

U.S. National Broadband Plan

March 26, 2010



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Chairman



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Key differences in the United States

- Cable is the leading provider of broadband
 - -Greater availability in the United States
 - -Much greater market share in the United States
- No national telephone incumbent
- Federal and State share jurisdictional authority
 - -Affects communications regulations
 - -Affects barriers to using broadband for National Purposes

Process – Three Stages (1 of 2)

- Stage One: Current State Analysis
 - -Purpose: develop baseline understanding
 - -Key tactics:
 - Public workshops on wide ranges of issues
 - Public presentation of current state for feedback: http://reboot.fcc.gov/open-meetings/2009/september
- Stage Two: Gap Analysis
 - -Purpose: develop clarity on key gaps to be addressed by public policy
 - -Key tactics:
 - Public notices asking detailed questions
 - Public presentation of gap analysis for feedback: http://reboot.fcc.gov/open-meetings/2009/november

Process – Three Stages (2 of 2)

- Stage Three: Solution Development
 - -Purpose: develop recommendations
 - -Key tactics:
 - Public presentation of framework to float initial ideas: http://reboot.fcc.gov/open-meetings/2009/december and http://reboot.fcc.gov/open-meetings/2010/february
 - Focused development of recommendations
 - Socialize recommendations among stakeholders
 - Staged roll-out of final recommendations

Macro themes

- Lack of spectrum as a threat to broadband
- Need to address effectiveness of government control of other key inputs
- Need for both fixed and mobile high performance networks
- Need for different price/ performance networks for different customer segments
- Need to address barriers to use in sectors heavily influenced by governments
- Most important metric: how people actually use the networks

