



IPv6 Adoption in the US Government

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Dale Geesey
Chief Operating Officer
Auspex Technologies, LLC
Phone: 703.319.1925
Fax: 866.873.1277
E-mail: dgeesey@auspextech.com
Web: www.auspextech.com



Federal IPv6 Roadmap v2.0 (Draft)

1. Executive Summary
2. Contributors
3. Federal Transition Initiatives
4. The Business Rationale for IPv6
5. Federal IPv6 Transition: The "To Be" State
6. Leveraging Enterprise Architecture
7. Transition Milestones
8. IPv6 Impact on Federal Initiatives
9. IPv6 in IT Governance and Procurement
10. Acronym Dictionary
11. Definitions
12. IPv6 FAQ
13. References
14. Resources

In collaboration with the



Planning Guide/Roadmap Toward IPv6 Adoption within the U.S. Government

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Strategy and Planning Committee
Federal Chief Information Officers Council



Sponsors/Contributors

Federal Sponsors

Simon Szykman	Department of Commerce (DoC)
Linda Cureton	NASA
Cita Furlani	DoC, National Institute of Standards and Technology , Information Technology Laboratory
Charles Romine	DoC, National Institute of Standards and Technology , Information Technology Laboratory
Roberta Stempfley	Department of Homeland Security (DHS)
Peter Tseronis	Department of Energy (DoE)
Carol Bales	Executive Office of the President (EoP) Office of Management and Budget -

Key Contributors

Chris Chroniger	Acentia
Dale Geesey	Auspex Technologies
John L. Lee	Internet Associates LLC
Kenny Boroughs	Internet Associates LLC
Barry Chapman	Acentia
Ralph Wallace	White Oak Consulting
Jane Coffin	Department of Commerce (DoC), National Telecommunications and Information Administration (NTIA)
Doug Montgomery	DoC NIST
Stephen Nightingale	DoC NIST
Ron Broersma	DoD DREN
Tim Owen	Secure Mission Solutions
TJ Evans	Nephos6
Bob Koak	Infoblox, Inc.
Bill Kyburz	General Dynamics

Additional Contributors

Steven Pirzchalski	Department of Veterans Affairs (VA)
Silvia Brugge	Acentia
Kafi Johnson	Acentia
Frank Troy	Troy Networks, Inc.

