U.S. Trade and Development Agency	[2] 2/2/0 [O]	[2] 0/0/0 [I]	[ ] 0/0/0 [I]	
Executive Office of the President	[2] 2/2/2 [O]	[6] 0/0/0 [ ]	[2] 0/0/0 [I]	U/-/-
Office of the U. S. Trade Representative	[S] 0/0/0 [L]	[0] 0/0/0 [-]	[0] 0/0/0 [-]	U/-/-
Department of the Treasury	[2] 0/0/0 [P]	[0] 0/0/0 [-]	[2] 2/2/2 [O]	U/-/-
Department of State	[4] 0/0/0 [O]	[0] 0/0/0 [-]	[1] 0/0/0 [O]	S/V/C
Department of the Interior	[2] 0/0/0 [O]	[0] 0/0/0 [-]	[1] 0/0/0 [I]	S/V/C
Department of Veterans Affairs	[3] 3/3/3 [I]	[1] 1/1/1 [I]	[1] 1/1/1 [I]	S/V/C
Department of Health And Human Services	[2] 0/0/0 [O]	[0] 0/0/0 [-]	[2] 0/0/0 [O]	S/V/C
Department of Agriculture	[4] 0/0/0 [O]	[1] 0/0/0 [I]	[1] 0/0/0 [I]	U/-/-
General Services Administration	[2] 0/0/0 [O]	[2] 0/0/0 [O]	[1] 0/0/0 [I]	U/-/-
Department of Justice	[4] 0/0/0 [O]	[0] 0/0/0 [-]	[1] 0/0/0 [I]	S/V/C
General Services Administration	[2] 0/0/0 [O]	[0] 0/0/0 [-]	[1] 0/0/0 [I]	U/-/-
Department of Commerce	[2] 0/0/0 [O]	[0] 0/0/0 [-]	[1] 0/0/0 [I]	S/V/C
Department of Veterans Affairs	[S] 0/0/0 [L]	[0] 0/0/0 [-]	[0] 0/0/0 [-]	U/-/-
Department of Veterans Affairs	[4] 4/4/4 [O]	[1] 1/1/1 [O]	[1] 1/1/1 [I]	S/V/C
Office of Personnel Management	[4] 0/0/0 [O]	[0] 0/0/0 [-]	[2] 0/0/0 [O]	S/?/B
Off	[4] 0/0/0 [O]	[0] 0/0/0 [-]	[0] 0/0/0 [ ]	
Affairs	[2] 0/0/0 [O]	[2] 0/0/0 [O]	[1] 0/0/0 [ ]	
Corporation National & Community Service	[ ] 0/0/0 [O]	[0] 0/0/0 [-]	[1] 0/0/0 [ ]	
...tion for National & Community Service	[2] 0/0/0 [O]	[0] 0/0/0 [-]	[1] 0/0/0 [ ]	
Department of Transportation	[3] 2/0/2 [P]	[0] 0/0/0 [-]	[ ] 0/0/0 [-]	S/V/C

Excerpt from: http://usgv6-deploymon.antd.nist.gov/cgi-bin/generate-gov.dept

VA Achieves 2012 Top-Level Milestone

VA has been diligently working to meet the OMB 2012 mandate for IPv6 transition compliance. On February 6, 2012, the NIST monitoring website reported green, across the board, for all four criteria being monitored (DNSSEC, DNS, Web, and SMTP); meaning the top-level monitored services have achieved compliance. The monitored systems include IPv6 capabilities for DNSSEC, DNS, Web, and E-Mail (SMTP) services. For VA, these are all internal services, none of which are outsourced to third parties. VA is the first civilian agency to achieve this important milestone.

While we celebrate this achievement, VA is not resting on its laurels. This triumph is just the beginning of the journey of accomplishments that VA will experience over the coming two years. Some of this progress depends on vendors and their devices or services being able to support IPv6. Additionally, NIST has added other websites owned by VA, but are not under the
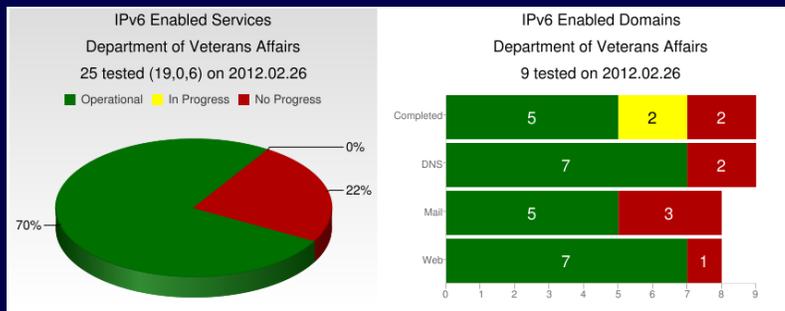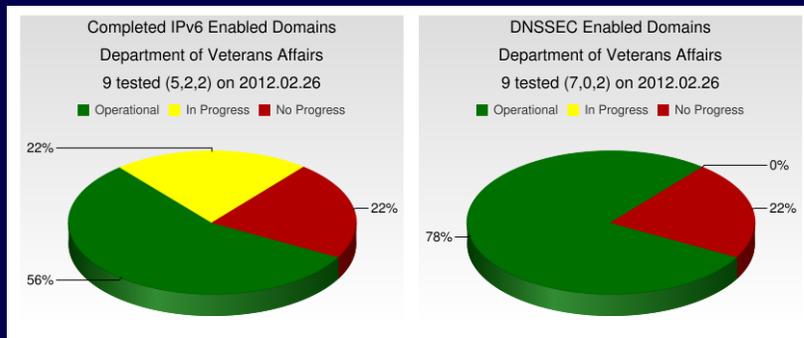
This Issue