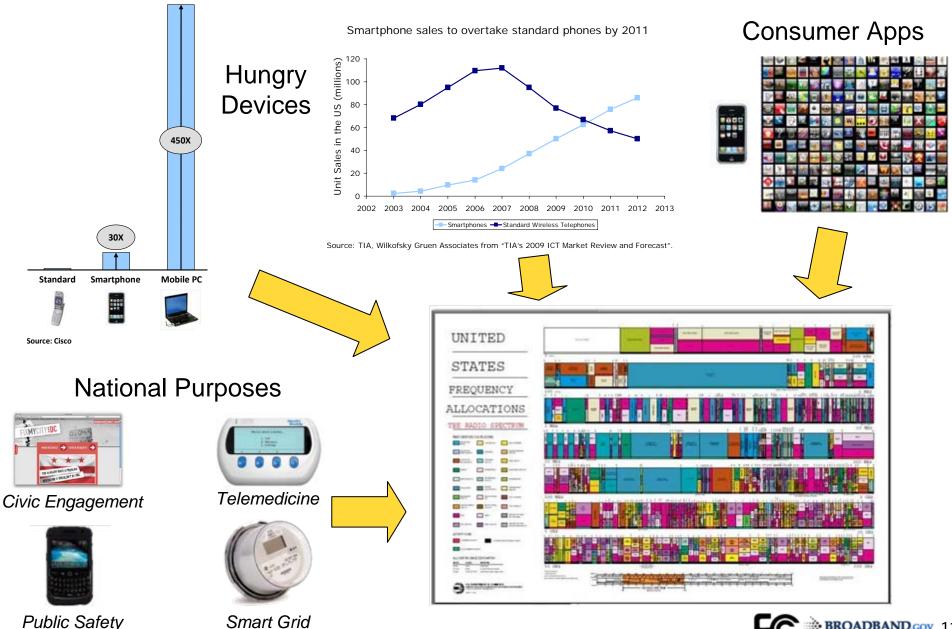
Phil Bellaria

Director of Scenario Planning Omnibus Broadband Initiative



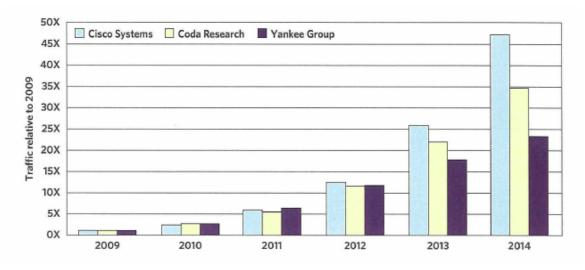
Spectrum

Spectrum is the "oxygen" that wireless broadband needs to thrive

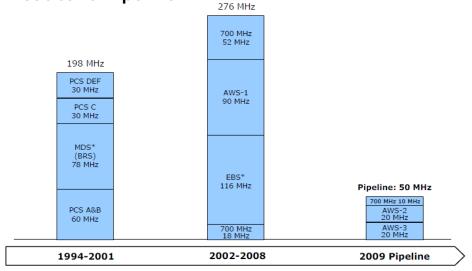


Trends in demand and supply suggest a looming gap

Forecasted Mobile Data Traffic in North America



Mobile Broadband Pipeline



Spectrum Licenses Suitable for Mobile Broadband

transform spectrum policy to meet wireless broadband demands

Need to



Policy changes needed for a range of issues

Gaps	Issues		
Lack of transparency in allocation and utilization	Current allocation and utilization data is largely unattainable and often esoteric		
Few spectrum reallocation tools	 FCC needs at its disposal multiple tools for reallocating underutilized spectrum to next-generation users 		
Insufficient capacity for broadband	Wireless broadband growth is causing network strain that will intensify with next-generation technologies		
Suboptimal backhaul	 Spectrum can take years to reclaim Growing need for expensive backhaul services, including microwave 		
deployment	 Access lacking in terms of capacity, flexibility and affordability 		
Access models limited	Opportunistic access to spectrum is limited to certain bands		
	 Demand for unlicensed spectrum among key stakeholders 		
Policy scope too bounded	There is no framework for identifying future spectrum bands and needs		
	 Coordination of multiple domestic and international 		

stakeholders

Framework for recommendations

1

Ensure greater transparency in allocation and utilization

Spectrum dashboard

2

Expand incentives and mechanisms available to reallocate or repurpose spectrum

- Incentive auctions
- Spectrum fees

3

Make more spectrum available

- Within 10 years, 500 megahertz total
- Bands under consideration include Broadcast TV, MSS, WCS and AWS

4

Facilitate deployment of spectrum for wireless backhaul

More flexible rules

5

Expand opportunities for innovative spectrum access models

- New unlicensed allocation
- Opportunistic use
- R&D

6

Increase comprehensiveness of spectrum policy

- Work with NTIA
- Tribes
- International



John Horrigan

Director of Consumer Research Omnibus Broadband Initiative

Inclusion

Adoption survey: key results

Survey summary

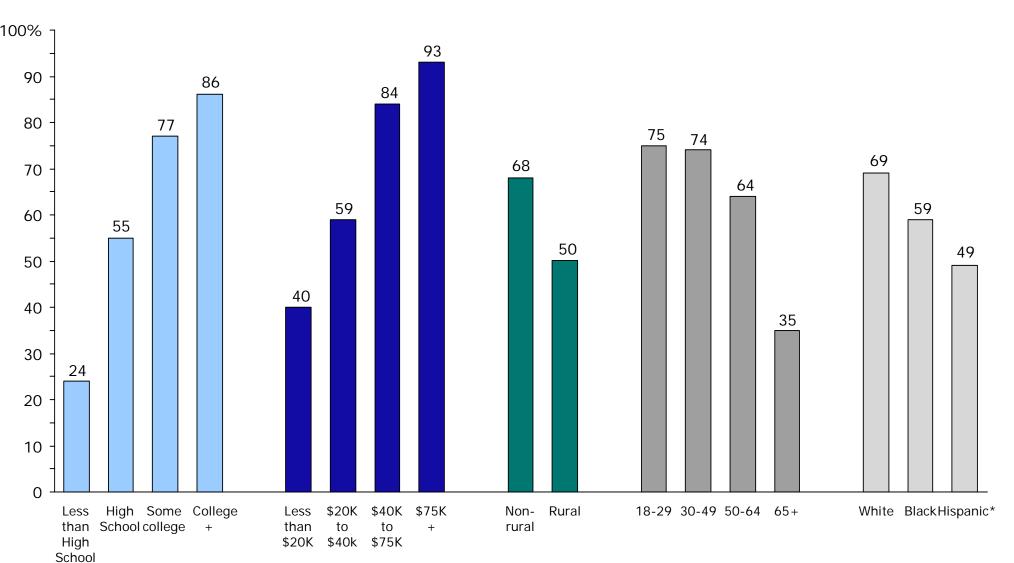
- National telephone survey of 5,005 adults
 - Spanish language option provided
 - Cell phones included in sample
- 65% of Americans are broadband users <u>at home</u>
- Average monthly bill (user reported) from survey: \$40.68
 - \$46.25 for those whose service is not part of bundle
 - \$37.70 for those whose service is part of bundle
- 3 baskets of non-adopters:
 - 22% -- non-internet users
 - 6% -- dial-up users at home
 - 6% -- online users who do not access the internet from home

