

The National Broadband Plan

What It Means For Your Business

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Initial Thoughts

- IS THE NBP A LEGAL DOCUMENT?
- WHAT IS THE FCC'S ROLE?
- WILL THE NBP EVER BE FULLY IMPLEMENTED?
- HOW WILL NEW HEALTHCARE LEGISLATION AFFECT THE NBP?
- WHAT IS THE ELEPHANT IN THE ROOM?
- DOES THE NBP REQUIRE FUNDING BY CONGRESS?
- WHAT PART OF THE NBP MAY BE OVERLOOKED?

The Six Goals Of The National Broadband Plan

- “100 Squared” Initiative – 100 million US homes with access to 100 MBPS download speed (and upload speed of 50 MBPS).
- US should lead world in mobile innovation
- Every American should have affordable broadband access
- Every US community should have access to at least 1 GBPS
- First responders should have nationwide wireless broadband network
- Every American should have broadband capability to track and manage energy usage

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Broadband Competition Policy

- The focus is on mobile broadband, not trying to develop new facilities-based wireline entrants
- The FCC appears to accept two tenets of the Berkman Center report – competition results in more investment by broadband providers, and deregulation does not result in more investment by broadband providers
- The FCC sent signals that it might be willing to consider new policy initiatives beneficial to CLECs.
- The FCC recognized the importance of a robust wholesale access market to generating broadband competition.
- As regards UNEs, the FCC stated that policies based on the capacity of a facility, or the technology being used (e.g., fiber v. copper) do not make sense.

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Broadband Competition Policy (cont'd)

- The FCC said it will focus on improving wholesale access to packet-based facilities.
- The FCC did not promise specific outcomes, or address policies in detail, but it referenced existing proceedings on Section 271 UNEs, Special Access pricing, and copper retirement.
- The FCC also signaled that it would like to expand wireless roaming policies to include data as well as voice.
- The FCC promised to start a proceeding on migrating the PSTN to an all-IP network, but it did not offer any tentative conclusions.
- The FCC also wants to jump-start competition in set-top boxes by requiring all MVPDs to install a standard interface or gateway functionality by 2012

Intercarrier Compensation Policy

- The FCC states that it will phase out and then eliminate per-minute Access Charges in three stages over ten years.
- The FCC wants to reduce intrastate access charges to the level of interstate access charges over 2 to 4 years.
- The FCC would then reduce interstate access charges to the level of reciprocal compensation.
- The FCC believes it has authority over both intrastate and interstate access charges, but acknowledges new legislation by Congress would be helpful.
- The FCC will address “phantom” traffic by prohibiting carriers from stripping information necessary for proper billing of the call by the terminating carrier.

Intercarrier Compensation Policy (cont'd)

- The FCC will address “traffic pumping” by adopting rules to reduce access stimulation and curtail business models where profits come from artificially inflating terminating minutes.
- The FCC actually calls for consumer rate increases to offset lost access revenues – higher Subscriber Line Charges at the Federal level, and rebalanced local rates at the State level.
- The FCC states that it will (finally) address the long-pending issue whether VOIP traffic is subject to access charges.
- The FCC believes ICC reform will accelerate migrating the PSTN to a 100% IP network.

Overview of Spectrum Plan: Steps the FCC Plans to Take

- The FCC plans to
 - Make an additional 500 MHz available for broadband use within 10 years, including 300 MHz for wireless broadband within 5 years
 - Free up a new, contiguous nationwide band for unlicensed use within the next 10 years
 - Expediently conclude the TV white spaces proceeding
 - Commence a proceeding to ensure greater sharing and flexible deployment of spectrum for backhaul purposes
 - Enable the secondary market in spectrum utilization to work much more flexibly and efficiently

Overview of Spectrum Plan: Additional FCC Plans

- The FCC also plans to
 - The FCC intends to evaluate the effectiveness of its secondary markets policies and rules to promote access to unused and underutilized spectrum
 - Spur further development of opportunistic uses across more radio spectrum
 - Initiate proceedings to enhance research and development that will advance the science of spectrum access
 - Promote within the International Telecommunication Union (ITU) innovative and flexible approaches to global spectrum allocation that take into consideration convergence of various radio communication services and enable global development of broadband services

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Overview of Spectrum Plan: FCC Requests For Congress

- The FCC asks Congress to consider
 - Expressly expanding the FCC's authority to conduct incentive auctions to encourage incumbent licensees to relinquish rights in spectrum assignments to the FCC or other parties
 - Funding additional incumbent relocation efforts through the Commercial Spectrum Enhancement Act (CSEA)
 - Authorizing the FCC and the NTIA to impose spectrum fees on license holders and users of government spectrum both to raise revenues and to provide incentives for the most efficient use of the spectrum
 - Provide \$16 billion for a new nationwide public safety network

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Overview of Spectrum Plan: FCC Plans to Work with NTIA

- The FCC wants to work with NTIA to
 - Develop a joint roadmap to identify additional candidate federal and non-federal spectrum that can be made accessible for both mobile and fixed wireless broadband use, on an exclusive, shared, licensed and/or unlicensed basis
 - Create methods for ongoing measurement of spectrum utilization so that under-utilized spectrum can be made available for other uses

New Spectrum for Broadband

- The FCC intends to make an additional 500 megahertz available for broadband use within the next 10 years
 - The FCC intends to make 60% of this allocation (*i.e.*, 300 MHz) available for mobile use by 2015
 - 120 MHz from Broadcast TV;
 - 90 MHz from Mobile Satellite Spectrum (MSS);
 - 60 MHz from Advanced Wireless Services (AWS);
 - 20 MHz from the Wireless Communications Services (WCS) band; and
 - 10 MHz from the 700 MHz D-Block.
- The FCC recognizes that re-allocating and re-purposing spectrum can take from 6-13 years

Better Management of Spectrum

- The FCC plans to manage spectrum more efficiently
- The FCC launched a beta-version of a “Spectrum Dashboard” to provide user-friendly access to information regarding spectrum bands and licenses
- The FCC will maintain an ongoing strategic spectrum plan and reassess spectrum allocations every 3 years
- The FCC intends to work with NTIA to create methods for ongoing measurement of spectrum utilization
 - Unused or underused spectrum could be made available for broadband or other purposes

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More Spectrum For Wireless Backhaul

- The FCC intends to revise parts 74, 78 and 101 of its rules to allow for increased spectrum sharing among compatible point-to-point microwave services
- The FCC should revise its rules to allow for greater flexibility and cost-effectiveness in deploying wireless backhaul
 - Greater spatial reuse of microwave frequencies, particularly in urban areas
 - Modification of minimum throughput rules, particularly in rural areas
 - Restrictions on antenna size
 - Use of higher frequencies

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Universal Service Reform: Phase I – 2010-2011

- During 2010 and 2011, the FCC intends to:
 - Build the institutional foundation for reform
 - Identify funding that can be shifted immediately to jumpstart broadband deployment in un-served areas (up to \$15 billion)
 - Implement voluntary commitments of Sprint and Verizon Wireless to reduce the High-Cost funding they receive as Competitive ETCs (\$3.9 billion over 10 years)
 - Require rate of return carriers to move to incentive regulations
 - Redirect Interstate Access Support towards broadband deployment
 - Phase out the remaining legacy High-Cost support for Competitive ETCs
 - Create the framework for a new Connect America Fund and a Mobility Fund

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Universal Service Reform: Phase II – 2012-2016

- Between 2012 and 2016, the FCC intends to:
 - Begin disbursements from the CAF and the Mobility Fund
 - The FCC suggested that Congress should consider funding the CAF (e.g., a few billion dollars per year for two to three years).
 - Reform the universal service contribution methodology

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Universal Service Reform: Phase III – 2017-2020

- Between 2017 and 2020, the FCC intends to:
 - Complete the transformation of legacy High-Cost program
 - End support for voice-only networks
 - Manage the fund to remain close to its current size

The Connect America Fund

- CAF funding would be available to a maximum of one provider in each area where there is no “private sector business case” to provide broadband (e.g., a minimum of 4 Mbps down and 1 Mbps up) and high-quality voice-grade service
 - Presumably narrower than the definition of “unserved”
 - No reference to statutory “reasonably comparable” standard
 - Funding could be used for capital and operating expenses
- The FCC plans to develop means for driving funding to efficient levels, including market-based mechanisms (e.g., reverse auctions) where appropriate, to determine the firms that will receive CAF support and compete for support they will receive
 - Eligibility criteria would be company-and technology-agnostic
- CAF funding will be subject to enforceable use requirements and timelines for achieving universal access

The Mobility Fund

- The Mobility Fund would provide one - time support for deployment of 3G networks to bring all states to a minimum level of 3G (or better) mobile service availability
 - CAPEX, not OPEX
- The FCC intends to select an efficient method, such as a market-based mechanism, for supporting mobility in targeted areas
 - Reverse Auctions?

