citing *BIP/BTOP NOFA*, which referenced private network connections for services including telemedicine, public safety communications and distance learning).

²²⁶ Cable operators in the United States typically reserve more than 90% of the frequency spectrum over their cable infrastructure for their own phone and television service, “leaving only a few channels to their Internet service.” See Andrea Renda, *I Own the Pipes, You Call the Tune: The Net Neutrality Debate and its (Ir)relevance for Europe*, 16, Center for European Policy Studies (2008), available at <http://www.ceps.be/book/i-own-pipes-you-call-tune-net-neutrality-debate-and-its-irrelevance-europe>. Jonathan Zittrain suggests these services are a growing area of concern as they are blatantly non-neutral walled gardens, consisting of “traditional and emerging applanicized services that are not open to third-party tinkering.” See *The Future of Internet and How to Stop It* at 181, 183 (because these closed services often seek to exploit the benefits of third party contributions generated via the Internet, regulation of this “bait and switch” may be advised.).

generally.²²⁷ On the other hand, such services also could be used as an “escape hatch” for last-mile providers seeking to avoid open Internet obligations.

At the present time it is not clear precisely what constitutes “managed” or “specialized” services, and how they should be treated under the various service-specific silos of the Communications Act. At a minimum, the FCC should clarify that the “managed services” label does not extend to any service that makes use of the public Internet, or NAPs, at any point along its communications path. Otherwise, broadband providers would simply seek to re-brand and re-design Internet access as a “managed” service, thereby eviscerating the reach of the broadband network openness rules.

The FCC also should assert that IP-based “managed service” offerings are not exempt from applicable Title II, III and VI statutory provisions. Nor does calling something a “managed service” mean that it automatically should fall outside the FCC’s Title I oversight and jurisdiction. As the FCC has ruled, simply utilizing IP as a transmission technology does not transform a Title II telecommunications service into an information service.²²⁸ At first blush, Title II, including Sections 202(a) and 201(b) of the Act, would apply to service providers to the extent they offer telecommunications transmission to the public for a fee. Similarly,

²²⁷ Google notes, however, that it is not obvious that a last-mile managed service accomplishes much of anything; only an end-to-end prioritized treatment could arguably be a demonstrable improvement over best-efforts open Internet access. *See supra* note 113.

²²⁸ *Regulation of Prepaid Calling Card Services, Declaratory Ruling and Report and Order*, 21 FCC Rcd 7290, ¶¶ 14-15 (2006) (the use of the transmission capability was completely independent of the various other capabilities that the prepaid calling card made available; “merely packaging two services together does not create a single integrated service”); *Petition for Declaratory Ruling that AT&T’s Phone-to-Phone IP Telephony Services are Exempt from Access Charges, Order*, 19 FCC Rcd. 7457, ¶ 24 (2004) (ruling that AT&T’s “IP in the middle” telephone long distance service was a telecommunication service and not an information service) (“AT&T *in-the-Middle*”); *IDCMA Petition for Declaratory Ruling That AT&T’s InterSpan Frame Relay Service Is a Basic Service, Memorandum Opinion and Order*, 10 FCC Rcd. 13717, 40 (1995) (ruling that AT&T’s frame relay service was a basic service).

multichannel IP video services should be subject to Title VI of the Act as cable services. IP transmission is not “magic pixie dust” that transports services to a regulation-free zone.²²⁹

The FCC must ensure that investment in whatever may be called “managed” or “specialized services” does not deplete investments in open and robust broadband Internet access. Our nation’s broadband facilities should be sufficiently fulsome to provide adequate capacity for growing and evolving Internet access and use.²³⁰ For example, if a last-mile broadband provider dedicates only a small slice of its broadband capacity to the open Internet while reserving the vast majority of the network’s capacity for proprietary “specialized” services, the public interest would be compromised.²³¹ Likewise, if the last-mile broadband provider affords certain telemedicine, VoIP or smart grid services preferential treatment while discriminating against the same type of unaffiliated services, it would greatly undermine the potential for innovation and growth in these important areas, as well as for the Internet generally.

For these reasons, the FCC should decline to further explore this proposed category of services absent additional relevant information from the broadband providers. This information should include plans about existing and future services that ostensibly could fall within the proposed “managed or specialized” category, and information regarding the capacity utilization of these services as compared to broadband Internet access services. This detailed information and subsequent analysis may best be accomplished through a Further Notice of Proposed

²²⁹ See, e.g., *AT&T IP-in-the-Middle* at ¶ 24.

