

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

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

**COMMENTS OF
THE UNITED STATES TELECOM ASSOCIATION**

Its Attorneys:

Jonathan Banks
Glenn Reynolds
Patrick Brogan
Kevin Rupy
607 14th Street, NW
Suite 400
Washington, D.C. 20005
(202) 326-7300

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I. SUMMARY AND INTRODUCTION

The United States Telecom Association (USTelecom)¹ is pleased to comment on the Notice of Proposed Rulemaking (Notice)² issued by the Federal Communications Commission (Commission) regarding draft rules to preserve an open Internet. USTelecom’s member companies are committed to an open Internet and support the Commission principles, competitive market structure and balance among the broadband, computing, content and applications sectors that have safeguarded an open and dynamic Internet for years.

The Internet in the United States is a tremendous success story. It has developed with speed and scope unparalleled by any prior network technology, and, with an estimated half trillion dollars in investment predominantly from the private sector, has created jobs, spurred innovation, and revolutionized the way Americans learn, work, communicate and shop.

The nation’s remarkable progress under the current regulatory framework has resulted in unprecedented broadband deployment and adoption levels, coupled with increased broadband

¹ USTelecom is the premier trade association representing service providers and suppliers for the telecommunications industry. USTelecom members provide a full array of services, including broadband, voice, data and video over wireline and wireless networks.

² Notice of Proposed Rulemaking, *Preserving the Open Internet*, 24 FCC Rcd. 13064, 74 Fed. Reg. 62638 (November 2009) (*Notice*).

speeds and greater competition in the voice, video and broadband marketplace. Broadband growth in the last decade has been significant, but as the Commission notes, since the adoption of its Internet Policy Statement over four years ago, “our nation has seen even greater expansion of broadband Internet access service.”³ One of the greatest risks to issuing rules affecting the operation and management of broadband networks is the potential to undermine the environment that thus far has been a major driver of the United States economy. In particular, USTelecom is concerned that the Commission’s rulemaking will stifle the tremendous innovation and investment taking place within the entire Internet ecosystem, while at the same time failing to achieve its principal goal of ensuring an open Internet. Those calling for greater government intervention face a high bar in demonstrating the public interest in reversing a course that has been so successful for consumers, our economy and our national security. We believe it would be a mistake to replace today’s open and dynamic environment with a government-managed approach to innovation. New rules constraining only one set of firms in this highly competitive environment are likely to tip today’s balance, to the detriment of all.

In these comments, USTelecom focuses on describing our broadband ecosystem, highlighting investment across the information and computing (ICT) sector, adoption, deployment, competition, employment, productivity and high levels of usage and innovation. This discussion provides a factual predicate for assessing whether imposing new rules on how broadband networks are operated are likely to improve the broadband and info-tech success story that we have witnessed over the last decade. The comments then discuss the Commission’s proposed rules. In particular, the comments strongly caution about tipping the balance among Internet companies by singling out one set of companies for regulation while leaving others

³ *Notice*, ¶48.

unregulated. A level playing field is essential to preserving the dynamism that has brought us Internet innovation. Rather than issuing blanket prohibitions, the filing urges that if the FCC adopts any new rules, they must be built on flexible standards focused on preserving consumer choice and competition, not on protecting particular business models. Those standards cannot paint with a broad brush, but rather must take into account the careful and individualized analysis of markets and competition necessary to ensure that new pro-consumers and pro-competition offerings are not prohibited. Otherwise, any rules will choke off innovation in the network and the offering of new consumer services that will increase adoption and deployment. Even flexible rules, given the fact of constant change in broadband networks, applications and services are likely to be outpaced by market developments.

The comments endorse consumer-focused disclosures concerning broadband networks and call on industry, public interest groups and other interested stakeholders to join together to develop workable best practices. In addition, USTelecom supports broad and flexible exceptions for managed services and network management, both of which are necessary to meeting the demands that consumers and content and applications providers are making for new and innovative broadband services. Finally, the comments do not discuss a number of other issues raised in the Commission's NPRM that must be thoroughly vetted in any analysis of whether the proposed rules are in the public interest, including details of network operations as well as the Commission's jurisdictional authority to act in this area and what the statutory basis of any rules might be.

II. UNDER THE CURRENT INTERNET POLICY STATEMENT, INTERENT TECHNOLOGY IN THE UNITED STATES HAS DEVELOPED WITH SPEED AND SCOPE UNPARALLELED BY ANY PRIOR NETWORK TECHNOLOGY

In light of the robust Internet marketplace that has developed over the last decade, and strong indications throughout the market demonstrating its continued growth and innovation, those calling for changes to the current regulatory structure face a high bar in demonstrating the public interest in changing a course that has been so successful for consumers, our economy and that has produced so much innovation so quickly. As the Commission considers whether to impose new regulations on the operation of broadband networks, the first step is to have a proper understanding of where we are and how we arrived here. Putting aside the rhetoric about national rankings and the like, the fact is that broadband in the United States has developed with speed and scope unparalleled by any prior network technology. Moreover, we have built a national broadband infrastructure almost entirely with private sector investment, estimated by some at over half a trillion dollars. One of the greatest risks to issuing rules affecting the operation of broadband networks is the potential to undermine the environment that thus far has facilitated massive investment in broadband networks, innovation in content and application, and growth in Internet usage over the last decade.

A little more than a decade ago, the Commission was engaged in the extremely resource-intensive process of implementing the Telecommunications Act of 1996 – a statute that barely acknowledges the Internet and reflects the fact that few at the time envisioned Internet access becoming a part of everyday life for a majority of Americans. To the extent the statute contemplates the Internet, its primary direction to the Commission is to study the Internet, not to

regulate it.⁴ In the relatively short span since that time, wireline, wireless, satellite and cable providers have invested hundreds of billions of dollars to deploy broadband networks.

By some estimates, cumulative capital expenditures by broadband providers from 2000-2008 were over half a trillion dollars, and private investment in broadband infrastructure has grown consistently from 2003 through 2008. Even in the face of the economic downturn, broadband providers continue to invest nearly \$60 billion annually. As a result of this massive private investment in infrastructure, an overwhelming majority of Americans today can choose among *multiple* broadband platform providers. Broad deployment of competing platforms has spurred a dynamic of competitive investment and innovation among networks, applications, content, and devices, providing substantial benefits to consumers and the United States economy.

Below, we document the substantial investment by competing broadband providers in increasingly powerful network platforms and the associated investment by other players throughout the economy in related information and communications technologies (ICT). We also document the benefits accruing to the United States economy and consumers as a result of such investment, such as rapid adoption, growing usage, declining prices, exploding consumer value, a growing array of technology choices, sustained innovation, enhanced productivity, significant job creation, and international leadership.

Encouraging the sector's successful growth into the future must be the key goal of relevant policymakers. Doing so will require careful attention by policymakers to the entire ICT ecosystem and the checks and balances that exist within it. The new environment has opened new opportunities for broadband network providers, but with cross-platform and cross-sector

⁴ See e.g., 47 U.S.C. §706(b) (calling for the Commission to conduct regular inquiries into the "availability of advanced telecommunications capability to all Americans."); and see 47 U.S.C. 230(b) (establishing "policy" for the United States to follow with regard to promoting the continued development of the Internet).

competition it also threatens traditional revenue streams that were used to support network investment. In order to encourage continued investment and United States international leadership in this environment, providers will need flexibility to adapt business models and participate in the value creation made possible by broadband. Any change to current policies bears a heavy burden to demonstrate how that change could improve sector performance and to carefully account for the effects on jobs, growth and innovation as that change ripples through the ICT ecosystem. The risks involved in upsetting the balance that has produced the ICT record of economic success, consumer service, and innovation over the last several years should give pause to any policymaker considering changing course.

A. United States Broadband Investment Is Flourishing in the Current Environment

1. Broadband Providers Are Investing Massive Amounts in Competitive Infrastructure

By some estimates, cumulative capital expenditures by broadband providers from 2000-2008 were over half a trillion dollars.⁵ The pro-competition and pro-investment environment of recent years has encouraged significant growth in broadband network investment. Private capital investment grew consistently from 2003 through 2008.⁶ In 2008 alone, broadband providers invested \$64.2 billion to deploy and upgrade their networks⁷ and in 2009 were projected to

⁵*See*, United States Department of Commerce, National Telecommunications and Information Administration (NTIA), *Networked Nation: Broadband in America 2007* (January 2008), pp. 32-34. The NTIA data include payments for wireless spectrum licenses. Wireless, capital expenditures for 2000-2002 were derived by taking the difference of cumulative capital expenditures published by the Federal Communications Commission in its Tenth Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services (FCC-05-173) (Released September 30, 2005), Table 1 at p. 80.

⁶*See, id.*

⁷Yankee Group Research, Inc. © Copyright 1997-2009. All rights reserved. Yankee Group estimates that broadband providers invested \$64.2 billion in 2008, up from \$62.5 billion in 2007. Data are in nominal dollars and include wired and wireless telecommunications carriers and cable providers. Wireless spectrum license payments are not included.

invest just under \$60 billion, a temporary reduction in capital spending of less than 10%.⁸ This investment level is significant given the severe economic downturn, which led private firms across the economy to reduce investment by approximately 20% as of the third quarter of 2009.⁹ Moreover, broadband provider investment is projected to return to growth in either 2010 or 2011, sustaining an average of more than \$60 billion per year from 2007 through 2012.¹⁰

As a result of this massive private investment in infrastructure, the United States now has one of the most competitive broadband markets across one of the largest geographic spans in the world. An overwhelming majority of Americans today can choose among *multiple* broadband platform providers. Over 90% of U.S. households can choose from either a wireline or a cable broadband service and approximately four-fifths of U.S. households have access to both.¹¹ In

⁸ *Id.* Note: The Commission issued NBP Notice #23, seeking comment on a study by the Columbia Institute for Tele-Information (“CITI Study”). The study attempted to apportion capital expenditures into “broadband” and “legacy” categories, estimating that “broadband” accounted for about half of capital spending today and increasing over time (CITI Study at pp. 30 and 66). The “broadband” category in the CITI Study appears to focus on access upgrades, thereby understating, in our view, “broadband” investment and overstating “legacy” investment. The distinction between broadband and legacy is not relevant for joint-use facilities that may be categorized as “legacy.” For example, while investments to maintain or consolidate copper voice loops and circuit switches would appropriately be termed “legacy,” investments in metropolitan area and long-haul transport, enterprise transport, wireless backhaul to accommodate data growth, as well as corporate spending and operating and billing support systems, are not appropriately limited to the “legacy” category. *See* Comments of the United States Telecom Association in the Matter of Comments – NBP Notice # 23 (GN Docket No. 09-47, 09-51, 09-137) at p. 5.

⁹ *See*, United States Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts Table 5.5.3, “Private Fixed Investment by Type” available at <http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=N> (visited January 8, 2010). The data indicate that annualized seasonally adjusted *non-residential* private fixed investment for the third quarter of 2009 falling to \$1.355 trillion from \$1.711 trillion in the third quarter of 2008, a decline of -20.9% and average declines for the same figure for the first three quarters of 2009 of -18.4%. The declines for the two major components of non-residential investment, equipment and software and non-residential structures, were -17.8% and -26.2%, respectively, for the third quarter of 2009 and -18.6% and -18.1%, respectively, on average for the first three quarters of 2009.

¹⁰ *See*, Comments of the United States Telecom Association in the Matter of Comments – NBP Notice # 23 (GN Docket No. 09-47, 09-51, 09-137) at pp. 2-3 (citing market research projections for flat or slightly declining capital investment in 2010, with a return to growth in 2011). *See also* Communications Daily, Vol. 30, No. 6 (January 11, 2010) at p. 14 (citing a more recent analysis by Catharine Trebnick of Avian Securities projecting a 1.5% increase in capital spending for traditional telecom companies and cable operators in 2010). The \$60 billion average is for 2007-2012 and is based on a March 2009 projection from Yankee Group Research, Inc.

¹¹ The National Cable and Telecommunications Association states that cable modem service was available to 92% of U.S. households as of September 2009. *See* <http://www.ncta.com/Statistics.aspx> (visited January 8, 2010). The

addition, more than 95% of the United States population can choose from three or more mobile broadband networks, and more than 90% of the population can choose from four or more mobile networks.¹² Satellite broadband is available to any household in the country within view to the satellite, *i.e.*, nearly all of the country.

The United States compares very favorably to other countries when considering the breadth of platform competition among wireline, cable, and wireless broadband providers. Looking first at platform competition among wired broadband providers, as of mid-2008, cable modem service was available to 92% of households in the United States.¹³ The technology with the next highest availability rate in the United States is DSL, which was available to 83% of households.¹⁴ In the European Union, while DSL was available to 92.5% of households as of year-end 2007,¹⁵ cable modem, the technology with the next highest availability rate in the

Commission estimates that, as of the end of June 2008, ADSL was available to 83% of U.S. households. See Federal Communications Commission, High Speed Services for Internet Access: Status as of June 30, 2008 (July 2009) (“FCC High Speed Internet as of June 30, 2008”), at p. 4. Today, ADSL or fiber is likely available to more than 83% of households.

¹² See, Michael J. Copps, Acting Chairman, Federal Communications Commission, Bridging Broadband to Rural America (May 22, 2009) at p. 12 and Thirteenth Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, FCC DA 09-54 at p. 6 (rel. January 16, 2009). Wireless broadband providers are planning to upgrade existing third generation mobile broadband networks to higher-speed fourth generation technologies. Verizon and AT&T plan to deploy Long Term Evolution (LTE) technology over the next several years. See <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=30358&mapcode> (visited January 8, 2010) and <http://investor.verizon.com/news/view.aspx?NewsID=1028> (visited January 8, 2010). Clearwire, which was recently spun off from Sprint, projects that its fourth generation wireless broadband services using new mobile WiMAX technology will be available to 120 million people by 2010.¹² See Clearwire Corporation, United States Securities and Exchange Commission Form 10-K (filed March 26, 2009), at pp. 2-3.

¹³ See, FCC High-Speed Internet as of June 30, 2008 at p. 4 and Table 14 (stating that cable modem service is available to 96% of residential end-user premises to which cable systems can provide cable television service). Cable television is not available to all households. Therefore, for an estimate of availability to all households, see National Cable & Telecommunications Association at <http://www.ncta.com/StatsGroup/Availability.aspx> (visited September 2, 2009) (stating that cable high-speed Internet availability to households in the United States is 92%).

¹⁴ See, FCC High-Speed Internet as of June 30, 2008 at p. 4 and Table 14 (stating that DSL service is available to 83% of residential end-user premises to which ILECs offer local telephone service). This is an estimate of the percentage of residential end-user premises with broadband availability, not the percentage of zip codes in which DSL is available.