Infrastructure (other than spectrum)

- Lower telco pole attachment rates to cable rates
- New rules to lower the cost of the pole attachment “make ready” process
- Implement timeline for the Section 224 access process and reform the dispute resolution process

“National Purposes”

- What can be done to encourage certain sectors of the economy to adapt their processes to take advantage of the modern communications era?
 - Public safety, including cybersecurity
 - Health care
 - Education
 - Energy and the environment
 - Economic opportunity
 - Government performance
 - Civic engagement

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Public Safety

- License the D block for commercial use with public safety partnerships
- Give public safety users the ability to roam on CMRS networks on a priority basis (liability protection for CMRS licensees)
- Create Emergency Response Interoperability Center (common standards for interoperability and operating procedures)
- Establish a grant program to fund public safety broadband goals; fund grant program through a public safety fee on all U.S. broadband users

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Cybersecurity

- FCC “roadmap” identifying 5 most critical cybersecurity threats to the communications infrastructure; 2-year plan to address
- New voluntary cybersecurity certification system with market incentives to upgrade their network cybersecurity
- New cybersecurity information reporting system

Cybersecurity (cont'd)

- New inquiry into the resilience of broadband networks under physical failures or severe overload
- New system of priority network access and traffic routing for national security/emergency preparedness (NS/EP) users on broadband communications networks
- Get ISPs to build cybersecurity protections and defenses built into networks for individuals and small businesses

Health Care

- New Health Care Broadband Access Fund (discounts on Internet access) and Health Care Broadband Infrastructure Fund (subsidizes network deployment)
- Expand range of health care providers eligible for USF subsidy
- Require participating institutions to meet outcome-based performance measures to qualify for USF subsidies

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Education

- Revise E-rate rules to give schools and libraries more flexibility to purchase the lowest-cost broadband solutions
- Raise cap on funding for E-rate each year to account for inflation
- Fund wireless connectivity to portable learning devices that students and educators can use after hours

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Energy and the Environment

- Harden existing commercial mobile networks to support Smart Grid applications
- Let utilities use the public safety wireless broadband network in the 700 MHz band for mission-critical communications
- Explore use of federal spectrum for Smart Grid networks

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Questions?

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The National Broadband Plan

CHAPTER 1: INTRODUCTION

The National Broadband Plan (NBP or Plan) posits that broadband is the great infrastructure challenge of the early 21st century for the United States, on par with the development of the transcontinental railroad, the interstate highway system, the national electricity infrastructure, and national telephony, television and radio networks. In each of these infrastructure challenges, as with broadband, private investment and government actions were pivotal to development.

The Plan notes that because of private investment and market driven innovation, broadband access in America has improved greatly in the last decade, yet critical problems remain. As a result, a year ago Congress directed the FCC to develop a “National Broadband Plan” that ensures that the every American has access to broadband capability. Congress dictated that the Plan include:

An analysis of the most effective and efficient mechanisms for ensuring broadband access by all people of the United States.

A detailed strategy for achieving affordability of such service and maximum utilization of broadband infrastructure and service by the public.

An evaluation of the status of deployment of broadband service, including progress of projects supported by the grants made pursuant to this section.

A plan for use of broadband infrastructure and services in advancing consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, worker training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.”

The Plan recommendations to fulfill this broad mandate fall into three categories: (1) fostering innovations and competition in networks, (2) redirecting assets that government controls or influences in order to spur investment and inclusion, and (3) optimizing the use of broadband to help achieve national priorities.

CHAPTER 2: GOALS FOR A HIGH-PERFORMANCE AMERICA

The second Chapter of the Plan outlines the primary goals designed to achieve the mission to create a “high-performance America – a more productive, creative, efficient America in which affordable broadband is available everywhere and everyone has the means and skills to use valuable broadband applications.”

The goals fall into four broad categories:

- To design policies to ensure robust competition and, as a result, maximize consumer welfare, innovation and investment.

- To ensure efficient allocation and management of assets government controls or influences.
- To reform current universal service mechanisms to support deployment of broadband and voice in high-cost areas, ensure that low-income Americans can afford broadband, and support efforts to boost adoption and utilization.
- To reform laws, policies, standards and incentives to maximize the benefits of broadband in sectors government influences significantly.

The Plan then identifies six specific goals for 2020 “to serve as a compass over the next decade.”

- At least 100 million U.S. homes should have affordable access to actual download speeds of at least 100 megabits per second (Mbps) and actual upload speeds of at least 50 Mbps. The Plan sets a 2015 benchmark of 100 million homes having access to affordable services with 50 Mbps download speeds and 20 Mbps upload speeds.
- The United States should lead the world in mobile innovation, with the fastest and most extensive wireless networks of any nation. The Plan notes that spectrum policy is the most important tool the government has to spur wireless and mobile broadband thrive. The U.S. has only 50 MHz of spectrum in the pipeline that it can assign for broadband use – a fraction of the amount that will be necessary to match growing demand. Thus, the Plan recommends making 500 MHz of spectrum newly available for broadband by 2020, with a benchmark of making 300 MHz available by 2015.

- Every American should have affordable access to robust broadband service, and the means and skills to subscribe if they so choose. The Plan recommends reform of Universal Service (USF) and intercarrier compensation to increase broadband availability, outlining a 10-year, three-stage plan of action. The Plan also recommends extending the Lifeline and Link-Up programs. The Plan notes that these changes should drive adoption rates above 90% by 2020.
- Every American community should have affordable access to at least 1 gigabit per second (Gbps) broadband service to anchor institutions such as schools, hospitals and government buildings. The Plan recommends changes to the E-Rate and Rural Health Care support programs to provide affordable access to better broadband.
- To ensure the safety of the American people, every first responder should have access to a nationwide, wireless, interoperable broadband public safety network. The Plan recommends the creation of a nationwide, wireless, interoperable broadband public safety network by 2020.
- To ensure that America leads in the clean energy economy, every American should be able to use broadband to track and manage their real-time energy consumption.

CHAPTER 3: CURRENT STATE OF THE BROADBAND ECOSYSTEM

This Chapter broadly outlines “the forces shaping the broadband ecosystem in America today.”

Applications

The Plan discusses the increase in home and business broadband use. Use patterns vary significantly but almost two-thirds of the time users spend online today is focused on communication, information searching, entertainment or social networking. With the exception of high-definition video, most applications used today can be supported by actual download speeds of about 1 Mbps.

The Plan notes that home broadband use has increased steadily and increases in use are correlated with increased speeds of actual broadband connections to the home. As speeds have grown and more applications developed, the amount of data consumers download has increased as well.

The Plan finds that broadband applications for businesses help businesses improve internal productivity and reach customers, which benefits the entire economy. Many small businesses use at least basic applications such as email (97%) and a website (74%). Broadband-based applications may allow faster product development cycles, access to new geographic markets and more efficient business processes and allocation of resources. Video usage is increasing for both businesses and consumers and is an area of potential expansion for broadband.

The Plan identifies certain application challenges, including illegal distribution of copyrighted material and security for the increasing use of personal data. The Plan suggests that by making its information more available, as it did with the opening of its GPS navigational satellites, the government can aid in the development of new applications.

Devices

The Plan notes that devices, from phones to computers to other internet-capable devices, continue to evolve and grow in number and variety. The Plan concludes that significant competition and innovation exists in the devices market, except in the television set-top box category.

Networks

Terrestrial Fixed Broadband Availability: According to the Plan, currently, 95% of the U.S. population lives in housing with access to terrestrial fixed broadband infrastructure capable of supporting actual download speeds of at least 4 Mbps. The 14 million people who do not have such access tend to be concentrated in rural areas. Business and community anchor institutions commonly have broadband. There are, however, problematic gaps. For example, the Plan notes that 50% of teachers say speed and unreliability present obstacles to use in classrooms and only 71% of rural health clinics have access to mass-market broadband solutions.

