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Learning Style: Virtual Classroom

Technology: Cisco

Difficulty: Intermediate

Course Duration: 5 Days

Implementing Cisco MPLS v3.1 (MPLS)

About this course:

Implementing Cisco MPLS (MPLS) v3.0 is a 5-day training program is designed to introduce you to MPLS concepts, installation, migration, operation, inspection, and troubleshooting. You'll start with an overview of MPLS and its operation, after which you'll concentrate on MPLS Virtual Private Network (VPN) deployment. The MPLS fundamentals covered in this class will provide the theory and hands-on knowledge to implement, integrate, and deploy an MPLS infrastructure. The MPLS VPN lecture

and labs will cover the models, diversity, implementation, troubleshooting, and flexibility of MPLS VPNs.

Further your IT career with Cisco and learn how to implement Cisco MPLS systems by signing up for this Cisco training course from QuickStart today!

Course Objective:

Upon completing this course, the learner will be able to meet these overall objectives:

- Label and tag distribution protocol
- MPLS VPNs/VPN deployment models
- Multiprotocol BGP
- MPLS VPN configurations, integration, and management

Audience:

The primary audience for this course is as follows:

- Anyone responsible for designing, implementing, or troubleshooting MPLS networks or solutions based on MPLS technology
- Individuals working toward CCIP certification

Prerequisite:

The knowledge and skills that a learner should have before attending this course are as follows:

- BGP - Configuring BGP on Cisco Routers v4.0

Course Outline:

Module 1: MPLS Concepts

- MPLS Labels and Label Stack
- MPLS Applications

Module 2: MPLS Label Assignment and Distribution

- Discovering LDP Neighbors
- Label Distribution in Frame-Mode MPLS
- Convergence in Frame-Mode MPLS
- MPLS Label Allocation, Distribution, and Retention Modes

Module 3: Frame-Mode MPLS Implementation on Cisco IOS Platforms

- CEF Switching
- Configuring Frame-Mode MPLS

- Monitoring Frame-Mode MPLS
- Troubleshooting Frame-Mode MPLS

Module 4: MPLS Virtual Private Network (VPN) Technology

- VPN Categorization
- MPLS VPN Architecture
- MPLS VPN Routing Model
- MPLS VPN Packet Forwarding

Module 5: MPLS VPN Implementation

- MPLS VPN Mechanisms
- Configuring VRF Tables
- Configuring an MP-BGP Session Between PE Routers
- Configuring Routing Protocols Between PE and CE Routers
    - RIP
    - EIGRP
    - OSPF
    - BGP
- Monitoring MPLS VPN Operation
- Troubleshooting MPLS VPN

Module 6: Complex MPLS VPNs

- Central Services VPNs
- Managed CE Router Service
- MPLS Managed Services

Module 7: Integrated Internet Access with MPLS VPNs

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

Module 8: MPLS Traffic Engineering

- Traffic Engineering (TE) Concepts
- MPLS TE Components
- MPLS TE Operations
- Configuring MPLS TE on Cisco IOS Platforms
- Monitoring Basic MPLS TE on Cisco IOS

Lab Outline

- Lab 1: Configure an IP Routed Network
    - Establish the Service Provider IGP Routing Environment.
- Lab 2: Enabling MPLS in the Core Environment
    - Perform initial configuration of MPLS on routers.

- Lab 3: Initial MPLS VPN Setup
    - Configure and verify MP-BGP and VRFs tables.
- Lab 4: Running EIGRP Between the PE and CE Routers
    - Turn on an EIGRP VPN.
- Lab 5: Running OSPF Between the PE and CE Routers
    - Turn on an OSPF VPN.
- Lab 6: Running BGP Between the PE and CE Routers
    - Turn on a BGP VPN. Configure the primary and backup BGP links.
- Lab 7: Configuring Overlapping VPNs
    - Enable overlapping VPNs between multiple VPN clients.
- Lab 8: Merging Service Providers
    - Enable MPLS with a central core device and migrate the MPLS core to IS-IS. Enable route reflectors in the core.
- Lab 9: Enabling Common Services VPNs
    - Configure a Network Management VPN and establish connectivity between the NMS VRF and other VRFs.
- Lab 10: Configuring Central Site Internet Connectivity with an MPLS VPN
    - Establish routing connectivity between the customer and Internet routers.
- Lab 11: Implementing Basic MPLS Traffic Engineering
    - Establish basic MPLS TE in an MPLS VPN network environment.

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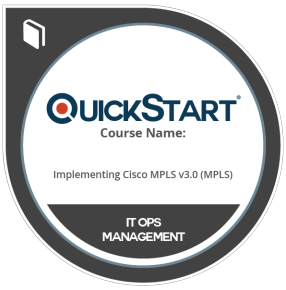

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