²³⁰ See Comments of Google Inc. at 20-25, GN Dkt. 09-51 (filed Jun. 8, 2009); Reply Comments of Google Inc. at 17-19, GN Dkt. 09-51 (filed Jul. 21, 2009).

²³¹ If this were the case, it is worth asking, for example, why the government should fund broadband networks through universal service mechanisms if the funds are being used predominantly to support paid proprietary content and services over the same facilities that are being used for broadband Internet access.

Rulemaking, which also could address the possible regulatory classifications of these services and examine their impact on the Commission’s goals for a robust and open Internet.

G. THE PROPOSED FRAMEWORK SHOULD APPLY IN A MODIFIED MANNER TO THE NETWORK-BASED PRACTICES OF WIRELESS BROADBAND PROVIDERS

Preservation of Internet openness requires that the FCC’s overarching framework be network agnostic.²³² This approach is especially important for the broadband-driven Internet, where consumers enjoy services and applications across multiple broadband platforms and have come to expect seamless integration, usage and utility, regardless of whether network facilities are wired, wireless, or a combination thereof. As consumers access the Internet over wireless broadband networks, different standards of openness, transparency and nondiscrimination for wireless broadband providers would result in diminished consumer expectations and confusion. This negative user impact demonstrates that exempting wireless broadband providers from broadband openness rules is the wrong approach to the evolving Internet.

1. *Consumers Should Be Able to Access the Same Open Internet on Wireless and Wired Broadband Networks.*

Regulatory parity across broadband networks reflects and reinforces a seamless user Internet experience. Consumers increasingly rely on multiple networks to access similar Internet content, applications, and services. Users expect and deserve that their experience – wherever, whenever and however they access the Internet – will be functionally equivalent, regardless of the underlying network technology.²³³ In all cases, users expect that broadband providers will

²³² NPRM at ¶154. *See also*, proposed rule § 8.3 (definition of “[b]roadband Internet access service” includes “any communication service by wire or radio”).

²³³ *See Wireless Broadband Classification Order* at ¶31 (“Specifically, we find that an end user subscribing to wireless broadband Internet access service expects to receive (and pay for) a finished, functionally integrated service that provides access to the Internet....”).

not use their control over transmission facilities and infrastructure to block, degrade or otherwise interfere with their Internet usage.

Focus on user impact is especially pertinent here as cross-network convergence and mobility increase.²³⁴ Increasing reliance on wireless services is extending rapidly to broadband Internet access,²³⁵ with smartphone growth far outpacing all other wireless growth.²³⁶ Experts predict that “mobile data and Internet traffic will increase 66 times between 2008 and 2013, and by 2010, mobile broadband penetration will surpass fixed penetration globally.”²³⁷

²³⁴ According to CTIA, “by the first half of 2009, more than one in five American households (22.7%) used wireless phone service as their only phone service, while another 14.7% of households received all or almost all of their calls on their wireless phones even though they have landline service.” Comments of CTIA - NBP Public Notice #25 at 2, GN Dkt. 09-51 (filed Dec. 22, 2009).

²³⁵ *Id.* at 3 (“[S]ince 2005, mobile wireless providers have been the fastest-growing providers of both high-speed lines (over 200 kbps in at least one direction) and advanced service lines (over 200 kbps in both directions). With more than 59 million high speed subscribers, mobile wireless broadband accounted for 45% of all broadband connection in the United States as of June 2008, according to the FCC’s latest ‘High-Speed Services for Internet Access’ report. In fact, by June 2009 3G subscribership in the U.S. had risen to more than 103 million subscribers according to the Informa Telecom & Media Group’s World Cellular Information System (WCIS) database. Data from the Pew Internet & American Life Project earlier this year revealed that, as of April 2009, 69 percent of adults had used mobile devices for non-voice activities, and 51 percent of adults had logged onto the Internet wirelessly.”) (citations omitted).

²³⁶ See Lance Whitney, *Smartphones Share of Cell Phone Sales Set to Soar*, CNET News (Dec. 15, 2009), available at http://news.cnet.com/8301-1035_3-10415577-94.html (“Smartphones will capture 37 percent of the worldwide cell phone market by 2014, a leap from 16 percent in 2009”). See also, Lance Whitney, *Emerging Markets to Drive Smartphone Growth*, CNET News (Dec. 15, 2009), available at <http://www.itp.net/578637-emerging-markets-to-drive-smartphone-growth>.

