

Implementing Cisco Multicast (MCAST)

Duration: **5 days**

Who should attend?

The primary audience for this course is as follows:

1. Network professionals, including systems engineers
2. Partners
3. Customers

Prerequisites

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

1. Work experience and configuration skills for Cisco routers and LAN switches
2. Cisco Certified Network Associate (CCNA) certification: [Interconnecting Cisco Network Devices: Accelerated](#) (CCNAX) or [Interconnecting Cisco Network Devices Part 1](#) (ICND1) and [Interconnecting Cisco Network Devices Part 2](#) (ICND2)
3. [Implementing Cisco IP Routing v2.0](#) (ROUTE)

Course Objectives

The Implementing Cisco Multicast (MCAST) v2.0 course is a five-day instructor-led course covering the fundamentals of IP multicasting, which includes multicast applications, sources, receivers, group management, and IP multicast routing protocols (such as Protocol Independent Multicast, PIM) used within a single administrative domain (intra domain). The issues of switched LAN environments and reliable IP multicasting are covered as well. The course provides technical solutions for simple deployments of IP multicast within a provider or customer network. The curriculum provides the configuration and troubleshooting guidelines for implementation of IP multicast on Cisco routers. The labs provide students with the hands-on experience needed to successfully deploy IP multicast.

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

1. Introduce IP multicast services, to evaluate the functional model of IP multicasting and the technologies present in IP multicasting, acknowledge IP multicast benefits and associated caveats, and determine various types of multicast applications in order to understand the IP multicast conceptual model and its implementation prerequisites
2. Identify IP multicast issues on a data link layer, explain the methods of mapping network layer multicast addresses to data link layer addresses, and list the mechanisms for constraining multicast streams in a LAN environment

3. Introduce Protocol Independent Multicast sparse mode (PIM-SM) as the most current scalable IP multicast routing protocol to learn the principles of protocol operation and details, become familiar with the determinism built into sparse mode multicast protocols, and configure and deploy PIM-SM in complex IP multicast network deployments
4. Review RP distribution solutions, recognize the drawbacks of manual RP configuration, become familiar with the Auto-Rendezvous Point (Auto-RP) and the bootstrap router
5. (BSR) mechanisms, and introduce the concept of Anycast RP that works in combination with the Multicast Source Discovery Protocol (MSDP)
6. Recognize the drawbacks of the PIM-SM and introduce two extensions to provide possible solutions; learn about mechanics of the Source Specific Multicast (SSM) and bidirectional mode of PIM-SM in order to configure and deploy SSM and bidirectional mode of the PIM-SM in a large service provider network
7. Explain basic concepts of Multiprotocol BGP (MP-BGP) and its use in the IP multicast environment, apply steps that are associated with configuring MP-BGP with Address Family Identifier (AFI) syntax to support IP multicast in the interdomain environment
8. Configure and deploy MSDP in the interdomain environment
9. Introduce solutions to mitigate security issues in the IP multicast network. Examine and implement suitable virtual private network (VPN) technologies, such as Generic Routing Encapsulation (GRE) with IP Security (IPsec) and Group Encrypted Transport (GET) VPN
10. Describe the process of monitoring and maintaining multicast high-availability operations, introduce the PIM triggered join feature, and describe how load splitting IP multicast traffic over Equal-Cost Multipath (ECMP) works

Course Content

Course Introduction

Module 1: IP Multicast Concepts and Technologies

Module 2: Multicast on the LAN

Module 3: PIM Sparse Mode

Module 4: Rendezvous Point Engineering

Module 5: PIM Sparse Mode Protocol Extensions

Module 6: Multiprotocol Extensions for BGP

Module 7: Inter domain IP Multicast

Module 8: IP Multicast Security

Module 9: Multicast Optimization and High Availability Features

Module 10: Applications of Multicast

Labs