¹⁵ See, Commission of the European Communities, Progress Report on the Single European Electronic Communications Market (14th Report), Commission Staff Working Document, Volume 1, Part 2, document

European Union, was available to only 40% of households at this time – 53% availability in urban areas and only 4% availability in rural areas.¹⁶

The portion of subscribers relying on the two different wired platforms further illustrates the relative competitive balance among broadband platforms in the United States compared to the European Union, another indicator of competition. In the United States, as of mid-year 2008, 55% of fixed broadband subscribers used cable modem and 43% used DSL or fiber.¹⁷ In the European Union, as of year-end 2008, 81% of subscribers used DSL or fiber and only 15% used cable modem.¹⁸

Japan and South Korea have been recognized for their deployment of fiber. However, the deployment of alternative platform competition, particularly cable modem, has developed differently in both countries. It appears that Japan has a relatively weak cable modem presence, while the South Korean cable broadband industry appears to be more developed.¹⁹ As of year-

SEC(2009) 376/2 (“European Commission Staff Working Document”) (July 30, 2009) at p. 23. Union-wide and nationwide availability are computed by adding together the reported rural availability rate and the reported rural gap with national coverage.

¹⁶ *See id.* at pp. 22-23. The most current availability data for the European Union are for year-end 2007. For practical comparison purposes, the data for availability in the United States for year-end 2007 are similar to mid-year 2008. *See* Federal Communications Commission, High-Speed Services for Internet Access: Status as of December 31, 2007 (January 2009) at p. 3 and Table 14 (stating that cable modem service is available to 96% of residential end-user premises to which cable systems can provide cable television service and DSL is available to 82% of residential end-user premises to which ILECs offer local telephone service). There is, of course, variation within Europe, with high cable availability in a handful of countries, e.g., the Netherlands (92%), Belgium (88%), Portugal (85%), Hungary (73%), and Luxembourg (71%). Nonetheless, cable availability remains low for the European Union as a whole (40%) and for some of the largest member countries, e.g., France (26%), Germany (47%), Spain (51%), and the UK (48%).

¹⁷ *See*, FCC High-Speed Internet as of June 30, 2008 at Table 3 (Total broadband subscribers with 200 kilobits per second in at least one direction is 67.6 million. This statistic excludes 11.5 million residential mobile broadband subscribers for comparison with the European Union data, which also exclude mobile wireless. DSL and fiber subscribers were 29.2 million. Cable modem subscribers were 36.9 million.).

¹⁸ *See*, European Commission Staff Working Document at p. 18.

¹⁹ *See*, Robert Atkinson, Daniel Correa, and Julie Hedlund, The Information Technology and Innovation Foundation, Explaining International Broadband (May 2008) at D2 (“Japan’s cable TV industry is highly fragmented, which makes it difficult for providers to upgrade their networks for two-way (broadband) service.”) and F3 (describing the history of the South Korean cable modem industry).

end 2008, 86% of Japanese broadband subscribers used fiber or DSL and 14% used cable modem, while in South Korea 67% of broadband subscriber used fiber or DSL and 33% used cable modem.²⁰

For wireless broadband, the migration from third to fourth generation mobile broadband wireless in the United States is occurring in one of the most structurally competitive wireless markets in the world. As noted above, more than 95% of the United States population has a choice of three or more mobile networks, and more than 90% of the population has a choice of four or more mobile networks.²¹ As of the end of 2008, the top four mobile carriers in the United States had a market share of 90.4 of subscribers and the largest had a share of 31.6%. In a comparative study, in 23 of 26 OECD countries, which include the United States, the top four carriers had 100% of the market; in 13 of the 26 OECD countries, the top three carriers have 100% of the market.²² Furthermore, according to the European Commission staff, “the deployment of mobile/wireless networks in the EU is uneven. Even in the case of UMTS networks (where coverage ranges from 30% in the case of Estonia to 90% in the case of

²⁰ See, Organisation for Economic Cooperation and Development (OECD) Broadband Statistics (December 2008) at Table 1d available at <http://www.oecd.org/dataoecd/21/35/39574709.xls> (visited September 2, 2009).

²¹ See, Thirteenth Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, FCC DA 09-54 at p. 6 (rel. January 16, 2009).

²² Letter of Christopher Guttman-McCabe, CTIA – The Wireless Association, to Marlene Dortch, FCC (May 12, 2009) at p. 6, available at http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520216419 (visited September 2, 2009). The letter listed the following market shares as of the fourth quarter of 2008 for U.S. providers: 28.5% (AT&T), 26.7% (Verizon), 18.2% (Sprint), 12.1% (T-Mobile), and 14.5% (Other). We shifted 4.9% share to Verizon to adjust for the Alltel acquisition in January 2009, moving Verizon to the lead at 31.6% and reducing Other market share to 9.6%. Verizon Wireless gained 13.2 million *net* subscribers from Alltel (Verizon, *Investor Quarterly Q1 2009* (April 27, 2009) at pp. 4-5), representing 4.9% of 270.3 million wireless subscribers (CTIA, *Semiannual Wireless Industry Survey*, available at http://files.ctia.org/pdf/CTIA_Survey_Year-End_2008_Graphics.pdf (visited January 13, 2010)).

Denmark, Luxembourg and the United Kingdom), coverage does not yet compare to DSL, which has an average of 90% population coverage in most countries.”²³

The wide availability of multiple platforms in the United States is significant for several reasons. First, it creates broad-based, sustainable competitive incentives to upgrade networks to increasingly powerful technologies, such as the wireline deployment of fiber, the cable industry deployment of DOCSIS 3.0, and wireless network deployments of WiMAX and LTE. Second, competition among network platforms creates strong incentives to fill networks with content and applications that consumers want and provides a competitive check against network providers limiting consumer access to particular content and applications.²⁴ Third, the availability of multiple powerful broadband networks has enhanced consumer value and enabled entirely new forms of competition and consumer choice. As discussed below, developments over the last half-decade have provided critical mass for the phenomenon of “convergence” – the coming together of the ICT (information, communications, and technology) industries technologically, economically, and competitively. In this dynamic and growing ecosystem, providers of broadband communications networks, digital devices, and a limitless array of content and applications all rely on each other to generate new value for consumers and multiple benefits for the U.S. economy. At the same time, these ICT industries are competing across traditional industry boundaries—not only across network platforms, but among networks, applications and devices—bringing added competitive discipline to the innovative process.

²³ See, European Commission Staff Working Document at p. 24.

²⁴ See, e.g., FTC Staff Report, *Broadband Connectivity Competition Policy*, June, 2007 at p. 157 (*FTC Broadband Report*).

2. The United States Is a World Leader in ICT Investment

The U.S. economy increasingly depends on a healthy broadband and ICT ecosystem. Continued investment in more and more powerful broadband networks is critical to stimulating technological innovation. Broadband and ICT investment is a key driver of economic growth, productivity, consumer value, and millions of high-paying jobs. It is also integral to achieving important policy goals, such as enhanced civic participation, health care delivery, energy independence, and education.

Growth and innovation in the broadband and ICT marketplace has flourished under a light-touch regulatory regime. As has been demonstrated time and time again, regulatory schemes that are unanimated by specifically identified widespread market failures impose costs that significantly impair the investment needed to meet the demand for faster and smarter broadband networks. As we have stated in the context of the National Broadband Plan proceeding,²⁵ private investment in broadband infrastructure supports the entire ICT sector, and all sectors of the U.S. economy increasingly depend on broadband and ICT to facilitate their participation in the global information economy. As with the overall national broadband strategy, new rules affecting broadband network operations must be considered in the context of the broader goals of economic growth, consumer quality of life, and the Commission's public policy objectives.

The broadband-fueled ICT sector has become a major engine of economic output and growth. ICT contributed \$902 billion in GDP in 2007 – among the top contributing sectors in

²⁵ See e.g., Comments of United States Telecom Association, GN Docket No. 09-51, June 8, 2009.

the U.S. economy and the primary driver of real, inflation-adjusted growth.²⁶ U.S. firms invested \$455 billion in ICT in 2008, representing 22% of total investment across the entire economy. As discussed above, broadband providers alone invested over \$64 billion in 2008 and, despite a relatively small decline due to macroeconomic pressures, broadband providers are projected to invest an average of approximately \$60 billion per year for the next several years.

ICT investment and usage have yielded substantial economic benefits, not only among ICT industries, but also throughout the economy. Economists have estimated that at least one-third, and likely more of productivity growth is attributable to ICT.²⁷ The impact of productivity is to raise incomes, generate economic growth, and enhance U.S. global competitiveness. ICT also provides at least ten million jobs in its industries and across the economy: As of mid-2008, there were about about 5.7 million workers within the ICT industries and an additional 4.5 million ICT-related occupations outside of the ICT sector.²⁸

Both within and outside of the ICT sector, the deployment of broadband and broadband-enabled applications creates opportunities for occupations such as network administrators, software engineers, applications developers, and systems designers to produce and implement the technology. In fact, broadband- and ICT-enabled occupations are among the fastest-growing and highest paying jobs in the U.S. economy.²⁹ From an *occupational* perspective, the United States Department of Labor projects that network systems and data communications analyst positions will grow 53% from 2008 to 2018, adding 156,000 jobs; computer software engineer

²⁶ See, Patrick S. Brogan, United States Telecom Association, New York Law School Media Law & Policy, Volume 18, Number II (Spring 2009) at pp. 163-165.

²⁷ *Id.* at pp. 176-179.

²⁸ *Id.* at pp. 175-176.

²⁹ See, T. Alan Lacey and Benjamin Wright, U.S. Department of Labor, Bureau of Labor Statistics, Monthly Labor Review, Vol. 132, No. 11 (November 2009) at pp. 82-123.

(applications) positions will grow 34%, adding 175,000 jobs, and computer software engineers (systems software) positions will growth 30% over ten years, adding 120,000 jobs.³⁰ From the *industry* perspective, the Computer Systems Design and Consulting industry will add 656,000 jobs from 2008-2018, growing from 1.45 million to 2.10 million jobs, about a 45% growth rate over the 10-year period.³¹

a) The United States Compares Favorably in International Comparisons of ICT Investment

The United States compares favorably to other countries in the area of ICT investment. According to the OECD, the United States ranked first among twenty-one industrialized countries in ICT investment as a percentage of non-residential investment.³² See Table 1 below. In other words, the United States led the industrialized world in the portion of total investment allocated to broadband and related information technologies. We can also measure ICT investment as a percentage of total GDP, rather than simply the share of investment. By looking at the share of the overall production of a national economy, we eliminate distortions arising from relative capital intensity. In other words, a country with low investment overall, but with a

³⁰ *Id.* at Tables 4 and 5, pp. 91-94. The “fastest growing” data in Table 4 are ranked by percentage growth from 2008-2018. The 53% growth for network systems and data communications analyst positions is second only to biomedical engineering occupations, which are projected to grow 72% during the same period, but will add only 12,000 total jobs. In raw numbers, the greatest growth will be in health care occupations, which is not surprising given population and demographic trends. But the greatest growers in health care, in terms of raw numbers of jobs, are “very low” or “low” paying occupations (e.g., home health aides, personal and home care aides, medical and dental assistants). Among the “high” and “very-high” earning jobs, the networking and computer software jobs add the most in raw numbers.

³¹ *See*, Rose A. Woods, U.S. Department of Labor, Bureau of Labor Statistics, Monthly Labor Review, Vol. 132, No. 11 (November 2009) at pp. 52-81. Note: This industry figure cannot simply be added to the occupational numbers cited above, since there is very likely overlap with the occupational growth.

³² *See*, OECD Science, Technology and Industry Scoreboard 2009 at section 1.14, ICT investment over the business cycle, available at http://www.oecdilibrary.org/oecd/sites/sti_scoreboard-2009-en/01/14/index.html?contentType=&itemId=/content/serial/20725345 (visited January 11, 2010). The analysis lists ICT gross fixed capital formation (GFCF) as a share of nonresidential GFCF for 21 countries. The data are provided in percentages only, not actual investment levels. Ranging from 2004 to 2007, the year for which data are available vary by country.

high portion devoted to ICT, cannot be assumed to allocate a large portion of national income to ICT investment. The OECD has released comparative data on nonresidential gross fixed capital formation for twenty-one countries.³³ The data break out investment in information and communications technology, as well as its communications equipment, hardware, and software components. The OECD separately publishes country GDP data.³⁴ Using these data, we computed ICT investment as a share of GDP. See Table 2 below. The United States shares the number one ranking for total ICT investment as a share of GDP with Australia and Sweden. Overall, the United States compares favorably to other countries when measuring ICT investment as a share of total nonresidential GFCF or as a share of gross domestic product (GDP). This means that under the current regulatory environment, network, content, application, and service providers in the United States leads the industrialized world in investing to attain the consumer and economic benefits of the global information economy.

Table 1: ICT Investment as a Share of Non-Residential Gross Fixed Capital Formation, 2007 unless otherwise indicated

Country	IT Equipment	Communication Equipment	Software	Total ICT
United States	6.0	6.4	14.6	27.0
United Kingdom (2005)	7.6	3.6	15.2	26.4
Sweden (2006)	7.3	2.7	15.0	25.0
Netherlands (2005)	7.0	4.2	10.9	22.1
Denmark (2005)	9.5	0.9	11.8	22.1
Finland (2005)	1.5	6.5	13.2	21.2
Switzerland (2006)	4.3	5.3	10.6	20.3
Belgium (2004)	10.4	4.2	5.5	20.1
France	2.6	2.3	11.8	16.7

³³ OECD Statistics Directorate, Productivity Statistics, Investment Data and Shares of ICT Investment in GDP and Total Non-residential GFCF (updated September 19, 2008) available at <http://www.oecd.org/dataoecd/27/37/36396989.xls> (visited January 13, 2010). The year of the most current data varies by country.

³⁴ OECD.Stat Extracts. Gross Domestic Product current prices in national currency, available at <http://stats.oecd.org/index.aspx> (downloaded October 19, 2009).

