DISA IPv6 Transition Challenges

AGENDA

- What is **IPv6 ?**
- Why the DISA IPv6 Transition Management Office (**DITMO**) ?
- When and How will we **Transition** to IPv6 ?
- What are our IPv6 Transition **Challenges** ?
- **Where** are we today?

Executive Summary

- IPv4 — IPv6 →
  1981 — 1998 — 2012
- September 2010 OMB memorandum defined the Government's IPv6 transition strategy.
- The memorandum also directed the designation of transition managers.
- Our role includes monitoring, tracking, reporting, guiding, and promoting.

What is IPv6 ?

Internet Protocol version 6 (**IPv6**) is an Internet addressing standard used to transport data between electronic devices. It follows IPv4 as the second version of the Internet Protocol adopted for general use.

There are **not enough** IPv4 addresses available for all our devices.

IPv6 **solves** this problem with 340 undecillion addresses.

IPv4 Sample Address

IPv6 Sample Address

IPv4 = Billion of #'s

IPv6 = Undecillion of #'s

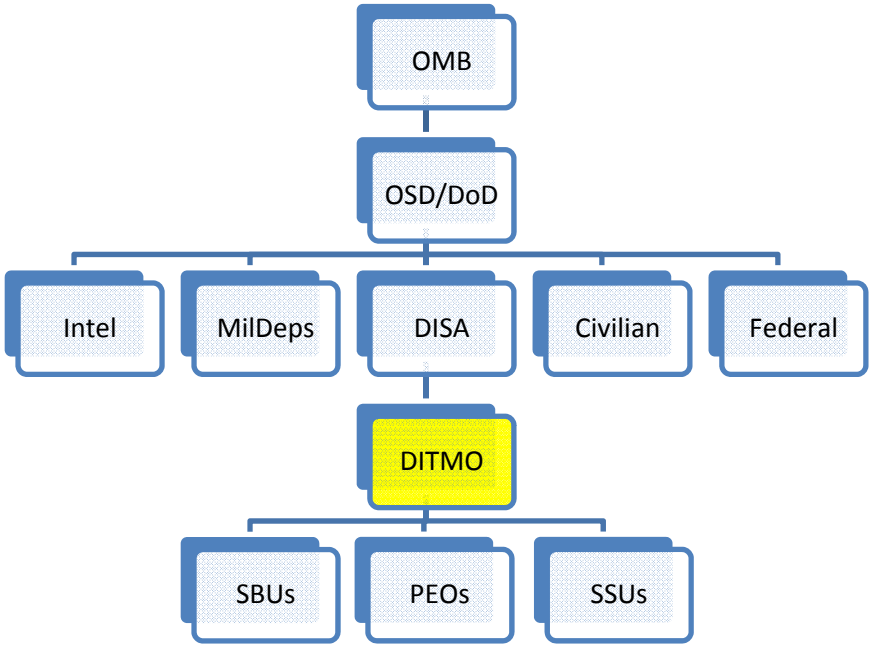
255.255.255.255

E3D7:0000:0000:0000:51F4:9BC8:C0A8:6420

4,294,967,296

340,282,366,920,938,463,463,374,607,431,768,211,456

DITMO Scope and Reporting



Coordination of Efforts

Reporting of Status

Tracking of Activities

Development of Plans

Mapping of Goals

Promotion of Sharing

DITMO's Value Add

The IPv6 Transition Management Office is responsible for:

- Developing common solutions – eliminates duplication
- Coordinating efforts – saves transition time
- Strategic alignment – maps activities to goals
- Collaboration – promotes stakeholder investment

IPv6 Transition

- Enhancements
  - A significant increase in IP addresses
  - Better security end to end
  - More routing efficiencies
  - Advanced Quality of Service (QoS) management
  - Easier network management

- How do we transition?
  - Move the existing IP protocol into a dual IPv4/IPv6 structure
  - Enable more IP addressable services
  - Convert entire infrastructure to IPv6

- Some of the challenges we are facing

Sharing Knowledge

- Education
  - Informational briefings and seminars
  - Formal and informal training
  - Publications