²³⁷ Comments of CTIA - NBP Public Notice #26 at 6, GN Dkt. 09-51 (filed Dec. 22, 2009) (citing *Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update*, 1-2, Cisco Systems, Inc. (Jan. 2009), available at http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf; Comments of 3G Americas – NBP Public Notice #6, GN Dkt. 09-51 at 3 (filed Oct.. 23, 2009) (quoting Chetan Sharma Consulting, *Managing Growth and Profits in the Yottabyte Era* 16 (2009), available at <http://www.chetansharma.com/yottabyteera.htm>)).

Despite claims that wireless broadband networks are “fundamentally different” than other broadband networks,²³⁸ wireless facilities constitute basic communications infrastructure. Among other things, this means that wireless providers employ a layered physical structure that empowers them to intrude into the pathway of Internet traffic. Just as with wired networks, these concerns require careful oversight, particularly because the two largest vertically-integrated wireless carriers, Verizon Wireless and AT&T Wireless, also are affiliated with large incumbent wireline broadband Internet access providers. These two predominant providers wield considerable power over two smaller nationwide wireless carriers, Sprint and T-Mobile, which rely heavily on them for market inputs, including special access circuits, towers, and roaming. Like their wireline counterparts, wireless broadband providers depend on key government resources, including access to poles and rights-of-way, in addition to relying on federal licensing schemes for spectrum access and receiving substantial subsidies through the Federal Universal Service Fund.²³⁹ Wireless carriers also have a recent history of engaging in discriminatory and anticompetitive activities,²⁴⁰ and have embedded problematic prohibitions in their consumer terms of service.²⁴¹

²³⁸ NPRM at n.272.

²³⁹ See, e.g., 47 U.S.C. § 301 (describing as one of the main purposes of the Communications Act to maintain control “over all the channels of radio transmission; and to provide for the use of such channels. . . under licenses granted by Federal authority. . . .”); *Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(B) to Ensure Timely Siting Review*, Declaratory Ruling, FCC 09-99, rel. Nov. 18, 2009 (requiring local zoning authorities to act quickly to review and authorize wireless providers applications for pole attachments); Universal Service Administrative Company, *Universal Service Fund Programs*, <http://www.usac.org/about/universal-service/fund-programs/fund-programs-li.aspx> (last visited Jan. 5, 2009) (Lifeline/Link Up support available for wireless service).

²⁴⁰ See Tim Wu, *Wireless Carterfone*, 1 INT’L J. OF COMM. 389, 390, 401-13 (2007), available at <http://ijoc.org/ojs/index.php/ijoc/article/view/152/96> (surveying carrier actions blocking, crippling, and modifying various features and applications). In 2009, AT&T crippled the iPhone Slingbox application, saying the application “could create congestion and potentially prevent other customers from using the network.” Yet, AT&T reported no congestion problems in connection with Major League Baseball

Google previously has expressed its support for applying the *Internet Policy Statement* generally to wireless broadband services.²⁴² One important preliminary question is precisely where in the wireless ecosystem openness obligations should apply. Google believes that the core concerns about discrimination stem from broadband providers' control over last-mile wireless network facilities. From an application or content provider's perspective, for example, an inability to reach users through wireless platforms can amount to a significant – and perhaps insurmountable – barrier to entry. The utility and acceptance of applications including email, VoIP, social networking and many other online tools depends on being able to serve all users, across all networks. By contrast, ecosystem elements such as operating systems, apps stores and retail stores do not present the same concerns.

Requiring wireless broadband providers to be open and nondiscriminatory, at least in their network control over Internet traffic, should not inhibit any legitimate business model.²⁴³ In

streaming games on AT&T's 3G network. See Karl Bode, *AT&T Slammed for Wireless Streaming 'Double Standard,'* DSLReports.com, Jun. 30, 2009, available at <http://www.dslreports.com/shownews/ATT-Slammed-For-Wireless-Streaming-Double-Standard-103192>. AT&T also hampered the Skype application in 2009, requiring it to run on WiFi only. AT&T later admitted that it had a deal with Apple to block any application that would allow calls to be made over WiFi. See Ryan Singel, *AT&T Relents, Opens iPhone to Skype, VoIP,* Wired.com, Oct. 6, 2009, available at <http://www.wired.com/epicenter/2009/10/iphone-att-skype/>. See also, e.g., Michael Hatamoto, *Sprint Confirms It's Implementing Data Usage Caps,* Betanews, May 20, 2008, available at <http://www.betanews.com/article/Sprint-confirms-its-implementing-data-usage-caps/1211328858>.