Country	IT Equipment	Communication Equipment	Software	Total ICT
Canada	4.9	3.1	8.4	16.4
New Zealand (2006)	3.3	4.6	6.8	14.7
Germany	4.4	2.9	6.6	13.8
Japan (2006)	4.2	1.8	7.7	13.8
Australia	5.4	2.3	5.6	13.3
Portugal (2005)	4.5	7.0	1.2	12.7
Korea (2005)	1.8	3.5	6.8	12.2
Austria (2005)	4.6	2.2	5.2	11.9
Greece (2004)	3.8	5.4	1.7	10.9
Italy (2006)	2.8	3.6	4.2	10.7
Spain (2006)	2.5	3.8	4.2	10.5
Ireland	2.1	1.5	2.0	5.6

Source: OECD

Table 2: ICT Investment and Share of GDP, 2006 unless otherwise indicated

Country	IT Equipment	Communication Equipment	Software	Total ICT
United States	0.8%	0.8%	1.8%	3.5%
Australia (2005)	1.4%	0.9%	1.2%	3.5%
Sweden	1.0%	0.4%	2.1%	3.5%
New Zealand	0.8%	1.1%	1.6%	3.4%
Denmark (2005)	1.4%	0.1%	1.8%	3.3%
United Kingdom (2005)	0.9%	0.4%	1.9%	3.2%
Switzerland	0.6%	0.8%	1.6%	3.0%
Finland (2005)	0.2%	0.9%	1.8%	2.8%
Japan	0.9%	0.4%	1.6%	2.8%
Netherlands (2005)	0.9%	0.5%	1.4%	2.8%
Belgium (2004)	1.4%	0.6%	0.7%	2.7%
South Korea (2005)	0.4%	0.8%	1.5%	2.7%
France	0.4%	0.4%	1.6%	2.4%
Canada	0.9%	0.4%	1.1%	2.4%
Greece (2003)	0.7%	1.0%	0.3%	2.0%
Spain	0.5%	0.7%	0.8%	2.0%
Austria (2005)	0.7%	0.3%	0.8%	1.9%
Germany	0.6%	0.4%	0.8%	1.9%
Italy	0.5%	0.6%	0.7%	1.7%
Portugal (2005)	0.6%	0.9%	0.2%	1.6%
Ireland	0.3%	0.2%	0.3%	0.8%

Source: OECD and USTelecom Analysis

*b) Broadband Providers Compare Favorably Among ICT Industry
Leaders in Market Share*

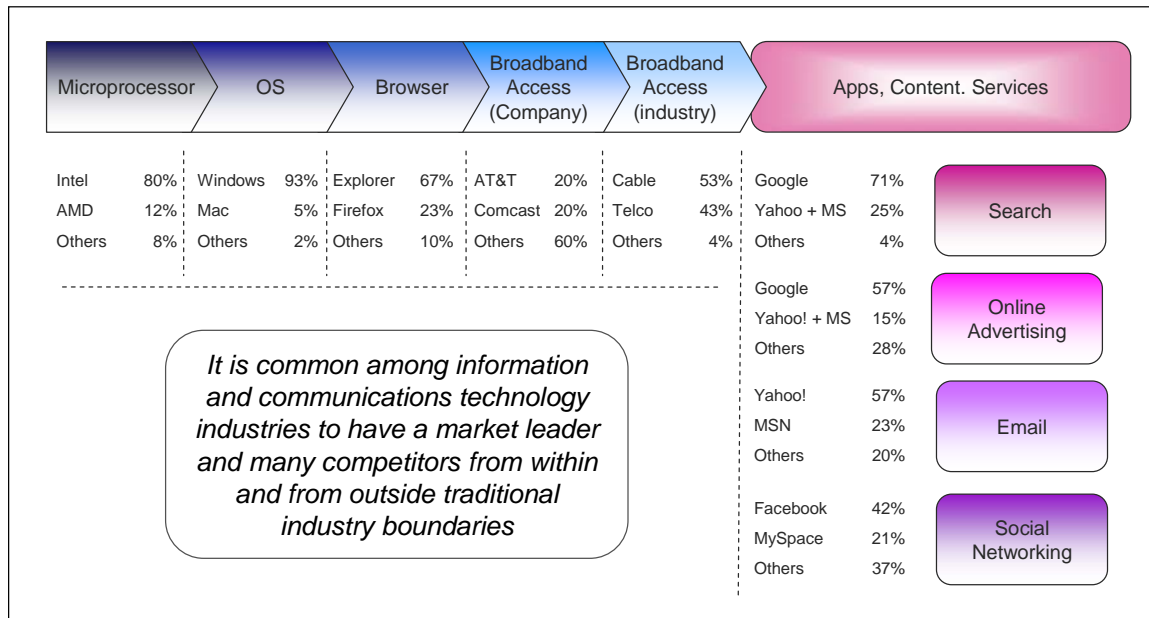
High investment across the ICT ecosystem has created strong market leaders in certain areas, while creating strong new competitive dynamics across the ecosystem. See Figure 1 for selected examples market shares across a portion of the ICT supply chain. The chart first indicates that, within the ICT ecosystem, the market shares of United States wired broadband providers are relatively well balanced. The top two *wired* broadband industries that serve most geographic markets, cable and telecom, have proportionately closer market shares than most other segments shown. Furthermore, no individual *wired* broadband provider has more than 20% of the wired broadband subscribers nationwide, meaning no single company has more than one-fifth of the national wired broadband audience. Considering this (and the fact that there are a substantial number of wireless broadband customers in the broadband marketplace served by independent providers) no one provider has the ability to thwart content and application providers from reaching their potential customers.³⁵

The second point that this chart makes clear is that vigorous competition is occurring within and across segments. Broadband and ICT have enabled substantial competition to the traditional voice telephony business. Voice competition now comes from facilities-based wireless providers, Voice over Internet Protocol (VoIP) over cable, subscription-based over-the-top VoIP (Vonage) and free over-the-top VoIP (Skype). In broadband access, chip makers are active in investing in alternative platforms, such as Intel's investment in WiFi and WiMAX wireless broadband. Competition among applications has also flourished. Social networking has

³⁵ The Commission's attempts to justify even a 30% cap on cable subscriber share in the multi-channel video market have repeatedly been vacated by the courts as not justified in the face of facilities-based competition from satellite and, more recently, wireline companies.

exploded in recent years and Facebook has supplanted MySpace as the leader in less than a couple of years. In about a decade, Google has become the leading Internet search provider and moved into the online advertising, operating system, browser, cloud computing, email, mapping, book publishing, video delivery, social networking, voice service, and smart phone markets segments, among others.

Figure 1: ICT Industry Segment Market Share Leaders



Sources: See Appendix

B. The United States Has Embraced Broadband Technology

1. Consumers Are Rapidly Adopting Broadband

U.S. consumers have embraced broadband technology. Residential subscribership has grown from 1.8 million in 1999 to 79 million as of mid-2008. See Figure 2. The U.S. achieved 50% broadband household penetration in less than nine years, more rapidly than any other network technology and many critical information technologies.³⁶ Broadband household

³⁶ See, John Horrigan, Pew Internet & American Life Project, Home Broadband Adoption 2008 (June 2009) at p. 13. According to Pew, broadband achieved 50% penetration sometime between March of 2007 and May of 2008.

adoption is now greater than 60%. Combined household adoption of broadband and dial-up access, the latter used by households focused on low bandwidth activities, now is about 70%.³⁷ For broadband alone to exceed 50% penetration in less than nine years is remarkable, especially when compared to other communications and information technologies. After its invention by Alexander Graham Bell in 1876, the first telephone exchange appeared in 1878 and the first automatic switch went into commercial use in 1892.³⁸ After the Bell patents expired in 1894, thousands of companies entered the market to provide local exchanges. Yet the telephone did not achieve 50% household penetration until sometime between 1940 and 1950—about a half a century after the patent expiration. In the United States, cable television service took over thirty-five years to achieve 50% household penetration;³⁹ personal computers took 20 years; color televisions took 20 years; and wireless telephones took 16 years.⁴⁰

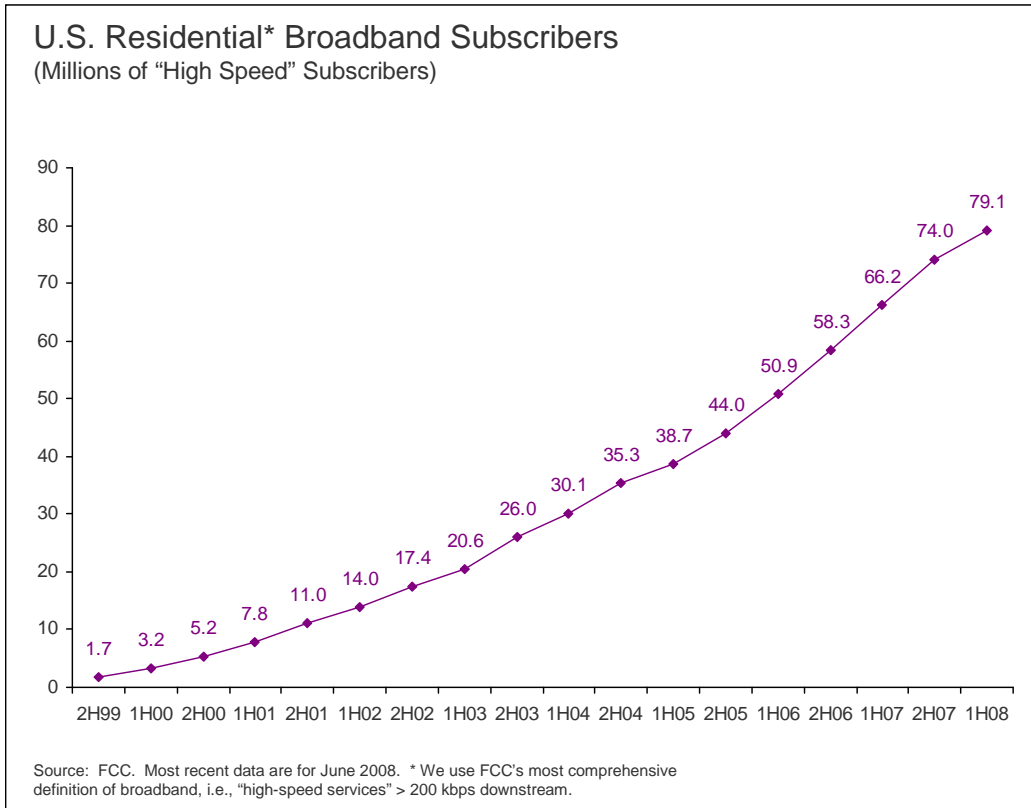
³⁷ *Id.*, at p. 13 (indicating that 79% of adults surveyed in April 2009 access the Internet from home, with 72% accessing the Internet from home, 63% using home broadband, and 7% identified as using dial-up). The 2% gap is either rounding error or access via different technology, such as wireless. *See also* Pew Internet & American Life Project, Internet, broadband, and cell phone statistics (January 5, 2010) at p. 1, which reports updated survey from November-December 2009, showing 74% of adults surveyed using the Internet and 60% using home broadband. The report does not update figures for dial-up or percentage of adults accessing the Internet from home. We cannot conclude that there has been a drop in broadband penetration from the prior to the current survey. The current survey is within the margin of error of the prior survey and the prior survey broadened the sample to include results for Spanish-speaking respondents, whereas the prior survey included results only for English-speaking Hispanics.

³⁸ Federal Communications Commission, Statistical Trends in Telephony July 1998, Table 16.3, page 87 at http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/trend298.pdf (visited June 2, 2009).

³⁹ U.S. Department of Commerce, Census Bureau, Statistical Abstracts of the United States (2008, 2000, 1994, 1985, 1980, 1976) available at http://www.census.gov/compendia/statab/past_years.html (visited June 2, 2009).

⁴⁰ Consumer Electronics Association, Household Product Penetration, 2008-9.

Figure 2: Growth in Residential Broadband Subscribers⁴¹



2. The United States is a World Leader in Amount of Internet Usage

To date, international broadband comparisons seem to have largely ignored actual usage of the Internet in favor of more theoretical measurements based on advertised maximum speed. We believe that the amount that Internet consumers are actually making use of their broadband connections to pull value from the Internet -- whether education, government services or entertainment -- provides a more real-world, practical measure of how successfully a country's broadband networks and regulatory environment are providing consumers with what they want.

⁴¹ See, FCC High Speed Internet as of June 30, 2008 at Table 3. This figure includes 68.5 million fixed subscribers and 11.5 million mobile wireless subscribers. The data are based on FCC's most comprehensive definition of broadband, i.e., residential "high-speed services" that are greater than 200 kbps in at least one direction.

By this more consumer-focused measure, U.S. Internet users and our broadband networks are among the world leaders.

We divided Internet traffic data from Cisco's Visual Networking Index⁴² by the number of Internet users from Internet World Stats⁴³ to get a rough measure of the amount of IP traffic per Internet user. This analysis of actual bandwidth consumed shows that, on a regional basis, North American users are the heaviest users of the Internet, surpassing users in Europe and Asia. The United States consumes more bandwidth per user at 14.25 GB per month, as compared to Western Europe at 13.35 GB per month and Japan at 9.90 GB per month. Comparisons of smaller areas are limited by the data available. For example, a breakdown of U.S. data by state is not available, but the data that is broken out show that the United States (taken as a whole) is essentially on par with France in its per-user consumption of the Internet and uses more bandwidth per user than Germany, Italy, the United Kingdom, and Japan. Only South Korea appears to consume a substantially larger amount of bandwidth per user at 24.5 GB per month.⁴⁴

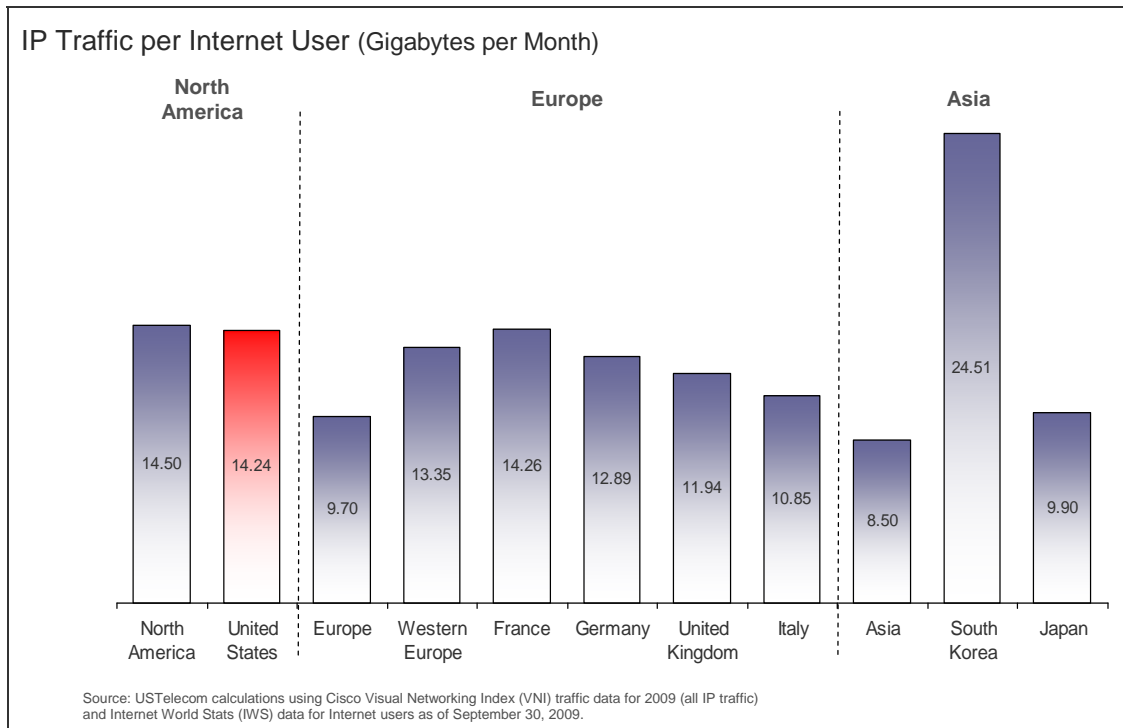
See Figure 3.

