IPv6 Fundamentals, Design, and Deployment 4.1

What you'll learn in this course

IPv6 Fundamentals, Design, and Deployment (IP6FD) is a five-day training that provides you with the knowledge and skills needed to implement and configure the IP version 6 (IPv6) features of Cisco IOS software. The training also provides an overview of IPv6 technologies; covers IPv6 design and implementation; describes IPv6 operations, addressing, routing, services, and transition; and describes deployment of IPv6 in enterprise networks as well as in service provider networks. The training includes case studies that are useful for deployment scenarios and remote labs.

This training also earns you 40 Continuing Education (CE) credits toward recertification.

Course duration

- Instructor-led training: 5 days in the classroom with hands-on practice
- E-learning: 5 days of hands-on practice, plus equivalent of 3 days of content with practice and challenges

How to enroll

- To enroll in the IP6FD course or explore our larger catalog of courses on Cisco Digital Learning, contact us at
- <training@fastlane-mea.com>

Course details

Objectives:

- Describe the factors that led to the development of IPv6, and the possible uses of this new IP structure
- Describe the structure of the IPv6 address format, how IPv6 interacts with data link layer technologies, and how IPv6 is supported in Cisco IOS Software
- Describe the nature of changes to Domain Name System (DNS) and Dynamic Host Configuration Protocol (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
- Describe 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 that service providers are facing when deploying IPv6

Recommended knowledge and training

The knowledge and skills you are expected to have before attending this course are:

- Understanding of networking and routing (on Cisco CCNP® level, but no formal certification is required)
- Working knowledge of the Microsoft Windows operating system

These skills can be found in the following Cisco Learning Offering: Implementing and Administering Cisco Solutions (CCNA)

Who should enroll

- Network engineers

Outline

- Explaining the Rationale for IPv6
- IPv6 Features and Benefits
- Market Drivers
- IPv6 Addressing Architecture
- IPv6 Header Format
- Enabling IPv6 on Cisco Routers
- Using ICMPv6 and Neighbor Discovery
- Troubleshooting IPv6
- IPv6 Mobility
- DNS in an IPv6 Environment
- DHCPv6 Operations
- QoS Support in an IPv6 Environment
- Cisco IOS XE Software Features
- Examining OSPFv3
- Examining EIGRP for IPv6
- Introducing MP-BGP
- Configuring IPv6 Policy-Based Routing
- Configuring FHRP for IPv6
- Configuring Route Redistribution
- Implementing Multicast in an IPv6 Network
- Using IPv6 MLD
- Implementing Dual-Stack
- IPv6 Tunneling Mechanisms
- Transition to Single-Stack Deployments
- Configuring IPv6 ACLs
- Using IPsec, IKE, and VPNs
- Security Issues in an IPv6 Transition Environment
- IPv6 Security Practices
- Configuring Cisco IOS Firewall for IPv6
- IPv6 Address Allocation
- IPv6 Multihoming Issues
- IPv6 Enterprise Deployment Strategies
- Support for IPv6 in MPLS
- IPv6 Broadband Access Services
- Planning and Implementing IPv6 Cloud and Software-Defined Deployments
- Planning and Implementing IPv6 in Enterprise Networks
- Planning and Implementing IPv6 in Branch Networks