The Plan observes that telephone and cable companies are upgrading their networks to offer higher speeds and capacities. The major announced buildouts, however, target areas already served by broadband and it is unlikely that there will be a significant change in the number of unserved Americans as a result of planned upgrades.

Mobile Broadband Availability: With respect to mobile broadband networks, the Plan reports a likely a dissonance between reported and actual 3G coverage because carriers advertise 3G coverage using different definitions of coverage which do not account

for a variety of factors like signal strength, bitrate or in-building coverage. The Plan notes that carrier announcements for upgrades to 4G networks could lead to a better mobile broadband experience, but the extent to which the user experience will improve will depend on a variety of factors, including the amount of spectrum dedicated to mobile broadband and the availability of high-speed backhaul connections from cellular sites.

The Plan notes that as with fixed broadband, the speed rates that consumers experience are generally lower than the carriers' advertised "up to" rates. Mobile network performance and availability rely on available spectrum and carriers and broadband-related companies agree that more spectrum is needed to maintain robust and high-performing wireless broadband networks in the future.

Adoption and Utilization

This Chapter concludes by citing various statistics relating to the "take rate" of broadband by various consumer segments. Rates of adoption are much lower in homes of adults who have less than a high school degree (24%), are over age 65 (35%), are African-American (59%), are Hispanic (49%), have disabilities (42%), or live on Tribal lands (unknown but estimated at less than 10%). The Plan notes that this demographic breakdown suggests that there are factors other than simple choice that account for the different levels of adoption among these groups. The Plan notes that business broadband adoption is at 95% of small and medium-sized businesses.

CHAPTER 4: BROADBAND COMPETITION AND INNOVATION POLICY

Chapter 4 of the NBP examines each of the three elements of the broadband ecosystem – networks, devices, and applications.

Networks

Network competition is approached in three ways. First, the Plan considers competition in residential broadband markets and finds that approximately 96% of the population has at most two wireline providers. Given this fact, the Plan suggests that there are reasons to be concerned about wireline broadband competition in the United States. The Plan finds it "unclear" whether sufficient wireline broadband competition exists today but concludes that even if such competition presently exists, "it is surely fragile." With respect to mobile broadband competition, the NBP concludes that while United States service providers are building out mobile broadband coverage, the U.S. is far from having "complete" coverage.

The Plan examines whether wireless broadband, either fixed or mobile, can compete with wireline broadband. It concludes that wireless broadband may not be an effective substitute in the foreseeable future for consumers seeking high-speed connections and prices competitive to wireline offerings. The Plan suggests, however, that given enough spectrum, a variety of engineering techniques may make wireless a viable competitor to wireline offerings at far higher speeds than are possible today. Notwithstanding the above, the Plan concludes that affordability will remain a principal policy concern and recommends

that the FCC carefully monitor the affordability of low-end offerings.

The NBP contains a variety of recommendations to address the current and expected nature of competition in residential broadband network services in the U.S.

- The federal government should make more spectrum available for existing and new wireless broadband providers.
- The FCC and the Bureau of Labor Statistics should collect more detailed and accurate data on actual availability, penetration, prices, churn and bundles offered by broadband service providers and should publish analyses of these data.
- The FCC should establish technical broadband measurement standards and methodology and a process for updating them.
- The FCC should continue to measure and publish data on actual performance of fixed broadband services. It should publish a formal Plan and make the data available online.
- The FCC should develop broadband performance standards for mobile services, multi-unit buildings and small business users.
- The FCC should initiate a rulemaking proceeding to determine performance disclosure requirements for broadband.

Chapter 4 also considers competition in wholesale broadband markets. Underpinning the Plan's findings in this area is its understanding that the nation's regulatory policies for wholesale access to critical ser-

vice inputs affect the competitiveness of markets for retail broadband services provided to small businesses, mobile customers and enterprise customers. The Plan finds that the FCC's current regulatory approach is a hodgepodge of wholesale access rights and pricing mechanisms that were created without the benefit of a consistent analytic framework and concludes that the lack of a consistent framework hinders the FCC's ability to promote competition. The Plan states that a consistent analytical framework will enable efficient collection of any necessary data, evaluation of current rules and determination of what actions are necessary to achieve the goals of robust competition.

The Plan specifically references several recent FCC filings that implicate the FCC's wholesale regulatory framework. Those filings are (1) the petition seeking rules addressing the availability and rates for Section 271 network elements; (2) the petition seeking competitive access to fiber facilities; and (3) the petition seeking rules to govern copper retirement. The Plan concludes that these filings deserve attention and that the FCC should act on these proceedings within the context of rigorous analytic frameworks that balance the benefits of competitive entry with incentives for carriers to invest in their networks. In addition, the Plan notes that special access circuits play a significant role in the availability and pricing of broadband services and recommends that the FCC ensure that special access rates, terms and conditions are just and reasonable.

The Plan also concludes that the FCC should clarify interconnection rights and obligations and encourage a shift to IP-to-IP interconnection where efficient.

The Plan recognizes that for consumers to have a choice of broadband service providers, competitive carriers need to be able to interconnect their networks with incumbent providers. Citing to evidence that some rural incumbents are resisting interconnection with competitive carriers and deeming such activity to be a barrier to broadband deployment, the Plan concludes that the FCC should clarify rights and obligations regarding interconnection to remove any regulatory uncertainty. In particular, the Plan states that the FCC should confirm that all telecommunications carriers, including rural carriers, have a duty to interconnect their networks and determine what actions it could take to encourage transitions to IP-to-IP interconnection where that is the most efficient approach.

The Plan also calls for the FCC to address IP-to-IP interconnection in the context of a recommended proceeding on the transition from a circuit switched network and in the context of intercarrier compensation reform.

Devices

The Plan states that there are three main types of devices that connect to broadband service provider networks – mobile devices, computing devices, and set-top boxes. The Plan finds that innovation is thriving in mobile and computing devices but the same is not true for set-top boxes. Several recommendations to level the field are contained in the Plan.

The FCC should initiate a proceeding to ensure that all multichannel video programming distributors (MVPDs) install a gateway device or equivalent functionality in all new subscriber homes and in all homes

requiring replacement set-top boxes, starting on or before December 31, 2012.

On an expedited basis the FCC should adopt rules for cable operators to fix certain Cable-CARD issues while development of the gateway device functionality progresses.

Applications

The Plan calls upon Congress, the FTC and the FCC to clarify and strengthen privacy protections to foster continued innovation and competition in applications and to spur broadband adoption and utilization. Recognizing that the increased use of broadband and online applications has given rise to a “digital identity” for consumers, the Plan concludes that privacy concerns can serve as a barrier to the adoption and utilization of broadband as well as a barrier to continued innovation and competition in applications. To address these barriers, the Plan recommends the adoption of clear and strong privacy protections allowing consumers to better manage their online profiles. The Plan also calls for “anonymity” to be addressed, noting that it can be a positive factor online (*e.g.*, whistleblowing) but also a negative one (*e.g.*, cybercrime).

The Plan surveys the current patchwork of laws and regulations addressing privacy and concludes that they provide insufficient protections for consumers. The Plan’s specific privacy related recommendations include the following:

- Congress, the FTC and the FCC should consider clarifying the relationship between users and their online profiles, including addressing obligations of firms that collect, analyze, monetize personal information or create digital profiles.

- The FCC and FTC should jointly develop principles to require that customers provide informed consent before broadband service providers share certain types of information with third parties.
- Congress should consider taking action to spur development of trusted “identity providers” to act as intermediaries to assist consumers in managing their online data in a manner that maximizes the privacy and security of personal information.
- The federal government, led by the FTC, should devote additional resources to combating identity theft and fraud and to helping consumers access and utilize those resources, including bolstering existing solutions such as OnGuardOnline.gov.
- FCC consumer online security efforts should support broader national online security policy, and should be coordinated with the Department of Homeland Security (DHS), the FTC, the White House Cyber Office and other agencies. Federal agencies should connect their websites to OnGuard Online to provide clear consumer online security information and direction.
- The federal government should create an inter-agency working group to coordinate child online safety and literacy work, facilitate information sharing, ensure consistent messaging and outreach and evaluate the effectiveness of governmental efforts.

The Plan also identifies reforming the Privacy Act, which governs how the government handles personal data, as something that should be a key legislative priority. The Plan concludes that reforms that would

give consumers more control over their personal data and more confidence in the security of their personal data would benefit the broadband ecosystem. More specifically, the Plan recommends that Congress consider re-examining the Privacy Act to facilitate the delivery of online government services and to account for changes in technology. The Plan also recommends that the Executive Branch establish MyPersonalData.gov as a mechanism to allow citizens to request their personal data held by government agencies.

