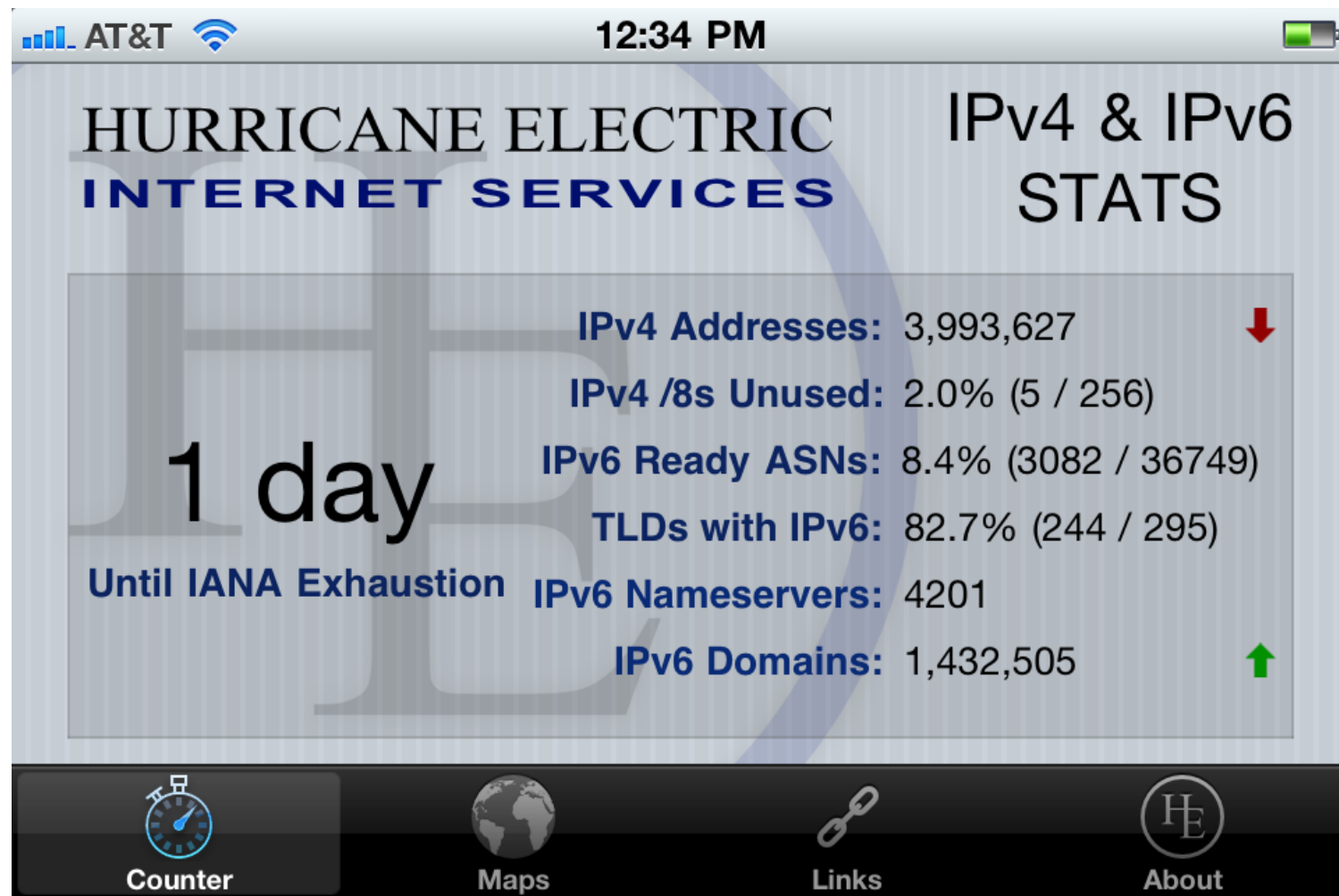


Upgrading America's Digital Infrastructure ACT Networks and Telecommunications

Pete Tseronis

Chair of the Federal IPv6 Task Force

The Reality



<http://ipv6.he.net/statistics/>

As of February 2, 2011

The Need

CATALYZE BREAKTHROUGHS FOR NATIONAL PRIORITIES

- Support advanced vehicle technology
- Drive breakthroughs in health IT
- Address the “grand challenges” of the 21st century