²⁴¹ See, e.g., AT&T Wireless Data Service Terms and Conditions available at <http://www.wireless.att.com/cell-phone-service/legal/plan-terms.jsp#data> (last visited Jan. 13, 2010) (prohibiting on data plans the use of certain devices that “cause extreme network capacity issues and interference with the network”); Sprint PCS Terms and Conditions, available at <http://www.sprintpcs.com/common/popups/popLegalTermsPrivacy.html#2> (last visited Jan. 13, 2010) (describing reasons why, without notice, Sprint can suspend service, including without any reason at all).

²⁴² See, e.g., Comments of Google at 36-37, WC Dkt. 07-52 (filed Jun. 15, 2007); Comments of VON Coalition at 7, RM-11361 (filed Apr. 30, 2007).

²⁴³ Notably, recent data indicates that mobile broadband is very profitable and can provide mobile broadband providers profit-driven incentives to increase network capacity to avoid congestion and offer unlimited use plans to allow users to exploit mobile broadband Internet access fully. See *Don't Worry –*

2007, Verizon Wireless bid for and acquired 700 MHz C Block spectrum, agreeing to the condition that it could not deny, limit or restrict customers' abilities to use the devices and applications of their choice on its C Block network.²⁴⁴ It is beyond question that the 700 MHz C Block open network requirements have promoted wireless innovation and investment and led to significant progress toward more open mobile networks.²⁴⁵ Certainly, the "closed nature of the wireless market is not a technological imperative, as shown by investment in the open platform and open source Android by Google."²⁴⁶

1. *Reasonable Network Management Should Be More Flexible for Wireless Broadband Providers.*

All broadband networks are not identical. While the FCC's proposed policy framework should apply to basic network-based practices like blocking or degrading Internet traffic, the parameters of what constitutes a reasonable network management practice should be flexible enough to accommodate legitimate differences between wired and wireless networks, and even

Mobile Broadband is Profitable, 2 EBR 2009 at 54-58, available at http://www.ericsson.com/ericsson/corpinfo/publications/ericsson_business_review/pdf/209/209_BUSINESS_CASE_mobile_broadband.pdf.

²⁴⁴ See Testimony of Steve Zipperstein, Verizon Wireless, to House Telecom Subcommittee (Apr. 15, 2008), available at <http://news.vzw.com/pdf/Zipperstein-testimony.pdf> ("We don't expect to be limited in any way by the FCC's definition of 'open access,' but rather will use it as a starting point for bringing incredible new products and services into the marketplace").

²⁴⁵ Even before the C Block auction began, Verizon Wireless announced that it would open its CDMA network for applications and devices supplied by third parties. See Press Release, Verizon Wireless, *Verizon Wireless To Introduce "Any Apps, Any Device" Option For Customers In 2008: New Open Development Initiative Will Accelerate Innovation and Growth* (Nov. 27, 2007), available at <http://news.vzw.com/news/2007/11/pr2007-11-27.html>. Verizon Wireless subsequently proceeded with its open development initiative (ODI), which brings the potential of another open pathway for consumers to enjoy innovative, independent offerings. Other national wireless carriers, to varying degrees, have taken steps to build business models based on open Internet principles, such as Clearwire. Sprint and T-Mobile both were founding members of the Open Handset Alliance and support the development and implementation of Android, the Alliance's open mobile applications platform. See, e.g., Press Release, Sprint, *Sprint Joins Open Handset Alliance* (Nov. 5, 2007), available at http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1072575.

²⁴⁶ Comments of IEEE-USA at 12, GN Dkt. 09-51 (filed Jun. 8, 2009).

between different kinds of wireless networks. Providers of currently available wireless broadband services normally face particular constraints in terms of available spectrum and bandwidth that tethered networks do not. For example, a wireless network operator that acquired a 10 MHz PCS license at auction 10 years ago, and now seeks to expand within its licensed geographic territory, will be constrained by a lack of functionally identical spectrum available in the market or for auction. In addition, many wireless networks must share bandwidth among multiple users (the number, location, and bandwidth usage of whom varies at any given time), and wireless networks must be engineered to accommodate dynamic changes due to the mobile nature of the end user's device.²⁴⁷

Consistent with a layered approach to regulation, the Commission's focus here should be on the modular interfaces between wireless devices and software applications, and between devices and the underlying wireless network.²⁴⁸ This means, at minimum, that consumers should be able to run the applications of their choice and to attach non-harmful devices to wireless broadband networks.²⁴⁹ Moreover, applications that do not harm the network should not be blocked or discriminated against based on the application, source or content. These types of inquiries necessarily are contextual; a device or application could have a different kind of impact on a lower-capacity network or one using higher frequency spectrum, than a network with

²⁴⁷ See NPRM at ¶¶ 159, 172.