⁴² Cisco publishes projected global IP traffic data and forecasts from 2008-2013 for the various regions of the world and selected countries. Regional aggregates are available from the Cisco Visual Networking Index: Forecast and Methodology, 2008–2013 (June 9, 2009). Selected country data are available from Cisco VNI Forecast Widget for the Cisco Visual Networking Index IP Traffic Forecast, 2009 at http://www.ciscovni.com/vni_forecast/index.htm (visited January 11, 2010).

⁴³ 2009 Internet user data by region and country are available from Internet World Stats (IWS) at <http://www.internetworldstats.com/stats.htm> (visited January 11, 2010). The Internet user data include all users, regardless of how they access the Internet (home, business, or public hot spot).

⁴⁴ See, Letter of Walter B. McCormick, Jr., United States Telecom Association, to FCC (December 22, 2009). When comparing country performance, it may make sense to normalize consumption per Internet user, as opposed to per capita, because variation in Internet adoption rates across countries can be significant. The traffic data we use include all IP traffic – business and residential; fixed and mobile; IP voice, video, and data; and private and public Internet. This inclusion is necessary because all of these types of traffic contribute to the economic and consumer impacts of IP data usage and the Internet World Stats Internet user figures do not distinguish business and residential users. We note that regions with widespread legacy multi-channel video adoption (i.e., North America) undercount a great deal of video traffic currently delivered via traditional means, while such traffic are more likely to be delivered over an IP connection in other areas. Finally, while Cisco provides aggregate data for Western Europe and selected countries, it does not provide data for several Western European countries that are generally ranked highly

Figure 3: Internet Usage: Comparison of Selected Regions and Countries



Assessments of per-user consumption could improve rankings and studies in several ways. First, usage, or bits consumed, is a better proxy for value received than throughput speed, either advertised or actual. Furthermore, usage – including business usage – may be a more precise explanatory variable than subscribers or penetration, for instance, when attempting to assess the economic impacts of Internet usage.

There are, no question, challenges associated with usage data. For example, if the intent is to adjust pricing data for actual consumption, one must start with meaningful pricing data. But, it remains difficult to find meaningful pricing because these data generally do not account for differential costs structures of providers based on different regulation, subsidy and public investment levels, demographics, geography, density, and allocation of costs among shared

in broadband rankings, such as Finland, Sweden, Denmark, and the Netherlands.

network services. Usage data also boils everything down to raw bytes, not distinguishing among applications, which may have differential economic and consumer benefits. Nonetheless usage data has clear advantages over other metrics that are commonly used in broadband rankings. Therefore, usage data could be used in place of or as a complement to other commonly used metrics.

C. Consumers Reap Benefits of Broadband Investment

Consumers have benefited from policies encouraging facilities-based broadband competition, with lower prices, more broadband options, and faster throughput.

1. Prices Falling and Throughput Increasing

Prices for basic wireline broadband services have dropped by half since the beginning of the decade. By 2007, consumers could get 10-20 times the speed they could get for the same price as they paid at the start of the decade. See Figure 4. Moreover, competition between cable, wireline and wireless companies is continuing to encourage investment in faster and faster networks. Today, broadband providers are in the initial stages of deploying technologies that will be capable of providing speeds of 50 to 100 megabits per second to the home. Despite recent suggestions that broadband *prices* are increasing,⁴⁵ we find such characterizations misleading. Given the constantly evolving broadband market, in which speeds continue to increase and service offerings continue to improve through additional offerings (*e.g.*, enhanced parental controls, firewalls, virus protection, etc.), a price increase may simply reflect these higher speeds and improved offerings. Moreover, as Figure 4 shows, the introductory price for leading edge speed tiers come down as newer, faster speed tiers are introduced.

⁴⁵ See, *e.g.*, Pew Home Broadband Adoption 2009 at 25.

Figure 4: Wireline Broadband Pricing 2001-2007⁴⁶

Weighted Average Monthly Prices for Top 5 ILEC Wireline Broadband Services

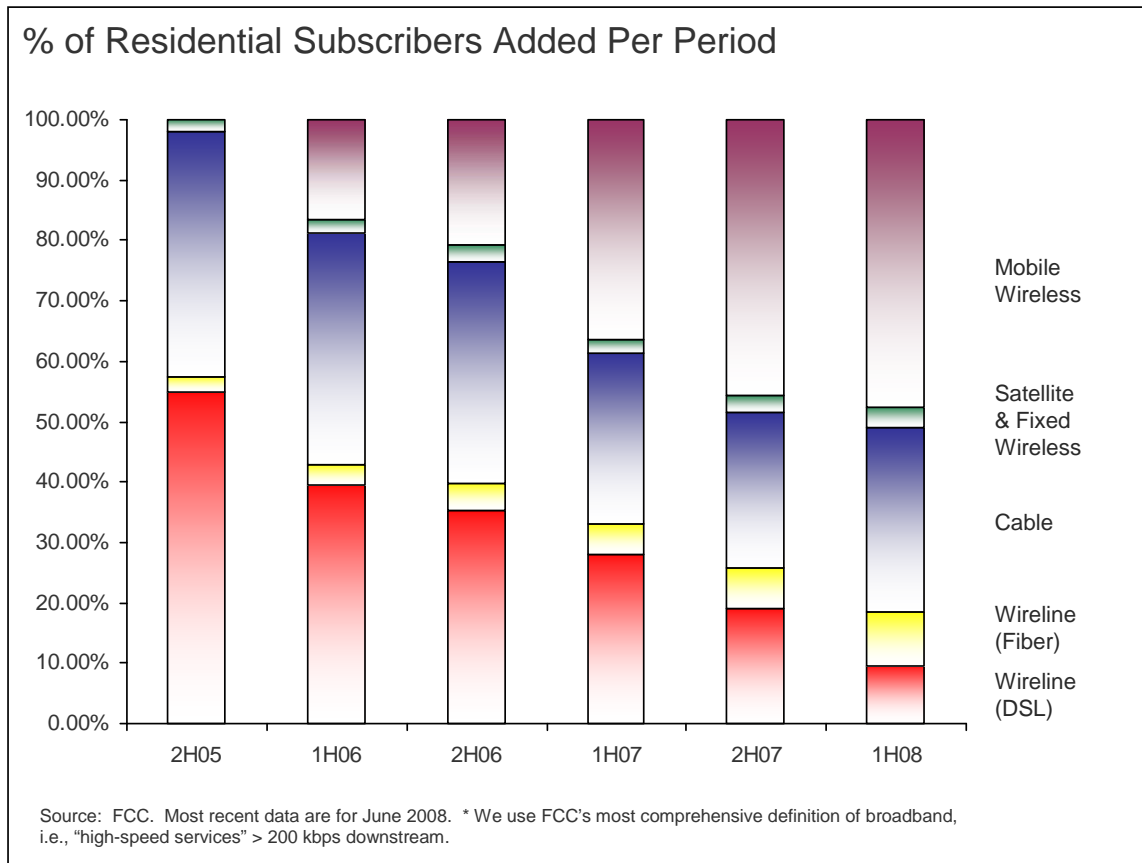
Year	Maximum Advertised Price by Downstream Speed Tier					
	Up to 768 kbps	768 kbps -1.5 mbps	Up to 3.0 mbps	Up to 7.0 mbps	Up to 15 mbps	Up to 30 mbps
2001	*	\$50	n/a	n/a	n/a	n/a
2002	\$28	\$32	*	n/a	n/a	n/a
2003	\$28	\$30	*	n/a	n/a	n/a
2004	\$30	\$33	\$46	*	*	n/a
2005	\$20	\$27	\$33	\$39	*	*
2006	\$20	\$23	\$28	\$36	*	*
2007	\$18	\$25	\$28	\$39	\$51	*

2. Technology Choices Expanding

Consumers have benefited from policies encouraging facilities-based broadband competition, with more broadband options, lower prices, and faster throughput. As discussed above, due to the parallel development of wireline and cable broadband platforms, the United States has the most competitive broadband market in the world. Broadband subscriptions now also reflect availability of additional technologies, such as fiber and mobile broadband. See Figure 5.

⁴⁶ Wireline Broadband Pricing 2001-2007, USTELECOM: THE BROADBAND ASSOCIATION (June 2008), available at <http://www.ustelecom.org/uploadedFiles/Learn/Broadband.Pricing.Document.pdf> (visited June 1, 2009).

Figure 5: The Changing Mix of New Broadband Technology Subscriptions⁴⁷



3. Consumer Value and Choice Growing Exponentially

As broadband networks have proliferated and evolved, consumers have received exponentially better value for a stable share of national income. Since 1990, consumer spending on communications services has tripled, from \$77 billion to \$243 billion, or 2.3% of national disposable income.⁴⁸ This is up from 1.8% of national disposable income in 1990 but below its

⁴⁷ See, FCC, High-Speed Internet Services as of June 2008 (data based on FCC's most comprehensive definition of broadband, i.e., residential "high-speed services" that are greater than 200 kbps in at least one direction.). "Fiber" includes only fiber to the home. Other fiber-based offerings, such as fiber to the node/neighborhood/curb combined with DSL and hybrid fiber-coax are not reflected. Therefore, these data understate the extent of fiber-based offerings.

⁴⁸ This consumer spending includes wireline, wireless, subscription video (e.g., cable television) and Internet access.

peak of 2.5% in 2001.⁴⁹ See Figure 6. Yet consumer value and choice has grown *exponentially* in the intervening years as evidenced by the exploding amount of Internet, video and mobile voice services acquired through these expenditures. Figure 7 shows that the mix of spending has shifted over time to address not only traditional voice services but also broadband, entertainment, and mobile services. And while U.S. communications expenditures as a share of national disposable income have been flat since 1997, U.S. consumers, in aggregate, have added over 100 million broadband and video connections, received access to hundreds of new video programming choices, and established over 100 million wireless connections.

- In 1990, the Internet was unknown to most of the United States, yet by mid 2009, over 60% of U.S. households subscribed to home broadband.⁵⁰ As broadband penetration has grown, new technologies such as fiber and mobile broadband have taken a growing share of new subscriptions. See Figure 5 above.
- In 1990, there were approximately 52 million multi-channel video subscribers, compared to 101 million as of the September 2009.⁵¹ In 1994 there were 106 national cable programming networks⁵² compared to 565 in 2006.⁵³

⁴⁹ See, Patrick S. Brogan, *Id.*, at pp. 172-174.

⁵⁰ See, John B. Horrigan, Pew Internet & American Life Project, Home Broadband Adoption 2009 (June 2009) at p. 14 and Lee Rainie, Pew Internet & American Life Project, Internet, Broadband, and Cell Phone Statistics (January 5, 2010) at p. 1.

⁵¹ See, National Cable & Telecommunications Association, <http://www.ncta.com/Statistics.aspx> (visited January 12, 2010) (September 2009 data include 62.6 million cable and 38.8 million non-cable subscribers). 1990 data include cable subscribers only (as non-cable subscribers were negligible), available at <http://www.ncta.com/Stats/BasicCableSubscribers.aspx> (visited January 12, 2010).

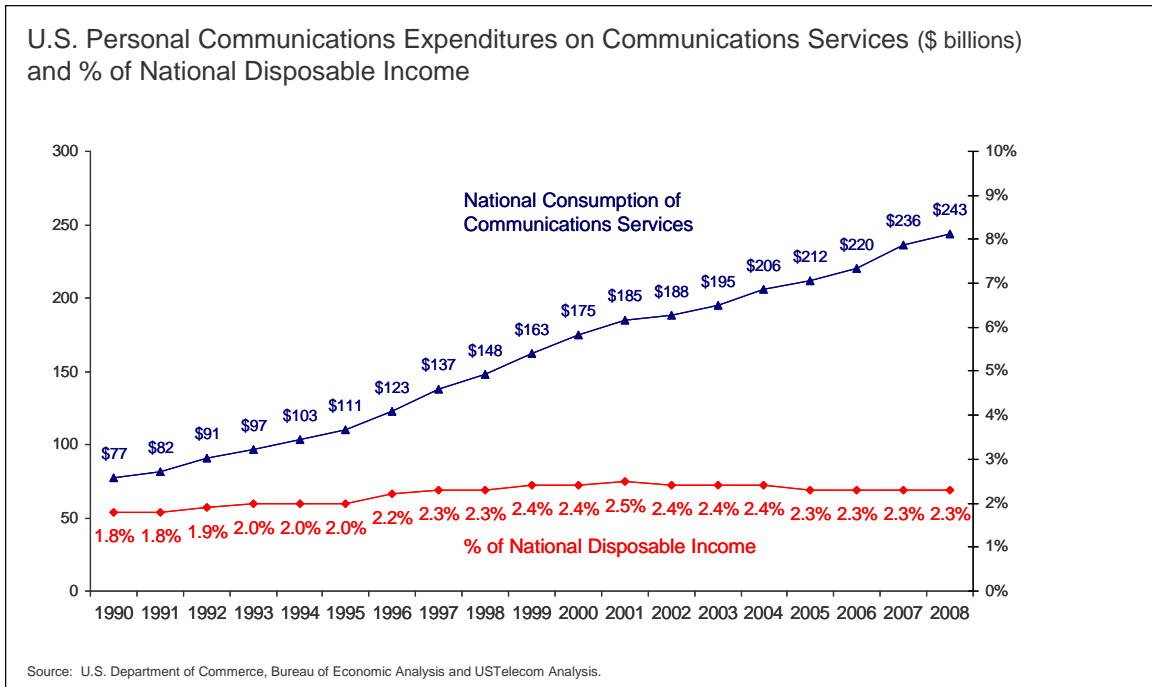
⁵² *In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, FCC 95-491 at 72 (Dec. 11, 1995), available at <http://www.fcc.gov/mb/csrptpg.html> (visited Apr. 16, 2009).

