The Role of Advisory Groups in the Regulatory Process

ISART – 14 May 2015

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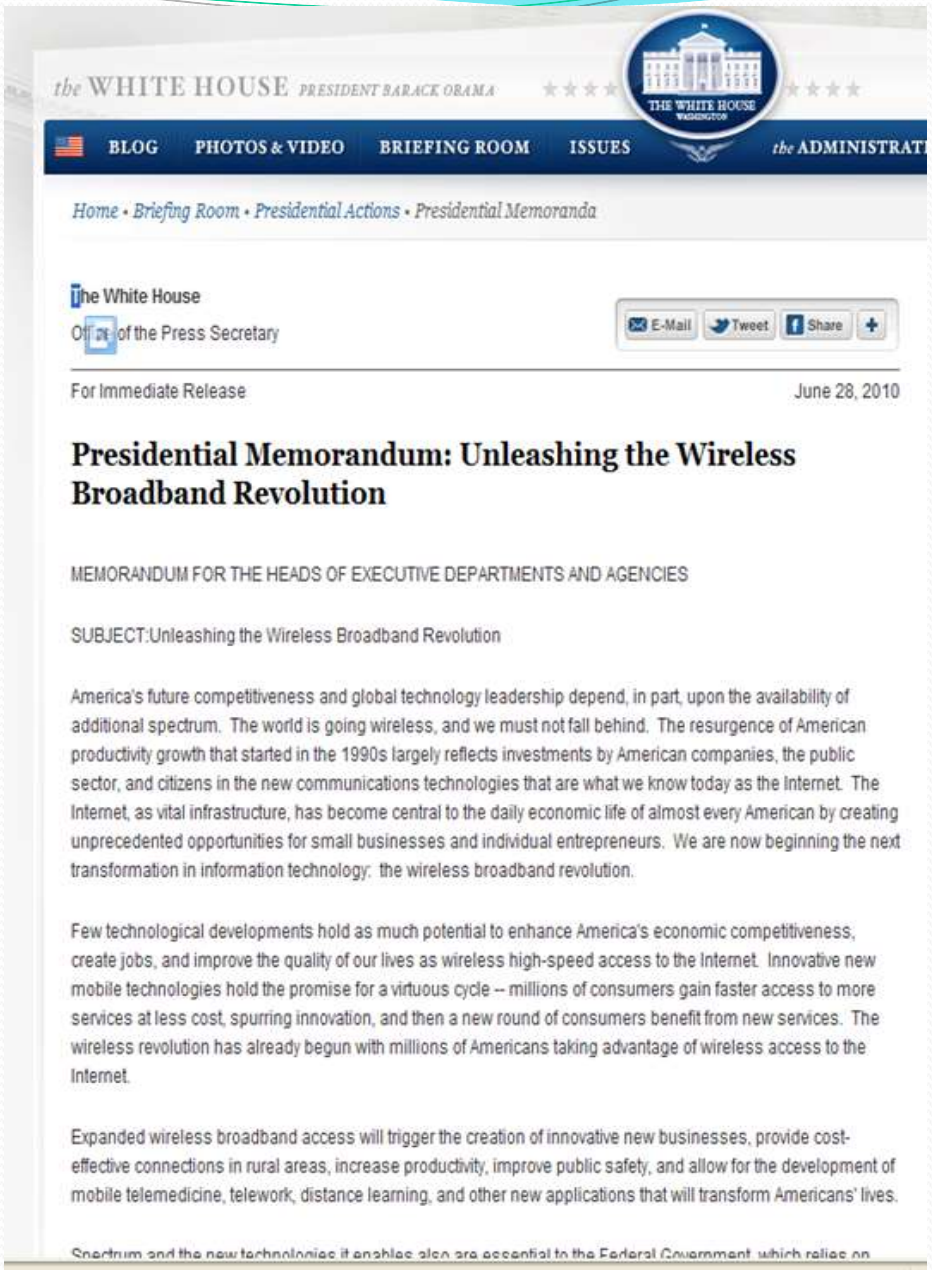
Federal Advisory Group Roles

