



Implementing Cisco MPLS

MPLS (642-611)

Course Objective:

After completing this course the student should be able to:

- Describe how the service provider infrastructure is attacked
- 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

Prerequisite:

Valid CCNA Certification.

Certificate of Attendance :

Certificate of Attendance will be awarded to students completing the course achieving minimum 75% attendance.

Training Methodology & Materials:

- Practical hands-on sessions, 75% lab-based and 25% theory-based.
- Well-designed lab sessions to enhance further understanding of the courseware.

Training Duration:

Full-Time : 5days (9:30am – 5:30pm)

Part-Time : 10 sessions (twice a week ; 7.00pm – 10:00pm)

DETAILED COURSE OUTLINE

Module : Implementing Cisco MPLS (MPLS) (642-611)

The MPLS exam is a qualifying exam for the CCIP certification (Cisco Certified Internetwork Professional). The 642-611 MPLS exam will test materials covered under the Implementing Cisco MPLS course. The exam will certify that the successful candidate has knowledge and skills necessary to gather information from the technology basics to some of the more updated features and functions such as Traffic Engineering, Fast Reroute and any Transport over MPLS (AToM). The exam covers topics on MPLS Concepts, MPLS Label Assignment and Distribution, Frame-Mode/Cell-Mode MPLS Implementation on Cisco IOS Platforms, MPLS Virtual Private Networks Technology, MPLS VPN Implementation, Complex MPLS VPNs, and Internet Access from a MPLS VPN.

MPLS Fundamentals

- Explain basic core MPLS technology and concepts
- Explain the function of MPLS Labels and Label Stack
- Identify MPLS Applications

MPLS Operation

- Describe the characteristics and behaviors of Label Distribution in Frame-mode MPLS
- Explain Convergence in Frame-mode MPLS
- Describe the characteristics and behaviors of Label Distribution over LC-ATM Interfaces and VC Merge
- Describe the features of MPLS Label Allocation, Distribution, and Retention Modes
- Explain the process of LDP Neighbor Discovery

Frame-Mode/Cell-Mode MPLS Implementation, Configuration and Troubleshooting

- Identify the functions of CEF Switching
- Explain and configure Frame-mode MPLS on Cisco IOS platforms
- Monitor MPLS on Cisco IOS platforms - Frame-mode interfaces
- Troubleshoot Frame-Mode MPLS configurations on Cisco IOS Platforms
- Explain and configure Label-Controlled ATM MPLS
- Explain and configure LC-ATM MPLS over ATM Virtual Path
- Monitor LC-ATM MPLS on Cisco IOS platforms

MPLS Virtual Private Networks Technology

- Describe the characteristics and functions of Virtual Private Networks

- Describe Overlay and Peer-to-Peer VPNs
- Explain Major VPN Categorization
- Describe MPLS VPN Architecture
- Describe the MPLS VPN Routing Model

Explain the process of MPLS VPN Packet Forwarding

MPLS VPN Implementation, Configuration and Troubleshooting

- Explain MPLS VPN Mechanisms supported on Cisco Platforms
- Configure VRF tables
- Configure MP-BGP Session between PE routers
- Configure Small Scale Routing Protocols
- Monitor MPLS VPN Operation
- Configure OSPF as the Routing Protocol
- Configure BGP as the Routing Protocol
- Troubleshoot basic MPLS VPN configuration errors

Complex MPLS VPNs

- Describe the advanced VRF Import/Export Features
- Explain the characteristics of Overlapping VPNs
- Explain the features of Central Services VPNs
- Describe Managed CE Router Service

Internet Access from a MPLS VPN

- Explain VPN Internet Access Topologies
- Describe VPN Internet Access Implementation Methods
- Describe the methods to Separate Internet Access from VPN Service Internet Access Backbone as a Separate VPN

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