Federal Drivers

**Business
Continuity**



Enable Key Federal IT
Modernization Initiatives



Reduce Complexity/Increase
Transparency



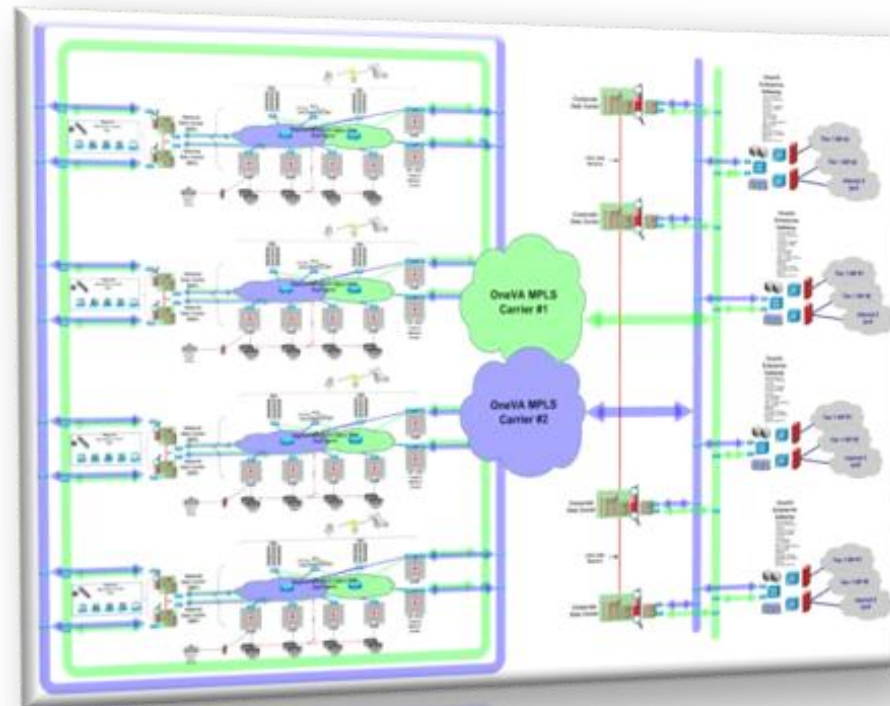
Enable Ubiquitous Security
Services

- External Services:
 - Public/external facing servers and services
 - e.g. web, email, DNS, ISP services, etc
 - Operationally use native IPv6
 - End of FY 2012 (September 30, 2012)
- Other Publix/External Service



OMB IPv6 FY14 Milestone

- Internal Services:
 - Applications that communicate with public Internet servers
 - Supporting enterprise networks
 - Operationally use native IPv6
 - End of FY 2014
(September 30 2014)



Sample Transition Schedule for 2012

Agency Execution Requirements	Milestone									
	1	2	3	4	5	6	7	8	9	10
	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Dec-13	Jun-14	Dec-14	Jun-15	Dec-15
Public Facing Execution										
Network Connectivity										
Internet Gateway 1 IPv6 Enabled	■									
Internet Gateway 2 IPv6 Enabled	■	■								
Internet Gateway 3 IPv6 Enabled	■	■								
Internet Gateway 4 IPv6 Enabled	■	■								
Addressing										
ISP Provided IPv6 Addresses	■									
Announce Agency IPv6 Addresses	■	■								
Routing										
Basic IPv6 Routing	■									
IPv6 BGP Routing Gateway 1	■	■								
IPv6 BGP Routing Gateway 2	■	■								
IPv6 BGP Routing Gateway 3	■	■								
IPv6 BGP Routing Gateway 4	■	■								
IPv6 Multi-home Routing		■	■							
Domain Name Services (DNS)										
ns 1 IPv6 enabled	■									
ns 2 IPv6 enabled	■	■								
ns 3 IPv6 enabled	■	■								
ns 4 IPv6 enabled	■	■								

2012 Schedule Cont.

Agency Execution Requirements	Milestone									
	1	2	3	4	5	6	7	8	9	10
	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Dec-13	Jun-14	Dec-14	Jun-15	Dec-15
Primary Agency Domain										
Phase 1	■									
Phase 2	■	■								
Mail										
Inbound SMTP IPv6 Enabled	■	■								
Outbound SMTP IPv6 Enabled		■	■							
Security										
DMZ Basic IPv6 Security	■									
DMZ Comparable IPv6 Security	■	■	■							
Full IPv6 Security		■	■	■						
Network Management										
Basic IPv6 Network Management	■									
Comparable IPv6 Network Management	■	■	■							
Full IPv6 Network Management		■	■	■						
Public Facing Domains										
1 Public Facing Domain IPv6 Enabled	■									
35% Public Facing Domains IPv6 Enabled	■	■								
100% Public Facing Domains IPv6 Enabled	■	■	■							
Pilots										
Mission Pilots	■	■	■							

Sample Transition Schedule for 2014

Sample Agency IPv6 Execution Timeline 2014 Enterprise Network Execution	Milestone							
	1	2	3	4	5	6	7	8
	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Dec-13	Jun-14	Dec-14
Network Connectivity								
Core/Backbone Network								
Infrastructure Routers 25%								
Infrastructure Routers 50%								
Infrastructure Routers 100%								
Addressing								
Internal IPv6 Addresses Allocated								
DHCPv6 Enabled 25%								
DHCPv6 Enabled 50%								
DHCPv6 Enabled 100%								
Routing								
Core/Backbone Network Routing								
Infrastructure Routing 25%								
Infrastructure Routing 50%								
Infrastructure Routing 100%								
Domain Name Services (DNS)								
Internal DNS IPv6 Enabled								
Data Centers								
Data Center 1 IPv6 Enabled								
Data Center 2 IPv6 Enabled								
Data Center 3 IPv6 Enabled								
Data Center 4 IPv6 Enabled								
Mail								
Exchange IPv6 Enabled								