- Collaboration
  - Stakeholder working groups and sub-working groups
  - Industry forums and “town hall” discussions
  - Online discussion groups
  - Social media

Knowledge and transparency empowers us to be successful

Demonstrating Benefits

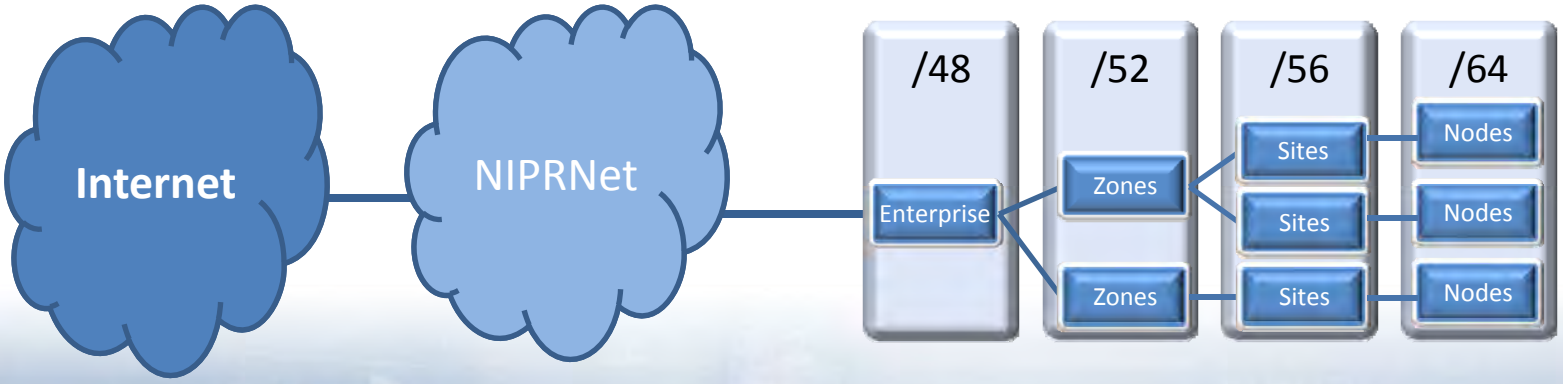
IPv4	IPv6
IP Address exhaustion	Continued Internet access
Labor intensive processes	Improved network operations
Enclave-based security solutions	Improved network security
Manual IP assignment	Autoconfiguration
Mobility requires complex schemes	Mobility simplified

Organizational value is driving this transition

Deploying Addressing Scheme

- Design
  - Recognize and embrace the new methodologies
  - Create a new addressing scheme

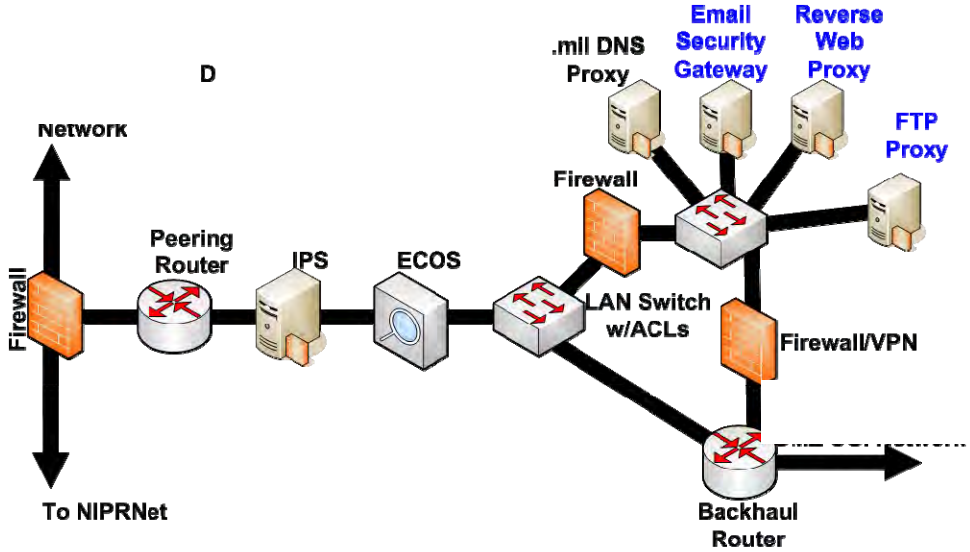
- Address Management
  - Selecting an automated tool
  - Enforcing policy and process