⁵³ *In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Annual Report, FCC 07-206 at 9 (Nov. 27, 2007), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-206A1.pdf.

- In 1990 there were 5 million wireless subscribers compared to 270 million in 2008.⁵⁴

Wireless consumers used an average of 140 minutes per month in 1993 compared to 769 in 2007.⁵⁵ Wireless data accounted for 18% of wireless service revenue in 2007.⁵⁶

Figure 6: Communications Consumption and Share of National Income⁵⁷



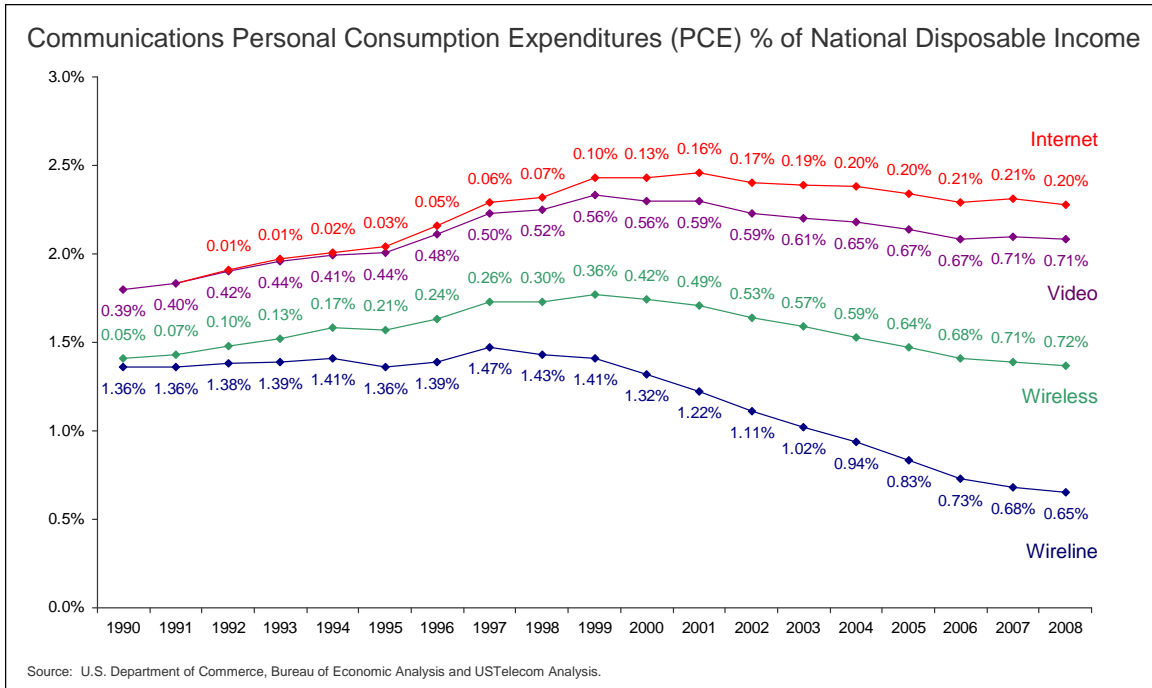
⁵⁴ CTIA: THE WIRELESS ASSOCIATION (Dec. 2008), *Semiannual Wireless Industry Survey*, available at http://files.ctia.org/pdf/CTIA_Survey_Year-End_2008_Graphics.pdf (visited Apr. 8, 2009).

⁵⁵ *In the Matter of Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, FCC-DA 09-54, Table 12 at 93 (Jan. 16, 2009).

⁵⁶ *Id.*

⁵⁷ See, Patrick S. Brogan, *Id.*, Figure 10 at p. 171.

Figure 7: The Changing Mix of Communications Service⁵⁸



III. TOMORROW'S INTERNET WILL CONTINUE TO EXPAND, EVOLVE AND INNOVATE.

As demonstrated in the preceding section of these comments, the nation's remarkable progress under the current regulatory framework in the broadband marketplace has resulted in unprecedented deployment and adoption levels, coupled with increased broadband speeds and greater competition in the voice, video and broadband marketplace. Other participants in the Internet ecosystem have leveraged the broadband platform to create an unmatched range of consumer and business services, where a range of participants – from content and service providers to others in the ICT environment – continue to develop and deploy new services through investment and innovation.

⁵⁸ *Id.* at p. 174.

These marketplace realities certainly appear to obviate the need for the introduction of new regulations that could potentially hinder continued investment and innovation within the Internet ecosystem. All of these developments have occurred with a speed and scope unparalleled by any prior technology and have been achieved almost entirely through private sector investment. As noted previously, cumulative capital expenditures by broadband providers from 2000 to 2008 were over half a trillion dollars, and private investment in broadband infrastructure has grown consistently from 2003 through 2008.⁵⁹ Similarly, ICT contributed \$902 billion in GDP in 2007, and U.S. firms invested \$455 billion in ICT in 2008, representing 22% of total investment across the entire economy.⁶⁰ And this remarkable investment and rapid progress continues, as technological innovation within the entire Internet ecosystem continues to increase and evolve under today's regulatory framework.

Essential to this progress, is the continued implementation of policies that allow our nation's innovation and technology to expand throughout the *entire* Internet ecosystem. To further this pro-consumer development, the Commission should ensure that any regulations it adopts in the name of preserving an open Internet continue to support the innovation and evolution of the Internet. Regulations that tip today's balance among Internet sectors threatens the success we have achieved. As should be clear from Figure 1 on page 18,⁶¹ there are large firms and forces scattered across the entire ecosystem.

⁵⁹ See, p. 6, *supra*. These comments also note that this investment continues at a remarkable pace. As noted previously, in 2008 alone, broadband providers invested \$64.2 billion to deploy and upgrade their networks and in 2009 were projected to invest just under \$60 billion, a temporary reduction in capital spending of less than 10%. This level of investment is significant given the severe economic downturn, which has led private firms across the economy to reduce investment by approximately 20% as of the third quarter of 2009. Moreover, broadband provider investment is projected to return to growth in either 2010 or 2011, sustaining an average of more than \$60 billion per year from 2007 through 2012. See, pp. 6 - 7, *supra*.

⁶⁰ See, p. 12, *supra*.

⁶¹ See, Figure 1: Figure 1: ICT Industry Segment Market Share Leaders, p. 18, *supra*.

As the National Telecommunications and Information Administration (NTIA) noted in a submission less than two weeks ago to the Commission in its National Broadband Plan proceeding:

the social and economic fruits of the Internet economy are the result of a virtuous cycle of innovation and growth between that ecosystem and the underlying infrastructure – the infrastructure enabling the development and dissemination of Internet-based services and applications, with the demand and use of those services and applications by consumers and businesses driving improvements in the infrastructure which, in turn, support further innovation in services and applications. And, of course, rivalry among the various firms providing broadband services also has expanded the availability and capabilities of that underlying infrastructure.⁶²

It is today's balance that the Commission must be particularly careful not to upset. The United States Department of Justice (DOJ) recently echoed these concerns in a filing in the Commission's National Broadband Plan proceeding.⁶³ In its filing, the DOJ concluded that "[a]lthough enacting some form of regulation to prevent certain providers from exercising monopoly power may be tempting . . . care must be taken to avoid stifling the infrastructure investments needed to expand broadband access."⁶⁴ The DOJ also noted that in industries "subject to significant technological change," such as those throughout the Internet ecosystem, "it is important that the evaluation of competition be forward-looking rather than based on static definitions of products and services."⁶⁵

⁶² Letter from Lawrence E. Strickling, Assistant Secretary for Communications and Information, NTIA, to Julius Genachowski, Chairman, FCC, dated January 4, 2010, GN Docket No. 09-51, (available at: http://www.ntia.doc.gov/filings/2009/FCCLetter_Docket09-51_20100104.pdf) (visited January 12, 2010) (*NTIA Letter*).

⁶³ Ex Parte Submission Of The United States Department Of Justice, GN Docket No. 09-51, dated January 4, 2010 (*DOJ Filing*).

⁶⁴ *Id.* at p. 28.

⁶⁵ *Id.* at p. 6.

In short, the existing virtuous cycle within the Internet ecosystem should be further encouraged by the Commission in any subsequent rules it may choose to adopt. In order for the Commission to improve upon these competitive developments, it should carefully weigh how any changes are likely to ripple across today's favorable climate for investment and innovation throughout the entire ICT ecosystem.

A. The ATLAS Report Illustrates the Changing Dynamics of Today's Internet

Ongoing innovation in the broadband marketplace can be seen in recent – and dramatic – changes to the Internet itself. The recent Annual Report by the ATLAS Internet Observatory (ATLAS Report) illustrates this extraordinary shift.⁶⁶ The ATLAS Report also highlights the danger of the Commission taking too narrow a view of the Internet ecosystem, and problems that could arise if the Commission ignores the DOJ's caution against static views of the Internet marketplace.

The ATLAS Report quantifies the changing nature of the Internet in terms of access and content delivery, and emphasizes the consolidation of content contributors and the evolution of the Internet backbone, or core. The findings of the ATLAS Report highlights that the Commission's focus of the current rulemaking, which is limited to "last mile" Internet access

⁶⁶ Annual Report by the ATLAS Internet Observatory, Arbor Networks Inc., University of Michigan, Merit Networks, Inc. (available at: http://www.eecs.umich.edu/eecs/about/articles/2009/Observatory_Report.html (visited January 11, 2010) (*ATLAS Report*). The ATLAS Report, which details a landmark two-year study of global Internet traffic that offers detailed trend data and analysis, was developed by researchers at the University of Michigan, Arbor Networks, and Merit Network. The ATLAS Report, believed to be the largest study of global Internet traffic since the birth of the commercial Internet in the mid-1990s, provides analysis of two years' worth of detailed traffic statistics, as the study, at its peak, monitored more than 12 terabits per second for a total of more than 256 exabytes of Internet traffic.

providers, such as telecom, cable, and wireless network operators, may be too narrow to provide a thorough understanding of the dynamics of the Internet.⁶⁷

The practical implications of the ATLAS Report emphasize the reality that *any* company participating in the Internet ecosystem – not just ISPs – can block, degrade, or disrupt traffic en route to the end consumer or offer pro-competitive improvements in traffic delivery. In fact, non-ISPs are handling larger volumes of traffic and can have a greater impact on the consumers' Internet experience. Any regulations that favor one segment of the Internet ecosystem over another may do irreparable harm to the Internet ecosystem and the consumers that rely upon it.

1. The Substantial Consolidation of Content Contributors is Redefining the Delivery of Content over the Internet

The ATLAS Report found that content on the Internet has migrated out of the enterprise and edge to aggregators.⁶⁸ Whereas five years ago Internet traffic was proportionally distributed across tens of thousands of enterprise-managed web sites and servers around the world, most content today is increasingly concentrated with a small number of very large hosting, cloud, and content providers. According to the ATLAS Report, “[o]ut of the 40,000 routed end sites in the Internet, 30 large companies – ‘hyper giants’ like Limelight, Facebook, Google, Microsoft, and YouTube – together now generate and consume a disproportionate 30% of all Internet traffic.”⁶⁹

This consolidation of content traffic by hyper giants – which commenced in 2005 and continues to this day – resulted from the collapsing price of both wholesale Internet transit and

⁶⁷ The *ATLAS Report* offers analysis of two years' worth of detailed traffic statistics from 110 large and geographically diverse cable operators, international transit backbones, regional networks, and content providers.

⁶⁸ In general, aggregators host third-party contents for fast delivery of any digital content, including static contents (*e.g.* static HTML pages, images, documents, software patches etc.), streaming media (*e.g.* audio, real time video etc) and varying content services (*e.g.* directory service, e-commerce service, file transfer service etc.). The sources of content can be large enterprises, web service providers or media companies.

⁶⁹ See, Press Release, *Researchers from U-M, Arbor Networks, and Merit Network Present Findings from Two-Year Internet Traffic Study* (available at: http://www.eecs.umich.edu/eecs/about/articles/2009/Observatory_Report.html) (visited January 12, 2010).

content distribution networks (CDNs). These decreasing prices, combined with such things as the growth of advertisement-supported content, have resulted in an aggregation of non-ISP entities that are handling and managing Internet traffic.⁷⁰ The ATLAS Report concludes that this shift in Internet traffic has “[i]ncreasingly blurred lines between ISP and CDN.”⁷¹ CDNs *alone* currently account for 10% of all Internet traffic.⁷² Although everyone may be an Internet content provider as the Commission notes,⁷³ the reality is that content flows are increasingly coming from a smaller set of operators.

2. The Evolving Nature of the Internet Core has Created a More Open Internet

The evolution of the Internet core is captured in the ATLAS Report’s comparison between the Internet of the past, with the “New Internet.” Pictured below is the ATLAS Report’s representation of the so-called “Textbook Internet” of 1995 through 2007.⁷⁴ Key to this former architecture was the hierarchical nature of the network: Online consumers accessed any content on the Internet through a vertical path -- initiating at the ISP, passing over a regional access provider’s network and using facilities of a national backbone operator. This mechanism resulted in a form of ‘out and back’ network, where the desired content was provisioned to the consumer through a similar routing of traffic.

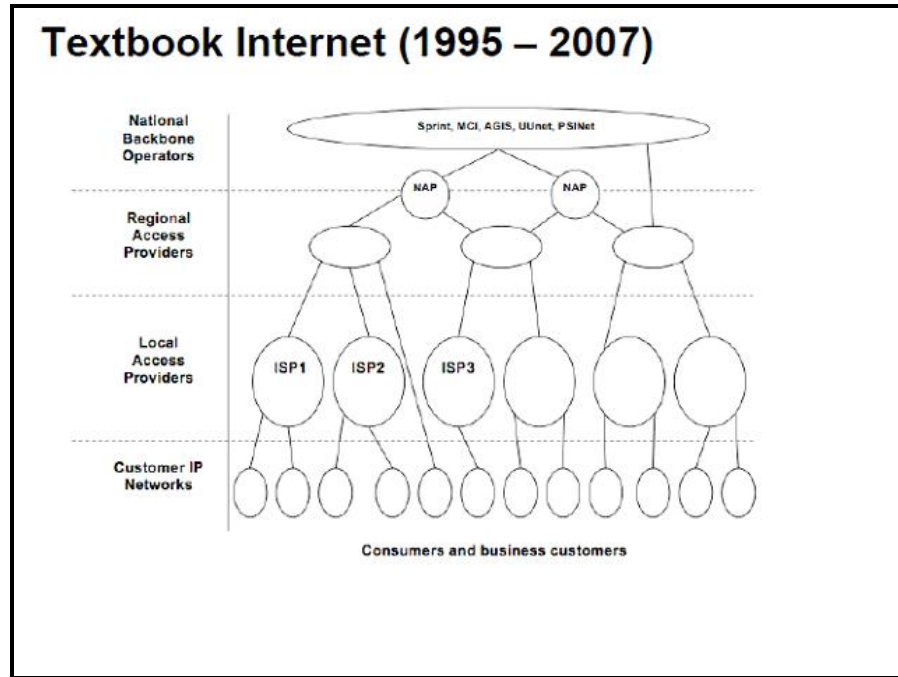
⁷⁰ *ATLAS Report*, p. 11.

