
Implementing Cisco MPLS

Duration: 5 Days **Course Code: MPLS**

Overview:

This five-day course is designed to provide lectures and comprehensive hands-on labs ranging from technology basics to more updated features and functions such as complex VPNs. The focus of the course is on MPLS technology issues as they apply to service providers and on how to configure new features and functions in an existing routed environment. A basic introductory level of some of the more updated features and functions such as Traffic Engineering, Fast Reroute and Any Transport over MPLS (AToM) are introduced on a concept level only and the MPLS Traffic Engineering and other Features course should be taken for in depth understanding of those topics.

Target Audience:

This course is aimed at network administrators and technicians responsible for implementing and troubleshooting basic IP multicast-enabled networks within a single domain. Cisco CCNP®, CCDP®, CCIE®, and CCIP routing and switching candidates

Objectives:

- Describe basic MPLS frame-mode and cell-mode architectures and identify how it supports applications that are used to address the drawbacks in traditional IP routing
 - Describe the Label Distribution Protocol (LDP) process by explaining label allocation, label distribution, label retention, label convergence and Penultimate Hop Popping (PHP) in both frame and cell modes
 - Identify the Cisco IOS command syntax required to successfully configure, monitor, and troubleshoot MPLS operations on frame, switched WAN, and LC-ATM interfaces, given a diagram of a typical MPLS network solution
 - Identify the IOS command syntax required to successfully configure, monitor, and troubleshoot VPN operations, given a diagram of a typical simple MPLS VPN solution
 - Identify the IOS command syntax required to successfully configure VPN operations and describe how these models are used to implement managed services and Internet access, given a diagram of a typical simple, hub-and-spoke, overlapping and central services MPLS VPN solution
 - Describe the MPLS peer-to-peer architecture and explain the routing and packet forwarding model in this architecture
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Prerequisites:

Delegates are required to meet the following prerequisites:

- CCNA or equivalent knowledge
- BSCI or equivalent knowledge
- BGP or equivalent knowledge
- QOS 2.0 or equivalent knowledge

Testing and Certification

Recommended as preparation for exam(s):

- 642-611 Implementing Cisco MPLS
This course is part of the Cisco Internetwork Professional Certification
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Follow-on-Courses:

The following courses are recommended for further study:

- MPLST – Implementing Cisco MPLS Traffic Engineering and Other Features
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Content:

MPLS Concepts

- Introducing Basic MPLS Concepts
- Introducing MPLS Labels and Label Stack
- Identifying MPLS Applications

Label Assignment and Distribution

- Introducing Typical Label Distribution in Frame-Mode MPLS
- Introducing Convergence in Frame-mode MPLS
- Introducing Typical Label Distribution over LC-ATM Interfaces and VC Merge
- Introducing MPLS Label Allocation, Distribution, and Retention Modes
- Discovering LDP Neighbors

Frame-Mode and Cell-Mode MPLS Implementation on Cisco IOS Platforms

- Introducing CEF Switching
- Configuring Frame-Mode MPLS on Cisco IOS Platforms
- Monitoring Frame-Mode MPLS on Cisco IOS Platforms
- Troubleshooting Frame-Mode MPLS on Cisco IOS Platforms
- Configuring LC-ATM MPLS
- Configuring LC-ATM MPLS over ATM Virtual Path
- Monitoring LC-ATM MPLS on Cisco IOS Platforms

MPLS Virtual Private Networks Technology

- Introducing Virtual Private Networks
- Introducing Overlay and Peer-to-Peer VPNs
- Categorizing VPNs
- Introducing MPLS VPN Architecture
- Introducing MPLS VPN Routing Model
- Forwarding MPLS VPN Packets

MPLS VPN Implementation

- Using MPLS VPN Mechanisms of Cisco IOS platforms
- Configuring VRF Tables
- Configuring an MP-BGP Session Between PE Routers
- Configuring Small-Scale Routing Protocols Between PE and CE routers
- Monitoring MPLS VPN Operations
- Configuring OSPF as the Routing Protocol Between PE and CE Routers
- Configuring BGP as the Routing Protocol between PE and CE Routers
- Troubleshooting MPLS VPNs

Complex MPLS VPNs

- Using Advanced VRF Import and Export Features
- Introducing Overlapping VPNs
- Introducing Central Services VPNs
- Introducing Managed CE Routers Service
- Introducing MPLS Managed Services

Internet Access from an MPLS VPN

- Introducing VPN Internet Access Topologies
- Introducing VPN Internet Access Implementation Methods
- Separating Internet Access from VPN Services
- Implementing Internet Access as a Separate VPN

Further Information:

For More information, or to book your course, please call us on 353-1-814 8200

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