CHAPTER 5: SPECTRUM

Recognizing concerns that the approach to spectrum allocation in the United States has been overly ad-hoc and inflexible in the past, the Plan recommends that spectrum policy be comprehensively reformed in order to drastically increase the amount of spectrum available for future broadband deployment, ensure greater transparency into spectrum allocation and utilization, and increase the amount of spectrum available for unlicensed and opportunistic uses.

Given the explosive growth in demand for broadband spectrum due to the increased adoption of data intensive devices and applications, the Plan concludes that continued application of the current spectrum allocation system will constrain growth, raise costs, diminish service quality, and act as a drag on innovation. The Plan sets forth a system of wide-ranging recommendations designed to increase the availability and flexibility of the nation’s spectrum in a relatively short period.

500 MHz Of Spectrum Be Made Available Within A Decade

The Plan calls for an additional 500 MHz of spectrum to be made available for broadband use by 2020 – 300 MHz of which should be made available between 225 MHz and 3.7 GHz within the next five years. This recommendation represents what would be a near doubling of the amount of spectrum currently available for broadband use. However, given the difficulty in reclaiming and repurposing spectrum for novel uses, the Plan presents a series of recommendations designed to free up as much spectrum as possible for future use.

The Plan sets forth a timeline along with specific target spectrum bands by which the Plan would be able to accomplish the large portion of its “5 Year, 300 MHz” goal.

- The Plan recommends rule changes on out-of-band emission (OOBE) limits in order to make 20 MHz available for broadband use in the 2.3GHz Wireless Communications Services (WCS) band, where there is a current WCS allocation in the 2305-2320 and 2345-2360 MHz bands. A current rulemaking is examining OOBE limits designed to protect satellite digital radio (XM/Sirius) and federal and non-flight telemetry from potential interference caused by WCS in the band. The Plan recommends a decision in 2010.
- The Plan recommends a modified approach to the use of 10 MHz of the Upper 700 MHz “D Block” in partnership with public safety broadband services. While an auction is still a contentious issue, the Plan calls for a D Block auction with limited

technical requirements that would ensure broadband operation is technically compatible with the adjacent public safety spectrum. The Plan recommends a decision in 2010.

- The Plan recommends that the FCC quickly resolve proceedings commenced in 2004 and 2007 and auction off 60 MHz of “Advanced Wireless Services” (AWS) spectrum from the AWS-2 (10 MHz each in the H and J blocks) and AWS-3 bands (20 MHz at 2155-2175 MHz) that are already slated for broadband use as well as additional spectrum from that now federally-allocated in the 1755-1780 MHz band, which would require NTIA collaboration. The Plan recommends a decision in 2010.
- The Plan recommends accelerated deployment of 90 MHz of the Mobile Satellite Services (MSS) spectrum in order to facilitate commercial and technological development for satellite communications technology as well as allow increased use of Ancillary Terrestrial Components (ATC). The Plan recommends decisions affecting the L-band (40 MHz from 1525-1559 MHz and 1626.5-1660.5 MHz) and Big LEO (10 MHz from 1610-1626.5 MHz and 2483.5-2500 MHz) spectrum in 2010 and in S-band (40 MHz from 2000-2020 MHz and 2180-2200 MHz) in 2011.

The proposals outlined above would make available a total of 180 MHz if implemented. The Plan recommends an ambitious rulemaking proceeding to reallocate another 120 MHz of spectrum from the broadcast television bands which, together with the foregoing 180 MHz, would satisfy the 300 MHz

five-year goal. Citing the success of the recent FCC auction of spectrum reclaimed from broadcast TV as a part of the Digital TV Transition, the Plan concludes that there is a substantial gap in economic value between the spectrum used for wireless broadband and that used for over-the-air broadcast. To capture that value, the Plan recommends several means by which the FCC could free-up or otherwise reallocate the projected 120 MHz of broadcast television spectrum:

- Update rules on TV service areas and distance separations, which would “repack” channel assignment into fewer total channels, freeing up spectrum.
- Establish licensing frameworks that permit two or more stations to share a single 6 MHz channel.
- Provide television providers with a financial incentive to relinquish or modify their spectrum rights, such as auction systems by which providers would receive a share of the proceeds from spectrum they directly contribute to auction.
- As needed, pursue other means, such as transitioning television broadcast to a cellular architecture, auctioning overlay licenses, require channel sharing in addition to plans to address the television white space spectrum, and otherwise enable more efficient use of the broadcast TV spectrum.

The Plan recommends Congressional intervention, as necessary, to give the FCC authority to carry out the foregoing recommendations and other methods to free up spectrum, such as incentive auctions. The Plan recommends other Congressional measures, such as funding additional approaches to facilitate efforts

by incumbent federal users to clear spectrum while allowing for upgrading of federal agency networks for broadband capabilities, and granting authority to both the FCC and NTIA to impose spectrum fees on users of non-government and government spectrum, respectively. Finally, the Plan suggests that the Commission examine improvements to and expansion of its secondary market rules (*e.g.*, spectrum leasing, partitioning of licenses, and disaggregation of licenses) to encourage the creation of such markets, such as encouraging the use of dynamic spectrum leasing arrangements and reducing filing fees for secondary market transactions.

Improving Transparency Of Spectrum Allocation And Utilization

The Plan recommends an inventory of spectrum usage by government and non-government users and other measures to make assignment and usage information more available. In order to conduct a proper inventory, the Plan recommends that the FCC organize all available information on non-government spectrum into an user-friendly “dashboard” format to allow policymakers, carriers, and others to browse spectrum bands more easily, search for spectrum licenses, produce coverage maps and download raw data for analysis. Indeed, on March 17, 2010, the Commission announced the beta launch of its Spectrum Dashboard which will be limited to identifying commercial users in the 225-MHz to 3.7 GHz bands. In addition to assembling existing data, the Plan recommends that the FCC and the NTIA measure and report the utilization of spectrum bands between 225 MHz and 3.7 GHz. The Plan also calls for the FCC to maintain an ongoing strategic spectrum plan that will be updated

every three years in order to refresh the Commission's analysis of the spectrum market along with an assessment of spectrum supply, usage and demand.

Increased Spectrum Flexibility

In order to encourage innovation and deployment of novel and improved technologies, the Plan makes several recommendations designed to allow for increased flexibility of spectrum use, by increasing the amount of spectrum available for unlicensed use, allowing deployment of opportunistic spectrum use technology, and improving wireless backhaul services.

- Noting that innovative technologies have emerged from bands that had once been considered “junk” spectrum, *e.g.*, the 902-928 MHz band and the 2400-2483 MHz band, the Plan calls for the FCC to establish a new, contiguous nationwide band for unlicensed use.
- The Plan foresees considerable benefit from so-called “opportunistic” or “cognitive” technologies allowing radios and devices to operate on different frequencies depending on local spectrum availability at a given time. In order to speed the development of these technologies, the Plan recommends that the FCC allow these devices to operate in allocated but not-yet-auctioned spectrum currently held by the Commission.
- The Plan recommends that the FCC initiate proceedings to examine additional ways geo-location databases can be deployed to identify and utilize available spectrum on a dynamic basis.
- To further spur the development of this technology, the Plan recommends that the FCC commence

a rulemaking process to establish more flexible experimental licensing rules.

The Plan also seeks to improve the effectiveness and capacity of existing technologies, particularly point-to-point wireless backhaul services. Because backhaul costs are a significant component of a cellular carrier's costs, and in remote areas often the only practical backhaul solution, the Plan recommends the following:

- That the FCC adopt measures to ensure that sufficient microwave spectrum is available to meet the rising demand for wireless backhaul.
- The Plan suggests a revision of the FCC's rules to allow for increased spectrum sharing on compatible point-to-point microwave services.
- In order to improve backhaul coverage and capacity, the Plan recommends that the FCC revise its rules to allow reuse of microwave frequencies, modify minimum throughout rules, restrict antenna sizes, and make available higher frequency bands where possible.

A More Comprehensive Spectrum Policy

The Plan concludes its section on spectrum by recommending that the FCC and the NTIA take steps to make U.S. spectrum policy more comprehensive, such as the following:

- NTIA and the FCC should, by October 2010, develop a plan to identify, on an ongoing basis, additional spectrum that can be made available for broadband use, through reallocation, repurposing, relocation, sharing, and/or opportunistic use.