We must get this new technology's foundation right

Security Requirements

- Public Facing
  - Configuration of IA tools
  - Proper filtering
- Internal
  - Understanding of threats
  - Adhering to policy



Agile security solutions are most important at this beginning

Deploying IPv6

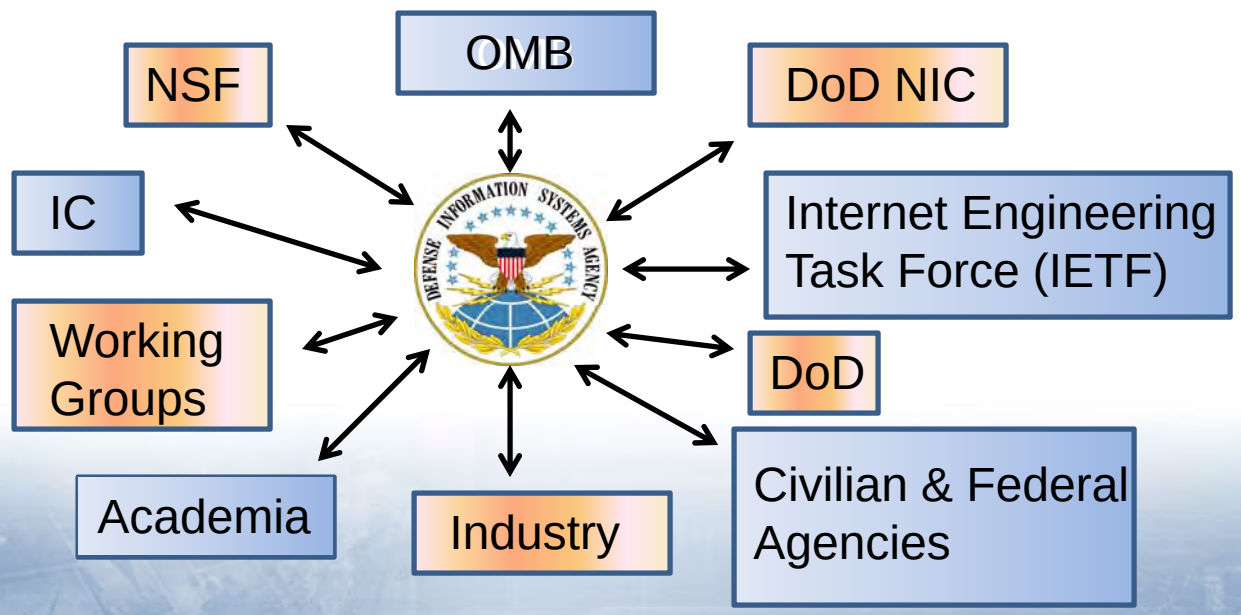
- The Process
  - Defining and Planning
- The Execution
  - Monitoring, Measuring, and Reporting
- The Interrelations
  - Who's effected and how are they impacted?
- Mapping to Strategic Goals

IPv6 Feature		Enterprise Services	Interagency Collaboration	Information Security
Increased number of IP addresses	→	✓	✓	✓
Quality of Service (QoS) – Addition of Flow Label	→	✓	✓	
Simplified Mobility	→	✓		✓
Increased Network Efficiency	→	✓		
Security Enhancements	→	✓	✓	✓

IPv6 transition is a process

What are we doing?

- Deploying
- Hosting Working Groups
- Encouraging Education and Training
- Promoting IP Address Management (IPAM) Deployment
- Collaboration



Thank You

301-225-8103

DISA
A Combat Support Agency

QUESTIONS