⁷¹ *Id. at*, p. 15.

⁷² *Id.*

⁷³ Notice of Proposed Rulemaking, Preserving the Open Internet, FCC 09-93, ¶99 (released October 22, 2009) (*Notice*).

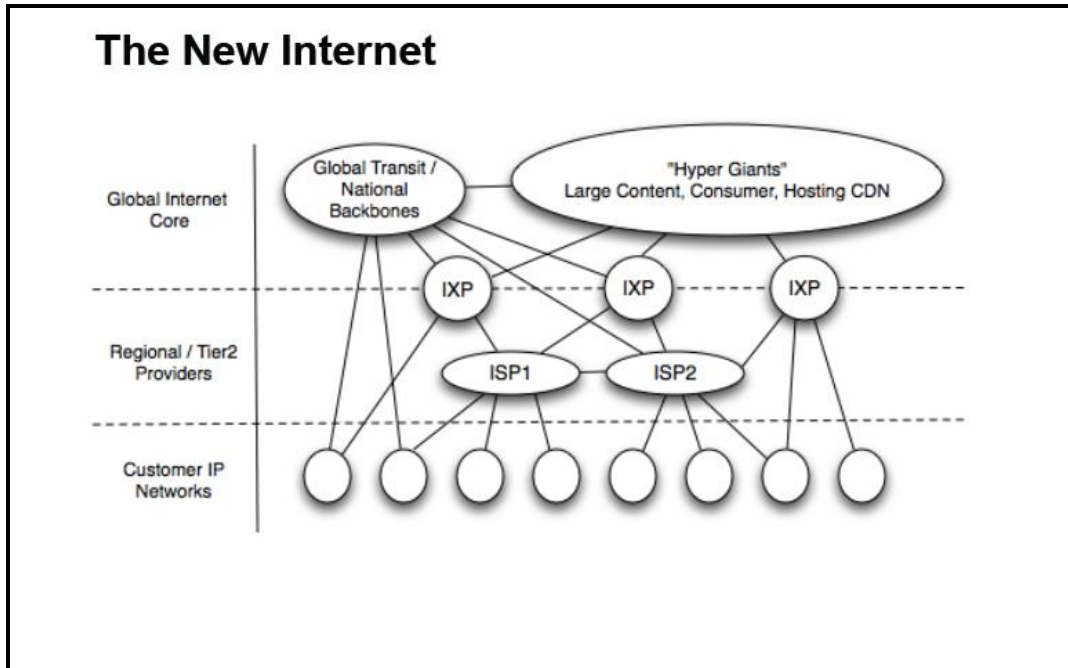
⁷⁴ This version of the Internet was embodied in four key segments: 1) National Backbone Operators (*e.g.*, Sprint, MCI, UUNet); 2) Regional Access Providers; 3) Local Access Providers (*i.e.*, traditional ISPs); and 4) Customer IP Networks. *ATLAS Report*, p. 9.



But with the innovation and evolution of the Internet ecosystem, Internet architecture has moved from traditional hierarchical networks to more open architecture. As the ATLAS Report highlights, there is today a new core of interconnected content and consumer networks that have resulted in “dramatic improvements in capacity and performance.”⁷⁵ This shift in network design has resulted in tremendous disintermediation; in some instances it has resulted in the direct interconnection between content and consumers. As Danny McPherson, the VP and CSO of Arbor Networks (one of the contributors to the study), commented, “[t]he Internet is a lot flatter today, more densely connected.”⁷⁶

⁷⁵ ATLAS Report, p. 17.

⁷⁶ Thomas Claburn, Information Week, *Google Now Largest Source Of Internet Traffic*, October 13, 2009 (available at: http://www.informationweek.com/news/infrastructure/management/showArticle.jhtml?articleID=220600387&cid=RSSfeed_IWK_All) (visited January 12, 2010).



The practical reality of this shift illustrates the danger of any static analysis of the Internet by the Commission. The ATLAS Report illustrates the dramatic shifts that have occurred in content delivery and content source aggregation, which inevitably affect both consumer access to content and the relationships between the various stakeholders in the Internet ecosystem. These developments may also signal further changes coming to the Internet core, including CDNs, regional access providers and new systems for delivery of content. As the DOJ noted in its filing in the National Broadband Plan proceeding, “the FCC needs to consider not only the number and characteristics of existing and future providers but also how these complementary inputs impact the goals the FCC seeks to achieve.”⁷⁷

As the above diagram illustrates, *any* company participating in the Internet ecosystem can effect or introduce innovations with respect to traffic en route to the end consumer. Regulations that favor one segment of the Internet ecosystem over another, or prevent one segment from

⁷⁷ DOJ Filing, p. 5.

participating in innovation in content delivery will handicap new services and reduce the ability of the Internet to evolve.

IV. THE BROADER INTERNET ECOSYSTEM SHOULD BE TAKEN INTO ACCOUNT WHEN CONSIDERING ANY NEW REGULATION OF THE INTERNET

Given the changes detailed in the ATLAS Report and the discussion of market leaders in the Internet ecosystem in the previous section,⁷⁸ the Commission should recognize that there are many components to the Internet ecosystem that are developing and changing rapidly. These changes in the Internet ecosystem highlight the fact that the Internet is comprised of numerous stakeholders and gatekeepers that are key players in the overall Internet experience.⁷⁹ The current balance between the sectors and firms in the Internet ecosystem is producing the vast benefits described earlier.

If the Commission moves forward on formulating prescriptive rules with its claimed intention of wanting to preserve today's consumer experience, it is, therefore, critically important that the Commission extend these rule to *all* entities that have significant ability to influence consumers' Internet experiences. To do otherwise risks tipping the balance that has been so productive.

As demonstrated in Section II.A of these comments, today's Internet stakeholders include diverse entities playing key roles throughout the Internet ecosystem. These stakeholder entities include network providers, application and service providers, and content providers that are increasingly competing vigorously with other entities within and across segments.⁸⁰ As

⁷⁸ See, pp. 11 - 20, *supra*.

⁷⁹ See, Ex Parte Notice, USTelecom, WC Docket No. 07-52, GN Docket No. 09-191, November 24, 2009.

⁸⁰ Examples of these entities include microprocessor providers (e.g., Intel, AMD), operating systems (e.g., Windows, Mac), browsers (e.g., Firefox, Explore, Chrome), broadband access providers at the consumer and industry level, and content and service providers (e.g., offering search capabilities online advertising, e-mail and social networks).

previously discussed, voice competition now comes from facilities-based wireless providers, VoIP over cable, subscription-based over-the-top VoIP (*e.g.*, Vonage) and free over-the-top VoIP (*e.g.*, Skype). This competition has also seeped into the application marketplace where Facebook has supplanted MySpace as the leader in social networking, and Google has emerged as a leader in cloud computing, email, mapping, book publishing, video delivery, social networking, voice service, and smart phone segments of the Internet marketplace, to name just a few.⁸¹ As these stakeholders develop and innovate their products and services throughout the entire Internet ecosystem, business models likewise continue to be created, developed and revised.

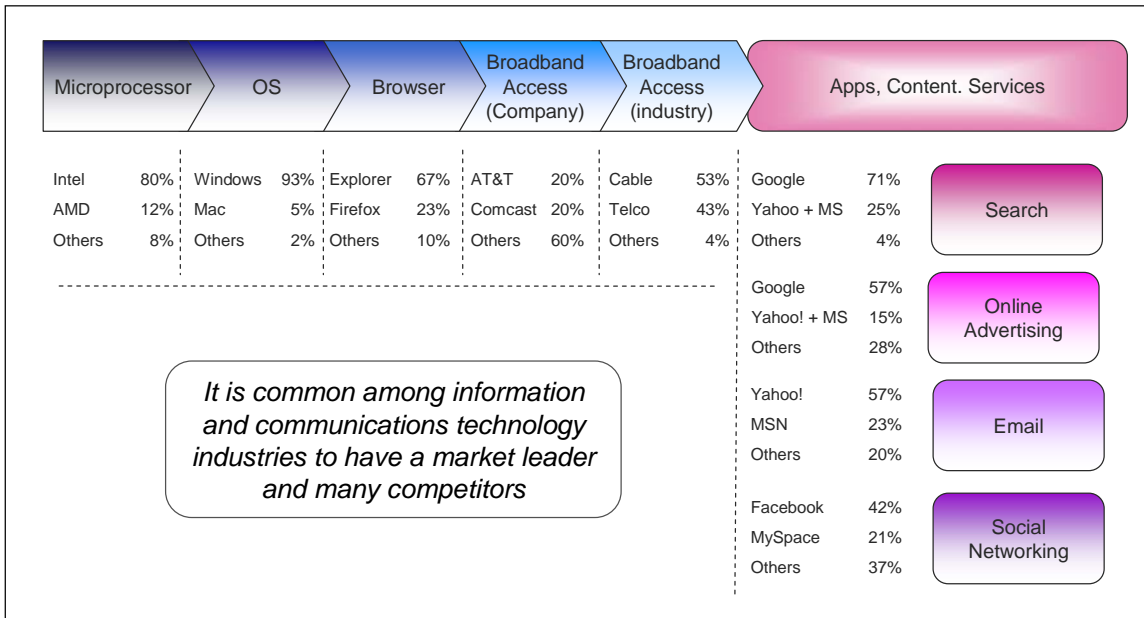
Importantly for the Commission, each of these stakeholders may have significant amounts of power over particular segments of the Internet ecosystem and differing incentives for its respective business model. Broadband providers have incentives to fill their networks with traffic. In some instances, content providers with a certain degree of market power (*e.g.*, Hulu) may have the incentive to discriminate against specific application providers (*e.g.*, Boxee). Edge providers (*e.g.*, Google search) may have the incentive and market power to discriminate against certain providers of services that compete with Google products (*e.g.*, Garmin vs. Google Maps, Fox News vs. Google News).

It would be entirely inappropriate for the Commission to enforce rigid and inflexible obligations on a single class of stakeholder entities, while doing nothing to address other powerful entities operating in different niches of the Internet ecosystem. Preserving today's Internet can only be done with an eye on all its parts. In contrast, providing a regulatory

⁸¹ *See*, p. 17, *supra*.

advantage to some of those market segments at the expense of other market segments, such as network providers, would undermine existing and future broadband investment initiatives.

To the extent the Commission is considering rules to preserve its view of today’s consumer (or content creator) Internet experience, the Commission should be mindful of the fact these experiences are determined, today, by a broad array of firms and competitive forces. While some providers of Internet services,⁸² other online stakeholder entities may have, at least for now, control over large shares (*i.e.*, 60% or more) of traffic generated within an Internet marketplace segment as shown below.



The dynamic among the wide variety of Internet firms and consumers is producing a high investment, high innovation ecosystem. As noted previously, the ICT sector alone contributed \$902 billion in GDP in 2007 – and this sector ranks among the top contributing sectors in the U.S. economy and is the primary driver of real, inflation-adjusted growth.⁸³ This sector has

⁸² See, e.g., *ATLAS Report*, pp. 13 - 15.

⁸³ See, p. 12, *supra*.

supported in new competition from broadband-enabled applications and devices, including but certainly not limited to, over-the-top VoIP, email, text messaging, social networking, and online video.⁸⁴ New rules constraining only one set of firms in this environment are likely to tip today's balance, to the detriment of all. In addition, new rules that constrain broadband operation and services are likely to interfere with the dynamics of the Internet and its delivery systems, again to the harm of all.

V. THE FCC'S PROPOSED RULES

Proponents of changing the current course set by the Internet Policy Statement bear an exceedingly heavy burden to show that change could benefit the public interest given the broadband record discussed above. This is particularly the case, since as the Commission acknowledges, since the adoption of its Internet Policy Statement over four years ago, "our nation has seen even greater expansion of broadband Internet access service."⁸⁵ As the Commission investigates crafting appropriate regulations, it should carefully consider consumers' experience under today's approach. USTelecom and its members have endorsed the principles included in the Commission's original Internet Policy Statement, which was designed to preserve an open Internet. Under these policies, the entire ecosystem has thrived, with investments of huge sums, and provision of innovative offerings and delivering of enormous value to consumers.

The Commission should reject any new, inherently inflexible standard such as a strict nondiscrimination standard and instead focus on "unreasonable and anticompetitive" forms of discrimination that adversely affect consumers. By focusing on this discrimination, the

⁸⁴ See, pp. 25 - 27, *supra*.

⁸⁵ Notice, ¶48.

Commission can preserve the flexibility necessary to enable innovation to occur at all levels of the Internet but still maintain the ability to respond on a case-by-case basis to allegations of unreasonable and anticompetitive charges that result in material harm to consumers. Any such rules should also include an exception for managed services, while also taking a broad approach to network management. Finally, logical transparency requirements should apply evenly across all participants in the ecosystem. Each of these issues is discussed in greater detail below.

A. Any Rules Should be Broadly Applied in Order to Maintain Balance in the Thriving Internet Ecosystem.

As the DOJ noted in its filing with the Commission in its National Broadband Plan, broadband services are just “one part of a wider information technology ecosystem that ultimately delivers value to consumers.”⁸⁶ Examples of the success of the current policy approach toward these information services abound. For instance, as previously noted, consumers in North America and the United States are the heaviest users of the Internet, surpassing Europe and Asia, and the United States consumes more bandwidth per user at 14.25 GB per month, as compared to Western Europe at 13.35 GB per month and Japan at 9.90 GB per month.⁸⁷

Proscriptive rules that apply only to a separate segment of the Internet ecosystem will shackle just one discrete segment of this ecosystem – network broadband providers – while creating uncertainty about their ability to compete and offer unique services to consumers, or to participate in the changing Internet described in the ATLAS Report discussed above. Such an environment will drive investment away from broadband networks at a time when the Commission should be moving to promote an environment that allows the private sector to

⁸⁶ *DOJ Filing*, p. 4.

