# EVOLUTION

The Department of Veterans Affairs IPv6 Newsletter

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## IPv6 in the Home, in Your Pocket

Many people seem to be hearing about IPv6 for the first time. There is not a real sense of urgency in making an IPv6 transition, and some even feel that there seems to be a lot of concern about something that is not a problem. To be honest, the changeover to IPv6 has been an effort that has been underway for several years. The exhaustion of IPv4 addresses has been a long recognized problem, and a lot of effort has been put into the network communications to support this transition effort. The Department of Veterans Affairs (VA) has been on the leading edge of the transition effort within the governmental environment; however, even as VA makes great strides in its transition, the use of IPv6 at home and on portable devices also requires some attention.

The primary barrier to the home user making the move to using IPv6 is the Internet Service Provider (ISP). Most ISPs have pilot efforts currently underway to enable IPv6 on their networks; however, these efforts are in limited areas, and the dates regarding general availability of the service to their customers have not yet been published. Even with the launch of IPv6 on their network, there is still limited information on what the customer might need to do in order to have IPv6 working in their own home.

### 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.

**IPv4**

192.168.11.155 / 255.255.255.0

**IPv4 Broadcast Address**

192.168.11.255

**IPv6**

fe80::2ae0:2cff:fe6e:1743/64

2001:470:8:10fb:2ae0:2cff:fe6e:1743/64

2001:470:8:10fb:b854:fb2c:fa98:bc2d/64

**What Is My IPv6 Address?**

Your IPv6 Address Is

2001:470:8:2b9:42fc:89ff:fe21:534d

And you thought WhatIsMyIP was cool . . .
You can reach this site by any of the following URLs:
www.whatismyipv6.com : To verify DNS selects an IPv6 over an IPv4 address
ipv6.whatismyipv6.com : To force access to the IPv6 version (to verify your browser checks for IPv6 first)

# IPv6 in Your Home, in Your Pocket

*Continued from Page 1*

In addition to the ISP, another obstacle to home IPv6 use is that many home users have their own wireless routers and gateways. Many of these products are just beginning to have firmware upgrades released by their vendors that provide limited IPv6 support. Most new gateways may offer IPv6; however, firmware upgrades could be necessary. With that in mind, many home users will likely need assistance to be able to use IPv6 at home and over the Internet. Also, home users may have older versions of gateways for which vendors have chosen not to offer an IPv6 upgrade. In those cases, the gateway will need to be replaced with a newer one that offers the protocol.

Home computers and their operating systems are also a potential barrier. If a home user has a computer running Windows Vista, Windows 7, or the later versions of other computer operating systems, it is likely that they will be able to communicate using IPv6 without much effort. However, if the computer has Windows 95, Windows 98, Windows 2000, Windows XP or older versions of computer operating systems, the IPv6 assistance would be limited, at best, and not necessarily supported by the vendor. Having the latest operating systems is always best in this case.

Most recently released models of smartphones appear to have some level of IPv6 capability; however, the smartphone itself does not make that a certainty. To ensure the possibility of IPv6 being able to work, the latest version of the phone's operating system should be downloaded from the carrier (AT&T, Sprint, Verizon, etc.). Some carriers may still not offer IPv6, so a help desk call to the vendor may be required. The iPhone, for instance, in its current version of the iOS (version 5.01), does have some level of support for IPv6 when connected to wireless networks, as does the Android. For these devices, the number of capabilities and applications that can leverage the IPv6 protocol will increase as the overall usage of IPv6 increases.

Unfortunately, the use of IPv6 in most of your common home and portable devices will not be automatic. Many devices may need some level of technical assistance to configure or update their systems; however, this hindrance should become less troublesome as IPv6 usage increases.

## VA IPv6 Training

In accordance with our leadership role among Federal Agencies, the Department of Veteran Affairs is reactivating and refreshing the IPv6 training program. The agency has successfully established a premier IPv6 training program that equips network professionals with the knowledge and skills to facilitate a smooth transition to IPv6 within VA.

"Train the Trainer" was one of the successful programs implemented by the VA IPv6 Steering Committee in 2008, bringing IPv6 training to IT personnel throughout the agency.