- The FCC and the U.S. government more generally, should work within the International Telecommunications Union (ITU) to modify the ITU's Radio Regulations to better accommodate advanced technologies, take into account convergence of various radio communications services, and promote innovative and flexible spectrum uses.
- The FCC should evaluate its current and any newly-adopted policies and rules to promote greater use of broadband on Tribal lands.

Broadband spectrum is in increasingly high demand, with exponential growth expected well into the future. In order to give mobile broadband the opportunity to reach its full potential, the Plan recommends shifting United States spectrum policy from an ad-hoc, top-down series of rules, to a more comprehensive, strategic policy designed to maximize the value of the nation's spectrum. The recommendations envision increased transparency regarding spectrum allocation and utilization, expanded incentives by existing licensees to make available spectrum for reallocation, and greater flexibility in spectrum use. The Plan calls for establishment of a comprehensive policy designed to clear the way for increased innovation and use of the nation's spectrum.

CHAPTER 6: INFRASTRUCTURE

The Plan recognizes that infrastructure such as poles, conduits, rooftops, and public rights-of-way play an important role in the economics of broadband networks. Ensuring service providers can access these resources efficiently and at fair prices can drive upgrades and facilitate competitive entry.

The Plan recommends that government at several levels take two actions to reduce the costs incurred by private industry when using public infrastructure, which the Plan expects will improve the business case for deploying and upgrading broadband network infrastructure and facilitate competitive entry. First, federal, State and local governments should take steps – principally, those that reduce providers' costs – to ensure that network providers have easier access to poles, conduits, ducts and rights-of-way. Second, the Plan submits that the federal government should foster infrastructure deployment by facilitating the placement of communications infrastructure on federally-managed property and enacting "dig once" legislation. To those ends, the Plan makes a series of recommendations to optimize infrastructure use and directly lower costs in order to promote broadband deployment.

Five of the Plan's recommendations in this area are directed to the FCC and one to Congress. Specifically, the Plan directs the FCC to complete or initiate rulemaking proceedings that would:

- Establish low and uniform pole attachment rates, consistent with Section 224 of the Act, which is an issue that has been teed up in an ongoing rulemaking considering, among other measures, the adoption of a single broadband pole attachment rate that would apply to all broadband providers, whether cable companies, telcos (including both CLECs and ILECs), and wireless providers.
- Implement rules to lower "make-ready" costs associated with pole attachments by standardizing charges and giving attachers flexibility to employ

space and cost saving techniques or use independent contractors to do work.

- Establish a universally applicable timeline in those States where the FCC’s jurisdiction applies (because the FCC has not received a certification from the State that it regulates pole attachments access and rates) for each step of the Section 224 access process – from application to issuance of the final permit – and reform the process for resolving disputes regarding infrastructure access.
- Improve the collection and availability of information from pole owners regarding the location, ownership, and availability of poles, ducts, conduits and rights-of-way.
- Establish a joint task force with State, Tribal and local policymakers to craft guidelines to applied nationally for rates, terms and conditions, and best practices for access to public rights-of-way, and recommend a process for the FCC to use in resolving disputes under Section 252.

In addition, the Plan recommends that Congress:

- Amend Section 224 to establish a harmonized access policy for all poles, ducts, conduits and rights-of-way, given that the statute currently does not apply in States that adopt their own system of regulation, exempts poles owned by co-operatives, municipalities and non-utilities, distinguishes between cable companies and telecommunications carriers, and arguably gives incumbent local exchange carriers fewer rights than other carriers.

Two recommendations are made to Congress and two to the Executive Branch to directly lower the costs of

future infrastructure deployment on or within federal rights-of-way and to maximize the usefulness to broadband providers of federal resources.

- Congress should enact “dig once” legislation – to mandate coordinated fiber builds with other infrastructure projects in which the right-of-way is already being dug – that would apply to all future federally-funded projects along public rights-of-way.
- Congress should expressly authorize agencies to set fees for access to federal rights-of-way on a management and cost recovery basis.
- The Department of Transportation should make federal financing of highway, road and bridge projects contingent on States and localities allowing joint deployment of conduits by qualified parties.
- The Executive Branch should develop master contracts to expedite the placement of wireless towers on federal government property.

CHAPTER 7: RESEARCH & DEVELOPMENT

The Plan outlines the role the federal government in fostering the development of research networks and wireless experimentation through a clear research & development (R&D) funding agenda focused on broadband networks, equipment, services and applications. The goal of the government’s actions in this area is to improve the incentives for private sector R&D, utilize government resources to experiment with new broadband technologies, and increase the flexibility of wireless spectrum rules in order to promote greater wireless experimentation.

The Plan sets forth several recommendations in furtherance of these goals:

- In order to encourage “breakthrough” research in addition to incremental improvements, the government should focus broadband R&D funding on projects with a greater range of risk-reward profiles.
- Congress is urged to consider making its Research & Experimentation tax credit permanent in order to spur private sector research and investment.
- The government should install ultra-high speed broadband to Department of Defense installations to be used as a catalyst and testing ground for next-generation broadband applications.
- The National Academy of Sciences and the National Academy of Engineering are urged to develop a strategic plan for R&D research priorities with an emphasis placed on: increasing network price/performance; research designed to support national purposes (e.g., health care, education, public safety); social science and economic research on broadband adoption and usage; and network measurement, management and security.
- The NSF is urged to establish a broadband networking research center in partnership with the FCC.
- The NSF and the FCC are urged to fund a wireless “testbed” for promoting the science underlying spectrum policy.
- The FCC is urged to start a rulemaking process to increase the flexibility of experimental licensing

rules for spectrum in order to promote spectrum research.

CHAPTER 8: AVAILABILITY

Universal Service Reform

Chapter 8 sets forth a series of ambitious proposals to transform the nation’s universal voice service mandate into one directly supporting universal access to broadband services. The Plan proposes to achieve this goal over the course of the next decade through a combination of USF reform along with the creation of a new fund that would eventually replace much of the existing USF. Over the next decade, the Plan calls for the federal government to phase out support for voice-only telephone services, to be replaced with support for voice-enabled broadband platforms. Unlike many of the topics addressed elsewhere in the Plan, the FCC USF recommendations contain a high level of detail and a clearly delineated plan of action. As such, the FCC should be expected to quickly move to implement Plan’s recommendations through a series of specific rulemakings.

Creating the Connect America Fund and the Mobility Fund

Among the Plan’s most ambitious recommendations is the creation of a fund that would eventually replace the USF as a means to provide universal telecommunications service. Eventually, the Connect American Fund (“CAF”) would replace all of the legacy USF “High-Cost” programs with a new fund that solely supports broadband services.

While most of the Plan’s proposals focus on increased competition as the preferred means of providing service, the CAF would only provide funding to service

providers in geographic areas where the FCC determines that there is no “private sector business case” for investment in voice-enabled broadband service. In those specific regions, the CAF would subsidize a maximum of one provider per geographic area. The Plan maintains that the eligibility for CAF support would be open to both wireline and wireless providers, so long as the service provided meets or exceeds FCC specifications. However, many do not expect providers of wireless broadband services to be the primary beneficiaries of the CAF in light of the expected requirements and selection process. The Plan calls for the FCC to determine which single carrier would receive CAF funds in a particular area, as well as the amount of support to be provided, using an undefined “market-based” mechanism, which is how the FCC has described reverse auctions in the universal service proceeding.

In addition to the CAF, the Plan calls for the creation of a mobile-specific fund. The Mobility Fund would be a one-time fund designed to accelerate and augment the build-out of the nation’s 3G wireless network in order to expand current coverage as well as to support future deployment of enhanced 4G technologies. Unlike the CAF proposal, the details are sketchy concerning the means by which Mobility Fund monies would be disbursed. However, the FCC can be expected to use a similar “market-based” method to determine which areas will receive funding. Taken together, the CAF and the Mobility Fund proposals amount to a significant shift in the FCC’s policy towards universal service and may well require additional statutory authority.

Funding the New Programs Via Universal Service Fund Reform Savings

In order to fund the CAF and the Mobility Fund, the Plan proposes significant reforms to the current USF. By shifting funding from the USF and other existing sources, the Plan hopes to achieve over \$15 billion in savings over the next decade to be made available for broadband programs.

