

# Implementing Cisco Multicast v2.0

## Description

In this 5-day course, you will learn how infrastructures are multicast-enabled to support the efficiency of multicast business applications and services. Learn to identify Cisco products and protocols required to implement multicast solutions in both local and wide area networks within your enterprise and beyond. You will implement services at each layer of the network to obtain membership to multicast groups in a working environment. Our hands-on labs will give you access to several multicast applications and troubleshooting tools.

### Classroom Registration Price (CHF)

4350

### Virtual Classroom Registration Price (CHF)

4090

## Course Content

### Module 1: IP Multicast Foundation

- Lesson 1: Overview and Outline
- Lesson 2: Chapter Objectives
- Lesson 3: IP Multicast Benefits and Caveats
- Lesson 4: IP Multicast Application Types
- Lesson 5: The Basic Model of IP Multicast
- Lesson 6: IP Multicast Addressing
- Lesson 7: Multicast Sessions - Directory Services
- Lesson 8: Summary
- Lesson 9: Review Questions

### Module 2: Function of a Multicast Network

- Lesson 1: Overview and Outline
- Lesson 2: Chapter Objectives
- Lesson 3: Functions of Multicast-Enabled Networks
- Lesson 4: Multicast Distribution Trees and Protocol Types
- Lesson 5: Reporting Group Membership
- Lesson 6: Summary
- Lesson 7: Review Questions

### Module 3: Multicast LAN Switch Operation

- Lesson 1: Overview and Outline
- Lesson 2: Chapter Objectives
- Lesson 3: Multicast MAC-Layer Addresses and Switch Forwarding
- Lesson 4: Constraining Multicast Streams on LAN Switch Ports
- Lesson 5: IGMP Snooping Implementation
- Lesson 6: Summary
- Lesson 7: Review Questions

### Module 4: PIM Dense Mode

- Lesson 1: Overview and Outline
- Lesson 2: Chapter Objectives

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- Lesson 3: PIM Dense Mode Overview
  - Lesson 4: PIM Dense Mode Configuration and Troubleshooting
  - Lesson 5: Summary
  - Lesson 6: Review Questions

### **Module 5: PIM Sparse Mode**

- Lesson 1: Overview and Outline
- Lesson 2: Chapter Objectives
- Lesson 3: PIM Dense Sparse Overview
- Lesson 4: PIM State
- Lesson 5: PIM Packet Types
- Lesson 6: PIM SM Joining
- Lesson 7: PIM SM Registering
- Lesson 8: PIM SPT-Switchover
- Lesson 9: PIM SM Pruning
- Lesson 10: PIM Sparse Mode Configuration and Troubleshooting
- Lesson 11: Summary
- Lesson 12: Review Questions

### **Module 6: PIM-SM Variants**

- Lesson 1: Overview and Outline
- Lesson 2: Chapter Objectives
- Lesson 3: Source Specific Multicast
- Lesson 4: Bidirectional PIM
- Lesson 5: Bidirectional PIM Basic Configuration
- Lesson 6: Bidirectional PIM Designated Forwarders
- Lesson 7: Bidirectional PIM Mroute Forwarding State (\*, G)
- Lesson 8: Bidirectional PIM Phantom BiDir RPs
- Lesson 9: Summary
- Lesson 10: Review Questions

### **Module 7: Redundant Rendezvous Points**

- Lesson 1: Overview and Outline
- Lesson 2: Chapter Objectives
- Lesson 3: Configuring Redundant Rendezvous Points Using MSDP
- Lesson 4: Redundant RP Configuration and Recommendations
- Lesson 5: Configuring Redundant Rendezvous Points Using Auto RP
- Lesson 6: Configuring Redundant Rendezvous Points Using BSR
- Lesson 7: Combining Anycast RP and Auto-RP
- Lesson 8: Tuning RP Operations
- Lesson 9: Summary
- Lesson 10: Review Questions

### **Module 8: Administrative Scoping and Filtering of Multicast**

- Lesson 1: Overview and Outline
- Lesson 2: Chapter Objectives
- Lesson 3: Multicast Scoping
- Lesson 4: Using Administratively Scoped Zones

- Lesson 5: Summary
- Lesson 6: Review Questions

### **Module 9: WAN, VPN, and MPLS for Multicast**

- Lesson 1: Overview and Outline
- Lesson 2: Chapter Objectives
- Lesson 3: Multicast over NBMA Networks
- Lesson 4: Tunneling Multicast over Unicast Networks
- Lesson 5: Multicast with VPNs and MPLS
- Lesson 6: DMVPN Tunneling with Multicast over Unicast Networks using mGRE and NHRP
- Lesson 7: Multicast with VPNs and MPLS
- Lesson 8: Summary
- Lesson 9: Review Questions

### **Module 10: Security, High Availability, and Reliability**

- Lesson 1: Overview and Outline
- Lesson 2: Chapter Objectives
- Lesson 3: Advanced Multicast Engineering - High Availability
- Lesson 4: What is Reliable IP Multicast?
- Lesson 5: Advanced Multicast Engineering - Security
- Lesson 6: DMVPN Security adding IP Sec to mGRE, NHRP, and Multicast
- Lesson 7: IP Security for Multicast over MPLS Group Encrypted Transport VPN (GET VPN)
- Lesson 8: Summary
- Lesson 9: Review Questions

### **Module 11: Interdomain Multicast with MBGP and MSDP**

- Lesson 1: Overview and Outline
- Lesson 2: Chapter Objectives
- Lesson 3: Basic Overview Interdomain Multicast Routing
- Lesson 4: MBGP Configuration
- Lesson 5: MSDP Configuration
- Lesson 6: Summary
- Lesson 7: Review Questions

### **Lab / Exercises**

Lab 1: Multicast Applications and Addressing Lab 2: Setup and Configuration Lab 3: IGMP Configuration and Operation Lab 4: PIM Dense Mode Configuration Lab 5: Source Specific Multicast and Bi-Directional PIM Lab 6: Redundant Rendezvous Points Lab 7: IP Multicast Administrative Scoping Lab 8: Tunneling Multicast over a Unicast Network Lab 9: Tunneling Multicast over a DMVPN Using mGRE and NHRP Lab 10: Multicast over a DMVPN with IPsec

### **Documentation**

- Digital courseware included

### **Participant profiles**

- Engineers responsible for designing, implementing, and troubleshooting IP multicast-enabled networks
- IT professionala who may implement streaming voice/video/data services in an enterprise

### **Prerequisites**

- Experience with and ability to configure Cisco routers and LAN switches
- Knowledge of the Windows 2000 operating system is helpful

### **Objectives**

- Learn IP Multicast Application Types
- Identify Basic Models of IP Multicast
- Learn IP Multicast Addressing
- Learn Multicast Distribution Trees and Protocol Types
- Identify Reporting Group Membership protocols
- Learn Multicast MAC-Layer Addresses and Switch Forwarding
- Configure IGMP Snooping
- Configure and Troubleshoot PIM Dense Mode
- Learn and Configure Source Specific Multicast
- Configure Bidirectional PIM
- Configure Redundant Rendezvous Points Using Anycast MSDP, Auto RP, or BSR
- Combine Anycast RP and Auto-RP
- Learn Multicast Scoping including using Administratively Scoped Zones
- Multicast Security, High Availability, and Reliability

### **Niveau**

Intermédiaire

### **Duration (in Days)**

5

### **Reference**

CIS-MCAST