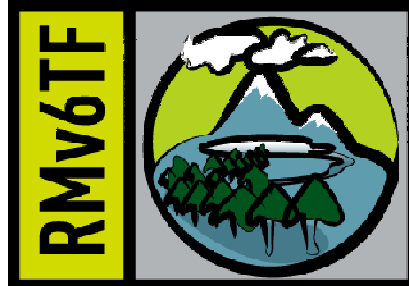


Rocky Mountain IPv6 Task Force



2011 Rocky Mountain IPv6 Summit, Grand Hyatt Denver Colorado

IPv6 Pre-Conference Tutorial - Fast-Start IPv6 Training Class

April 25, 2011

As with any new technology, IPv6 requires a learning curve for network managers and IT operations personnel. For end users, the protocol is transparent, and there should be no learning curve unless their application requires typing in explicit IPv6 addresses. However, IPv6 training for IT staff is important and needs to take place soon so your organization's transition can start to take place. The RMv6TF will teach this one-day accelerated IPv6 class to those who sign up for the pre-conference tutorial. The subsequent sections detail the introduction to IPv6 training class agenda. These classes will be conducted at the Grand Hyatt Denver hotel on April 25, 2011. This class will be a combination of lecture and live demonstrations of IPv6 technology. The goal of the class is to provide introductory to advanced information on IPv6 to advance your skills and prepare you to deploy IPv6.

The demonstrations will use a combination of live lab equipment and GNS3/Dynagen/Dynamips. Students should bring their laptops and connect over wireless 802.11b/g to the demonstration lab. They will be able to telnet/ssh to all devices and run commands that will enhance their learning experience.

Technical IPv6 Introduction – 2 Hours – 8:00AM to 10:00AM

IPv6 Features and Benefits

- IPv6 Header structure, extension headers

- IPv6 Addressing

- ICMPv6 (NDP, PMTUD, MLD, ...)

- Stateless and Stateful address autoconfiguration

IPv6 Transition Techniques

- Dual Protocol/Dual Stack

- Tunneling (manual, dynamic), 6to4, ISATAP, Teredo IPv6/v4 tunneling

- Translation/ALG

Current Level of IPv6 Support

- Operating System and Application Support

- Service Provider Support

IPv6 Transition Planning

- Preparing an IPv6 Inventory, Impact Analysis, Transition Plan

IPv6 Summary

- IPv6 Advantages and Challenges

Basic demo of IPv6, enablement on operating system, application traffic, viewing IPv6 packets with Wireshark

15 Minute Break – 10:00AM to 10:15AM

IPv6 Networking Deep Dive – 1.5 Hours – 10:15PM to 11:45PM

IPv6 Routing Protocols: OSPF, EIGRPv6, IS-IS, BGP

QoS and Flow Label

IPv6 First Hop Redundancy Protocols

- HSRPv6, GLBPv6, VRRPv3

Current level of IPv6 support in networking products

Live IPv6 Networking Demonstration

Dual Stack router configurations

Static Routing

General Prefix

HSRPv6

IPv6 routing protocol configuration

Lunch Break – 11:45AM to 1:00PM

IPv6 Applications and Services – 2 Hours – 1:00PM to 3:00PM

IPv6 features in operating systems and applications

Current Level of IPv6 Support, Microsoft, Linux, other operating systems

DNS

DHCPv6

IPv6 Applications and Software

IPv6 Coding Standards

Network Management

Live Demonstration of IPv6 Applications

Dual Stack Windows XP, Vista, Windows 7, Linux

Stateless autoconfiguration

Apache, IIS web servers

DNS – Bind 9

SSH, FTP

15 Minute Break – 3:00PM to 3:15PM

IPv6 Security – 1.5 Hours – 3:15PM to 4:45PM

Introduction

Documented IPv6 Vulnerabilities

IPv6 Threats

- Experience

- LAN Attacks

- Extension Header Threats

- Reconnaissance on IPv6 Networks

- Fragmentation

- ICMPv6 Threats

- Security Implications of Transition Mechanisms

- Router Threats

- Application Layer Attacks

- Man-in-the-middle

- Flooding

- Viruses and Worms

- Mobile IPv6 Security

IPv6 Protection Measures

- IPv6 Firewalls, ACLs

- IPv6 Intrusion Prevention Systems (IPS)

- IPsec VPNs for IPv6

- SSL VPNs for IPv6

IPv6 IPsec

IPv6 Privacy Addressing

IPv6 Security Tools

Live IPv6 Security Demonstration

Firewall configuration

Demonstration of IPv6 attacks

Router ACLs to prevent attacks