The Plan proposes to phase out USF High-Cost support for competitive eligible telecommunications carriers (ETCs) and redirect that funding towards broadband programs over the coming years. Additionally, the Plan calls for the FCC to eliminate rate-of-return carrier regulation and to move those carriers to price-cap regulation over time, first by freezing Interstate Common Line Support (ICLS) and replacing that support, when necessary, with disbursements from the CAF. Taken together, these reforms to the High-Cost component of the USF would drastically alter the regulatory environment in which many carriers compete.

In addition to the reforms to the High-Cost USF, the Plan proposes to eliminate Interstate Access Support funding that helps to offset interstate access charges in low density areas. Finally, the Plan recommends that the FCC issue an order to reduce and recapture High-Cost ETC funding awarded to certain large carriers that is already slated to be discontinued. Taken together, these changes are expected to identify and redirect over \$15 billion in current funding from voice-only services to voice-enabled broadband services. In the event that the savings outlined cannot be realized, the Plan also recommends that Congress

consider providing optional funding for the CAF and the Plan's other proposals.

Regime Change: Transitioning from the USF to the CAF by 2020

With the above reforms in place, the Plan proposes to shift from the USF to the new CAF in the period between 2012 and 2020. In this phase, the FCC would begin distributing CAF support for broadband services and gradually shifting all High-Cost USF funds to CAF-eligible broadband service providers. In order to fund this transition, the FCC would seek to expand the USF/CAF contribution base as well as attempt to manage the total size of the fund in order to minimize the burden of USF contributions upon consumers.

Once the CAF is established, it would begin distributing funds to extend broadband service to currently unserved regions. As noted earlier, CAF funding would be provided only to those areas in which there is "no business case" for private sector provision of broadband services, and then only to a single provider in each of those areas. As such, significantly fewer carriers would be eligible for support, and those eligible would be required to participate in an auction or other "market-based" means in order to compete for the right to serve certain low density areas. By 2020, the FCC would completely eliminate the High-Cost component of the USF, replacing it with CAF-supported voice-enabled broadband service.

In order to maintain the requisite funding for the expanded broadband fund and to ensure the continuing deployment and operation of existing networks, the Plan proposes that the universal service contribu-

tion base be broadened. Currently, universal service funding comes from assessments on end-user revenues from telecommunications services and interconnected VoIP services. By contrast, broadband service providers who "bundle" voice services with other offerings escape full universal service contribution requirements. Though the exact path to reform on this issue is unclear, the FCC may choose to reclassify "bundled" voice and information service as a telecommunications service, thereby potentially clearing the way for increased regulation of broadband providers, including mandatory universal service contributions.

In addition to broadening the universal service contribution base, the FCC has signaled that it plans to address concerns about the exponential growth of the universal service fund as well as carriers' USF contribution factors, both of which are at record highs. The FCC could seek to achieve this goal by broadening the universal service contribution base, as discussed above, as well as by reforming the High-Cost ICLS system and taking measures to address the explosive growth in the FCC's Low Income program.

Intercarrier Compensation

The Plan recognizes that the current intercarrier compensation (ICC) system – the system of regulated payments in which carriers compensate each other for the origination, transport and termination of telecommunications traffic – has fundamental problems that create inefficient incentives. First, terminating rates are not uniform despite the uniformity of the function of terminating a call. Rate differentials lead to arbitrage opportunities, which in turn leads to disputes and underpayment to the terminating carrier. The

Plan points out that most ICC rates are above incremental cost, which creates opportunities for access stimulation. In addition, broadband providers have begun migrating to more efficient IP interconnection and compensation arrangements for the transport and termination of IP traffic. Because current ICC rates are above cost, the current system creates disincentives to migrate to all IP-based networks. ICC may also be hindering the development of the broadband ecosystem due to the regulatory uncertainty about whether or what intercarrier compensation payments are required for VoIP traffic.

The Plan recommends that the FCC conduct a comprehensive reform of universal service and intercarrier compensation in three stages to close the broadband availability gap.

The ICC reform recommendations for Stage One include the following:

- The FCC should adopt a framework for long-term ICC reform that creates a glide path to eliminate per-minute charges which providing carriers an opportunity for adequate cost recovery, and establish interim solutions to address arbitrage.
- The first step of this staged reform should move carriers' intrastate terminating switched access rates to interstate terminating switched access rate levels in equal increments over a period of two to four years.
- To offset the impact of decreasing ICC revenues, the FCC should permit gradual increases in the subscriber line charges (SLCs) and consider

deregulating the SLC in areas where states have deregulated local rates.

- The FCC should encourage states to complete rebalancing of local rates to offset the impact of lost access revenues.
- The FCC should adopt interim rules to reduce ICC arbitrage and access stimulation, and to curtail business models that make a profit by artificially inflating the number of terminating minutes.
- The FCC should address the treatment of VoIP traffic for ICC purposes.

In Stage Two, the Plan purposes that the FCC take additional steps to reduce per-minute rates for intercarrier compensation. The recommendations for Stage Two include the following:

- The FCC should begin by reducing intrastate rates to interstate rate levels in equal increments over a period of time.
- The FCC could then choose to reduce interstate rates to reciprocal compensation rate levels for those carriers whose interstate rates exceed their reciprocal compensation rates, and reduce originating access rates in equal increments.

In Stage Three, the FCC would complete the transition with an emphasis on measurement and adjustment. Specifically, the Plan recommends that the FCC continue reducing ICC rates by phasing out per-minute rates for the origination and termination of telecommunications traffic.

CHAPTER 9: ADOPTION & UTILIZATION

Citing uneven broadband adoption and utilization rates among certain segments of society, the Plan calls for measures to reduce barriers to broadband adoption and utilization, address issues of broadband accessibility, and expand federal support for regional capacity-building, program evaluations and sharing of best practices.

Most of those who have not adopted broadband cite cost as the primary reason they do not have broadband service at home. In order to reduce this barrier, the Plan suggests that the FCC expand Lifeline Assistance and Link-Up America to include broadband. Specifically, the Plan calls for the FCC and states to require eligible telecommunications carriers (ETCs) to permit Lifeline customers to apply Lifeline discounts to any service or package that includes basic voice service, including bundled services. The FCC also urged free or low-cost, advertising supported broadband service to be considered as a means to address the affordability barrier to broadband adoption.

The second most common reason cited for broadband non-adoption is lack of digital literacy, or the skills employed to use computers to retrieve information. The Plan urges the federal government to create a National Digital Literacy Program that creates a Digital Literacy Corps, increasing the capacity of digital literacy partners and creating an online Digital Literacy Portal.

In order to address the conception that some non-adopters believe that digital content is insufficiently compelling to justify broadband adoption, the NTIA is urged to explore the potential for public-private

partnerships to improve broadband adoption within targeted groups. Measures also are recommended to address issues of accessibility for those with disabilities, including modernizing accessibility laws, rules and related subsidy programs to cover Internet Protocol-based communications and video-programming technologies.

Finally, the federal government is urged to support and coordinate with state, local and Tribal government efforts to develop and employ broadband adoption and deployment strategies.

CHAPTER 10: HEALTH CARE

The Plan recognizes that improved efficiency in the health care sector is one of the most important challenges for the nation, and envisions increased broadband availability as a potential means to address this challenge. The rising costs of health care, the aging population of the U.S., and the differential in health care availability for different ethnic groups are all identified as challenges facing the health care industry. While the Plan does not promise that it will solve these challenges, it details how greater broadband availability could assist the industry in transforming itself to meet these challenges through expanded information-driven health care practices (Health IT).

Create Appropriate Incentives for E-Care Utilization and Enable Health IT Adoption

The Plan recognizes that hospitals and physicians are sometimes reluctant to adopt Health IT innovations, citing funding and uncertain investment returns. Therefore, the Plan makes the following recommendations regarding Health IT:

- Congress and the Secretary of Health and Human Services should consider developing a strategy that documents the value of using an electronic exchange of information to treat patients (e-care), proposes reimbursement reforms that incent their meaningful use and charts a path for their adoption.
- Congress, the federal government and the states should consider (1) reducing regulations that slow the adoption of e-care and other Health IT solutions such as credentialing of physicians to practice at a hospital, (2) revising licensing requirements to enable e-care, and (3) lifting restrictions on electronic prescribing.

Unlock the Value of Data

The Plan recognizes that Health IT permits the advanced uses of data, allowing for enhanced and more efficient health care. To encourage uses of electronic health data, the Plan recommends:

- The establishment of common standards for sharing medical information.
- Consumer control over all of their health care data in a machine-readable format.

