Implementing Cisco Multicast

Duration: 5 Days **Course Code: MCAST** **Version: 2.0** **Delivery Method: Company Event**

Overview:

Implementing Cisco Multicast is a five-day instructor-led course designed to provide technical solutions for simple deployments of IP multicast within a provider or customer network. This course covers the fundamentals of IP multicasting including multicast applications, sources, receivers, group management, and IP multicast routing protocols (such as Protocol Independent Multicast [PIM]) used within a single administrative domain (intradomain). The issues of switched LAN environments and reliable IP multicasting have also been incorporated. The labs incorporated in this course provide delegates with hands-on experience of the configuration and troubleshooting guidelines for implementing IP multicast on Cisco routers.

This course is worth 40 Credits on the Continuing Education Program

Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

Target Audience:

This course is intended for pre and post-sales technical engineers responsible for designing, implementing, and/or troubleshooting basic IP multicast enabled networks within a single domain.

Objectives:

- **After you complete this course you will be able to :**
- 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
- Configure and deploy MSDP in the interdomain environment
- 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
- Answer to and design multicast-related application and network solutions in customer and service provider networks
- 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
- Review RP distribution solutions, recognize the drawbacks of manual RP configuration, become familiar with the Auto-Rendezvous Point (Auto-RP) and the bootstrap router (BSR) mechanisms, and introduce the concept of Anycast RP that works in combination with the Multicast Source Discovery Protocol (MSDP)
- 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
- 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
- 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
- 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

Prerequisites:

Attendees should meet the following prerequisites:

- ICND1 - Interconnecting Cisco Network Devices Part 1
- ICND2 - Interconnecting Cisco Network Devices Part 2

Or

- CCNABC - Cisco CCNA Certification Fast Track Programme

Plus

- ROUTE - Implementing Cisco IP Routing
- CCNA - Implementing and Administering Cisco Solutions
- ENCOR - Implementing and Operating Cisco Enterprise Network Core Technologies

Testing and Certification

Recommended preparation for exam(s):

- *No exam currently relates to this course*

Content:

IP Multicast Concepts and Technologies

- Introducing IP Multicast
- Understanding the Multicast Service Model
- Defining Multicast Distribution Trees and Forwarding
- Reviewing Multicast Protocols
- Working with Cisco Group Management Protocol
- Using IGMP Snooping
- Understanding PIM-SM Protocol Mechanics
- Using PIM-SM in a Sample Situation
- Configuring and Monitoring PIM-SM
- Implementing Auto-RP
- Using PIMv2 BSR
- Using Anycast RP and MSDP
- Configuring and Monitoring SSM
- Reviewing Bidirectional PIM
- Configuring and Monitoring Bidirectional PIM
- Configuring and Monitoring MP-BGP
- Explaining Multicast Source Discovery Protocol
- Using MSDP SA Caching
- Configuring and Monitoring MSDP
- Securing a Multicast Network
- Using IP Multicast in Mission-Critical Environments
- Exploring How Enterprise IT Uses IP Multicasting Globally

Rendezvous Point Engineering

- Identifying RP Distribution Solutions
- Understanding the Multicast Service Model
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Multicast on the LAN

- Mapping Layer 3 to Layer 2

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- Understanding the Multicast Service Model
- Defining Multicast Distribution Trees and Forwarding

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PIM Sparse Mode Protocol Extensions

- Introducing Source Specific Multicast

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IP Multicast Security

- Introducing IP Multicast and Security

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PIM Sparse Mode

- Introducing Protocol Independent Multicast Sparse Mode

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Multicast Optimization and High-Availability Features

- Using Multicast Optimization and High-Availability Features

Applications of Multicast

- Exploring IP Multicast and Video Applications

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Multiprotocol Extensions for BGP

- Introducing MP-BGP

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Interdomain IP Multicast

- Examining Dynamic Interdomain IP Multicast

- Using MSDP SA Caching
- Configuring and Monitoring MSDP
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Further Information:

For More information, or to book your course, please call us on 00 20 (0) 2 2269 1982 or 16142

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