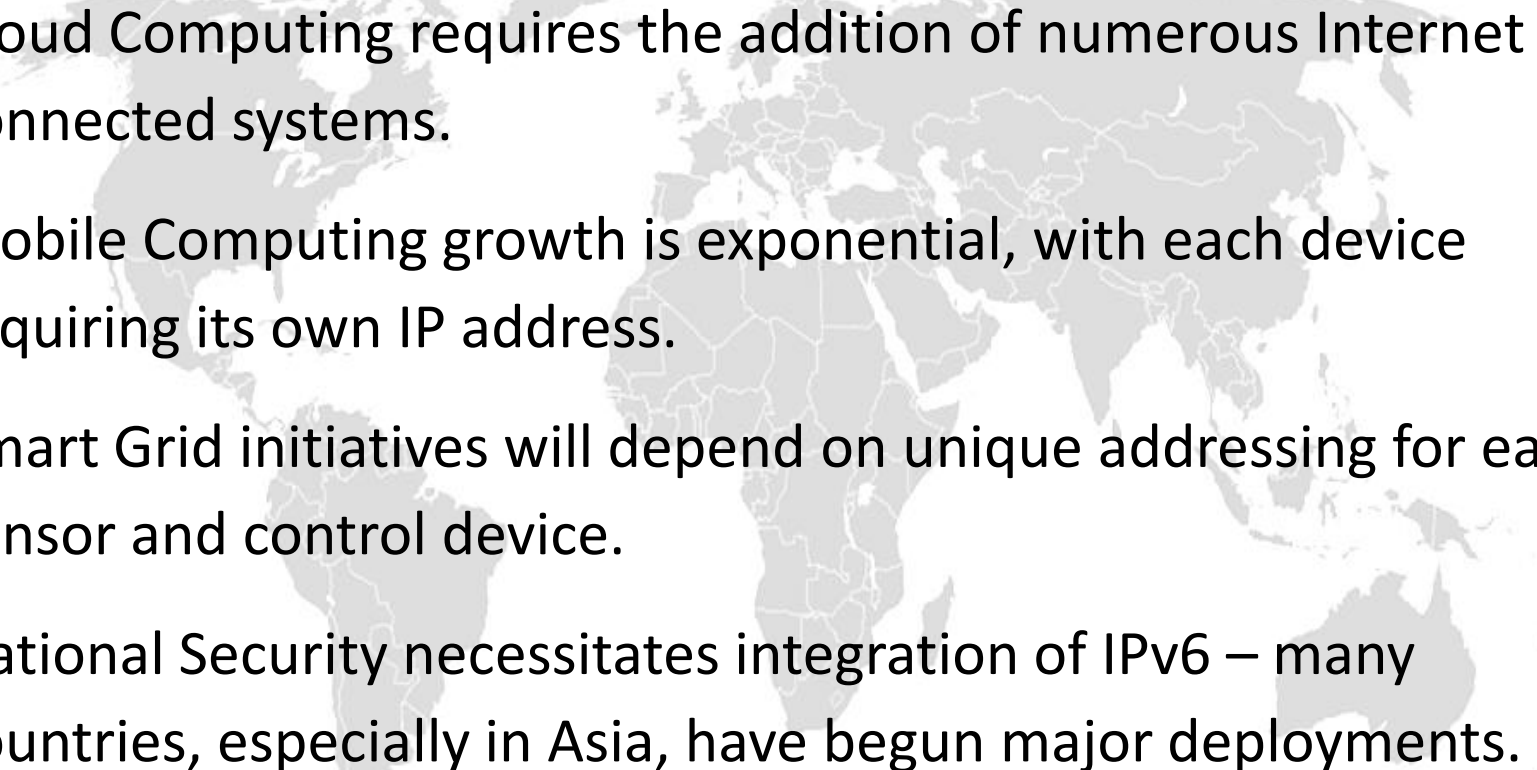
PROMOTE COMPETITIVE MARKETS THAT SPUR PRODUCTIVE ENTREPRENEURSHIP

- Promote American exports
- Support open capital markets that allocate resources to the most promising ideas
- Encourage high-growth and innovation-based entrepreneurship
- Improve public sector innovation and support community innovation

INVEST IN THE BUILDING BLOCKS OF AMERICAN INNOVATION

- Restore American leadership in fundamental research
- Educate the next generation with 21st century and knowledge and skills while creating a world-class workforce
- Build a leading physical infrastructure
- Develop an advanced information technology ecosystem

IPv6 Is Foundational

- 
- Cloud Computing requires the addition of numerous Internet connected systems.
 - Mobile Computing growth is exponential, with each device requiring its own IP address.
 - Smart Grid initiatives will depend on unique addressing for each sensor and control device.
 - National Security necessitates integration of IPv6 – many countries, especially in Asia, have begun major deployments.