- Bring together thoughtful individuals with diverse backgrounds (and often company inspired agendas) to wrestle with our nation's future telecom challenges
- FCC-TAC - full range of telecom areas with annual joint determination of questions to be addressed with final approval from the FCC Chairman – the watch word for the organization is Actionable Recommendations!
- CSMAC – per its name, a more focused (i.e. spectrum management) and a more directed organization (i.e. questions provided by NTIA) organization. Answers to questions the key deliverable for the organization providing background for NTIA decision-making

President Obama and Spectrum Management

- Spectrum important for U.S. economic and technological leadership.
- Requires **500 MHz** of spectrum to be made available for commercial use within 10 years by
  - Finding ways to use spectrum more **efficiently**;
  - Unlocking the value of otherwise **underutilized spectrum**;
  - Open new avenues for spectrum users to derive value through the development of advanced, situation-aware spectrum-**sharing** technologies.
- Assessment: **NO CAN DO** if this means cleared spectrum!
- This PCAST reports proposes the next step to respond to the President's spectrum mandate.

As a Follow-on to the National Broadband Plan: First Presidential Memorandum - 28 June 2010



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For Immediate Release — June 28, 2010

Presidential Memorandum: Unleashing the Wireless Broadband Revolution

MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

SUBJECT:Unleashing the Wireless Broadband Revolution

America's future competitiveness and global technology leadership depend, in part, upon the availability of additional spectrum. The world is going wireless, and we must not fall behind. The resurgence of American productivity growth that started in the 1990s largely reflects investments by American companies, the public sector, and citizens in the new communications technologies that are what we know today as the Internet. The Internet, as vital infrastructure, has become central to the daily economic life of almost every American by creating unprecedented opportunities for small businesses and individual entrepreneurs. We are now beginning the next transformation in information technology: the wireless broadband revolution.

Few technological developments hold as much potential to enhance America's economic competitiveness, create jobs, and improve the quality of our lives as wireless high-speed access to the Internet. Innovative new mobile technologies hold the promise for a virtuous cycle -- millions of consumers gain faster access to more services at less cost, spurring innovation, and then a new round of consumers benefit from new services. The wireless revolution has already begun with millions of Americans taking advantage of wireless access to the Internet.

Expanded wireless broadband access will trigger the creation of innovative new businesses, provide cost-effective connections in rural areas, increase productivity, improve public safety, and allow for the development of mobile telemedicine, telework, distance learning, and other new applications that will transform Americans' lives.

Spectrum and the new technologies it enables also are essential to the Federal Government, which relies on

PCAST Overarching Recommendation

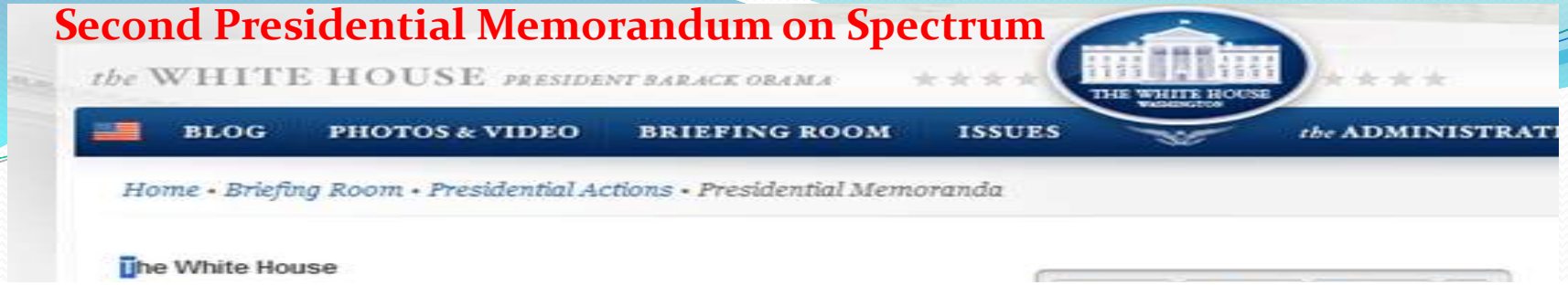
PCAST recommendation to the President: 20 July 2012