2014 Schedule Cont.

Sample Agency IPv6 Execution Timeline 2014 Enterprise Network Execution	Milestone							
	1	2	3	4	5	6	7	8
	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Dec-13	Jun-14	Dec-14
Internal Applications & Services								
IPv6 Enabled Apps & Services 25%								
IPv6 Enabled Apps & Services 50%								
IPv6 Enabled Apps & Services 75%								
IPv6 Enabled Apps & Services 100%								
End Device Transition								
Internal Servers IPv6 Enabled 25%								
Internal Servers IPv6 Enabled 50%								
Internal Servers IPv6 Enabled 75%								
Internal Servers IPv6 Enabled 100%								
User Computers IPv6 Enabled 25%								
User Computers IPv6 Enabled 50%								
User Computers IPv6 Enabled 75%								
User Computers IPv6 Enabled 100%								
PDA/Mobile Devices IPv6 Enabled 25%								
PDA/Mobile Devices IPv6 Enabled 50%								
PDA/Mobile Devices IPv6 Enabled 75%								
PDA/Mobile Devices IPv6 Enabled 100%								
Mission Devices IPv6 Enabled 25%								
Mission Devices IPv6 Enabled 50%								
Mission Devices IPv6 Enabled 75%								
Mission Devices IPv6 Enabled 100%								
Pilots								
Enclave Pilot Phase 1								
Enclave Pilot Phase 2								
Enclave Pilot Phase 3								