²⁴⁸ See, e.g., Comments of Google at 36-37, WC Dkt. 07-52 (filed Jun. 15, 2007).

²⁴⁹ See Comments of VON Coalition at 7, RM-11361 (filed Apr. 30, 2007). See also, Kevin Werbach, *Breaking the Ice: Rethinking Telecommunications Law for the Digital Age*, 4 J. TELECOMM. & HIGH TECH. L. 59 (2005) (the FCC should focus its regulatory attention on the modular interfaces between different network layers).

greater capacity or lower frequencies. In Google's estimation, this is where the flexibility of the reasonable network management standard should come into play.²⁵⁰

The right to attach devices to wireless networks is not necessarily absolute. Wireless carriers may use different air interface technologies (*e.g.*, CDMA or GSM) that limit consumers' ability to attach their devices to different networks. To the extent practicable however, wireless broadband providers should permit consumers to connect their chosen compatible and non-harmful devices to the network. Certainly, if a device prevents a wireless carrier from fulfilling its regulatory obligations, it would reasonably be viewed as causing "harm to the network."²⁵¹ At bottom, the Commission's proposed rules should be directed to wireless broadband providers as structural fixes at the network and handset interface levels. Case-by-case enforcement of those rules will best address the network-based concerns regarding broadband provider conduct.

H. THE FCC'S RULES SHOULD NOT EXTEND TO WEB OVERLAY SERVICES AND APPLICATIONS

As the NPRM notes, regulation should extend no further than needed. While the FCC notes "at least one commenter" – AT&T – calling for expansive regulation,²⁵² these sentiments likely derive from a desire to dampen the prospects that any rules will be adopted, rather than from any principled legal position or demonstrated need. In fact, for many years AT&T has vociferously opposed communications regulation of Internet services and applications, urging the FCC to maintain a hands-off approach in this area.²⁵³

²⁵⁰ This also suggests that comparatively less flexibility will be necessary in the future as next generation networks are deployed, and wireless networks look and operate even more like wireline networks.

²⁵¹ See Comments of VON Coalition at 7-8, RM-11361 (filed Apr. 30, 2007).

²⁵² NPRM at n. 222.

²⁵³ AT&T argued that as long as regulation adequately protects against abuse of market power in the network layer, the competitive market for IP applications that are information services is adequate to

While regulatory oversight targeted to last-mile broadband providers is consistent with regulatory precedent and the Commission's statutory mandates, the FCC's authority does not extend to most web overlay applications and services. These software-derived offerings are not associated with either the network provider's transmission functions or the source of potential FCC concerns, *i.e.*, affecting the facilities of communications by wire or radio.²⁵⁴ The FCC has broad authority to regulate communications in the public interest, but the Supreme Court has made clear that its jurisdiction is not unlimited.²⁵⁵

In *Computer II*, the Commission rejected the notion that all information services fell within its jurisdiction, noting that not “*any* service or activity in which communications is a component is within the subject matter jurisdiction of Section 2(a) of the Communications Act.”²⁵⁶ While some information services may come within the Commission's jurisdiction, other

protect consumers. “In contrast, the network supporting IP-enabled applications continues to prevent severe risks of market power abuse.” Comments of AT&T at n.37, WT Dkt. 04-36 (filed May 28, 2004). *See also*, Statement of Ed Whitacre, calling for minimalist regulation for voice-over IP and other IP platform services, noting the need for the bottoms-up regulatory approach (adding rules only as needed). “Keeping them free from old rules designed for legacy services and networks will help bring advanced IP-based communications to Americans faster and more efficiently. *SBC Applauds FCC For Action On Internet-Based Communication Services*, Bus. Wire, Feb. 12, 2004, available at <http://www.allbusiness.com/media-telecommunications/5491158-1.html>.

²⁵⁴ *See, e.g., The Next Frontier for Network Neutrality* at 34 (“the Internet's technical architecture is, as some have put it, ‘the telephone network turned inside out’ – *i.e.*, the management of Internet applications (say, VoIP) is maintained at the edges of the network whereas the telephone network's applications (say, caller ID) are managed by central office switches. The difference in this architecture is very significant: the development and deployment of the system to enable 1-800 calls, for example, required considerable coordination with the incumbent telephone companies; by contrast, the development and deployment of Skype's VoIP technology required no cooperation from the network providers, relying instead upon the decisions of millions of end-users to download and install a software program.”).