⁸⁷ *See*, p. 21, *supra*.

continue to create jobs, deploy new services, and innovate. Preserving the dynamic of today's Internet ecosystem would require broad application of any Commission rules to all stakeholders and participants so as not to tip the balance among them.

B. Any Rules Should be Flexible.

USTelecom and its members have already endorsed the four principles included in the Commission's Internet Policy Statement. However, the Commission's proposal for an inflexible nondiscrimination rule raises several concerns, as does the proposal to flatly ban cost-sharing arrangements between content providers and broadband service providers.⁸⁸ The Commission should focus this proposed regulation on "unreasonable and anticompetitive" forms of discrimination that adversely affect consumers.

Adoption of the Commission's regulations as currently drafted would discourage innovation by broadband providers and possibly prevent the changes currently working through the Internet delivery system – as demonstrated in the ATLAS Report – from reaching the access portion of the network. In particular, the Commission's proposed rule to prohibit broadband providers charging content, application or service providers for enhanced access would severely curtail the ability of broadband providers to engage in the same type of innovation occurring elsewhere within the Internet ecosystem.⁸⁹

Ultimately, adoption of such a regulatory regime would prevent experimentation with new access offerings, prevent consumers from deciding which of those offerings were of value, and assign all the costs of the broadband network solely to the broadband provider's end user. By curtailing the development of creative new service offerings, adoption of the proposed

⁸⁸ *Notice*, ¶106

⁸⁹ *Id.*

regulatory regime could also have a detrimental impact on broadband adoption, particularly among minorities and low-income subscribers, an issue of particular concern to the Commission in its Notice.⁹⁰ A more flexible approach, embodied in a standard based on prohibiting only unreasonable and anti-competitive behavior, would help enable pro-consumer innovation, while at the same time such a standard would provide the Commission with the tools necessary to address practices that harm consumer welfare.

1. New Business Models are Developing Across all Platforms and Need to be Encouraged.

New business models to deliver Internet services to consumers in innovative ways are developing rapidly. The Commission's proposed inflexible non-discrimination rule, which effectively is a prohibition on cost sharing, is flatly inconsistent with these new, pro-consumer offerings. We discuss below two key areas of its effects: adoption of broadband services by lower income subscribers and the development of new services and delivery models.

A recent study from the Georgetown Center for Business and Public Policy (Georgetown Study) observed that the rapid increases in bandwidth demand associated with the increase in use of video and audio applications will "compel Internet providers to undertake substantial investments to upgrade their existing infrastructure to maintain service reliability and satisfy customers."⁹¹ The Georgetown Study analyzed uptake rates based on various household

⁹⁰ *Id.* at ¶82. In particular, the Commission asks about the impact its rules "might have on efforts to close the digital divide and encourage robust broadband adoption and participation in the Internet community by minorities and other socially and economically disadvantaged groups." *Id.* The Commission further notes that the digital divide is "significant" and ultimately "impacts efforts to promote employment, education, healthcare, and consumer welfare." *Id.* And while the Commission indicates that its Internet protections may be particularly valuable for vulnerable groups," as the Georgetown Study demonstrates that implementation of the Commission's rules could have the opposite effect. *Id.*

⁹¹ Report, Dr. Kevin A. Hassett & Dr. Robert J. Shapiro, *Towards Universal Broadband: Flexible Broadband Pricing and the Digital Divide*, Georgetown Center for Business & Public Policy, August 2009, p. 9 (*Georgetown Study*).

incomes and concluded that a critical question for policymakers was whether all Internet users should bear such additional costs equally, or whether other revenue streams should be considered.⁹²

Under the Georgetown Study's most ideal scenario, universal broadband coverage could be achieved by 2017.⁹³ This scenario presumes that the investment required to support broadband deployment in unserved areas – closely matching the Commission's own estimate of \$350 billion⁹⁴ – is *not* passed on to consumers in the form of higher broadband subscription fees. The Georgetown Study concludes that Internet providers would be better off seeking additional revenues, to help offset some of these costs from other sources, such as a system that share costs with content providers that demand enhanced performance or with high bandwidth users.⁹⁵

Ultimately, the Georgetown Study concluded that “the link between prices and broadband adoption suggests that higher prices for all consumers will slow the drive to universal broadband and expand the gap that now separates white from African-American and the less affluent from wealthier citizens.”⁹⁶ Significantly impairing ISPs' development of innovative value-added services – for example, by prohibiting cost sharing as paragraph 106 appears to do with content providers – would prevent new lower-priced offerings and hinder broadband deployment and adoption.

Already, various content companies are leveraging broadband networks in new ways to deliver their products to consumers anywhere and anytime. For example, Amazon's Kindle now

⁹² *Id.* at p. 7.

⁹³ *Id.* at pp. 8-9.

⁹⁴ FCC New Release, *Broadband Task Force Delivers Status Report on Feb. 17 National Broadband Plan*, September 29, 2009.

⁹⁵ *Georgetown Study*, p. 9.

⁹⁶ *Id.* at p. 7.

utilizes AT&T's 3G networks and previous versions use Sprint's 3G network. Both enables consumers to "wirelessly search, discover, and download content on the go . . . [a]nd unlike Wi-Fi, you never have to hunt for a hotspot."⁹⁷ This service offering – developed by mutual agreements between Sprint and Amazon, and AT&T and Amazon – requires no annual contracts and no monthly fees for consumers and represents just one example of such innovate services. The cost of delivering content is directly paid for by the content provider, not the consumer -- an innovative, pro-consumer approach to cost recovery that appears to be at odds with the prohibition contained in paragraph 106 of the Commission's Notice.

More examples abound. Condé Nast – a worldwide magazine publishing company – is reportedly in talks to repurpose its content onto a new touchscreen tablet device that would move its print content onto portable reading devices.⁹⁸ According to one report, Condé Nast envisions "multiple versions of machines featuring large color touchscreens" that would include "wireless connections."⁹⁹ Skiff, LLC, an e-reading company developed by media conglomerate Hearst Corporation, is planning a similar device and is partnering this Spring with Nextel Corp. for wireless delivery.¹⁰⁰ In the gaming environment, TeliaSonera International offers gaming companies special services that provide lower-latency connections that improve the online

⁹⁷ See, Kindle Wireles Reading Device Website, (available at: http://www.amazon.com/dp/B0015T963C/?tag=googhydr-20&hvadid=4670206015&ref=pd_sl_19calxq4k4_e) (visited January 12, 2010).

⁹⁸ See, Gadget Lab Webiste, *Video Demonstrates Wired's Concept iTablet App* (available at: <http://www.wired.com/gadgetlab/2009/11/itablen/>) (visited January 12, 2010).

⁹⁹ See, Peter Kafka, MediaMemo Website, *Condé Nast's Offering for Apple's Mystery Tablet: Wired Magazine*, November 18, 2009 (available at: <http://mediamemo.allthingsd.com/20091118/conde-nasts-offering-for-apples-mystery-tablet-wired-magazine/>) (visited January 12, 2010).

¹⁰⁰ Rachel Metz, *E-Reader Boom Kindles a Variety Of New Options*, January 8, 2010 (available at: <http://www.wtop.com/?nid=108&pid=0&sid=1858106&page=2>) (visited January 8, 2010).

gaming experience. Gaming companies should be able to choose to pay for these services to ensure a better consumer experience.¹⁰¹

These business models are just some of the examples of the virtuous cycle that can result from innovation: Content providers achieve cost-saving benefits through lower digital distribution costs, various types of network providers offer broadband support, consumer electronics providers develop new and innovative delivery platforms,¹⁰² and consumers gain increased access to new forms of exciting and interactive content.¹⁰³ These positive developments demonstrate how *network providers* are working with content developers on new and innovate ways to *deliver* content to consumers

These same consumers, however, are often *losing* access to content and services due to obfuscation by *non-network* providers. While the Commission expressed concerns over an ISP's incentive and ability to block certain Internet traffic over its network,¹⁰⁴ USTelecom, however, recommends that the Commission focus instead on other members of the Internet ecosystem, given numerous examples of restrictive actions taking place by *non-network* providers .

¹⁰¹ See, TeliaSonera International Carrier Website, *Gaming* (available at: <http://www.teliasoneraic.com/tsicWeb/tsic/subpage/begin.do?cid=40ad3cbd9546d010VgnVCM100000d83ab183RCD>) (visited January 13, 2010) (*TeliaSonera Website*).

¹⁰² See, Wired Website, *How an Apple Tablet Could Pit iTunes Against Amazon.com*, July 27, 2009 (available at: <http://www.wired.com/gadgetlab/2009/07/apple-tablet-3/>) (visited January 12, 2010). One recent news report highlighted the benefits of competition in this category by noting that although E-readers from Sony and other companies were around before Amazon released the Kindle in 2007, the Kindle was “the first to offer wireless downloading of books.” *Id.* As a result, since the Kindle debuted at \$399, “Amazon has lowered the price to \$259 and lured buyers with inexpensive material, such as new releases of books for about \$10 each. On Christmas Day, Amazon sold more e-books than physical copies for the first time.” Rachel Metz, *E-Reader Boom Kindles a Variety of New Options*, January 8, 2010 (available at: <http://www.wtop.com/?nid=108&sid=1858106>) (visited January 8, 2010).

¹⁰³ See e.g., Wired Website, *Video: Sports Illustrated Makes a Play for a Tablet App*, July 27, 2009 (available at: <http://www.wired.com/gadgetlab/2009/12/sports-illustrated-tablet-app/>) (visited January 12, 2010).

¹⁰⁴ Notice, ¶ 73.

For example, Boxee, a powerful software package that streams Internet content onto televisions, was denied access to popular advertiser supported programming available on Hulu in February 2009.¹⁰⁵ In trying to identify the motivation for such a move, one report noted that it was “likely that the content owners are objecting to the fact that Boxee makes it easy for users to watch Hulu on their TVs. While there are other ways to do this (for example, using a PS3 or hooking up a laptop), Boxee makes the experience much more intuitive, and gives users less of a reason to use cable or buy shows through iTunes and other content stores.”¹⁰⁶ Similar scenarios have played out between YouTube and Syabas.¹⁰⁷

2. The Commission Should Replace the Proposed Rigid Non-Discrimination Rule with a More Flexible Standard.

The Commission has proposed a nondiscrimination rule that would prohibit all differential treatment of Internet packets, and more particularly would forbid “a broadband Internet access service provider [from] charg[ing] a content, application, or service provider for enhanced or prioritized access to the subscribers of the broadband Internet access service provider.”¹⁰⁸ The scope of this proposed prohibition may be extremely broad, given the statement in paragraph 99 of the Notice that all Internet subscribers may be content providers,

¹⁰⁵ Jason Kincaid, Washington Post, *Content Owners Force Hulu to Kneecap Boxee*, February 18, 2009 (available at: <http://www.washingtonpost.com/wp-dyn/content/article/2009/02/18/AR2009021802910.html>) (visited January 8, 2010) (*Kincaid Article*). Boxee is a software application that supports a wide range of multimedia formats and includes features such as playlists, audio visualizations, slideshows, weather forecasts reporting, and an expanding array of third-party plugins. Boxee can play most audio and video file formats, as well as display images from many sources, including CD/DVD-ROM drives, USB flash drives, the Internet, and local area network shares. Boxee recently launched a set top box device that moves the functionality of its service from the home computer, to a set top box that connects with the television.

¹⁰⁶ *Kincaid Article*.

¹⁰⁷ See, Wired Website, Eliot Van Buskirk, *YouTube Blocks Non-Partner Device Syabas as Allegations Fly*, November 20, 2009 (available at: <http://www.wired.com/epicenter/2009/11/youtube-blocks-non-partner-device-syabas-as-allegations-fly/>) (visited January 12, 2010).

¹⁰⁸ Notice, ¶107.

citing family photo uploads as an example of Internet content creation. This approach would eviscerate the two areas discussed above.

It appears that any form of cost sharing between content providers and broadband access providers – whether in the form of funding quality of service guarantees for online gamers,¹⁰⁹ sharing costs to attract new subscribers, or other forms of unique content delivery – would be categorically prohibited under the Commission’s rules. For example, the adoption of such an approach may prohibit the Amazon model of delivering literary content to consumers over broadband networks provided by AT&T and Sprint, given Amazon pays the broadband providers to use their networks for this value added service. Instead, for consumers to benefit from the anytime, anywhere access provided by the Kindle service, they would presumably need to subscribe independently to some form of standalone wireless broadband service. As a result, the increased costs associated with delivering larger volumes of content would be passed along to consumers in higher monthly fees for their standalone broadband service.¹¹⁰

The Commission’s proposed non-discrimination standard runs counter to general principles of anti-trust analysis that have long been used by both the DOJ and Federal Trade Commission (FTC). Using similar analytical approaches, each agency has adopted and implemented flexible case-by-case fact-based analyses in order to determine if anti-competitive behavior is actually occurring.

This analytical approach has been implemented, with success, by the FCC as well. For example, Section 202 affords the FCC inherently flexible authority to regulate unjust and unreasonable actions by Title II carriers. A charge that a carrier has discriminated in violation of

¹⁰⁹ *TeliaSonera Website*.

¹¹⁰ *Georgetown Study*, p. 9.

this section entails a three-step inquiry: 1) whether the services are “like;” 2) if they are “like,” whether there is a price (or other) difference; and 3) if there is a difference, whether it is reasonable. In a long string of cases, the Commission and the Courts have used this flexible and sound analysis to address alleged unjust and unreasonable actions by carriers and prohibit conduct that harms consumers and competition, while allowing pro-consumer innovation and practices.¹¹¹ One court noted that the Commission’s authority under Section 202 of the Act had a favorable regulatory utility, since “the generality of these terms – unjust, unreasonable – opens a rather large area for the free play of agency discretion.”¹¹²

In stark contrast, however, the Commission’s proposed non-discrimination regulation is inherently *inflexible*.¹¹³ The Commission’s proposed rule is structured as a blanket prohibition that fails to account for whether the alleged discrimination is, in fact, anti-consumer.

In instances where the FTC and DOJ analyze alleged anti-competitive behavior, both agencies use a flexible approach that considers both the efficiencies of a particular activity as well as any anticompetitive effects it may create. Through such a flexible analysis, the agencies can better ensure that application of their enabling statutes continue to achieve the common goals of “encouraging innovation, industry and competition,” according to the report.

