Junos Multicast Routing, Revision 26A

COURSE OVERVIEW

This two-day, advanced-level course provides students with detailed coverage of multicast protocols including Internet Group Management Protocol (IGMP), Protocol Independent Multicast dense mode (PIM DM), PIM sparse mode (PIM SM), bidirectional PIM, Multicast Source Discovery Protocol (MSDP), and Multicast Listener Discovery (MLD).
Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring Junos OS and device and protocol operations. The course uses Juniper Networks vMX Series devices for the hands-on component, though the course may also apply to other Juniper hardware platforms running Junos OS. This course is based on Junos OS Release 25.2R1.8.

COURSE LEVEL

Junos Multicast Routing is an advanced-level course.

AUDIENCE

This course benefits individuals responsible for implementing, monitoring, and troubleshooting multicast components in an enterprise or service provider network.

PREREQUISITES

- A strong understanding of the TCP/IP protocol stack and OSI model.
- A strong foundation of networking fundamentals.
- Experience and familiarity with the Junos OS.
- Familiarity with the Junos CLI.
- A basic understanding of Juniper routing policies.
- Completion of the ***Introduction to the Junos Operating System*** and ***Junos Intermediate Routing*** courses.

RELATED JUNIPER PRODUCTS

Juniper Networks MX Series Universal Routers, Juniper Networks EX Series Switches

RELATED CERTIFICATION

JNCIE-SP, ***JNCIP-SP***, ***JNCIS-SP***, ***JNCIA-Junos***

RECOMMENDED NEXT COURSE

Advanced Junos Service Provider Routing

OBJECTIVES

- Explain the fundamentals of multicast traffic flow.
- Explain the fundamentals of multicast routing.
- Describe and configure IGMP.
- Describe PIM SM.
- Configure and monitor PIM SM.
- Describe and configure the advertisement of active sources between rendezvous points (RPs).
- Describe and configure source-specific multicast.
- Describe the operation and configuration of bidirectional PIM.
- Describe and configure multicast policy.
- Explain the fundamentals of IPv6 multicast flow.
- Describe and configure MLD.

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COURSE CONTENTS

DAY 1

Module 01: Introduction to Multicast

- Describe traffic flow for unicast and broadcast traffic
- Describe IP multicast traffic flow

Module 02: Multicast Routing Fundamentals

- Describe the basics of a multicast-enabled network
- Describe the need for RPF checks in multicast networks
- Describe the multicast routing tables

Module 03: Introduction to IGMP

- Explain the role of IGMP
- Describe the different versions of IGMP
- Configure and monitor IGMP

Lab 01: Implementing the Baseline Network

Module 04: Protocol Independent Multicast Sparse Mode—Part 1

- Describe the operation of PIM sparse mode
- Describe the RP discovery mechanisms
- Describe the PIM assert mechanism

Module 05: Protocol Independent Multicast Sparse Mode—Part 2

- Configure PIM sparse mode
- Monitor PIM sparse mode

Lab 02: Implementing PIM Sparse Mode and RP Discovery

DAY 2

Module 06: RP-to-RP Source Advertisement

- Explain the purpose and operation of MSDP
- Configure and monitor MSDP
- Describe and configure anycast-RP

Lab 03: Implementing MSDP and Anycast-RP

Module 07: Source-Specific Multicast

- Compare the ASM and SSM service models
- Illustrate the role of IGMPv3 and PIM sparse mode in an SSM implementation
- Configure and monitor SSM

Lab 04: Implementing Source-Specific Multicast

Module 08: Bidirectional Protocol Independent Multicast

- Describe bidirectional PIM operation and configuration

Module 09: Multicast and Policy

- Describe the default PIM SM information distribution
- Explain how routing policies control IGMP joins
- Explain how routing policies alter the PIM protocol message flow
- Identify the role of a policy in controlling MSDP message advertisement
- Explain how you can use a policy to scope multicast groups

Lab 05: Implementing Multicast and Policy

Module 10: IPv6 Multicast

- Explain the fundamentals of IPv6 multicast flow

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Module 11: Multicast Listener Discovery

- Explain the role of MLD
- Configure and monitor MLD

Lab 06: Implementing Multicast Using IPv6

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