

Implementing Cisco MPLS

COURSE CODE: MPLS

PRICE: **\$4300** | DURATION: **5 DAYS** | FORMAT: **Kit & Lab** | CLCs: **43**

Course Description

The Implementing Cisco Multiprotocol Label Switching training teaches you the 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.

How You'll Benefit

- Acquire the skill of implementing MPLS high-performance methods for forwarding packets in a network
- Learn to configure routers at the network edge to apply simple labels to packets
- Gain the knowledge to enable edge devices, ATM switches, or existing routers to switch packets based on labels within the service provider core
- Master the skill of minimizing lookup overhead in the packet-switching process
- Gain proficiency in integrating the performance and traffic-management capabilities of data-link Layer 2 using MPLS
- Acquire the skill of combining the scalability and flexibility of network Layer 3 routing through MPLS
- Learn to leverage MPLS with other standard technologies to implement value-added features for service providers' networks

Who Should Enroll

- Network administrators
- Network engineers
- Network managers
- Systems engineers (who would like to implement MPLS and MPLS Traffic Engineering)

Course Objectives

Upon completion of the course, students will have the knowledge and skills to:

- Describe the features of MPLS
- Describe how MPLS labels are assigned and distributed
- Identify the Cisco IOS tasks and command syntax necessary to implement MPLS on frame-mode Cisco IOS platforms
- Describe the MPLS peer-to-peer architecture and explain the routing and packet forwarding model in this architecture
- Identify the Cisco IOS command syntax required to successfully configure, monitor, and troubleshoot VPN operations
- Identify 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
- Provide an overview of MPLS Traffic Engineering

Course Prerequisites

It is recommended, but not required, to have the following skills and knowledge before attending this course:

- Intermediate to advanced knowledge of Cisco IOS Software configuration
- Configuring and troubleshooting EIGRP, OSPF, IS-IS and BGP

The following Cisco courses can help you gain the knowledge you need to prepare for this course:

- Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR)

Sections

- Section 1: Introducing Basic MPLS Concepts
- Section 2: Introducing MPLS Labels and Label Stack
- Section 3: Identifying MPLS Applications
- Section 4: Discovering LOP Neighbours
- Section 5: Introducing Typical Label Distribution in Frame-Mode MPLS
- Section 6: Introducing Convergence in Frame-Mode MPLS
- Section 7: Implementing Frame-Mode MPLS on Cisco IOS Platforms
- Section 8: Monitoring and Troubleshooting Frame-Mode MPLS on Cisco IOS Platforms
- Section 9: Introducing VPNs
- Section 10: Introducing MPLS VPN Architecture
- Section 11: Introducing the MPLS VPN Routing Model
- Section 12: Forwarding MPLS VPN Packets
- Section 13: Implementing an MP-BGP Session Between PE Routers
- Section 14: Configuring Small-Scale Routing Protocols Between PE and CE Routers
- Section 15: Monitoring MPLS VPN Operations
- Section 16: Configuring OSPF as the Routing Protocol Between PE and CE Routers
- Section 17: Configuring BGP as the Routing Protocol Between PE and CE Routers
- Section 18: Troubleshooting MPLS VPNs
- Section 19: Complex MPLS VPNs
- Section 20: Internet Access and MPLS VPNs
- Section 21: Introducing MPLS TE Components
- Section 22: Understanding MPLS TE Operations
- Section 23: Configuring MPLS TE on Cisco IOS Platforms
- Section 24: Monitoring Basic MPLS TE on Cisco IOS Platforms

Discovery Labs

- Discovery 1: Implement SP and Customer IP Addressing and IGP Routing
- Discovery 2: Verify Cisco Express Forwarding Switching
- Discovery 3: Enable MPLS
- Discovery 4: Change IP TTL Propagation
- Discovery 5: Implement the Core MPLS Environment in the Service Provider Network

Discovery 6: Configure MP-IBGP

Discovery 7: Configure the VRF Instances

Discovery 8: Configure RIP as a PE-CE Routing Protocol

Discovery 9: Configure EIGRP as a PE-CE Routing Protocol

Discovery 10: Implement EIGRP-Based MPLS VPNs

Discovery 11: Configure OSPF as a PE-CE Routing Protocol

Discovery 12: Implement OSPF-Based MPLS VPNs

Discovery 13: Configure BGP as a PE-CE Routing Protocol

Discovery 14: Implement BGP-Based MPLS VPNs

Discovery 15: Configure a Central Services VPN

Discovery 16: Configure MPLS TE

Discovery 17: Implement MPLS Traffic Engineering