For example, the FTC has broad authority under Section 5 of the FTC Act to investigate “unfair methods of competition,” as well as conduct that constitutes “unfair or deceptive acts or practices.” The DOJ has similar authority under the Sherman Antitrust Act and the Clayton Act that it also applies on a case-by-case basis. The DOJ notes in its comments to the Commission in

¹¹¹ See e.g., *MCI Telecommunications Corp. v. FCC*, 842 F.2d 1296 (D.C. Cir. 1988); *Competitive Telecommunications Ass’n v. FCC*, 998 F.2d 1058 ((D.C. Cir. 1993); *MCI Telecommunications Corp. v. FCC*, 917 F.2d 30 (D.C. Cir. 1990).

¹¹² *Orloff v. FCC*, 352 F.3d 415, 420 (D.C. Cir. 2003).

¹¹³ *Notice*, ¶109.

the National Broadband Proceeding that the agency has helped facilitate the “transformation of the telecommunications industry, either directly in its role as an agency that enforces the antitrust laws or indirectly in its role as competition policy advocate and statutory respondent in cases involving appeals of Commission orders under the Hobbs Act.”¹¹⁴ The DOJ also notes that it has also evaluated various transactions that have reshaped the telecommunications marketplace.¹¹⁵ The analytical approaches used in these efforts appropriately take into account the degree of market power and the nature of the actions and marketplace, prior to making any determination.

Indeed, in testimony before the House Judiciary Committee in 2004, the DOJ’s Assistant Attorney General of the Antitrust Division was asked about call-blocking by a voice and broadband service provider. Assistant Attorney General Hewitt Pate responded that the DOJ would “need to look at the market facts, the presence or absence of market power in a particular situation,” and that “there may be access that a competitor would seek in a situation where denial of that access would not raise antitrust concerns.”¹¹⁶

Likewise, the FTC has expressly recognized the value in utilizing a flexible case-by-case approach to alleged anti-competitive behavior in the context of the Internet. For example, the FTC tackled the issue of discrimination in its 2007 Broadband Connectivity Report and concluded by noting that “[w]hile a broadband provider with market power may have an incentive to limit its end-user customers’ access to competing content and applications, the

¹¹⁴ *DOJ Filing*, p. 1.

¹¹⁵ *Id.*

¹¹⁶ Transcript of Hearing, *Antitrust Enforcement Agencies: The Antitrust Division of the Department of Justice and the Bureau of Competition of the Federal Trade Commission*, Hearing Before the Task Force on Antitrust of the Committee on the Judiciary House of Representatives, One Hundred Eighth Congress, July 24, 2003, p. 92 (available at: http://commdocs.house.gov/committees/judiciary/hju88546.000/hju88546_of.htm) (visited January 12, 2010).

broadband provider also may have an incentive to maximize the value of its network to end users.”¹¹⁷

In the case of prioritization of content over broadband networks, the FTC noted that prioritization could enable broadband providers to increase investment and innovation in their networks; aid innovation in applications or content; enable the differentiation of content and network offerings, to the benefit of competition and consumers; and – consistent with the findings in the Georgetown Report – “lower prices for less affluent end users, whose access fees could be partially subsidized by prioritization revenues, much like advertising-supported e-mail services now provide free e-mail accounts.”¹¹⁸ Ultimately, the FTC concluded that it was “not possible to know which of these incentives would prove stronger,” or even, “whether such discrimination would be harmful, on balance, to consumer welfare.”¹¹⁹ A flat nondiscrimination rule does not provide the Commission the leeway to consider the pro-competitive and pro-consumer benefits and incentives that are such an essential part of the FTC analysis.

As the FTC explains, incentives are not susceptible to any one-size-fits-all determination and that broadband providers have powerful incentives to fill their networks with traffic, a fact the Notice appears to gloss over.¹²⁰ The Notice gives one example of a broadband access provider that is also a subscription video provider charging content providers to transmit broadband video content in order to protect its subscription video service. Regardless of whether

¹¹⁷ See, FTC Staff Report, *Broadband Connectivity Competition Policy*, June, 2007, p. 157 (*FTC Broadband Report*).

¹¹⁸ *FTC Broadband Report*, p. 158.

¹¹⁹ *Id.*, p. 157.

¹²⁰ *Notice*, ¶72.

this is an example of potentially anti-competitive actions or incentives,¹²¹ the same conduct engaged in by a broadband provider with a nascent or no subscription video service is almost certainly aimed at attracting consumers and content to its network by increasing the quality and reliability of video delivered over broadband, and is therefore pro-competition and pro-consumer. The Commission can make no accurate conclusions about anti-competitive practices and incentives across all broadband providers as it seems to propose in the Notice.

The notion that the Commission can list all pro-consumer, pro-competition innovations expected to occur on the Internet, or that touch broadband access is challenging. Given the dynamic nature of the Internet, the task appears unlikely to be possible. Entities would need to ‘prove their way out’ of Commission enforcement. This will result in raised compliance costs, delayed and aborted product introductions and every new innovation being subject to review by lawyers and regulatory experts.

In sum, the DOJ, FTC, and Commission case-by-case analyses have effectively dealt with instances of unreasonable discrimination that have arisen in markets on occasion. Instead of creating policy to encourage broadband availability and adoption, a rigid non-discrimination requirement would accomplish the opposite, discouraging network investment and potentially increasing rates to end users. Not only will the lack of investment in networks harm consumers, consumers must have access to competition among all internet participants, including network providers, application and service providers, and content providers. This cannot be

¹²¹ Gerald Faulhaber, *Network Neutrality: The Debate Evolves*, 1 INT’L J. OF COMM. 680, 691 (2007) (Faulhaber, Network Neutrality) (“In a duopoly market” application providers paying an ISP to be an exclusive provider in a market “could be a concern.” “[P]roving that a vertical practice is on the net deleterious is usually quite difficult and highly dependent upon the models assumed.”).

accomplished by providing a regulatory advantage to certain ecosystem segments at the expense of network providers.

C. Robust Transparency Requirements are Logical and Supportable.

USTelecom supports clear consumer disclosure, which improves competition and enables to consumers to make informed decisions and get the service that best fits their needs. Given the variety of approaches to adequately addressing transparency issues, and the complexity and variety of the Internet ecosystem, it is vital to build consensus among the stakeholders. In the highly competitive communications marketplace, service providers have an economic incentive to provide information to consumers and to offer favorable terms of service.¹²²

USTelecom believes that industry, public interest groups and other interested stakeholders should join together to articulate best practices with respect to disclosure. The stakeholders should proceed in much the same way that voluntary standards setting bodies develop technical standards. This will ensure that proposed solutions are practicable, workable, fair to all and that the benefits to consumers are real and the costs to industry are reasonable.

There are many challenging topics for a working group to address in the area of transparency. For example, to create a uniform format for key disclosures. If so, what disclosures should be included and how can these be defined and standardized across different platforms, different service packages, and different usage models? As the Commission has pointed out, the type of disclosure that can and should be provided may differ depending on the

¹²² See, Howard Beales, Richard Craswell & Steven C. Salop, *The Efficient Regulation of Consumer Information*, 24 J. L. & ECON. 491 at 502 (1981) (Beales et. al.) (“[S]ellers have a substantial economic incentive to disseminate information to consumers. Indeed, if information dissemination were costless to sellers, theory suggests that disclosure would be complete.”). See also Comments of the Federal Trade Commission, *In the Matter of A National Broadband Plan for Our Future*, at 3 (“Competition pressures producers to offer consumers the most attractive array of choices with respect to price, quality, and other options. Competitive firms are constantly searching for superior profit opportunities as they seek to win the favor of customers, who effectively vote for preferred products and services with their dollars.”).

advertising medium in which it is delivered. A national advertisement cannot provide the same depth or type of information as a one-on-one conversation with a service representative. The technology capabilities for disclosing and presenting information may vary with the size of service provider and the sophistication of its advertising operation. Given the differences between what can be disclosed in a television ad and on a web page, is it possible to develop an approach to disclosure that is applicable to these different forms of information presentation?

USTelecom believes that developing and implementing robust transparency policies and practices must occur through a collaborative and inclusive effort, consisting of all members of the Internet ecosystem. USTelecom's members are ready to join with public interest groups, academics, and other stakeholders who want to work together seriously to address the issues of transparency, and we ask that those who are filing comments in this proceeding think seriously about joining in this common effort.

D. Any Rules Should Include a Broad Exception for Managed Services.

The Commission's Notice also seeks comment on how best to address "managed" or "specialized" services.¹²³ USTelecom supports a broad exception for managed services as proposed by the Commission because such services are provided over the same networks used for broadband Internet access service, and can provide substantial consumer benefits, including greater competition among voice and subscription video providers, and increased deployment of broadband networks. Given that today's Internet is delivering over a single network voice, video and data that used to ride over multiple special purpose networks, management of services is necessary.

¹²³ Notice, ¶¶ 148 – 153.

At the outset, it will be difficult for the Commission to define the precise services that constitute managed services. While the Commission notes some possible examples, such as specialized telemedicine, smart grid, or eLearning applications, these are just some of the many existing and potential applications and services.¹²⁴ For this reason, USTelecom urges the Commission to embrace a broad exception for managed services.

A preferable approach would be for the Commission to refrain from specifically defining Managed Services. Instead, the Commission could define a basic Internet Access service, with anything outside that category deemed to be a Managed Service, and therefore not subject to the Commission's proposed rules.

It is important to note that the Commission should do all it can to encourage the growth of managed and specialized services in the competitive marketplace. The development and deployment of such services will almost certainly increase investment in broadband network deployment and upgrades, as competitive providers seek to differentiate their networks. Such a broad exception for managed services will foster a favorable investment environment for managed services, which will result in increased investment, innovation and deployment by competitive network providers.

E. The Commission Should Adopt a Broad Definition of “Reasonable Network Management.”

Finally, USTelecom urges the Commission to avoid narrowly defining practices that qualify as reasonable network management. In crafting appropriate regulations, it is imperative that the Commission not inappropriately infringe on the network operators' flexibility to effectively manage their networks in order to ensure quality of service to all customers.

¹²⁴ *Id.*, ¶ 150.

The Commission in its Notice acknowledges that network operators should have the flexibility to manage their networks to deal with problematic issues like traffic congestion, spam, ‘malware’ and denial of service attacks, as well as other threats that may emerge in the future.¹²⁵ But rather than create a list of exceptions that are identified as acceptable network management practices, any Commission rules should be structured in broader terms that permit network operators to ensure the operation of more efficient networks while at the same time protecting consumers from perceived harms.

Implementation of these two overriding goals will provide network engineers and service providers with a broad path for innovation and network improvements. At the same time, they will ensure that network providers do not unreasonably discriminate in ways that either harm consumers or are otherwise anticompetitive.

VI. CONCLUSION

USTelecom’s member companies are committed to an open Internet and support the Commission principles, competitive market structure and balance among the broadband, computing, content and applications sectors that have safeguarded an open and dynamic Internet for years. The nation’s remarkable progress under the current regulatory framework has resulted in unprecedented broadband deployment and adoption levels, coupled with increased broadband speeds and greater competition in the voice, video and broadband marketplace.

Rules governing the operation of broadband networks pose a tremendous risk of undermining the environment that thus far has been a major driver of the United States economy. Such rules could stifle the tremendous innovation and investment taking place across the entire Internet ecosystem, while at the same time failing to achieve its principal goal of ensuring an

¹²⁵ *Id.*, ¶ 138.

open Internet. Those calling for greater government intervention face a high bar in demonstrating the public interest in reversing a course that has been so successful for consumers, our economy and our national security. We believe it would be a mistake to replace today's open and dynamic environment with a government-managed broadband network.

Respectfully submitted,

UNITED STATES TELECOM ASSOCIATION

By: 

Jonathan Banks
Glenn Reynolds
Patrick Brogan
Kevin Rupy

607 14th Street, NW, Suite 400
Washington, D.C. 20005

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Appendix: Source Data for Figure 1, ICT Industry Segment Market Share Leaders

Segment	Leader	Share	Second	Share	Remaining	Share	Measure	Source
Social Networking	Facebook	42%	MySpace	21%	YouTube, Tagged, Twitter, Yahoo! Answers, My Yearbook, et al	37%	Visits for the week ending 09/26/2009.	http://www.hitwise.com/us/datacenter/main/dashboard-10133.html
Email	Yahoo! (Yahoo Mail and Yahoo Address Book)	57%	Microsoft (Windows Live)	23%	Gmail and others	20%	US Internet visits, week ending 9/26/09	http://www.hitwise.com/us/datacenter/main/dashboard-10133.html - analysis of top 4 email sites among top 20 sites overall. See also. Hitwise/Tancer at http://weblogs.hitwise.com/bill-tancer/2008/02/microsoft_and_yahoo_putting_th.html
Search	Google	71%	Yahoo! + Microsoft (Bing)	25%	Ask, MSN.com, Live.com	4%	Volume of searches for 4 weeks ending 9/26/09	http://www.hitwise.com/us/datacenter/main/dashboard-10133.html
Online Advertising	Google-DoubleClick	57%	Yahoo! + Microsoft	15%	Revenue Science, AOL, ValueClick, AdBrite, Other	29%	Ad Server Market Share of monthly unique users December 2008	http://www.attributor.com/blog/category/ad-networks/
Broadband Estimate - Companies	AT&T	20%	Comcast	20%	Other	59%	% of all high-speed subscribers	Leichtman Research Group 2Q09, FCC 2Q08, USTelecom analysis, conservatively assuming minimal wireless substitution (~1% share)
Broadband Estimate - Industry	Cable	53%	Telecom	43%	Wireless, Satellite, Overbuilder, BPL, etc.	4%	% of all high-speed subscribers	Leichtman Research Group 2Q09, FCC 2Q08, USTelecom analysis, conservatively assuming minimal wireless substitution (~1% share)
Browser (Global)	Microsoft	67%	Firefox	23%	Safari, Chrome, Netscape, Opera, other	10%	Browser share of users, 3Q 2009	http://marketshare.hitslink.com/browser-market-share.aspx?qprid=0
Operating System (Global)	Microsoft	93%	Mac	5%	Linux, iPhone, iPod Touch	2%	OS share of users., 3Q 2009	http://marketshare.hitslink.com/operating-system-market-share.aspx?qprid=8&qpmr=100&qpdt=1&qpct=3&qptimeframe=Q
Semiconductors (Global microprocessors)	Intel	81%	AMD	12%	Other	8%	Shipments, 2Q09	http://www.isuppli.com/News/Pages/Intel-Microprocessor-Domination-Reaches-Four-Year-High-in-Second-Quarter.aspx

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