Key reasons for non-adoption

- **Cost** 36%
 - 15% monthly fee for service
 - 10% cannot afford a computer
 - 9% -- activation fee/contract
- <u>Digital literacy</u> 22%
 - 12% -- lack of comfort with computers
 - 10% -- hazards of online life
- <u>Relevance</u> 19%
 - 5% -- content with dial-up
 - 5% -- internet is a waste of time
 - 4% -- Nothing to see
 - 4% -- Don't use it much
- Remaining reasons:
 - 15% -- other or combination of several reasons
 - 5% -- not available locally
 - 3% -- can use the internet all they want at work

Adoption by demographic & socio-economic segment

Percent of American adults



^{*}Hispanics includes both English and Spanish speaking Hispanics;

Framework for recommendations

- 1 Launch a three-part National Digital Literacy Program
- Expand low income universal service support to broadband
- Focus on "relevance" through public/private partnerships
- Improve focus on evaluation, measurement, best practices, and state-level initiatives
- Accelerate efforts among low-adopting groups facing significant social or physical barriers

Launch a three-part National Digital Literacy Program

- 1. Create a Digital Literacy Corps
 - Goal: Put Corps members into communities to help users get online and complete basic skills education
 - Also serves as workforce development/job skills platform
 - New appropriation to NTIA, to collaborate with CNCS (AmeriCorps, SeniorCorps) to design, fund and administer Corps
- 2. Increase capacity and training in libraries and community centers to provide digital literacy support
 - Goal: Increase infrastructure and capability of local partner sites to become the "where" the locations for skills training and e-gov apps support
 - New appropriation to IMLS, and guidelines created with OMB/IMLS
- 3. Create an Online Skills Portal
 - Goal: Give every American access to free, age- and language-appropriate content to impart digital skills
 - Created by collaboration among FTC, FCC, Department of Education, NTIA and others (along lines of OnGuardOnline.gov), but in partnership with private and non-profit sector who develop such content
 - New appropriation to support initial content development, outreach and evaluation

Focus on "relevance" through public/private partnerships

- 1. Create public/private partnerships in collaboration with federal agencies service low-adopting communities
 - Goal: Reduce cost of PC and service, while improving skills and relevance, for low-income non-adopters
 - NTIA should enable creation of partnerships between private sector, non-profit sector and federal agencies (e.g., HUD, Education, Social Security, Agriculture) that serve low-adopting populations
 - NTIA to use existing or new appropriations
- 2. Encourage a national/local awareness and outreach campaign
 - Goal: Demonstrate relevance of broadband to people's lives, and reduce fears of Internet
 - Private sector media and communications firms and non-profits should leverage existing and local channels/outlets to reach deeper into non-adopting communities
 - No new appropriations requested
- 3. Targeted efforts to improve relevance among older Americans
 - Goal: Increase senior adoption rates by focus on social connections, health and workforce development
 - Also, study reasons for non-adoption among seniors in greater detail
 - No new appropriations requested

Improve focus on evaluation, measurement, best practices, and state-level initiatives

- Utilize remaining BDIA funds to enhance state and local broadband initiatives and planning
 - Goal: Support goals of Broadband Data Improvement Act, by providing funding for sustainable state efforts and local initiatives
 - Help create state strategies, implement in local areas, and coordinate with federal policy where appropriate
 - No new appropriations requested
- Augment this with increased focus on evaluation and assessment of all adoption programs
 - Goal: Improve third-party evaluation of adoption efforts to enable future measurement and adjustment, by embedding requirement in current and future funding
 - Gather outcomes and results, along key metrics, to allow for quantifiable research
 - No new appropriations requested
- 3. Create a Best Practices Clearinghouse for practitioners to share lessons on how to improve broadband access, adoption and utilization
 - Goal: Better information sharing among those running broadband programs
 - New appropriation to NTIA to develop and manage, as well as do outreach to gather content