Progress To Date



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

September 28, 2010

MEMORANDUM FOR CHIEF INFORMATION OFFICERS OF EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: Vivek Kundra *Vivek Kundra*
Federal Chief Information Officer

SUBJECT: Transition to IPv6

The Federal government is committed to the operational deployment and use of Internet Protocol version 6 (IPv6). This memo describes specific steps for agencies to expedite the operational deployment and use of IPv6. The Federal government must transition to IPv6 in order to:

- Enable the successful deployment and expansion of key Federal information technology (IT) modernization initiatives, such as Cloud Computing, Broadband, and SmartGrid, which rely on robust, scalable Internet networks;
- Reduce complexity and increase transparency of Internet services by eliminating the architectural need to rely on Network Address Translation (NAT) technologies;
- Enable ubiquitous security services for end-to-end network communications that will serve as the foundation for securing future Federal IT systems; and,
- Enable the Internet to continue to operate efficiently through an integrated, well-architected networking platform and accommodate the future expansion of Internet-based services.

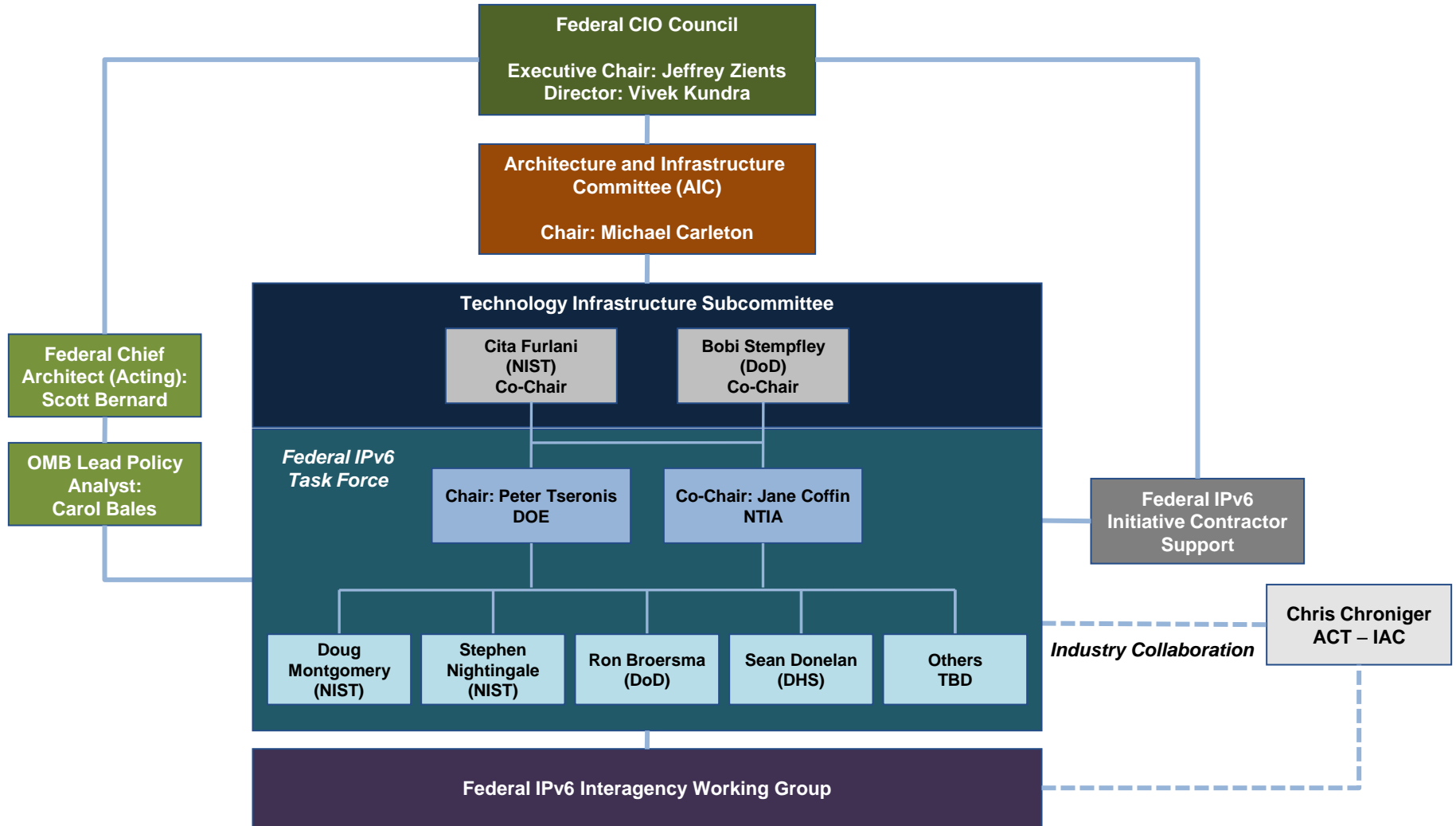
In order to facilitate timely and effective IPv6 adoption, agencies shall:

- Upgrade public/external facing servers and services (e.g. web, email, DNS, ISP services, etc) to operationally use native IPv6 by the end of FY 2012¹;
- Upgrade internal client applications that communicate with public Internet servers and supporting enterprise networks to operationally use native IPv6 by the end of FY 2014;
- Designate an IPv6 Transition Manager and submit their name, title, and contact information to IPv6@omb.eop.gov by October 30, 2010. The IPv6 Transition Manager is to serve as the person responsible for leading the agency's IPv6 transition activities, and liaison with the wider Federal IPv6 effort as necessary; and,
- Ensure agency procurements of networked IT comply with FAR requirements for use of the USGv6 Profile and Test Program for the completeness and quality of their IPv6 capabilities.

To facilitate the Federal government's adoption of IPv6, OMB will work with NIST to continue the evolution and implementation of the USGv6 Profile and Testing Program. This Program will provide the technical basis for expressing requirements for IPv6 technologies and will test commercial products' support of corresponding capabilities.

- Conducted all Agency meetings between November 15, 2010 and January 18, 2011.
- Monthly IPv6 Agency Transition Manager meetings with the Federal IPv6 Task Force.
 - Share Information
 - Identify Open Issues
 - Learn from Examples
- Studied Virginia Tech Deployment Model
 - Nearly thirteen years of experience with IPv6
 - Ranked by Google as one of the largest deployments worldwide
 - Tens of thousands of native IPv6 clients
 - Mature and seasoned security practice

Federal IPv6 Governance Framework



Agency Feedback

ISSUE

RECOMMENDATIONS



Focus

- Agency CIO's should actively support with their Transition Manager.
- Identify an initial site and sponsor a 'tiger team' to enable IPv6.
- OMB will continue to support and monitor agency activities.



Education & Training

- Most network engineers are already familiar with IPv6.
- An iterative process will reduce concerns and quicken deployments.
- The monthly IPv6 Transition Manager meetings are a robust source for IPv6 information and information sharing.



Funding

- IT infrastructure modernization / refresh schedules have largely addressed this – recent equipment is likely IPv6 compliant.
- Deployment is not time intensive if methodically planned and *iterative*.

NIST Dashboard

	IPv4				IPv6		
	DNS	Mail	Web		DNS	Mail	Web
Department of Agriculture	Green	Green	Green		Red	Red	Red
Department of Commerce	Green	Green	Green		Light Green	Red	Red
Department of Education	Green	Green	Green		Red	Red	Red
Department of Energy	Green	Green	Green		Light Green	Red	Red
Department of Health & Human Services	Green	Green	Green		Red	Red	Red
Department of Homeland Security	Green	Green	Green		Red	Red	Red
Department of Housing & Urban Development	Green	Yellow	Green		Red	Red	Red
Department of the Interior	Green	Green	Green		Light Green	Red	Red
Department of Justice	Green	Green	Green		Red	Red	Red
Department of Labor	Green	Green	Green		Red	Red	Red
Department of Transportation	Green	Green	Green		Light Green	Red	Red
Department of the Treasury	Green	Yellow	Green		Red	Red	Red
Department of State	Green	Green	Green		Red	Red	Red
Department of Veterans Affairs	Green	Green	Green		Red	Red	Red

Excluded: DoD, Air Force, Army, Navy

Next Steps

SUPPORT YOUR TRANSITION MANAGER

- Meet with your transition manager to discuss your Agency's NIST dashboard results.
- Review your agency's transition plan.

PARTICIPATE IN WORLD IPV6 DAY – JUNE 8, 2011

- Make your agency's homepage enabled for IPv6 access by this date.

FOCUS ON EXECUTING YOUR IMPLEMENTATION PLAN

- Establish quarterly milestones to meet FY12 and FY14 deadlines.

DOE Activities

BRINGING THE MISSION TO THE OCIO

- IT Strategic Roadmap
- Technology Summits
- Customer Outreach and Requirements Gathering

MODERNIZING IT MANAGEMENT

- Providing Strategy and Vision
- Integrating Federal Initiatives
- Infrastructure Line of Sight

BUILDING AN INNOVATION PRACTICE

- Technology Research
- Industry Outreach
- Innovation Incubation

Pete Tseronis
Chair of the Federal IPv6 Task Force
February 3, 2011