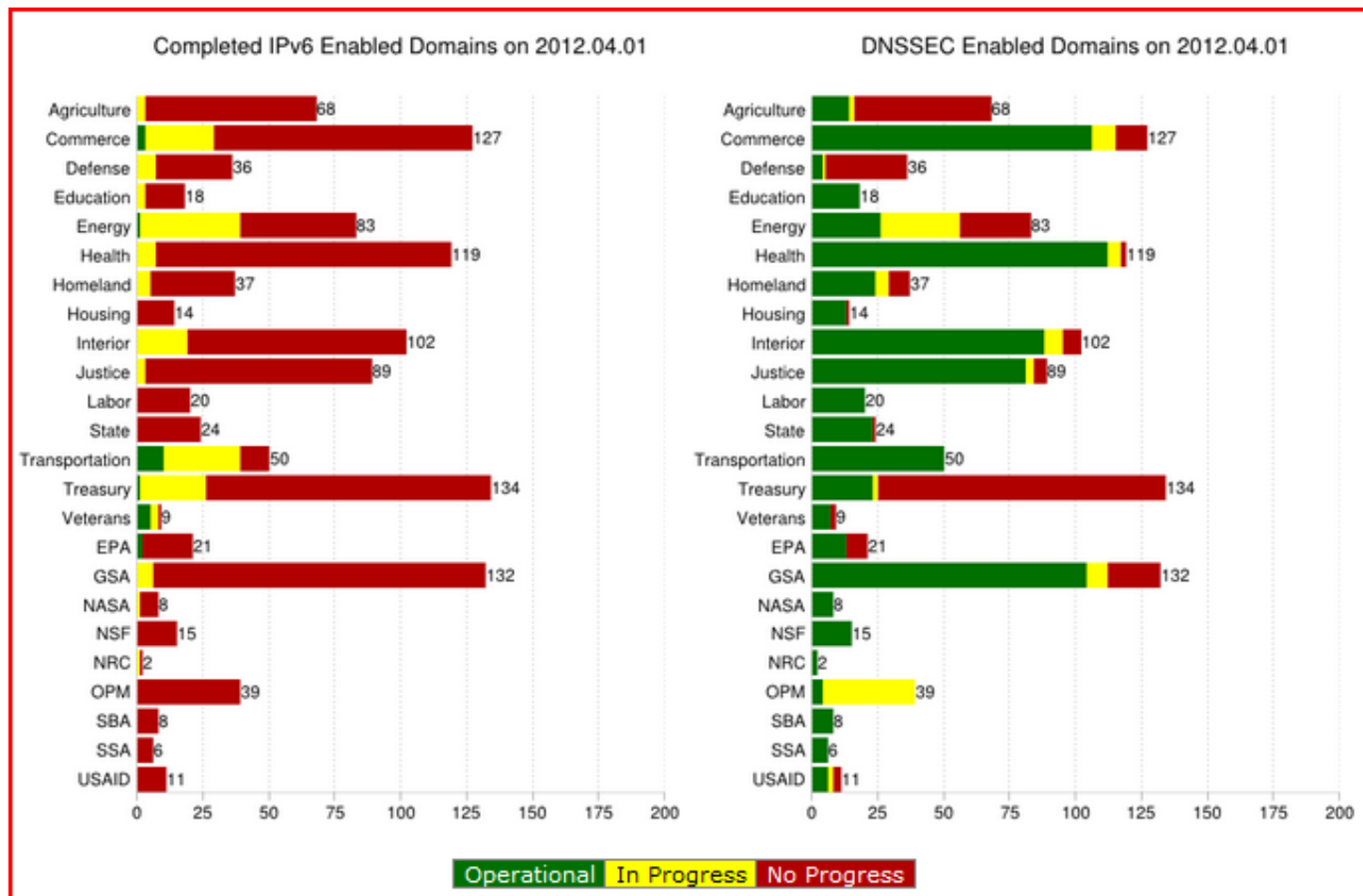
How is OMB Managing the Transition

- CIO Council
- Federal IPv6 Task Force
 - Monthly Meetings
 - Interagency Meeting
 - Outreach
 - Agency Transition Managers Checklist
 - Working Groups
 - IAC
 - Other
- NIST USGv6
- FAR
- Direct Agency Contact

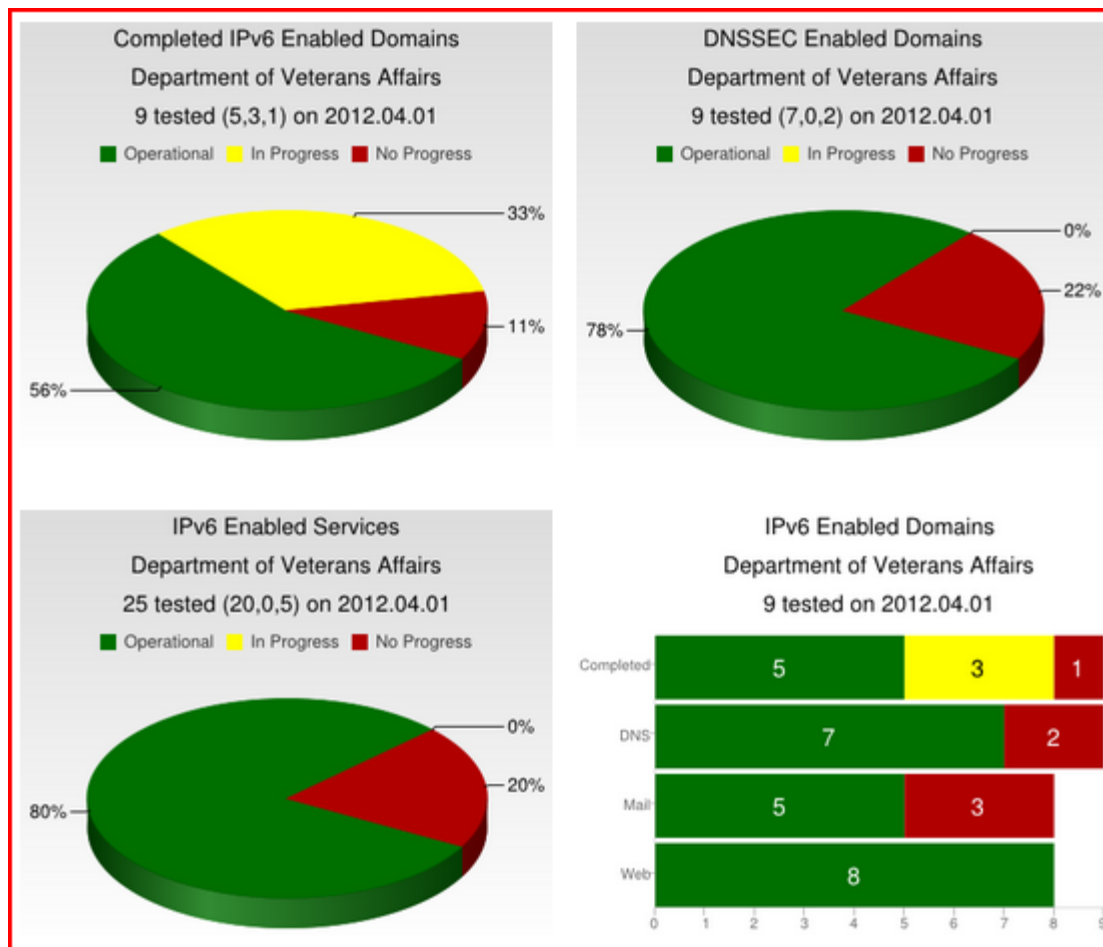
What is the NIST USGv6 Deployment Status Website?