Accelerate efforts among low-adopting groups facing significant social or physical barriers

- 1. Improve deployment and adoption of broadband among Tribes
 - Improve coordination and consultation between Tribes and FCC and all of federal government
 - Improve data on broadband in Tribal lands
 - Create Tribal Broadband Fund and improve connectivity to Federal facilities on Tribal lands
 - Assist Tribal libraries to qualify for E-rate funding and recommend Tribal seats on the USAC Board of Directors and the Federal-State Joint Board on Universal Service
 - Identify spectrum over Tribal lands, and add flexibility and incentives for building facilities serving Tribal lands
- 2. Address issues of accessibility for people with disabilities
 - Convene Broadband Accessibility Working Group to coordinate federal efforts to maximize accessibility and to make government a model for accessibility
 - FCC should establish an Accessibility and Innovation Forum
 - Congress, FCC and DOJ should modernize laws and rules



Rob Curtis

Director of Deployment Omnibus Broadband Initiative



Carol Mattey

Deputy Bureau Chief Wireline Competition Bureau

Availability

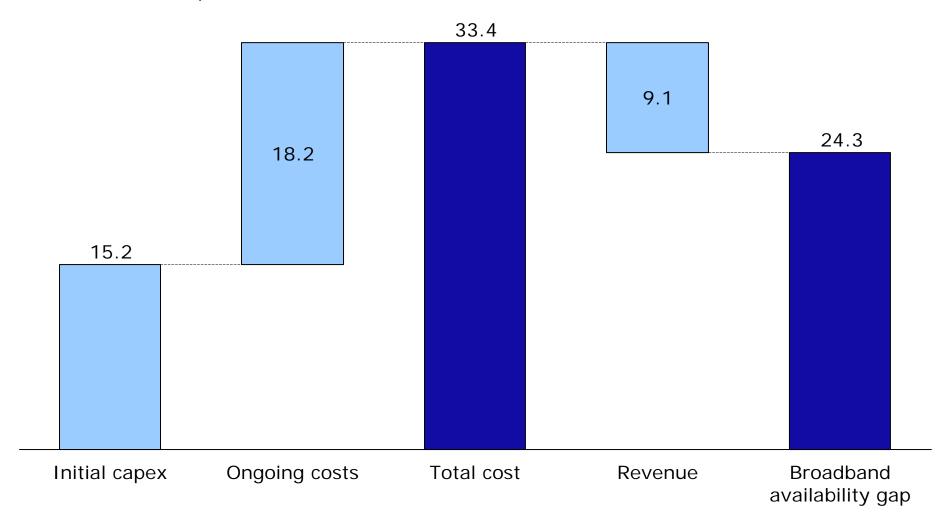
The National Broadband Plan sets one of the most aggressive targets in the world for universalization of broadband access

Country	"Universal" availability target (download)	Type of speed	Date
United States	4 Mbps	Actual	2020
Rep. of Korea	1 Mbps (99%)	Actual	2008
Finland	1 Mbps	Actual	2009
Australia	0.5 Mbps	Unspecified	2010
Denmark	.5 Mbps	Unspecified	2010
Ireland	1 Mbps	Unspecified	2010
France	0.5 Mbps	Unspecified	2010
Germany	1 Mbps	Unspecified	2010
United Kingdom	2 Mbps	Unspecified	2012
Australia	12 Mbps	Unspecified	2018

The present value of the broadband availability gap to reach this target is approximately \$24 billion