²⁵⁵ *Midwest Video II*, 440 U.S. at 706.

²⁵⁶ *Computer II* at ¶¶ 121, 122.

online services, computer capabilities and applications do not.²⁵⁷ The majority of Internet content and applications, for example, fall well outside of the Commission's jurisdiction because such offerings supply access to stored data and do not provide the transmission component that constitutes "communications by wire or radio." The FCC simply is not free to regulate stored data or the content of the stored information.²⁵⁸

²⁵⁷ NPRM at ¶101. Google recognizes that other issues regarding the interconnected Internet, such as concerns regarding arrangements in the backbone market, may be the subject of regulatory attention. We note the recent expiration of merger conditions regarding these arrangements (with the AT&T-SBC conditions expiring Nov. 15, 2008, Verizon-MCI conditions expiring Jan. 6, 2009; and AT&T-Bell South conditions expiring Dec. 29, 2009).

²⁵⁸ *GTE Serv. Corp. v. FCC*, 474 F.2d 724, 730 (2d Cir. 1973) (holding that statutory silence did not preclude regulation of the interaction between common carriers and data processors, but does preclude regulation of data processors themselves: "[The FCC's] concern here therefore is not for the communications market which Congress has entrusted to its care, but for data processing which is beyond its charge and which the Commission itself has announced it declines to regulate. We find the intrusion to be without authority either in the Communications Act or in the cases construing it.") (citation omitted). *See also*, *MPAA*, 309 F.3d at 803 (rejecting Title I jurisdiction to require video programmers to provide video description services because "[v]ideo description is not a regulation of television transmission that only incidentally and minimally affects program content; it is a direct and significant regulation of program content."); *Am. Library Ass'n*, 406 F.3d at 703 (rejecting FCC ancillary jurisdiction to enact rules regarding broadcast flag equipment because such regulations "do not regulate the actual transmission of the DTV broadcast" and are not incidental to the transmission of broadcast programming).

Why the FCC Should Continue its Hands-Off Policy for Web Content and Applications

- ✓ Internet applications and content are not transmission by wire or radio, which is the subject of the FCC's express statutory mandate.
- ✓ Regulating web content would place the FCC in the position of controlling the speech of literally hundreds of thousands (or more) of private individuals.
- ✓ The policy of "innovation without permission" is in the Communications Act (Sec. 230), and has succeeded in encouraging and allowing smaller, new and noncommercial voices to speak and contribute new ideas.
- ✓ Internet content, services and applications are provided on top of the transmission network layer. Unlike the owners of transport facilities ("communication by wire or radio"), web applications providers cannot interfere with consumer enjoyment of other Internet content, services and applications.
- ✓ Congress has not charged the FCC with controlling Internet content, information, or applications. If anticompetitive concerns arise, other agencies (such as the Federal Trade Commission or Department of Justice) have authority to intervene.
- ✓ Regulating content and applications providers would encourage innovation to flow from the U.S. to foreign markets, as content providers seek more freedom to offer geographically-independent Internet content.

Critically, unlike regulation of broadband providers that control wired, cable or wireless last-mile transmission facilities, regulation of Internet content would serve no effective statutory purposes of the Communications Act. Section 230 of the Act admonishes specifically against regulation of the "Internet and other interactive computer services."²⁵⁹ A commercial marketplace free from regulation allows entrepreneurs and innovators to focus on developing new online services, content and applications. Those applications and content providers can remain independent, rather than needing to align themselves with large platform providers or vertically integrate with content providers. Applications providers can continue to offer a diversity of content and competing offerings, keeping quality and innovation high and prices low

²⁵⁹ 47 U.S.C. § 230(b)(2).

or free to consumers.²⁶⁰ A vibrant small-business applications marketplace also creates high-paying jobs and enhances the leadership and exports of America's technology services.²⁶¹ FCC incursion into this unregulated marketplace, by contrast, would raise uncertainty for investors and perversely tilt the advantage toward ownership consolidation and vertical integration of broadband platforms with applications providers.