- <http://usgv6-deploymon.antd.nist.gov/cgi-bin/generate-gov.dept>
- Provides a central place to track the status of the Departments and Agencies
- Currently focused on progress in meeting the 2012 Mandate for all public/external facing services to use operationally use IPv6
- Provides a status for Web, E-mail and DNS (and DNSSEC)
 - Only the primary agency website

What Does it Look Like? High Level



What Does it Look Like? Summary



What Does it Look Like? Detailed

Domain	Organization	DNS	Mail	Web	DNSSEC
gov.aite.	Department of Veterans Affairs	[4] 4/4/4 [0]	[1] 1/1/1 [0]	[1] 1/1/1 [1]	<u>S</u> N/C
gov.cdco.	Department of Veterans Affairs	[4] 4/4/4 [0]	[1] 1/1/1 [0]	[1] 1/1/1 [1]	<u>S</u> N/C
gov.nationalresourcedirectory.	Department of Veterans Affairs	[4] 4/4/4 [0]	[2] 0/0/0 [0]	[1] 1/1/1 [1]	<u>S</u> N/C
gov.nrd.	Department of Veterans Affairs	[4] 4/4/4 [0]	[2] 0/0/0 [0]	[1] 1/1/1 [1]	<u>S</u> N/C
gov.patientsafety.	Department of Veterans Affairs	[4] 4/4/4 [0]	[1] 1/1/1 [0]	[1] 1/1/1 [1]	<u>S</u> N/C
gov.va.	Department of Veterans Affairs	[3] 3/3/3 [1]	[1] 1/1/1 [1]	[1] 1/1/1 [1]	<u>S</u> N/C
gov.vet-biz.	Department of Veterans Affairs	[S] 0/0/0 [L]	[0] 0/0/0 [-]	[0] 0/0/0 [-]	<u>U</u> /-/
gov.vetbiz.	Department of Veterans Affairs	[4] 4/4/4 [0]	[1] 1/1/1 [0]	[1] 1/1/1 [1]	<u>S</u> N/C
gov.vetsuccess.	Department of Veterans Affairs	[2] 0/0/0 [0]	[2] 0/0/0 [0]	[1] 1/1/1 [1]	<u>U</u> /-/

Questions

Dale Geesey
Chief Operating Officer
Auspex Technologies, LLC
Phone: 703.319.1925
Fax: 866.873.1277
E-Mail:
dgeesey@auspextech.com
Web: www.auspextech.com
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