IPv6 Migration

Implementing IPv6 in the Enterprise

"Internet of things - IoT" or "Internet of Everything- IoE" - this basically means that different kinds of devices, big and small, are connected to the Internet directly, including smartphones, tablets, e-readers, sensors and motors, apart from the usual computers and servers. The almost complete depletion of the IPv4 address space in tandem with the surging demand for IP addresses for these devices means that the transition to IPv6 has taken on an urgency worldwide.

This course covers all the details of how IPv6 works.It teaches you how to configure it in an organization as well as transitioning from IPv4 to IPv6. It's a specialized course tailored for network professionals who are interested in migrating their networks from IPv4 to IPv6. It's taught by networking experts with several years of real time networking experience.

Course Outline

- IPV6 Addressing and implementation
- IPV6 routing protocols and services
- IPV4 to IPV6, coexistence, integration and migration
- Connecting to IPv6 Internet
- Implementing IPv6 on Microsoft servers
- Implementing IPv6 on Linux servers
- Implementing IPv6 on Cisco routers

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Course Curriculum

Why do we need IPv6
- History of IPv6 / What is new in IPv6 /IPv6 around the World.

IPv6 Addressing
- Address Types / Special Address / Default Address

Module I : Implementing IPv6 on Cisco Routers

Implementation of IPv6 Addressing
- Basic IPv6 Address / Stateful Address configuration
- Stateless Address configuration

IPv6 Address configuration on Router Interfaces
- LAN Interface, WAN Interface

Implementation of IPv6 Routing Protocols
- EIGRP / OSPF / RIPng / STATIC IPv6 Route

IPv6 services:
- Path MTU Discovery / ICMP V6 / NDP
- DNS / DHCP / IPv6 Security

IPv4 and IPv6 Co-existence /Integration
- Dual Stack
- Tunneling IPv6 over IPv4
- IPv6 to IPv4 translation

Connecting to IPv6 Internet
- IPv6 Internet
- Industry support and trend

Module II : Implementing IPv6 on Microsoft Server

Dynamic Host Configuration Protocol (DHCP) using ipv6
- Introduction and Configuration of DHCP Server
- creating scopes for ipv6
- DHCP Client Configuration
- Reservations & DHCP Backup
- Configuring DHCP Failover

Domain Name System (DNS) using ipv6
- **Internet Basics, Host Files**
- DNS Naming Hierarchy
- Lookup Zones Forward and Reverse Lookup Zones
- Types of Zones Primary, Secondary and Stub Zone
- Resource Records, Integration with AD-DS, SRV Records
- Forwarders, Dynamic Updates

Internet Information Services (IIS) using ipv6
- **IIS 8.0 Configuration**
- **Hosting Websites, Virtual Directories**
- **Backup and Restoring Sites**
- **FTP sites**

Windows Deployment Services using ipv6
- Introduction and Configuration of WDS Server
- Attended and Unattended Installation

Routing and Remote Access using ipv6
- Routing Configuration Static Routes
- NA T, DHCP Relay Agent
- Remote Access Server Configuration

Module III : Implementing IPv6 on Linux Server

IPv6 kernel
- Check for ipv6 support in the current running kernel
- Load ipv6 module
- Compile kernel with IPv6 capabilities
- IPv6 network devices

IPv6 network configuration tools
- **Net-tools package**
- **ip route package**

Configuring IPv6 addressess
- Displaying existing IPv6 addresses
- Using " ip " & " ifconfig"

Configuring Normal IPv6 Routes
- Displaying existing IPv6 routes
- Using "ip" & "route"

IPv6 test/debug Programs
- IPv6 ping
- IPv6 traceroute6
- IPv6 tracepath6
- IPv6 tcpdump
- IPv6-ready programs

Kernel Setting in /proc-filesystem
- How to access the /proc-filesystem
- Entries in /proc/sys/net/ipv6
- IPv6-related entries in /proc/sys/net/ipv4
- IPv6-related entries in /proc/net

Configuration of DNSv6 Server
- Berkeley Internet Name Domain (BIND) deamon "named"
- Listening on IPv6 addresses
- IPv6 enabled Access Control Lists (ACL)
- Sending queries with dedicated IPv6 address
- Per zone defined dedicated IPv6 addresses
- IPv6 DNS zone files examples
- Serving IPv6 related DNS data & Checking IPv6-enabled connect

Configuration of DHCPv6 Server
- Configuring of DHCPv6 Server (dhcp6s)
- Configuring of DHCPv6 Client (dhcp6c)
- Usage & Debugging

Configuration of Webserverv6 (Apache)
- Listening on IPv6 address
- Configuring of Name/IP/Port based hosting on IPv6
- Configuring of Authentication on IPv6

Configuration of FTPv6 (Vsftpd)
- Listening on IPv6 addresses
- Configuring of Local & Anonymous users
- Configuring of Active & Passive
- Log files of IPv6

Configuration of MailServerv6 (Postfix)
- Configuring of smtp,pop3,imap on IPv6
- Configuring of Squirrelmail on IPv6

Configuration of Proxy Serverv6 (Squid)
- Configuring of ACL rules on IPv6
- Configuring of Authentication on IPv6
- Checking the Logfiles

Configuration of Telnet Serverv6
- Configuring of Main Configuration file on IPv6

Configuration of Kickstartv6 (Remote Installation)
- **Configuring of Services on IPv6**
- **Configuring of Client on IPv6**

IPv6 Client Programs
- Checking DNS for resolving IPv6 address
- IPv6 Telnet client
- IPv6 SSH clients
- IPv6 WEB browser