In this issue of Evolution, we spotlight VA meeting the initial requirements of the 2012 OMB Mandates. We also provide some information for the Spring Interagency conference and some IPv6 education

What is IPv6

IPv6 is the next generation Internet protocol developed by the Internet community to replace the current IPv4 protocol. IPv6 provides an almost unlimited amount of address space and has been developed to meet the requirements and performance of today's businesses, governments, and consumers. While IPv4 and IPv6 can operate on the same network, they are not directly interoperable.

Completed IPv6 Enabled Domains
Department of Veterans Affairs
9 tested (5,2,2) on 2012.02.26

DNSSEC Enabled Domains
Department of Veterans Affairs
9 tested (7,0,2) on 2012.02.26

IPv6 Enabled Services
Department of Veterans Affairs
25 tested (19,0,6) on 2012.02.26

IPv6 Enabled Domains
Department of Veterans Affairs
9 tested on 2012.02.26

Domain	Organization	DNS	Mail	Web	DNSSEC
gov.aitc.	Department of Veterans Affairs	[4] 4/4/4 [O]	[1] 1/1/1 [O]	[1] 1/1/1 [I]	S/V/C
gov.cdco.	Department of Veterans Affairs	[4] 4/4/4 [O]	[1] 1/1/1 [O]	[1] 1/1/1 [I]	S/V/C
gov.nationalresourcedirectory.	Department of Veterans Affairs	[4] 4/4/4 [O]	[2] 0/0/0 [O]	[1] 1/1/1 [I]	S/V/C
gov.nrd.	Department of Veterans Affairs	[4] 4/4/4 [O]	[2] 0/0/0 [O]	[1] 1/1/1 [I]	S/V/C
gov.patientsafety.	Department of Veterans Affairs	[4] 4/4/4 [O]	[1] 1/1/1 [O]	[1] 1/1/1 [I]	S/V/C
gov.va.	Department of Veterans Affairs	[3] 3/3/3 [I]	[1] 1/1/1 [I]	[1] 1/1/1 [I]	S/V/C
gov.vet-biz.	Department of Veterans Affairs	[S] 0/0/0 [L]	[0] 0/0/0 [-]	[0] 0/0/0 [-]	U/-/-
gov.vetbiz.	Department of Veterans Affairs	[4] 4/4/4 [O]	[1] 1/1/1 [O]	[1] 1/1/1 [I]	S/V/C
gov.vetsuccess.	Department of Veterans Affairs	[2] 0/0/0 [O]	[2] 0/0/0 [O]	[1] 0/0/0 [I]	U/-/-

Excerpt from: http://usgv6-deploymon.antd.nist.gov/cgi-bin/cfo?agency=veterans

VA Achieves 2012 Top-Level Milestone
The IPv6 Transition at VA

Continued from Page 1

va.gov domain. Websites, such as www.vetsuccess.gov, belong to VA, but still need to have transition support. These types of websites (illustrated above) are also monitored by NIST.

In the coming months, VA will continue implement and expand transition efforts. For instance, now that the primary public-facing systems have been IPv6 enabled, the IPv6 PMTO will be working to identify other services that should be transitioned to meet the 2012 OMB Mandate. This effort would be solid momentum for VA and its PMTO to continue efforts in completing the transition.

All the efforts so far have been important in setting the foundation to meet the 2014 OMB Mandate to transition internal systems and services The effort required is significant. Every system and service within VA is affected by the transition effort. As the effort continues, the IPv6 Program Management Transition Office will be working with system owners throughout VA to assist them in working to meet the 2014 deadline.

Spring Interagency Meeting

Once again, this spring, VA will be sponsoring the Spring Inter-Agency Conference. The conference will be held on April 18-19, 2012 in Charleston, South Carolina. The address for the venue is:

Charleston Marriott Hotel
170 Lockwood Boulevard
Charleston, SC 29403
Hotel: 843-723-3000
http://www.marriott.com/chsmc

This spring the focus is primarily on the FY14 OMB Milestone, what it includes and information that can help you accomplish the objectives of that milestone.

