

# EVOLUTION

The Department of Veterans Affairs IPv6 Newsletter

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## IPv6 InterAgency Meeting

The coordinators for the VA sponsored InterAgency IPv6 Meeting may be getting paranoid about the Washington DC weather. The skies opened up on the morning of October 12 with flooding rains that snarled traffic and caused delayed arrivals. Unlike last February, when the start of the conference was delayed by two hours because of snow and rain from the previous day, the meetings started on time. Some staff and attendees arrived late, but almost all were seated in time for the Welcome Address by Steve Pirzchalski, the VA IPv6 Transition Manager. Although the weather and traffic certainly was a factor, attendance was up over February's numbers, continuing a trend that goes back to the inception of the conference.

Mr. Pirzchalski touched on the three areas for concentration during the Conference; developing a better understanding of USGv6 profiles and the role played by them in acquisition, the pitfalls of ordering telecommunications services under Networx, and the lessons to be learned from the experiences of other agencies that have been in the vanguard of the government transition to IPv6. He closed his address by encouraging the audience to fully participate in the discussions because sharing information is paramount to a successful transition to IPv6.

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## IPv6 and Online Gaming

Currently, gaming is one of the Internet's fastest growing mediums. As games become more complex and widely used by people all around the world, gamers are increasingly interacting with other gamers. Gamers play others in different time zones and even different countries.

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## 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.



## VA IPv6 Heavy Hitters

### *Two Stand out at the October InterAgency Meeting*

October's InterAgency meeting highlighted many engaging speakers. Two individuals from the VA stood out as leaders in the IPv6 VA transition; Mr. Mr. Ralph McDonald and Derrick Evans. Both Mr. McDonald and Mr. Evans are valuable members of VA's transition team and both have a wealth of experience with the VA.

Mr. Ralph McDonald has held the role of Designated Agency Representative (DAR) with the VA. According to those who work with Mr. McDonald, it is this former role that has proven to be an invaluable asset in working with the various Networkx vendors when ordering dual stacked access circuits. Mr. McDonald's presentation regarding lessons learned when ordering circuits highlighted all the important process and communication techniques required to meet projected schedules and optimize outcomes. Mr. McDonald spoke to those in attendance about the need to conduct a thorough inventory of all assets prior initiating the process, stressing that it was vital that those responsible for the ordering of a circuit know what the circuit ID's were and what services were currently running under IPv4.

Mr. Derrick Evans, the IPv6 Manager in the OI&T organization under Mr. Steve Pirzchalski presented and moderated during the meeting. Mr. Evan's experience with IPv6 Acquisition has helped VA implement programs based on NIST guidance and FAR processes that streamline VA's ability to move forward with their goal of IPv6 transition and meeting all the OMB mandates. Mr. Evans also echoed Mr. McDonald's advice to collect as much inventory data as possible including the defined minimum IPv6 capabilities of all network devices.

Both Mr. McDonald and Mr. Evans are continuing to help VA move forward to the ultimate goal of being native IPv6 only by 2015. The dedication and commitment that each show will ensure the success of the full transition.



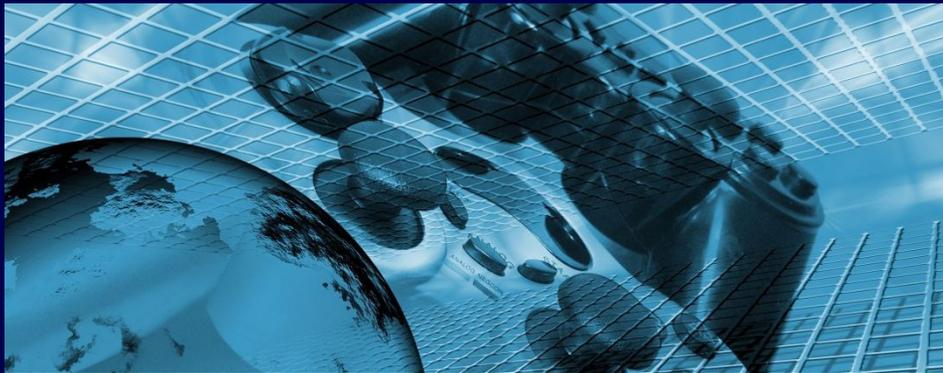
### **October, 2011 InterAgency Meeting**

The morning sessions consisted of presentations and panel discussions that included an update of the IAC Roadmap by Dale Geesey, an IPv6 subject matter expert; IPv6 Acquisition and the USGv6 Profile lead by Derrick Evans, member of the VA IPv6 Transition Team; and Lessons for Ordering Dual-Stack Services from the Networkx Carriers lead by Ralph McDonald, also of the VA IPv6 Transition Team. Representatives from NIST, Commerce and Interior joined Mr. Evans in his panel. Representatives from the GSA Networkx PMO and Century Link were with Mr. McDonald. Questions and dialog with the audience for each session was extensive and continued into the lunch hour.

