Implementing Cisco Multicast (MCAST)

ID MCAST | Price 2,990.- € (excl. tax) | Duration 5 days

Who should attend

The primary audience for this course is as follows:

- Network professionals, including systems engineers
- Partners
- Customers

Prerequisites

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

- Work experience and configuration skills for Cisco routers and LAN switches
- 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)
- Implementing Cisco IP Routing (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 (intradomain). 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:

- 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
- 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
- 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.

- Configure and deploy MSDP 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.

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: Interdomain IP Multicast
- Module 8: IP Multicast Security
- Module 9: Multicast Optimization and High Availability Features
- Module 10: Applications of Multicast
- Labs

Detailed Course Outline

Module 1: IP Multicast Concepts and Technologies

- Lesson 1: Introducing IP Multicast
- Lesson 2: Understanding the Multicast Service Model
- Lesson 3: Defining Multicast Distribution Trees and Forwarding
- Lesson 4: Reviewing Multicast Protocols

Module 2: Multicast on the LAN

- Lesson 1: Mapping Layer 3 to Layer 2
- Lesson 2: Working with Cisco Group Management Protocol
- Lesson 3: Using IGMP Snooping

Module 3: PIM Sparse Mode

- Lesson 1: Introducing Protocol Independent Multicast Sparse Mode
- Lesson 2: Understanding PIM-SM Protocol Mechanics
- Lesson 3: Using PIM-SM in a Sample Situation
- Lesson 4: Configuring and Monitoring PIM-SM

Module 4: Rendezvous Point Engineering

- Lesson 1: Identifying RP Distribution Solutions
- Lesson 2: Implementing Auto-RP
- Lesson 3: Using PIMv2 BSR
- Lesson 4: Using Anycast RP and MSDP

Module 5: PIM Sparse Mode Protocol Extensions

- Lesson 1: Introducing Source Specific Multicast
- Lesson 2: Configuring and Monitoring SSM
- Lesson 3: Reviewing Bidirectional PIM
- Lesson 4: Configuring and Monitoring Bidirectional PIM

Module 6: Multiprotocol Extensions for BGP

- Lesson 1: Introducing MP-BGP
- Lesson 2: Configuring and Monitoring MP-BGP

Module 7: Interdomain IP Multicast

- Lesson 1: Examining Dynamic Interdomain IP Multicast
- Lesson 2: Explaining Multicast Source Discovery Protocol
- Lesson 3: Using MSDP SA Caching
- Lesson 4: Configuring and Monitoring MSDP

Module 8: IP Multicast Security
Lesson 1: Introducing IP Multicast and Security
Lesson 2: Securing a Multicast Network

Module 9: Multicast Optimization and High-Availability Features
Lesson 1: Using Multicast Optimization and High-Availability Features

Module 10: Applications of Multicast
Lesson 1: Exploring IP Multicast and Video Applications
Lesson 2: Using IP Multicast in Mission-Critical Environments
Lesson 3: Exploring How Enterprise IT Uses IP Multicasting Globally
About Fast Lane
The worldwide Fast Lane Group specializes in high-end technology and business training and consulting. Fast Lane offers complete, authorized training solutions for leading technology vendors, including AWS, Barracuda, Cisco, Google, Microsoft, NetApp, Oracle, Palo Alto Networks, Red Hat, SUSE, Symantec, Veeam, Veritas, VMware and more. In addition to those vendor’s standard curricula, Fast Lane also develops advanced technology, sales and business transformation curricula. Fast Lane’s vendor-independent consulting services solve a wide range of issues from conducting preliminary analyses and assessments, to designing future-focused IT solutions.

Fast Lane Training Centers

Germany
Fast Lane Institute for Knowledge Transfer GmbH
Oranienburger Strasse 66, 10117 Berlin
Tel. +49 30 816451330
Gasstrasse 6a, 22761 Hamburg
Tel. +49 40 25334610
Hansaallee 249, 40549 Duesseldorf
Tel. +49 211 5382980
Ludwig-Erhard-Strasse 3, 65760 Eschborn
Tel. +49 6196 8820410
Johann-Krane-Weg 46, 48149 Muenster
Tel. +49 251 95203000
Rotebühlplatz 21, 70178 Stuttgart
Tel. +49 711 26345990
Parkring 22, 85748 Garching
Tel. +49 89 262075100
info@flane.de / www.flane.de

Austria
ITLS GmbH
(ITLS ist ein Partner von Fast Lane)
Gutheil-Schoder-Gasse 7a, 1100 Vienna
Tel. +43 1 6000 8800
info@itls.at / www.itls.at

Switzerland
Fast Lane Institute for Knowledge Transfer (Switzerland) AG
Husacherstrasse 3, 8304 Wallisellen (Zurich)
Tel. +41 44 8325080
info@flane.ch / www.flane.ch

Fast Lane Services
✓ High-end Technology Training
✓ Business & Softskill Training
✓ Consulting Services
✓ Sales & Business Enablement
✓ Managed Services
✓ E-Learning
✓ Remote Labs
✓ Content Development
✓ Guaranteed Dates
✓ Onsite Training
✓ Talent Programs

Vendor Expertise
- Amazon Web Services
- Apple
- Arista
- Aruba
- Barracuda
- Brocade
- Check Point
- Cisco
- Citrix
- Cloudera
- EMC
- FS Networks
- GE
- Gigamon
- Google Cloud
- HP
- IBM
- Intel
- Juniper
- Kaspersky Lab
- Microsoft
- NetApp
- Oracle
- Palo Alto Networks
- Pivotal
- Red Hat
- Ruckus
- Salesforce
- SUSE
- Symantec
- Veeam
- Veritas
- VMware

Technology Know-how
- Digital Transformation
- Big Data and Analysis
- Cloud-Solutions: Private, Public & Hybrid Cloud
- Data Center & Virtualisation
- Internet of Things (IoT) / Internet of Everything (IoE)
- IPv6
- Network Infrastructures
- Security
- Software Defined Networking (SDN)
- Unified Communications, Collaboration & Video
- Wireless & Mobility
- Software Development
- Artificial Intelligence (AI)