Cash flows associated with broadband availability gap

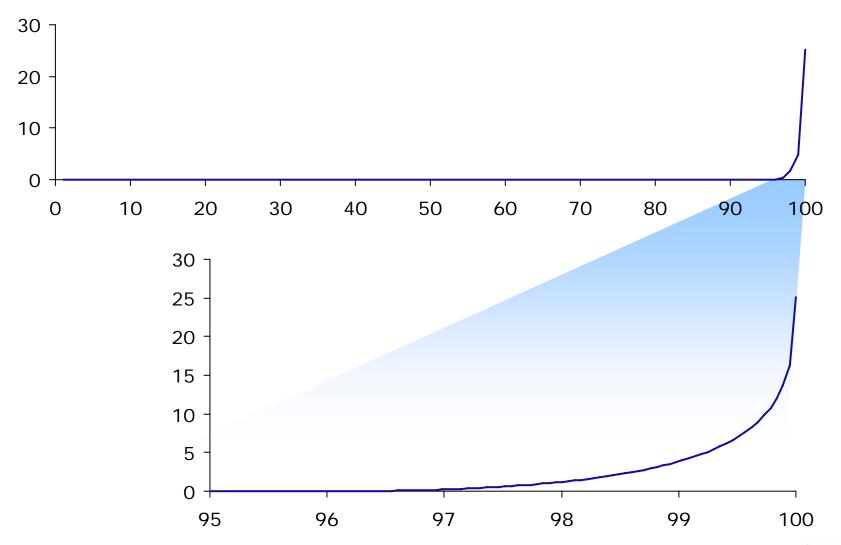
Billions of dollars (present value)



The most expensive housing units to serve drive up the size of the gap considerably

Broadband availability gap, by percent of U.S. housing units served

Billions of dollars (present value); percentile of U.S. housing units by gap



Universal Service recommendations

Making broadband available

Make broadband available to more than 99% of all American households by 2020

Create a new Connect America Fund to support broadband and voice service unserved areas and ongoing support where necessary

Create a new Mobility Fund targeted at states significantly lagging behind the national average for 3G coverage

Over ten year period, transition away from legacy USF programs

Reform intercarrier compensation

Making broadband more affordable for low income households

Expand the existing FCC Low Income program to broadband

Identify best practices for enrollment, eligibility verification and outreach

Integrate program into other e-gov initiatives

Consider use of spectrum for a free or very low cost wireless service

Ensuring that schools and libraries have access to affordable broadband

Increase flexibility and bandwidth

Remove barriers to shared use with other community institutions

Improve program efficiency

Foster innovation with pilot programs, such as funding for wireless connectivity for devices off campus Ensuring health care providers have access to affordable broadband

Expand support for broadband connectivity

Remove barriers to shared use with other community institutions

Support broadband network deployment where infrastructure lacking

Improve program efficiency

Monitor and measure

In addition, the plan proposes an array of other actions to promote availability

Expanding financing

- Expanding combination grant-loan programs
- Expanding the Community Connect program, which provides funding to otherwise-unserved communities

Connecting Tribes

- Establishing a Tribal Broadband Fund
- Allowing "anchor institutions" on Tribal lands to share capacity with other community institutions

Connecting communities

- Providing 1 Gbps connectivity to an anchor institution in every community
- Making clear that Tribal, state, regional and local governments can build broadband networks
- Facilitating demand aggregation and the use of state, regional and local networks



Kristen Kane

Director of National Purposes Omnibus Broadband Initiative

National Purposes

The National Purposes mandate

American Recovery and Reinvestment Act, §6001(k)(2)(D):

"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."

Healthcare

Education

Energy and the environment

Government performance and civic engagement

Economic opportunity

Public safety and homeland security

A vision for "high performance America"

 Make government more effective, efficient, and transparent

 Ensure that public investments are aligned and forward-thinking

 Create the conditions for innovation and America's competitive advantage in key strategic areas

Unlock the value of data for new applications and research

As a platform for innovation and information exchange, broadband helps improve health outcomes









Health care recommendations

Create incentives for broader health IT adoption and innovation

- Increase e-care pilots that evaluate cost savings & clinical outcomes
- Expand reimbursement for e-care under current fee-for-service model where outcomes are proven
- Provide Congress with a plan to realize the value of e-care

Modernize
regulations to
increase access to
care and enable
health IT adoption

- Revise credentialing, privileging and state licensing requirements to enable e-care
- Clarify regulatory requirements and the approval process for converged communications and healthcare devices