The afternoon session included an OMB update authored by Ms. Carol Bales that was delivered by Mr. Steve Pirzchalski. The day continued with lessons learned from the experiences of the Department of Education in meeting the 2012 milestone and VA's experience in developing IPv6 addressing plans. The final session was a lengthy audience participation round-table discussion of topics and issues raised during the day-long meeting. In a departure from the past, the October 2011 Meeting was presented in conjunction with the DGI 5th annual IPv6 Conference on October 13, 2011. The majority of the InterAgency attendees also attended the next day's conference.

The presentations from the October, 2011 Meeting and previous conferences are available from the VA InterAgency IPv6 Meeting Website at:

<http://interagency.auspextech.com/>.



## IPv6 and Online Gaming

What makes gaming scenarios possible is a robust Internet, however, gamers face a couple laws of physics that are hard to avoid in the Internet world. First, is the speed that the photons can travel through the transport medium, which happens to be a little under two thirds of the speed of light as it is measured in a vacuum. Second, is the circumference of the Earth, and how the continents on the planet's surface are arranged. Can IPv6 make light travel faster? No, it cannot make light travel any faster, nor does it have the ability to shrink the planet or move the continents, or the data packets any faster than the existing processes. Ping times, which is what gamers use to measure performance, will remain much as they are today in IPv4, once IPv6 is fully deployed.

Gamers will notice that IPv6 brings significant benefits to their gaming platform. One important aspect of many games is the multi-player environment. Current IPv4 and Network Address Translators (NATs) used by home gateways make allowing one game player to interact directly with another game player nearly impossible (or at least highly problematic). Most of the multi-player games rely on controllers to act as message relays allowing one player to interact with another.

Many online games require a central connection to a server to ensure that players remain connected and to stop "cheating", "hacking", etc. IPv6 removes the requirement for a network controller, which may allow all gamers to create more distributed online worlds.

With IPv6, there may now be the potential for self-clustering games where the interaction between players is not centrally managed. IPv6 may help bring this about since it has been nearly impossible to bring this into high use with IPv4. The good news is that IPv6 is sufficiently close enough to IPv4 so that existing models of game interaction will work. A well coded game will work just as well over IPv6 as it does over IPv4, so nothing should need to be changed. IPv6 has the capability to do much more than IPv4, including providing better support for multicast. This allows a single sender to send a single packet that is received by all multicast recipients. The network itself can perform the necessary packet replication to ensure that everyone who is a multicast member receives a copy of the packet. So IPv6 many not have the "Killer App" to run yet, but it may be the Killer app for internet gamers.

## Windows IPv4 Networks can be Vulnerable to IPv6 Attack

A man-in-the-middle attack can use the IPv6 protocol to eavesdrop on IPv4 networks, though an attacker would have to physically place a router in the targeted environment for it to work.

According to a recent article written in *Information Week* by Mathew Schwartz, the attack works by introducing an IPv6 router into an IPv4 network, but only connecting the router to the IPv4 Internet. Using router advertising (RA) to create addresses--via a process known as Stateless Address Auto Configuration (SLAAC)--the attacker can control where traffic travels. Next, an attacker can use NAT-PT, "an experimental protocol used to connect IPv6-only networks to the legacy IPv4 network," said Johannes Ullrich, chief research officer for the SANS Institute, in a [blog post](#) that analyzes this so-called SLAAC attack.

So how does an organization protect itself? Interestingly, there's a defense against the SLAAC attack, known as the Secure Neighbor Discovery (SEND) protocol, said Koziol. Except that Microsoft doesn't use SEND in its current products. "It seems after the engineers from Microsoft and Ericsson finished writing the IETF document, they also wrote and filed a patent.

## The IPv6 Q&A Corner

**Q:** What does IPv4 and IPv6 coexistence mean?

**ARIN:** The technical functioning of the Internet remains the same in both versions and it is likely that both versions will continue to operate simultaneously on networks well into the future. To date, most networks that use IPv6 support both IPv4 and IPv6 addresses in their networks. It is important for all organizations to consider the adoption of IPv6 for their Internet services over the next couple of years, but it is also important to know that IPv4 is not going away. IPv4 and IPv6 will coexist on the Internet for many years. Although it is necessary to make certain services like Web sites and e-mail available over the IPv6 network, it is not necessary to replace the already deployed IPv4 infrastructure. The transition from IPv4 to IPv6 will happen over the course of many years, with both protocols working together on the Internet. Much of the IPv4 deployed infrastructure may continue to work on the Internet for years to come.



## VA IPv6 Steering Committee

### **Steve Pirzchalski**

Chairman & VA IPv6 Transition Lead

### **Wes Crum**

IPv6 Transition & Pilots

### **Juan Adames**

IPv6 Security

### **John DelTognoArmanasco**

IPv6 Addressing

### **Rick Shew**

IPv6 Training

## **Evolution**

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## Upcoming IPv6 Related Events

### **GoGoNet Live2**

November 1-3, 2011 San Jose, CA

### **Network World: The Critical Path to IPv6**

December 13, 2011 New York, NY

### **VA Interagency IPv6 Meeting**

April, 2012 TBD

## Contact the VA IPv6 Program Office

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Get more information on VA's IPv6 efforts at:

<http://vawww.netops.oit.va.gov/IPv6.asp>