



CISCO TRAINING

Implementing Cisco MPLS

Learn to implement Cisco MPLS for efficient, scalable network solutions. Master key configurations and enhance your routing expertise.

DURATION

2 hours

LEVEL

Intermediate

FORMAT

Instructor-Led

- Globally Recognized Certification

- Expert-Led Hands-On Training

- Flexible Scheduling

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COURSE OVERVIEW

This "Implementing Cisco MPLS" course is designed to equip network professionals with the foundational knowledge and practical skills required to deploy and manage Multiprotocol Label Switching (MPLS) in modern network infrastructures. You will delve into the core concepts of MPLS, understanding how it optimizes packet forwarding, enables efficient traffic engineering, and underpins advanced services like VPNs. The course covers essential components such as Label Distribution Protocol (LDP), MPLS forwarding mechanisms, and the crucial role MPLS plays in service provider environments and large enterprise networks. Upon completion, you'll be capable of configuring, verifying, and troubleshooting MPLS operations on Cisco devices.

Mastering MPLS is a critical skill for any network engineer looking to advance their career in areas involving high-performance, scalable networks. This course provides hands-on experience with Cisco IOS-XR and IOS-XE platforms, translating theoretical understanding into practical application. By developing a strong grasp of MPLS, you'll be able to design and implement robust network solutions that enhance network efficiency, provide secure multi-tenant services, and ensure optimal resource utilization. This expertise is highly valued across the IT industry, positioning you as a key asset in organizations leveraging advanced networking technologies.

Duration	2 hours
Level	Intermediate
Vendor	Cisco

COURSE CURRICULUM

01 Module 1: Introduction to MPLS and Label Switching Concepts

- Traditional IP Forwarding vs. MPLS
- MPLS Architecture and Components (Label, LSP, LIB, LFIB, FEC)
- MPLS Control Plane and Data Plane Operations
- MPLS Label Stack and Label Operations (Push, Pop, Swap)
- Understanding MPLS Applications and Benefits

02 Module 2: MPLS Label Distribution Protocol (LDP)

- LDP Fundamentals and Operations
- LDP Neighbor Discovery and Session Establishment
- Label Advertisement and Distribution Modes
- Configuring and Verifying LDP on Cisco Routers
- Troubleshooting LDP Adjacencies and Label Binding Issues

03 Module 3: MPLS Layer 3 VPNs (L3VPNs)

- Introduction to MPLS VPN Architectures (PE, CE, P roles)
- VPN Routing and Forwarding (VRF) Instances
- Border Gateway Protocol (BGP) for MPLS L3VPNs (MP-BGP)
- Route Distinguishers (RDs) and Route Targets (RTs)
- Configuring and Verifying MPLS L3VPNs on Cisco IOS and IOS-XR
- Troubleshooting L3VPN Connectivity and Routing Issues

04 Module 4: MPLS Traffic Engineering (MPLS-TE)

- Introduction to MPLS-TE Concepts and Benefits
- Resource Reservation Protocol - Traffic Engineering (RSVP-TE)

- Constraint-Based Routing and Explicit Paths
- MPLS-TE Tunnel Configuration and Verification
- Implementing MPLS-TE Policies and Link Protection
- Monitoring and Troubleshooting MPLS-TE Tunnels

05 Module 5: Advanced MPLS Features and Best Practices

- MPLS Egress Peer Engineering (EPE)
- MPLS Layer 2 VPNs (L2VPNs) Overview (EoMPLS, VPLS)
- MPLS OAM (Operations, Administration, and Maintenance)
- MPLS Security Considerations
- Design Considerations for MPLS Networks
- Scaling MPLS Deployments and Common Pitfalls

CAREER PATHWAYS

Graduates of this program are prepared for the following roles:

- > **Service Provider Network Engineer specializing in core routing and advanced services.**
- > **Senior Enterprise Network Architect responsible for large-scale data center interconnect and WAN optimization.**
- > **Network Solutions Engineer focusing on designing and implementing secure, scalable VPN and traffic engineering solutions.**

FREQUENTLY ASKED QUESTIONS

Q: What prerequisites are recommended before taking the Implementing Cisco MPLS course?

To get the most out of this course, participants should have a solid understanding of Cisco routing fundamentals, including OSPF and BGP routing protocols, as demonstrated by CCNA and CCNP level knowledge. Familiarity with general networking concepts, IP addressing, and command-line interface (CLI) operations on Cisco IOS and IOS-XR devices is also essential.

Q: How will mastering MPLS through this course enhance my ability to design complex network solutions?

This course provides the specialized knowledge to leverage MPLS for advanced network designs. You will learn to implement robust L3VPNs for multi-tenant environments, utilize MPLS-TE for precise traffic control and QoS, and understand the foundational mechanisms that enable carrier-grade services. This empowers you to architect highly scalable, efficient, and resilient networks capable of supporting diverse service requirements.

Q: What practical skills will I gain that are immediately applicable in a professional network engineering role after completing this course?

Upon completion, you will be able to configure and troubleshoot LDP, implement and verify MPLS L3VPNs for customer segregation, and deploy MPLS Traffic Engineering tunnels to optimize network paths and bandwidth utilization. You will gain hands-on experience with Cisco IOS and IOS-XR commands, enabling you to directly apply these skills to deploy and manage MPLS services in live service provider or large enterprise networks.

ABOUT COMPUTER PRIDE



East Africa's Premier IT Training Center

With over 15 years of excellence, Computer Pride delivers globally recognized certification programs from leading technology vendors. Located on Kenyatta Avenue in Nairobi's CBD, our state-of-the-art facilities and expert instructors have empowered thousands of professionals across East Africa.

15+

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Take the next step in your technology career.

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