Watch for the first announcement for the agenda and registration is coming soon. It will include the Program Summary, Registration instructions and more information about hotel reservations. For more information or announcement information, please visit **http://interagency.auspextech.com/home** or email the coordinator at **robert.meeker@va.gov**.

IPv6 Addressing Simplified

Most of us who are technical, and many who are not, have "grown up" on the Internet using the IPv4 addressing methodology. We are familiar with the 192.168.1.1 scheme. We are forced to use it whenever we call our ISP for assistance when we have a problem on our home network. The methodology itself is rather simple and relatively easy to understand. Many "experts" even have addresses memorized.

An address and name relationship is a lot like the name and phone number you see in the phone book. In the phone book you may see John Smith, and his phone number is 222-555-1234. When you put John Smith's data in your contact list on your cell phone, when you later select John Smith, your phone dials 222-555-1234. IP addresses are very similar in this respect. When you put www.va.gov into your web browser, you are directed to the address that is www.va.gov.

The most noticeable difference in IPv6 is that the address for www.va.gov is not the short 152.130.96.221 we were accustomed to under IPv4; it now has the longer address: **2610:d8:4000:28::28:221**. The components of an IPv6 address are complex; however, the following provides a brief tutorial.

The most important advantage in using IPv6 is the much larger address space it has compared to that of IPv4. The length of an IPv6 address is 128 bits, compared to 32 bits in IPv4. The address space supports far more individual addresses. The longer addresses simplify allocation of addresses, enabling efficient route aggregation, and implementation of special addressing features. In IPv4, complex Classless Inter-Domain Routing (CIDR) methods were developed to make the best use of the small address space.

Renumbering an existing network for a new connectivity provider with different routing prefixes was a major effort with IPv4. With IPv6, however, changing the prefix announced by a few routers can, in principle, renumber an entire network since the host identifiers (the least significant 64 bits of an address) can be independently self-configured by a host.

IPv6 addresses have two logical parts: a 64-bit network prefix and a 64-bit host address part. An IPv6 address is represented by 8 groups of 16-bit hexadecimal values separated by colons (:) shown as follows:

2001:0db8:85a3:0000:0000:8a2e:0370:7334

The hexadecimal digits are case-sensitive. The 128-bit IPv6 address can be abbreviated with the following rules:

Rule 1: The leading zeroes within a 16-bit value may be omitted. For example, the address

fe80:0000:0000:0000:0202:b3ff:fe1e:8329

may be written as

 fe80:0:0:0:202:b3ff:fe1e:8329.

Rule 2: A single occurrence of consecutive groups of zeroes within an address may be replaced by a double colon. For example, **fe80:0:0:0:202:beff:fe1e:8329** becomes **fe80::202:beff:fe13:8329**.

IPv6 @ Home

For those who are adventurous, IPv6 is already at the tip of your fingers. If you are using Windows Vista or Windows 7, you have IPv6 already enabled. In fact, you may have been asked to set up Home-Group during your first use of your Windows 7 computer. Home-Group uses IPv6 to operate. You can see this working on your Windows 7 or Vista machine by clicking on the Start Menu/All Programs/Accessories/Command Prompt. In the black window, type the command **IPCONFIG** then press <ENTER>. You will see some IPv6 addresses in the list.

If you are more adventurous and want to explore more at home, you can use a tunnel broker to use IPv6 over the Internet. Keep in mind, VA does not allow the use of these services on the VA network, but you can try them out on your personal computers at home. In using these tunnel brokers, you can surf the Internet connecting to websites that are IPv6 enabled such as http://ipv6.google.com and www.va.gov.

You can test your IPv6 connectivity by going to http://test-ipv6.com.

The IPv6 Q&A Corner

Q: What is an IPv6 Tunnel Broker?

The Tunnel Broker concept is an alternative approach based on the provision of dedicated servers or routers, called Tunnel Brokers, to automatically manage IPv6 over IPv4 tunneling requests coming from user workstations. This approach is useful to stimulate the growth of IPv6 interconnected hosts, and to allow early IPv6 network providers to provide easy access to their IPv6 networks. The Tunnel Broker can effectively be used to allow isolated IPv6 hosts on the IPv4 Internet to easily connect to an existing IPv6 network.

Tunnel brokers can be seen as virtual IPv6 ISPs, providing IPv6 connectivity to users already connected to the IPv4 Internet. In the emerging IPv6 Internet, many tunnel brokers are available, so the user has many choices.

Upcoming IPv6 Related Events

2012 North American IPv6 Summit

April 9-11, 2012 Denver, CO

InterAgency IPv6 Meeting
April 18-19, 2012 Charleston, SC

World IPv6 Launch
June 6, 2012 http://www.worldipv6launch.org/

Contact the VA IPv6 Program Office

Toni Toomer: toni.toomer@va.gov (202) 632-7648

Get more information on VA's IPv6 efforts at:
http://vaww.netops.oit.va.gov/IPv6.asp
http://itloportal.va.gov/sites/ipv6/default.aspx