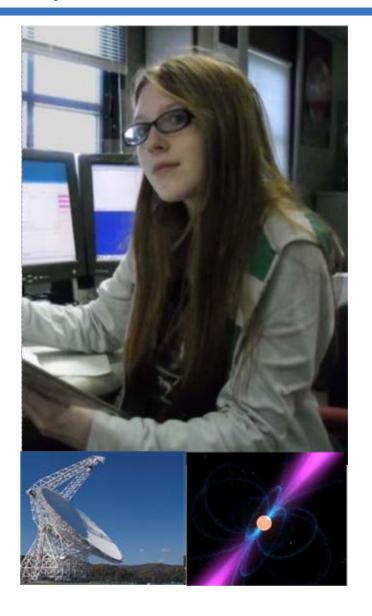
Drive innovative applications and advanced analytics

- Create nextgeneration interoperability across clinical, research and administrative data
- Ensure patients have access to and control over their health data

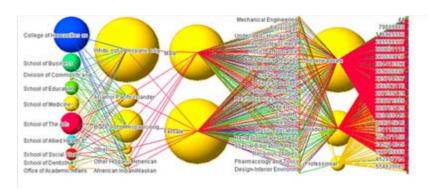
Ensure all providers have access to affordable broadband

- Transform the Rural Healthcare Program
 - Subsidize ongoing costs
 - Subsidize network deployment
 - Expand eligibility
 - Require institutions to meet outcomesbased measures
- Upgrade Indian Health Service broadband service
- Track and publish progress on broadband connectivity in healthcare facilities

As a platform for information exchange, broadband helps personalize instruction so students learn more







Education recommendations

1

Upgrade E-rate and Community Colleges

- Increase flexibility and bandwidth
 - Permit off-hours community use
 - Set goals for school and library connectivity
 - Support more flexibility in infrastructure development
 - Support more internal connections
- Improve program efficiency
 - Streamline application
 - Improve data collection
 - Index cap to inflation
- Foster innovation with pilot programs
 - Support wireless connectivity to devices on and off-campus
 - Award some funds competitively
- Improve connectivity of community colleges

2

Support and promote online learning

- Increase supply of digital content
 - Develop standards for federal governmentgenerated content and make available online
 - Provide incentives for publishers to create digital content
 - Simplify copyright regime to encourage contributions
- Promote digital literacy
 - Support standards for digital skills
 - Fund integration of digital literacy and STEM into curriculum
- Expand online learning solutions
 - Remove regulatory barriers
 - Fund R&D and investment
 - Consider open license as option for federal investments

3

Unlock the power of data to personalize learning and improve decision-making

- Foster adoption of Electronic Educational Records
- Develop standards for financial data transparency
- Create an online RFP broadcast service to increase market information

As a platform for innovation, broadband helps consumers understand and manage their energy use

















As a platform for innovation, broadband can help promote energy independence and efficiency

Integrate broadband into the smart grid

- · Commercial networks
 - Investigate reliability and resiliency of commercial networks as part of a smart grid
 - Reduce impediments and financial disincentives to use
- Public safety networks
 - Enable utilities to partner with proposed public safety broadband network
- Private networks
 - Consider smart grid requirements in identifying new uses for spectrum

Expand consumer access to energy information

- Ensure customers have access to and privacy of their digital energy information
 - Real-time information from smart meters
 - Historical consumption, price, and bill data over the Internet
- Enable energy innovation in smart homes and buildings
 - With best practices of privacy and cybersecurity, allow customerauthorized 3rd party access

Accelerate sustainable information and communications technology

- Focus on the energy efficiency and environmental impact of the communications industry
- Set energy efficiency goals for federal data centers
 - Meter to get baseline data on energy use
 - Incorporate
 ENERGY STAR
 rating program

Transition to a safer, cleaner, and more efficient transportation sector

- Focus on methods to reduce distracted driving
 - Consumer outreach
 - Work with industry on next generation of in-vehicle communications technology
- Enable broadband to vehicles and masstransit to ease navigation, increase mobility and improve the environment
- Deploy vehicle-tovehicle intelligent transportation technology to help prevent accidents