- **issue a new memorandum regarding spectrum; DONE – 14 June 2013!**
- **state the policy of the U.S. government is to share underutilized Federal spectrum; DONE! and**
- **identify immediately 1,000 MHz of Federal spectrum for sharing with the private sector. Still in Process – 1695-1710, 1755-1780, 3550-3650 and 5825-5850* MHz bands (plus 5125-5250* and 600 MHz in Commercial) so far - this is a huge challenge!**

Create the first shared-use spectrum superhighways.

- Divide into substantial blocks with common characteristics
  - Extremely difficult given incumbency
- Make sharing by Federal with commercial users the norm
  - Progress clearly being made, reverse sharing also under discussion, i.e. commercial sharing by Federal users
- Measure spectrum effectiveness using a new metric
  - Little progress here
- Potential impact could be 1,000's times current capacity.
  - Opportunity definitely there, cost/time is the question

Second Presidential Memorandum on Spectrum



For Immediate Release : June 14, 2013

Presidential Memorandum -- Expanding America's Leadership in Wireless Innovation

MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

SUBJECT: Expanding America's Leadership in Wireless Innovation

A combination of American entrepreneurship and innovation, private investment, and smart policy has positioned the United States as the global leader in wireless broadband technologies. Expanding the availability of spectrum for innovative and flexible commercial uses, including for broadband services, will further promote our Nation's economic development by providing citizens and businesses with greater speed and availability of coverage, encourage further development of cutting-edge wireless technologies, applications, and services, and help reduce usage charges for households and businesses. We must continue to make additional spectrum available as promptly as possible for the benefit of consumers and businesses. At the same time, we must ensure that Federal, State, local, tribal, and territorial governments are able to maintain mission critical capabilities that depend on spectrum today, as well as effectively and efficiently meet future requirements.

In my memorandum of June 28, 2010 (Unleashing the Wireless Broadband Revolution), I directed the Secretary of Commerce, working through the National Telecommunications and Information Administration (NTIA), to collaborate with the Federal Communications Commission (FCC) to make 500 MHz of Federal and nonfederal spectrum available for wireless broadband use within 10 years. Executive departments and agencies (agencies), including NTIA, have done an excellent job of pursuing the twin goals of advancing their agency missions and promoting innovation and economic growth. Although existing efforts will almost double the amount of spectrum available for wireless broadband, we must make available even more spectrum and create new avenues for wireless innovation. One means of doing so is by allowing and **encouraging shared access to spectrum** that is currently allocated exclusively for Federal use. Where technically and economically feasible, sharing can and should be used to enhance efficiency among all users and expedite commercial access to additional spectrum bands…

2012-13 CSMAC Working Groups

- Literally hundreds of participants from government and industry involved in the Working Group efforts.
- WG1 1695 - 1710 MHz Weather Satellite Receive Earth Stations – O.K.
- WG2 1755 – 1850 MHz Law Enforcement Surveillance, explosive ordnance disposal and short range links – O.K.
- WG3 1755 - 1850 MHz Satellite Control Links and Electronic Warfare – O.K.
- WG4 1755 - 1850 MHz Fixed Point-to-Point, Tactical Radio Relay and Joint Tactical Radio System (JTRS) - NO
- WG5 1755 - 1850 MHz Airborne Operations (ACTS, AMT, SUAVs, and PGMs) - NO
- 1695-1710 MHz - Coordinated usage near Earth Stations, otherwise, licensed commercial use
- 1755-1780 MHz - "Clearing" and re-allocated to licensed commercial cellular use via the AWS-3 Auction