Ironically, the benefits from ensuring that there is no discrimination at the network layer would be lost if the FCC regulated the entire Internet ecosystem. Unlike the lower layer broadband provider, overlay content and applications providers cannot impede, hinder, or deter consumer access to any other applications or content provider. Any attempt by the FCC to expand its reach to all Internet content and applications would raise myriad thorny legal and policy difficulties, and ultimately would redound to the detriment of all.

IV. THE FCC SHOULD ADOPT SPECIFIC ENFORCEMENT RULES

Having established that the FCC has the appropriate authority to oversee the broadband market and to adopt tailored broadband openness rules, the agency unquestionably has the requisite authority to enforce those rules. This well-settled authority derives directly from Section 4(i) of the Communications Act, which provides that the FCC can "perform any and all acts. . . as may be necessary to the execution of its functions." As the Supreme Court has

²⁶⁰ 47 U.S.C. § 230(b)(2) (declaring that it is a national communications policy "to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation"); *Petition for Declaratory Ruling that pulver.com's Free World Dialup is Neither Telecommunications Nor a Telecommunications Service*, Memorandum Opinion and Order, 19 FCC Rcd. 3307, ¶ 17 (2004) ("Several decades ago, the Commission recognized in its *Computer Inquiry* proceeding that enhanced services would continue to develop best in an unregulated environment and, given the competitive nature of the market, regulation of enhanced services was thus unwarranted.") (citation omitted).

²⁶¹ See *Kauffman Foundation Research Series* (study shows that newly created and young companies are the primary drivers of job creation in the United States.).

recognized, the “Commission’s authority extends to *all regulatory actions* ‘necessary to ensure achievement of goals.’”²⁶² Notably, the Court has also stated specifically with regard to facilities-based broadband Internet access providers that “the Commission remains free to impose special regulatory duties on facilities based [Internet Service Providers] under its Title I ancillary jurisdiction.”²⁶³

The Commission’s Part 8 enforcement rules can build upon the complaint provisions set forth in Section 208 of the Communications Act and other enforcement frameworks, such as FCC’s cable program access complaint rules. Most importantly, the new rules should be specific as to the mechanics of the enforcement process, spelling out in detail applicable complaint processes, including procedures for expedited consideration, and the form of relief to which a complainant is entitled.

The Commission should employ a streamlined complaint process subject to fixed deadlines, focused on determining whether the challenged practices comply with its rules. Disputes should be adjudicated by the professional staff of the Enforcement Bureau – possibly in conjunction with a dedicated consumer advocate appointed by the Consumer and Governmental Affairs Bureau – in order to ensure that complaints are addressed in the most efficient and effective manner.

The rules should make clear that any aggrieved party is permitted to file a complaint with the Commission and seek redress for rule violations. Aggrieved parties should include consumers, competitors, content and application providers, and other users, as all have the

²⁶² *Capital Cities Cable v. Crisp*, 467 U.S. 691, 700 (1984) (citing *Midwest Video II*, 440 U.S. at 706) (emphasis added).

²⁶³ *Brand X*, 545 U.S. at 996.

potential to be harmed by violations of the broadband openness safeguards. In this regard, the FCC should clarify that a showing of monetary damages is not a predicate to an aggrieved party seeking redress. In the case of Internet users, competitors and application or content providers, the injury may not be commercial in nature, or may not be easily quantified in monetary terms, but the injury still may significantly impede a party's ability to communicate with other users, to access or send desired content (commercial or noncommercial), or to compete effectively.

As explained above, the need for all users to utilize broadband network to access the Internet enables broadband providers to use their network control to discriminate against users and competitors. As a practical matter, this unique position means that the majority of evidence regarding network practices and incidences of discrimination is within the control of the broadband provider, and not the aggrieved party affected by the practice. While the rules mandating transparency, including a requirement for broadband providers to describe their practices fully and file them with the FCC, can help cure the information imbalance, additional safeguards are indicated. For this reason, the FCC also should require disclosure of evidence and shift the burden of proof (as much as is feasible and within the limits of due process) to the broadband provider.²⁶⁴

Specifically, in a request for ruling or action alleging discrimination, the petitioner should have the burden to show that the service in question is offered at the same "tier" to consumers and that the provider is violating one of its obligations under the new rules. Once those two

²⁶⁴ See *Amendment of Rules Governing Procedures to be Followed When Formal Complaints Are Filed Against Common Carriers*, Report and Order, 12 FCC Rcd. 22497, n.782 (1997) (subsequent history omitted) ("In any complaint proceeding initiated under Section 208 of the Communications Act, the Commission, and the staff pursuant to delegated authority, may exercise discretion to require a defendant carrier to come forward with relevant information or evidence determined to be in the sole possession or control of the carrier.").

elements are shown, then the burden of proof should shift to the provider to demonstrate its defense, *e.g.*, that its allegedly discriminatory practice is a “reasonable network management practice.”²⁶⁵ For example, after a web content or applications provider makes a *prima facie* case that its packets are being degraded or otherwise discriminated against by the broadband provider, the burden should shift to the broadband provider to demonstrate by a preponderance of the evidence that either: (i) it is not engaging in any activity or practice that degrades the web content provider’s packets relative to other web sites; or (ii) such practice falls within a reasonable network management practice exception.

