

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

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

Other Prerequisites

Cisco® Interconnecting Cisco® Networking Devices Part 1 v1.1 (ICND1)
Cisco® Interconnecting Cisco® Networking Devices Part 2 v1.1 (ICND2)

Course Outline

1 Introduction to IPv6

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

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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

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

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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