2013-15 CSMAC Subcommittees

- **Enforcement** (especially in a shared spectrum world)
- **Transitional Sharing** (1755-1780 initial focus)
- **General Occupancy Measurements / Quantification of Federal Spectrum Use** (how do we know what is really being used)
- **Spectrum Management via Databases** (think SAS with a Federal overlay to protect national interests)
- **Federal Access to Non-Federal Bands** (especially on DoD bases for specific exercises)
- **Spectrum Sharing Cost Recovery Alternatives** (esp. when spectrum is allocated to Unlicensed use)

2013 FCC - TAC Work Groups - Headlines

COTS for Enterprise Services

- ID Spectrum Sharing Opportunities in underbuilt commercial areas with industry
- Broadband wireless enterprise services Workshop / develop per industry COTS program

Spectrum Frontiers

- 30-40 GHz mobile service rules NOI / workshop on key technologies for mobile broadband
- >95 GHz passive services co-existence framework / balance benefits/risks for service rules

Spectrum and Receiver Performance

- Encourage multi-stakeholder (MSH) group to pilot interference limits policy for 3.5 GHz
- NOI to initiate standards development organization action with respect to radio standards
- Interference resolution / enforcement workshop, sharing info on interference complaints/resolutions

Cloud Infrastructure Security

- Develop easy-to-access/understand content making Cloud Consumers aware of roles / responsibilities, suitability of services, and to comprehend “Cloud Offerings” complexity
- Industry - Federal Collaboration to gather, improve, and disseminate security best practices
- Leverage the evolving CSA Open Certification Framework and FedRAMP to improve cloud vendor selection. Develop sensitive data types / critical infrastructure

Resiliency

- Sponsor industry collaboration to create guidelines for consumer broadband services backup power
- US collaborative outage/disaster restoration approach to increase resiliency / reliability
- Work with Power industry to improve reliable power architectures for comm. services
- Use network data sources to track / predict reliability / resiliency for disaster preparedness

2014 FCC - TAC Work Groups - Highlights

- **Spectrum Efficiency and Receiver Performance** (role of emission designators, risk-informed interference assessments, **Enforcement**)
- **Cybersecurity Initiatives** (the role for the FCC? and needed technologies and standards)
- **Advanced Sharing and Enabling Wireless Technologies** (ID additional bands, Model City Initiative)
- **Internet of Things (IoT)** (need to systematically track Internet Infrastructure Impact and Focus on Security)
- **Supporting the Transition to IP** (rural service providers as test bed for technologies and/or cost models, Incent construction of efficient middle mile networks)
- **Mobile Device Theft Prevention** (inter-Bureau working group established – promulgating best practices, DB improvements, hardening IMEI)
- **Form 477** (validating / testing electronic data collection)

2015 FCC - TAC Work Groups

- **Spectrum Efficiency and Receiver Performance** (Statistical Analysis applied to Risk Assessments, Interference Limits Policy and Interference Resolution, Enforcement, and Wireless Model Cities)
- **Future Game Changing Technologies** (technologies with the potential to radically change communications infrastructure and business models)
- **Next Generation Internet Service Characteristics and Requirements** (increasing focus on QoS and the support for critical infrastructures)
- **Roadmap for Future Unlicensed Services** (focus here is on the evolution / revolution in the characteristics of the services in the unlicensed space and where they might go in the future)
- **Cybersecurity** (focus is on the special challenges associated with the growth of IoT and the related expansion of the "cyber attack plane")
- **Mobile Device Theft Prevention** (next generation anti-theft features / processes, improved application of best practices, hardening IMEI, improving database tracking capability, and enhanced law enforcement support and engagement)
- **Form 477** (validating / testing improved electronic data collection)

Questions?

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Thank You