After considering evidence presented by the parties, any decision issued by the Commission should include findings of fact concerning the underlying dispute and the parties’ practices. The Commission also should make clear that aggrieved parties are permitted to pursue both informal and formal complaint mechanisms in order to conduct investigations and redress claims. Utilizing the informal complaint process, together with the information supplied by the broadband Internet access provider, should enable a fast, thorough process that does not necessarily require expenditure of extensive resources by the complainant.

The FCC also should delineate clearly the remedies available to aggrieved parties. Once a *prima facie* case is made, the FCC could consider ordering a temporary restraining order directing the defendant to cease and desist from the activities alleged to violate the broadband openness rules for the duration of the complaint proceeding. As an alternative or in addition to

²⁶⁵ See, *e.g.*, 47 C.F.R. § 1.409(b) (in the context of pole attachment complaints, burden shifts to defendant to establish denial of access was lawful once complainant makes *prima facie* case that it has been denied access to poles); *Paul DeMoss v. Sprint Comm. Co.*, Memorandum Opinion and Order, 23 FCC Rcd. 5547, ¶ 26 (2008) (under a Section 202(a) discrimination complaint, complainant has burden to meet first two elements of “like” services and disparate treatment, and then the burden shifts to the defendant carrier).

direct damages, the Commission also could require broadband providers to modify existing consumer contracts. Specifically, user contracts could be amended to include a provision that, upon a finding that the open broadband network rules have been violated, all affected consumers would have a “fresh look” opportunity to leave the provider in question without the application of early termination fees. The FCC could also require broadband provider user contracts to specify the payment of an established refund (*e.g.*, two months’ worth of recurring service fees, a set refund amount for each day that a violation is continuing or a sliding scale of refunds) upon a finding that the open broadband network rules have been violated, applicable to all affected consumers. In this way, the broadband provider would have strong incentives to comply with the rules.

Google also believes that the substance of the rules could be informed by one or more bodies of outside experts, which we call Technical Advisory Groups (TAGs). These TAGs could be comprised of a broad range of Internet stakeholders (including applications providers, broadband providers and public interest representatives) with appropriate technical expertise. Such groups could provide useful and efficient guidance to all parties in the Internet ecosystem. These expert bodies could engage in several functions, such as (1) developing appropriate best practices or principles that could address transparency, network management, or other related issues; (2) providing a forum for dispute resolution (which would facilitate speedy disposition of disputes in the first instance); and (3) issuing advisory opinions concerning particular practices, in response to a request by a private or public entity. Should the Commission endorse this general concept, interested stakeholders could form one or more TAGs to address various technical and policy issues and to represent diverse opinions that may develop on such issues.

Thus, the TAGs should be wholly inclusive in their framework and encourage participation from a range of groups, including industry and public interest and consumer representatives.

CONCLUSION

The content of the Internet is as diverse as human thought. The scientific, political, cultural and economic exchange enabled by the Internet has fueled enormous advances and benefits in virtually every area of our lives, despite the fact the digital era is still in its infancy. To ensure that the Internet reaches its full potential as a platform for our collective human imagination, the FCC should adopt clear, enforceable broadband openness rules to preserve and protect an open and robust Internet.

Respectfully submitted,



Richard S. Whitt, Esq.,
Washington Telecom and Media
Counsel

Megan Anne Stull, Esq.,
Telecom Policy Counsel

GOOGLE INC.
Public Policy Department
1101 New York Avenue NW
Second Floor
Washington, DC 20005

Donna N. Lampert
Mark J. O'Connor
E. Ashton Johnston
Jennifer P. Bagg

LAMPERT, O'CONNOR & JOHNSTON, P.C.
1776 K Street NW, Suite 700
Washington, DC 20006
(202) 887-6230 tel
(202) 887-6231 fax

Counsel for Google Inc

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