

NETLOGIC TRAINING CENTER

Couse Outline

Implementing Cisco MPLS 3.0 (MPLS)

Course Content

An introduction to MPLS concepts, installation, migration, operation, inspection, and troubleshooting will be covered in this 5 days course. An overview of MPLS, MPLS operation, and MPLS VPN deployment will be taught as well.

Course Objectives

Upon completing this course, you will be able to meet these objectives:

- 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 tasks and commands that are necessary to implement MPLS TE Technical Features of the Course include the following:
 - MPLS Labels and Label Stack
 - LDP Neighbors
 - MPLS VPN
 - VRF Tables
 - QoS for MPLS and Service Provider
 - MPLS TE MPLS is part of the CCNP-Service Provider Core (SPCORE) track (MPLS exam is 642-611 MPLS)

Course Prerequisite

This course not require CCNA and CCNP routing and Switch

Course Pre-Test

Not Required

Course Details

Day 1

Item	Subject	Details	Personal Lab and devices
	MPLS Features	<ul style="list-style-type: none">• Describing Basic MPLS Concepts• Describing MPLS Labels and Label Stack• Identifying MPLS Applications	
	Label Assignment and Distribution	<ul style="list-style-type: none">• Discovering LDP Neighbors• Describing Typical Label Distribution in Frame-Mode MPLS• Describing Convergence in Frame-Mode MPLS• Establishing the Service Provider IGP Routing Environment	
	Summary challenge advance lab for Establish IGP and MPLS Environment		Lab 1 Establishing the Service Provider IGP Routing Environment Lab 2 Establishing the Core MPLS Environment real devices Cisco ISR router 4321 Switch cisco 3560-CX

Course Details

Day 2

Item	Subject	Details	Personal Lab and devices
	Frame-Mode MPLS Implementation on Cisco IOS Platforms	<ul style="list-style-type: none">• Using Cisco Express Forwarding 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	
	MPLS Virtual Private Network Technology	<ul style="list-style-type: none">• Introducing Virtual Private Networks• Introducing MPLS VPN Architecture• Introducing the MPLS VPN Routing Model• Forwarding MPLS VPN Packets	
	Summary challenge advance lab for MPLS VPN and IGP Routing		Lab 3 Configuring Initial MPLS VPN Setup Lab 4 Running EIGRP Between PE and CE Routers Running OSPF Between PE and CE Routers Running BGP Between PE and CE Routers real devices Cisco ISR router 4321 Switch cisco 3560-CX

Course Details

Day 3

Item	Subject	Details	Personal Lab and devices
	MPLS VPN Implementation	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• Introducing Overlapping VPNs• Introducing Central Services VPNs• Using Advanced VRF Import and Export Features• Introducing the Managed CE Routers Service	
	Summary challenge advance lab for MPLS VPN and IGP Routing		Lab 5 Establishing Overlapping VPNs Merging Service Providers Establishing a Common Services VPN <u>real devices</u> Cisco ISR router 4321 Switch cisco 3560-CX

Course Details

Day 4

Item	Subject	Details	Personal Lab and devices
	Internet Access and MPLS VPNs	<ul style="list-style-type: none">• Combining Internet Access with MPLS VPNs• Implementing Separate Internet Access and VPN Services• Implementing Internet Access as a Separate VPN	
	MPLS Traffic Engineering Overview	<ul style="list-style-type: none">• Introducing Traffic Engineering Concepts• Understanding MPLS TE Components• Configuring MPLS Traffic Engineering on Cisco IOS Platforms• Monitoring Basic MPLS TE on Cisco IOS Platforms	
	Summary challenge advance lab for MPLS VPN Services		Lab 6 Establishing Central Site Internet Connectivity with an MPLS VPN Lab 7 Implementing Basic MPLS TE real devices Cisco ISR router 4321 Switch cisco 3560-CX

Course Details

Day 5

Item	Subject	Details	Personal Lab and devices
	QoS Concept	<ul style="list-style-type: none">- Classification and Marking- Introduce Modular QoS CLI- Advance QoS technique for MPLS	
	Congestion Avoidance in QoS Mechanism	<ul style="list-style-type: none">- Congestion Avoidance concept- RED and WRED mechanism- Queue management in QoS- Congestion Avoidance for MPLS	
	traffic Shaping and Policing	<ul style="list-style-type: none">- Traffic Shaping concept- Leaking Bucket in Traffic Shaping- Traffic Policing concept- Leaking Bucket in Traffic Policing	
	Summary challenge advance lab for QoS mechanism		Lab 8 Implementing Modular QoS CLI Applying Modular QoS CLI in MPLS Lab 9 Implement and tuning WRED for MPLS traffic Lab 10 Implement and tuning traffic shaping and policing in MPLS real devices Cisco ISR router 4321 Switch cisco 3560-CX

Course Post-Test

Not Required

Course Materials

Not include in this class training (but you can requested from sale team)

Course Device Training (Per 1 person)

