

Cisco® IPv6 Fundamentals, Design and Deployment 3.0 (IP6FD)

Course Overview

This course aims at enabling learners to study and configure Cisco IOS Software IP version 6 (IPv6) features. The course is a technology course covering IPv6 design and implementation topics.

This is a 5-day class



Course Objectives

After completing this course, students will be able to: - Describe the factors that led to the development of IPv6, and the possible usages of this new IP structure - Explore the structure of the IPv6 address format, how IPv6 interacts with link-layer technologies, and how IPv6 is supported in Cisco IOS software - Describe the nature of changes to DNS and DHCP to support IPv6, and how networks can be renumbered using both services - Understand the updates to IPv4 routing protocols needed to support IPv6 topologies - Understand multicast concepts and IPv6 multicast specifics - Describe IPv6 transition mechanisms and which methods will be most effective in your network - Examine security issues, how security for IPv6 is different than for IPv4, and emerging practices for IPv6-enabled networks - Describe the standards bodies that define IPv6 address allocation, as well as one of the leading IPv6 deployment issues, multihoming - Describe the deployment strategies service providers are facing when deploying IPv6 - Explore case studies for enterprise, service provider, branch, and access networks

Course Outline

1 Introduction to IPv6

Explaining the Rationale for IPv6
Evaluating IPv6 Features and Benefits
Understanding Market Drivers

2 IPv6 Operations

Understanding the IPv6 Addressing Architecture
Describing the IPv6 Header Format
Enabling IPv6 on Hosts
Enabling IPv6 on Cisco Routers
Using ICMPv6 and Neighbor Discovery
Troubleshooting IPv6

3 IPv6 Services

IPv6 Mobility
Describing DNS in an IPv6 Environment
Understanding DHCPv6 Operations
Understanding QoS Support in an IPv6 Environment

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4 IPv6-Enabled Routing Protocols

- Routing with RIPng
- Examining OSPFv3
- Examining Integrated IS-IS
- Examining EIGRP for IPv6
- Understanding MP-BGP
- Configuring IPv6 Policy-Based Routing
- Configuring FHRP for IPv6
- Configuring Route Redistribution

5 IPv6 Multicast Services

- Implementing Multicast in an IPv6 Network
- Using IPv6 MLD

6 IPv6 Transition Mechanisms

- Implementing Dual-Stack
- Describing IPv6 Tunneling Mechanisms

7 IPv6 Security

- Configuring IPv6 ACLs
- Using IPsec, IKE, and VPNs
- Discussing Security Issues in an IPv6 Transition Environment
- Understanding IPv6 Security Practices
- Configuring Cisco IOS Firewall for IPv6

8 Deploying IPv6

- Examining IPv6 Address Allocation
- Understanding the IPv6 Multihoming Issue
- Identifying IPv6 Enterprise Deployment Strategies

9 IPv6 and Service Providers

- Identifying IPv6 Service Provider Deployment
- Understanding Support for IPv6 in MPLS
- Understanding 6VPE
- Understanding IPv6 Broadband Access Services

10 IPv6 Case Studies

- Planning and Implementing IPv6 in Enterprise Networks
- Planning and Implementing IPv6 in Service Provider Networks
- Planning and Implementing IPv6 in Branch Networks