New training material is being developed to assist not only IT Specialists, but Acquisition and Procurement personnel as well. The training will ensure that all network hardware and software acquired and installed for use by the agency is IPv6 capable.

One part of the training program is the offering of a two-day training session on April 16-17, 2012, just prior to the April 18-19, 2012 Interagency Meeting in Charleston, SC. This general course will provide VA and other Federal agency personnel a chance to become very familiar with IPv6, how it is used, and what may be impacted with its implementation.

The agency continues to proactively explore new and innovative methods to train professionals on IPv6 ensuring the agency meets its objective of total transition to IPv6 by 2015.

## Starting an IPv6 Pilot

The IPv6 PMTO has reached out to the leads of VA's 13 Strategic Initiatives to identify pilots where IPv6 can add value. The pilot selection process has been developed to provide a systemic approach to identifying and selecting proof-of-concept projects for the IPv6 Pilot Program.

The primary goal of the selection process will be to identify multiple demonstration projects that leverage the numerous benefits associated with IPv6 and will, simultaneously, provide clear benefits to the VA. IPv6 will be employed significantly throughout the program, and the demonstrations will span the entire VA mission profile including improving VA's IT infrastructure.

Each pilot will require the development of effectiveness measures to ensure that its adoption can be fully assessed by the VA IPv6 project, senior leaders, and stakeholders. The following information needs to be fully understood in order to develop effectiveness measures.

- What VA organizations are supported by the pilot?
- What VA customers are supported by the pilot?
- What service or benefit is enhanced by the pilot?
- Can the candidate pilot exceed a current capability?
- Can the candidate pilot provide a new capability or solve an existing problem?
- Does the pilot provide enhanced security?
- What restrictions apply to the pilot's deployment?

While the types of candidate pilots will vary greatly, the unique characteristics of each pilot will be evaluated against a common framework which includes a combination of factors such as:

- Benefits,
- Cost,
- Schedule,
- Risk, and
- Return on Investment (ROI).

Once a pilot has been selected, the IPv6 PMTO will offer full support to see the pilot come to fruition. The level of resources needed to assist the pilot lead will be determined and procurement will be identified to expedite any needed approval of funds.



## Nurse Call Pilot

Currently, Veterans Affairs Medical Centers, across the country have a variety of different nurse call systems. Most systems are antiquated and cannot interface with the necessary wireless products.

A nurse call system has two basic functions: (1) to provide patients with a means of calling caregivers and (2) to provide caregivers with a means of summoning additional help to the patient's room. In its simplest form, a nurse call system consists of lights, audible tones, and voice communication between the patient room and a nurse station. Such systems can operate using relatively simple mechanical and electrical components. Most systems offer at least some form of computerized operation, which can greatly expand the system's capabilities. They can now provide direct interface to multiple wireless solutions including paging, wireless phones, and locators.

There is the prototype computer and LCD monitor for demonstration at the VA central office. The prototype demonstrates a fully integrated system that facilitates communication with the nurse staff through a touch screen in the case that the patient cannot communicate.

## The IPv6 Q&A Corner

### Q: Where can I learn about IPv6 on my own?

Learning about IPv6 can be as simple as a visit to a search engine on the Internet using Google, Bing, or Yahoo. Perform a search using the phrase "IPv6 explained" or "IPv6 for Dummies" and you can see a link like: *http://voip.about.com/od/voipbasics/a/IPv6.htm*. Other useful information can be found at *http://www.hpcmo.hpc.mil/cms2/index.php/ipv6-knowledge-base-general-info/140-faq#q6* and *http://www.isoc.org/internet/issues/ipv6_faq.shtml*.

There are some books that may be useful. These include:

- **IPv6 Essentials** by Silvia Hagen
- **IPv6 for Enterprise Networks** by Shannon McFarland
- **Deploying IPv6 Networks** by Ciprian Popoviciu
- **IPv6 Security** by Scott Hogg
- **IPv6 Network Administration** by David Malone

## Upcoming IPv6 Related Events

### V6 World Congress 2012
February 7-10, 2012 Paris, France

### 2012 North American IPv6 Summit
April 9-11, 2012 Denver, CO

### VA Interagency IPv6 Meeting
April 18-19 2012 Charleston, SC