Learning Services

Cisco Training on Demand

Cisco IOS XR MPLS and Tunnel Technologies for IPv4 (XMPLST4)

Overview
The Cisco IOS® XR MPLS and Tunnel Technologies for IPv4 (XMPLST4) version 3.0 Cisco® Training on Demand course provides you with technical training to successfully deploy Multiprotocol Label Switching (MPLS) and other tunneling technologies on routers running Cisco IOS XR platforms. You learn the fundamentals of MPLS and Label Distribution Protocol (LDP) operation and configuration as well as Layer 2 VPNs (L2VPNs), L3VPNs, MPLS Traffic Engineering (MPLS-TE), Multiprotocol Border Gateway Protocol (MP-BGP), Resource Reservation Protocol (RSVP), and Any Transport over MPLS (AToM).

In addition, you will learn how these protocols are used with the Cisco IOS XR operating systems, how to configure them, how to verify their implementation, and how to examine the operation of each of the MPLS-related technologies. You will also learn how to configure session authentication, label filtering, and session protection. Finally, the course will teach you about Forwarding Equivalence Class (FEC) and Virtual Private LAN Services (VPLS), and how to configure fast reroute to protect TE tunnels against link and node failures.

Interested in purchasing this course in volume at a discount for your company? Contact ctod-sales@cisco.com.

Duration
The XMPLST4 Training on Demand course consists of seven modules totaling more than 11 hours of video instruction along with 12 hands-on lab exercises.
Target Audience

This course is intended for technical professionals in service provider networks and for senior network operations center (NOC) and support engineers.

Objectives

After completing this course, you should be able to:

- Describe various aspects of implementation of MPLS, LDP, L3VPN, L2VPN, MPLS-TE, and MPLS operations administration and maintenance (MPLS OAM) in Cisco IOS XR Software Release 5.1.1 when configuring Carrier Routing System (CRS) platforms
- Configure and verify MPLS LDP and MPLS-TE
- Configure and verify L3VPN, L2VPN, and AToM
- Implement LDP, L3VPN, L2VPN, and MPLS-TE
- Configure and employ MPLS OAM

Course Prerequisites

The knowledge and skills recommended before attending this course are:

- Knowledge of the Cisco IOS XR Software configuration syntax to the extent covered in the Cisco CRS-1 Essentials, Cisco IOS XR Fundamentals for Network Operations, or Cisco ASR 9000 Essential course
- Ability to establish a configuration for Open Shortest Path First Version 2 (OSPFv2), Intermediate System to Intermediate System (IS-IS), and BGP with Routing Policy Language (RPL) policies as shown in the Cisco IOS XR IPv4 Routing course labs
- A basic understanding of MPLS configuration and operation as described in the Cisco CRS-1 Essentials, Cisco IOS XR Fundamental for Network Operations, or Cisco ASR 9000 Essentials course

Course Outline

- Module 1: MPLS Technology Introduction
- Module 2: MPLS OAM
- Module 3: MPLS LDP
- Module 4: MPLS L3 VPN
- Module 5: Inter-AS MPLS L3 VPN
- Module 6: MPLS Traffic Engineering
- Module 7: MPLS L2 VPN
Labs Outline

This course contains 12 hands-on lab exercises, powered by Cisco Learning Labs and Cisco IOS on Linux.

Topology for all labs in the course:

The labs included in this course are:

- XMPLST4 Lab 1: Initial Lab Familiarization
- XMPLST4 Lab 2: MPLS LDP Configuration and Testing
- XMPLST4 Lab 3: Implementing MPLS LDP Features
- XMPLST4 Lab 4: MPLS Intranet Layer 3 VPNs with CE eBGP Routing
- XMPLST4 Lab 5: MPLS Intranet Layer 3 VPNs with CE Static Routing
- XMPLST4 Lab 6: Extranet MPLS Layer 3 VPNs
- XMPLST4 Lab 7: Inter-Autonomous System MPLS L3VPN – Option B
- XMPLST4 Lab 8: Inter-Autonomous System MPLS L3VPN – Option C
- XMPLST4 Lab 9: MPLS Traffic Engineering – Dynamic Tunnels
- XMPLST4 Lab 10: MPLS Traffic Engineering – Explicit Tunnels
- XMPLST4 Lab 11: Layer 2 VPNs – EoMPLS and Interworking
- XMPLST4 Lab 12: Layer 2 VPNs – VPLS

Instructor: Gene Bartos

Gene Bartos is a technical trainer and course developer for Cisco Systems Service Provider products. He has developed and taught both Cisco IOS and Cisco IOS XR routing products, including more recently the ASR 9000 and 1000 Series and the ASR 903. He also provides MEF Carrier Ethernet Certified Professional training. He has over 25 years’ experience as an educator in the networking industry.
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