Ensure Sufficient Connectivity for Health Care Delivery Locations

To permit existing and future Health IT use, the Plan recommends goals to increase connectivity and broadband availability through:

- Replacing the existing Internet Access Fund with a Health Care Broadband Access Fund which would support bundling telecommunications and

broadband services for health care providers in both rural and urban areas, based on need.

- Creation of a Health Care Broadband Infrastructure Fund that would direct subsidies to locations based on demonstrated-need criteria where existing networks are insufficient. The criteria recommended, based on data from the Rural Health Care Pilot Program, could include factors such as geographic unavailability, financial concerns, and Universal Service Fund fair share considerations.
- Altering the existing definition of “health care provider” to include any institution that has “become integral in the delivery of care in the United States” to permit long-term care facilities, off-site administrative offices, and data centers access to broadband funding. In addition, the Plan suggests expanding the definition of health care providers eligible for USF funding to include for-profit entities.
- Providing increased funding for the Indian Health Services to upgrade its broadband connectivity.
- Alignment by the FCC of its health care program with other federal government criteria and metrics to monitor and encourage Health IT use and publish a Health Care Broadband Status Report every two years.

CHAPTER 11 – EDUCATION

Focusing on educating students for the information-based economy of the 21st century, the Plan details gaps in achievement among certain ethnic groups, the inequitable distribution of highly-qualified teachers and administrators, and the lack of uniform standards

and transparency. The Plan recognizes broadband as a tool to be used to address these challenges by customizing learning opportunities to access high-quality, low-cost education, improving the exchange of educational information among teachers and parents, and improving school districts' educational purchasing options.

Support and Promote Online Learning

The Plan recognizes that broadband can be used to break down traditional barriers to teaching, allowing students to learn outside the classroom with a potentially wide array of sources online. To encourage online learning, the Plan recommends:

- Standards be adopted for location, sharing and licensing of digital educational content, and increasing the supply of digital education content available online.
- The adoption of digital literacy standards, curricula and assessments in digital literacy and funding to help schools train teachers in digital literacy.
- Changes in accreditations and teacher certification requirements to allow students to take more courses for credit online and across state lines.
- Encouraging copyright holders to grant education digital rights of use to increase the digital content available for education and investment in open licensed and public domain software.
- Support and funding for research and development of online learning systems and establishment of a program to fund development of innovative online learning solutions.

Unlock the Value of Data and Improve Transparency

Currently schools run a myriad of proprietary systems that make sharing educational data slow and difficult. The Plan makes the following recommendations to improve the accessibility of information to schools:

- The adoption of standards for electronic educational records.
- The development of digital financial data transparency standards for education.
- The creation of Electronic Request for Proposal online sites for school vendors.

Modernizing Educational Broadband Infrastructure

The Plan recognizes that schools are frequently faced with inadequate connectivity and bandwidth obstacles. The Plan seeks to improve the broadband infrastructure for education and foster innovation through the following recommendations:

- The adoption by the FCC of its pending Notice of Proposed Rulemaking to remove barriers to off-hours community use of E-rate funded resources, and E-rate support for internal connections to more schools and libraries.
- Initiation of a rulemaking by the FCC to set goals for minimum broadband connectivity for schools and libraries, to raise the cap on funding for E-rate each year to account for inflation, and for streamlining the E-rate application process.
- The collection and publishing of more specific, quantifiable and standardized data about the use of E-rate funds, and awarding some E-rate funds competitively.

- Amendment of the Communications Act to help tribal libraries overcome barriers to E-rate eligibility.
- Initiation of a rulemaking by the FCC to fund wireless connectivity to portable learning devices.
- Additional public funds to connect all public community colleges with high-speed broadband.

CHAPTER 12: ENERGY AND THE ENVIRONMENT

Chapter 12 focuses on ways to use broadband to increase the efficient use of energy. Recognizing that national security depends, in part, on reduced reliance on foreign energy supplies, and the need to reduce carbon emissions, the Plan makes several recommendations on how to develop broadband capacity to reduce energy consumption and make energy management more efficient. Under the ARRA, Congress allocated \$80 billion for clean energy and efficiency investments. By improving broadband access, the Plan seeks to ensure that these funds are used to create systems that will allow consumers to not only gain easy access to information on the price of energy supplies, but also to make daily, hourly or by-the-minute decisions about their energy consumption.

Integrate Broadband Into the Smart Grid

The Plan recommends that resources be devoted to build a modern energy grid that enables energy efficiency and widespread use of renewable power supplies. The Smart Grid will require two-way communications, sensors, and software systems to allow information to flow with the consumption of energy, which will in turn permit consumers to make demand-response energy consumption decisions based

on updated energy prices. To accomplish these objectives, the Plan recommends the following:

- That the FCC initiate a proceeding to determine the reliability and resiliency of commercial broadband communications networks.
- That States reduce financial disincentives to using commercial providers for Smart Grid communications.
- That Congress consider amending the Communications Act to enable utilities to use the public safety wireless broadband network in the 700MHz band.
- That the FCC and NTIA consider new uses for federal spectrum, and that they consider Smart Grid applications when setting spectrum policies.

Unleash Innovation in Smart Homes and Smart Buildings

The Plan recommends the following to improve consumers' awareness of energy prices and to drive lower energy consumption.

- States should require electric utilities to provide consumers access to real-time information from smart meters on energy consumption, prices and bill data.
- The Federal Energy Regulatory Commission (FERC) should adopt consumer digital data accessibility and control standards as a model for the States.
- The Department of Energy should consider data accessibility issues when awarding grants for Smart Grid applications.

Sustainable Information and Communications Technology

The Plan makes the following recommendations to reduce energy consumption by communications devices.

- That the FCC initiate a proceeding to investigate ways to improve energy efficiency in the communications industry.
- That the federal government ensure all of its data centers efficiently use energy and comply with the EPA's ENERGY STAR ratings.

Smart Transportation

The Plan recommends that automobile manufacturers and transportation companies find ways to use communications and information to make driving and transportation more efficient. For example, by increasing the use of navigation technology, drivers can reduce emissions through the use of more efficient routes.

CHAPTER 13: ECONOMIC OPPORTUNITY

The Plan recognizes that small business and communities rely significantly on broadband for economic development. Given that sixty-two percent of American workers rely on the Internet to perform their jobs, the Plan makes recommendations to improve the access of broadband to accelerate small business adoption and use of broadband applications.

The Plan recommends that government programs be used to fund Small and Medium Enterprises (SMEs) that focus on and promote broadband applications and information technology, including SMEs that train and educate individuals in broadband technologies.

The Plan also recommends that tools such as webinars and online courses be used by the private and the public sectors to educate and train employees, particularly for individuals in low-income areas. The Plan provides recommendations on how employers can use federal resources for regional growth, and expanded technology transfer efforts within local universities.

CHAPTER 14: GOVERNMENT PERFORMANCE

Chapter 14 of the Plan focuses on broadband's promise to change the way government serves the public by increasing broadband deployment in local communities and improving government performance and service delivery. The Plan also recommends that cybersecurity be strengthened.

In order to improve connectivity through the country, the Plan calls for the federal government to use its bargaining leverage to expand broadband deployment into unserved and underserved areas and share infrastructure with state and local government when appropriate. Further, in order to reduce broadband service costs to local governments, Congress is urged to allow state and local governments to take advantage of the federal government's "Networx" contract, a federal telecommunications and network services contract with favorable rates, that would enable cost savings and encourage expanded deployment.

Seeking to improve government performance, the Plan seeks to enhance internal government efficiency, improve service delivery and strengthen cybersecurity. The Plan calls for the Office of Management and Budget to guide agencies on cloud computing technology in order to achieve significant cost savings while mitigating security and privacy concerns.

In addition, the Plan calls for the federal government to adopt social media technologies for internal use, improve existing online services, and develop a competition to recognize internal efforts to transform government by using broadband technologies.