The value of broadband in mobilizing government and citizens to help society



Government performance recommendations

Transform government service delivery

- Improve efficiency and productivity
 - Explore cloud computing to reduce costs
 - Use competitions to gather ideas for improving quality and efficiency with broadband
 - Encourage greater use of social media
- Enable citizen-centric online services
 - Enhance authentication for online services
 - Enable individuals to access and verify personal data held by government agencies
 - Expand efforts to provide integrated benefits online

Increase the quantity and quality of civic engagement

- Make the federal government more open and transparent
 - Release more government data and information on digital platforms
- Create a more robust digital public media ecosystem
 - Support public media's transition to digital platforms for content and delivery
- Engage citizens using online and social media channels
 - Implement broadbandenabled tools to increase civic participation
- Engage citizens to increase innovation in government
- Modernize democratic processes

Use government assets to improve broadband deployment

- Improve ability of federal buildings serve as anchor tenants for unserved and underserved communities
- Open federal NETWORX contracts to state and local governments
- Encourage greater review and coordination of broadband grants
- Target federal funding to areas where broadband solutions are outcomesoriented and holistic

Broadband brings economic opportunity to job seekers, small businesses, and communities





Economic opportunity recommendations

Create a robust national employment assistance platform

- Deliver employment assistance programs on a scalable online platform
- Provide workforce with anytime, anywhere e-learning tools
- Guide users to pursue individualized job training and longterm career paths

Promote telework through federal policy

- Remove current tax and regulatory barriers for telework
- Make the federal government a leader in telework

Expand efforts to train and equip SMEs with broadband applications

3

- Expand efforts to train small businesses on key IT applications
- Launch public-private partnership to provide technology training for small disadvantaged businesses and small businesses in lowincome areas
- Support entrepreneurial development programs with broadband tools and training
- Use broadband to bring greater scale and effectiveness to existing federal support programs for small businesses

Utilize broadband to enhance economic development tools and planning

- Integrate broadband assessments into economic development grant programs
- Create a national data warehouse
 - Integrate federal sources of economic data, available federal grants, and knowledge management tools
- Support development of regional technology transfer centers

As a platform for efficient information flow, broadband can change the future of public safety communications

Current State



Future goal





Public Safety recommendations

2

Create a nationwide interoperable broadband wireless public safety network

- Ensure network capacity and resiliency
- Leverage commercial technologies to capture economies of scale
- Create an Emergency Response Interoperability Center to ensure interoperability nationwide
- Fund network construction, operation, and evolution

Transition to a next-generation 9-1-1 system

- Identify costs and recommend Congressional appropriations
- Enact a federal regulatory framework to ensure nationwide standards
- Conduct proceedings to address IP-based communications devices, applications and services for nextgeneration 9-1-1

Develop a comprehensive next-generation alerting system

3

- Examine all issues associated with a nextgeneration alerting system
- Ensure coordination between agencies that have overlapping jurisdictions over alerting

Enhance security
measures
to safeguard
networks and core
infrastructure

- Create a cyber security roadmap for FCC
- Examine voluntary cyber security certification program for communication services providers
- Explore extending outage reporting to broadband service providers
- Create a cyber security info reporting system
- Ensure survivability of critical communications infrastructure
 - Develop priority network access and routing rules
 - Understand reliability and resiliency issues in broadband networks



Phoebe Yang

General Counsel
Omnibus Broadband Initiative

Implementation and Benchmarks

Implementation and benchmarks

Implementation

1

Executive Branch Broadband Strategy Council

- Manage Executive Branch implementation
- Coordinate broadband policy across agencies
- Led by senior officials from OSTP, NEC and OMB
- Membership to include high-level personnel from relevant agencies, such as FCC, NTIA, HHS, DHS, DoE, Ed, HUD, Ag and SBA.

2

FCC Implementation

- Publish a timetable of plan related proceedings (about 50% of plan Rec's)
- Evaluate plan implementation progress and effectiveness as part of annual Section 706 Inquiry
- Continue to utilize broadband.gov as a plan information source

Benchmarks

1

FCC Broadband Performance Dashboard

2

Broadband Data Depository

- Display key metrics designed to track plan goals
- Enable the public to understand important broadband performance indicators
- Improvements in FCC data collection needed to accurately track plan goals

- Make all FCC public broadband data available in an online depository
- Design control procedures to enable researches access to non-public data



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