



Train. Employ. Empower.

Implementing Cisco MPLS (MPLS v3.0)

Price
\$2,695.00

Duration
**5 Daytime Classes
Or
10 Evening Classes**

Delivery Methods
**Virtual, In-Person,
Private Group,**

CAREER SKILLS+™

The Implementing Cisco MPLS (MPLS) v3.0 is a five-day course that is designed to help students prepare for the MPLS exam. This update to the course reflects the most-recent developments in network design and technologies, using real-world scenarios to help reinforce the learning of key objectives. Enterprises and service providers face many challenges in terms of customer demand, including an ongoing need for value-added services. Conventional IP packet forwarding has several limitations, and more and more enterprise and service providers realize that something else is needed. Not only they must be concerned with protecting their existing infrastructure, but they must also find ways to generate new services that are not currently supportable using existing technologies. Multiprotocol Label Switching (MPLS) is a high-performance method for forwarding packets through a network. MPLS enables routers at the edge of a network to apply simple labels to packets. This practice allows the edge devices to switch packets according to labels, with minimal lookup overhead. MPLS integrates the performance and traffic-management capabilities of data link Layer 2 with the scalability and flexibility of network Layer 3 routing. When used in conjunction with other standard technologies, MPLS gives the ability to support value-added features.

Who Should Attend

This course is intended primarily for network administrators, network engineers, network managers and systems engineers who would like to implement MPLS and MPLS Traffic Engineering.

The secondary audience for this course are network designers and project managers. The course is also recommended for all individuals preparing for the MPLS exam.

Course Objectives

- Describe the features of MPLS
- Describe how MPLS labels are assigned and distributed
- Configure and troubleshoot frame-mode MPLS on Cisco IOS platforms
- Describe the MPLS peer-to-peer architecture and explain the routing and packet-forwarding model in this architecture
- Configure, monitor, and troubleshoot VPN operations
- Describe how the MPLS VPN model can be used to implement managed services and Internet access
- Describe the various Internet access implementations that are available and the benefits and drawbacks of each model
- Describe the tasks and commands that are necessary to implement MPLS TE

Course Prerequisites

- Intermediate to advanced knowledge of Cisco IOS Software configuration
- Configuring and troubleshooting EIGRP, OSPF, IS-IS and BGP
- Skills and knowledge equivalent to those learned in: Interconnecting Cisco Networking Devices v2.0, Part 1 (ICND1 v2.0) and Part 2 (ICND2 v2.0), or Interconnecting Cisco Networking Devices: Accelerated Version 2.0 (CCNAX v2.0)
- Implementing Cisco IP Routing (ROUTE v2.0)
- Configuring BGP on Cisco Routers (BGP v4.0)
- Building Cisco Service Provider Next-Generation Networks Part 1 (SPNGN1) v1.2
- Building Cisco Service Provider Next-Generation Networks Part 2 (SPNGN2) v1.2
- Deploying Cisco Service Provider Network Routing (SPROUTE) v1.2

- Deploying Cisco Service Provider Advanced Network Routing (SPADVROUTE) v1.2

Agenda

- 1 - MPLS Concepts
 - Lesson 1: Introducing Basic MPLS Concepts
 - Lesson 2: Introducing MPLS Labels and Label Stack
 - Lesson 3: Identifying MPLS Applications
 - Lesson 4: Module Summary
 - Lesson 5: Module Self-Check
- 2 - Label Assignment and Distribution
 - Lesson 1: Discovering LDP Neighbors
 - Lesson 2: Introducing Typical Label Distribution in Frame-Mode MPLS
 - Lesson 3: Introducing Convergence in Frame-Mode MPLS
 - Lesson 4: Module Summary
 - Lesson 5: Module Self-Check
- 3 - Frame-Mode MPLS Implementation on Cisco IOS Platforms
 - Lesson 1: Introducing CEF Switching
 - Lesson 2: Configuring Frame-Mode MPLS on Cisco IOS Platforms
 - Lesson 3: Monitoring Frame-Mode MPLS on Cisco IOS Platforms
 - Lesson 4: Troubleshooting Frame-Mode MPLS on Cisco IOS Platforms
 - Lesson 5: Module Summary
 - Lesson 6: Module Self-Check
- 4 - MPLS Virtual Private Network Technology
 - Lesson 1: Introducing Virtual Private Networks
 - Lesson 2: Introducing MPLS VPN Architecture
 - Lesson 3: Introducing the MPLS VPN Routing Model
 - Lesson 4: Forwarding MPLS VPN Packets
 - Lesson 5: Module Summary
 - Lesson 6: Module Self-Check
- 5 - MPLS VPN Implementation
 - Lesson 1: Using MPLS VPN Mechanisms of Cisco IOS Platforms
 - Lesson 2: Configuring an MP-BGP Session Between PE Routers
 - Lesson 3: Configuring VRF Tables
 - Lesson 4: Configuring Small-Scale Routing Protocols Between PE and CE Routers
 - Lesson 5: Monitoring MPLS VPN Operations
 - Lesson 6: Configuring OSPF as the Routing Protocol Between PE and CE Routers
 - Lesson 7: Configuring BGP as the Routing Protocol Between PE and CE Routers
 - Lesson 8: Troubleshooting MPLS VPNs

- Lesson 9: Module Summary
- Lesson 10: Module Self-Check
- 6 - Complex MPLS VPNs
 - Lesson 1: Introducing Overlapping VPNs
 - Lesson 2: Introducing Central Services VPNs
 - Lesson 3: Introducing the Managed CE Routers Service
 - Lesson 4: Module Summary
 - Lesson 5: Module Self-Check
- 7 - Internet Access and MPLS VPNs
 - Lesson 1: Combining Internet Access with MPLS VPNs
 - Lesson 2: Implementing Internet Access in the MPLS VPN Environment
 - Lesson 3: Module Summary
 - Lesson 4: Module Self-Check
- 8 - MPLS Traffic Engineering Overview
 - Lesson 1: Introducing MPLS Traffic Engineering Components
 - Lesson 2: MPLS Traffic Engineering Operations
 - Lesson 3: Configuring MPLS Traffic Engineering on Cisco IOS Platforms
 - Lesson 4: Monitoring Basic MPLS TE on Cisco IOS Platforms
 - Lesson 5: Module Summary
 - Lesson 6: Module Self-Check
- 9 - Lab Outline
 - Challenge 1: Implement the Service Provider's and Customer's IP Addressing and IGP Routing
 - Implement the Service Provider IP Addressing and IGP Routing Protocol
 - Challenge 2: Implement the Core MPLS Environment in the Service Provider Network
 - Implement the Core MPLS Environment in the Service Provider Network
 - Challenge 3: Implement EIGRP Based VPNs
 - Implement EIGRP Based VPNs
 - Challenge 4: Implement OSPF Based MPLS VPNs
 - Implement OSPF Based MPLS VPNs
 - Challenge 5: Implement BGP Based MPLS VPNs
 - Implement BGP Based MPLS VPNs
 - Challenge 6: Implement MPLS Traffic Engineering
 - Implement MPLS Traffic Engineering