The Plan aims to improve the quality and efficiency of government service delivery through the use of broadband technology. The Plan recommends that the federal government should create a single, enterprise-wide authentication protocol that would reduce the need for individuals to create multiple digital identities to access government services. The Executive Branch is urged to create a website that would allow citizens to request the personal data held by the federal government. The Plan calls for the federal government should benchmark its government websites against private sector actors, develop standard Web templates, and facilitate the replication of leading best practices

Regarding cybersecurity, the Plan calls for the federal government to develop machine-readable repositories of actionable, real-time data concerning cybersecurity threats as well as lead the development of public-private cybersecurity partnerships with both large and small enterprises that would enable sharing of cybersecurity information. Internationally, the Plan encourages the federal government to coordinate with foreign governments to assist in the development of their cybersecurity policies and expertise. Finally, the Plan urges that the government accelerate technical actions to secure federal government networks

CHAPTER 15: CIVIC ENGAGEMENT

The Plan notes that increased broadband connectivity may enhance the ability of our citizens to

access information and interact with the government. Accordingly, the Plan seeks to use the development and deployment of broadband technologies to enhance citizen access to government data and information. The Plan seeks to use information technology to create a more open and transparent government, improve public media content, expand civic engagement through social media, increase innovation within government, and modernize aspects of the democratic process.

In order to create a more open and transparent government, the Plan calls for:

- primary legal documents from the Executive, Legislative and Judicial Branches to be made freely available and accessible to the public on digital platforms.
- all federal, state and local government meetings and hearings to be broadcast online.
- allowing the public to track and comment on proposed legislation online.
- publicly available information to be made easily accessible on the Internet.

The Plan also calls for the government to take a more active role in the creation of online media content. Congress is urged to consider increasing its funding for broadband-based media distribution and content as well as to update copyright laws to enable public broadcasters to produce higher quality programming and provide access to archived content.

Finally, the Plan seeks to expand civic engagement and modernize democratic processes by addressing issues relating to electronic voter registration, voting records portability, voter file updating, and online

voting for overseas military personnel. The Federal Chief Information Officer is also encouraged to accelerate the adoption of social media technologies that enable the government to interact with citizens.

CHAPTER 16: PUBLIC SAFETY

The final national purpose discussed by the FCC in the Plan is public safety. The Plan's recommendations in this area address three areas of concern: public safety wireless broadband communications; cybersecurity and the protection of critical broadband infrastructure; and Next Generation 911 (NG911) networks and emergency alert systems.

Public Safety Wireless Broadband Communications

The Plan states that careful planning and strong commitment could create a cutting-edge public safety communications system to allow first responders anywhere in the nation to communicate with each other. The Plan lays out a three-pronged approach that will allow for the speedy deployment, operation and continued evolution of such a network. As envisioned by the Plan, the network would rely primarily on wireless technology, although wireline and satellite systems also have a role.

First, the Plan proposes an "administrative system" to ensure adequate capacity for a public safety communications network and the availability of suitable applications and devices. The Plan discards the idea of broadband capacity dedicated to public service requirements in the 700 MHz band (the D block) and instead proposes that the Commission create incentives for commercial operators to partner with public safety entities to develop a public safety network throughout

the commercial wireless spectrum. To that end, the Plan suggests that the FCC move quickly to license the D block for commercial use, with restrictions intended to maximize options for partnerships with public safety. The FCC should also consider initiating a rulemaking proceeding to require CMRS providers to give public safety users the ability to roam on commercial networks on a priority basis in the 700 MHz and other bands when the public safety network is at capacity or unavailable. Commercial licensees would have liability protection for the carriage of public safety communications when public safety licensees are using commercial or shared networks.

Second, the Plan recommends that the FCC create an Emergency Response Interoperability Center (ERIC) to develop common standards for interoperability and operating procedures to be used by the public safety entities licensed to construct, operate and use the public safety network.

Third, the Plan suggests that a grant program be established to fund: (1) construction of a public safety 700 MHz broadband network that involves partnerships and uses commercial infrastructure; (2) coverage of the rural areas within the network's geography; (3) hardening of the existing commercial network and new sites that operate as part of the public safety network; and (4) development of an inventory of deployable capability for the 700 MHz public safety band. The program would be funded by imposing a public safety fee on all U.S. broadband users.

Cybersecurity and the Protection of Critical Broadband Infrastructure

The Plan recognizes that the proliferation of IP-based communications networks necessitates stronger cybersecurity. To that end, the Plan makes several recommendations intended to promote cybersecurity and the protection of critical infrastructure. If these recommendations are implemented as proposed, the FCC will be taking a much more active and visible role in ensuring cybersecurity than it has in the past. These recommendations include the following:

- The FCC, in coordination with the Executive Branch, should issue a roadmap to address cybersecurity. The roadmap should identify the five most critical cybersecurity threats to the communications infrastructure and establish a two-year plan for the FCC to address these threats.
- FCC should establish a voluntary cybersecurity certification system that creates market incentives for communications service providers to upgrade their network cybersecurity.
- The FCC and the Department of Homeland Security (DHS) should create a new cybersecurity information reporting system (CIRS). The purpose of this tool would be to monitor cybersecurity and disseminate decisive responses to cyberattacks.
- The FCC should increase its participation in domestic and international fora addressing international cybersecurity activities and issues.
- The FCC should initiate an inquiry into the resilience of broadband networks under physical failures or severe overload. Among other things,

this inquiry should examine the preparedness of commercial networks to withstand overloads that may occur during extraordinary events such as pandemics. Similarly, the Plan recommends that the FCC start an inquiry into the reliability and resiliency standards being applied to broadband networks.

- The FCC and the National Communications System (NCS) should jointly develop a system of priority network access and traffic routing for national security/emergency preparedness (NS/EP) users on broadband communications networks.

NG911 Networks and Emergency Alert Systems

The FCC believes that broadband can make 911 systems more capable, allowing better protection of lives and property. As envisioned by the Plan, NG911 will build on the core functions and capabilities of the existing Enhanced 911 (E911) system by adding new 911 capabilities in multiple formats (such as texting, photos, video, and email) and integrating entities involved in emergency response beyond the public-safety answering point. As such, NG911 will improve the quality and speed of emergency response and will give all callers, including people with disabilities, equal service.

To promote the development of a nationwide NG911 system, the Plan makes the following recommendations:

- The National Highway Traffic Safety Administration (NHTSA) should prepare a report to identify the costs of deploying a nationwide

NG911 system. The report should be funded by Congress and be completed by December 1, 2011.

- Congress should consider establishing a federal legal and regulatory framework for the development of the NG911 system and the transition from legacy 911 to NG911 networks. The legislation would recognize existing state authority over 911 services but require the states to remove regulatory roadblocks to NG911 development and give the FCC the authority to preempt inconsistent state regulations.
- The FCC should address certain issues concerning NG911 communications devices, applications and services in two separate proceedings. First, the Commission should expand its existing proceeding on location accuracy requirements and the possible extension of Automatic Location Identification (ALI) requirements to interconnected VoIP services to explore how NG911 may affect location accuracy and ALI. Second, the FCC should initiate a new proceeding to examine how NG911 can accommodate communications technologies, networks and architectures beyond traditional voice-centric devices.

For similar reasons, the FCC believes that broadband can enhance emergency alert systems, as governments can use broadband to disseminate vital information to the public during emergencies using multiple formats and languages. To promote the development of advanced alerting systems, the Plan recommends that the FCC initiate a wide-ranging inquiry into all technical, legal and policy issues associated with the development of a multi-platform, redundant next-

generation alert system. Also, the Executive Branch should clarify the responsibilities of each federal agency involved in the implementation, maintenance, and administration of next-generation alerting systems.

CHAPTER 17: IMPLEMENTATION & BENCHMARKS

In order to implement the Plan, the FCC proposes measuring progress in implementing the Plan's recommendations and adjusting program goals on occasion as necessary to improve performance. In order to track the implementation of the Plan, several final recommendations are made:

- The Executive Branch is urged to create a Broadband Strategy Council to coordinate the implantation of the Plan's recommendations.
- The FCC is urged to publish a timetable of proceedings to implement plan recommendations within its authority, as well as publish regular evaluations of plan progress and effectiveness.
- The FCC also encourages publishing a Broadband Performance Dashboard with metrics designed to track broadband plan goals

Finally, the Plan addresses concerns related to the FCC's authority under the Communications Act of 1934, as amended, to implement the Plan. In particular, the Plan notes that the FCC possesses certain ancillary authority under Title I of the Act, which may be broad enough to support taking the actions recommended by the Plan. Alternatively, the FCC notes, without taking a position one way or the other, that a debate has emerged whether the FCC should seek to clarify its authority to adopt regulations governing

broadband infrastructure and services by reclassifying broadband providers as telecommunications carriers governed by Title II of the Act.

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