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Cisco IOS XR Multicast Routing Implementation and Verification

The Cisco IOS® XR Multicast Routing Implementation and Verification¹ (IOSXR302) course is an instructor-led, lab-based, hands-on course offered by Learning@Cisco. It covers implementing multicast routing and multicast VPNs on Cisco IOS XR Software-based platforms.

In this course you learn how to implement multicast routing and multicast-enabled services on Cisco IOS-XR Software-based networks. You learn how to implement and verify multicast routing in the core of a service provider network. You also learn how to implement and verify multicast-enabled services, including multicast VPNs.

This course is part of a portfolio of courses that are designed to enable service providers to support and maintain their Cisco IOS XR platforms. These platforms include the Cisco ASR 9000 Series Routers, Carrier Routing System 1 (CRS-1), CRS-3, CRS-X, and Network Convergence System (NCS) 1000, 4000, 5000, and 5500 Series, and the Cisco NCS 6000 Series Routers.

Duration

Instructor-Led Training (ILT): 2 days

Virtual Instructor-Led Training (VILT): 3 days

Target Audience

This course is designed for technical professionals who need to know how to implement multicast routing on a Cisco IOS-XR platform and implement multicast-based services in a service-provider or large-enterprise environment.

¹ Course content is dynamic and subject to change without notice.
Targeted roles include:

- Implementation and design engineers
- Network planning engineers

**Tasks and Features Covered**

- IPv4 multicast routing
- IPv6 multicast routing
- Label Switched Multicast (LSM)
- Multicast VPNs

**Course Prerequisites**

- Completion of the *Introduction to Cisco IOS XR (IOSXR100)* training course, or equivalent hands-on experience configuring and supporting Cisco IOS XR–based routers
- Completion of the *Cisco IOS XR System Administration (IOSXR200)* training course, or equivalent hands-on experience configuring and supporting Cisco IOS XR–based routers

**Recommended Prerequisites**

Cisco recommends that you have the ability to:

- Configure Cisco IOS-XR Software-based platforms
- Configure and troubleshoot Interior Gateway Protocol (IS-IS and OSPF) routing
- Configure and troubleshoot Border Gateway Protocol (BGP) routing
- Configure and verify basic Multiprotocol Label Switching (MPLS) functionality
- Basic knowledge and understanding of IPv4 Multicast concepts

**Course Outline**

- **Module 1: Multicast Routing**
  - Exploring Multicast Routing
  - Exploring Protocol Independent Multicast (PIM)
- **Module 2: Multicast VPNs**
  - Multicast VPN Overview
  - Multicast VPN Functionality and Operation
- **Module 3: Label Switched Multicast (LSM)**
  - LSM Basics
  - Multicast Label Distribution Protocol (MLDP) Operation and Configuration
  - RSVP-TE Point-to-Multipoint Operation and Configuration
  - Next-Generation Multicast VPN Overview
- **Module 4: IPv6 Multicast**
  - Structure of a Multicast IPv6 Address
  - Multicast Listener Discovery (MLD) Overview and Operation
MLD Configuration and Troubleshooting
- PIM Overview
- PIM Rendezvous Points and Source Specific Multicast (SSM)
- Troubleshooting IPv6 Multicast
- Design and Deployment Considerations

Lab Outline
- Lab 1: Configuring IPv4 Multicast
  - Configure IPv4 Multicast Routing
  - Configure PIM Bootstrap Router (BSR)
- Lab 2: Configuring Multicast VPN
  - Enable MPLS-VPN on Local Provider Edge (PE)
  - Enable Multicast VPN on Local PE
  - Create a Default Multicast Distribution Tree
- Lab 3: Configuring MLDP
  - Configure an MLDP Route Policy
  - Enable MPLS MLDP
  - Verify the MLDP Operation
  - Verify Multicast VPN Operation

Lab Topology
Figure 1 shows the lab topology for all labs in this course.

Figure 1. Topology for All Labs

Registration Email
For more information about schedules and registration for this course, contact aeskt_registration@cisco.com.
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- Cisco Learning Services for Cisco products and technologies: [https://www.cisco.com/go/cls](https://www.cisco.com/go/cls)