
Advanced Junos Enterprise Routing

Duration: 3 Days **Course Code: AJER**

Overview:

The Advanced Junos Enterprise Routing (AJER) course is designed to provide students with the tools required for implementing, monitoring, and troubleshooting Layer 3 components in an enterprise network. Detailed coverage of OSPF, Border Gateway Protocol (BGP), class of service (CoS), and multicast is strongly emphasized. Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring the Junos operating system and in monitoring device and protocol operations

Target Audience:

This course is designed for: Individuals responsible for configuring and monitoring devices running the Junos OS.

Objectives:

- Upon completing this course, the learner will be able to meet these overall objectives:
- Describe the various OSPF link-state advertisement (LSA) types.
- Explain the flooding of LSAs in an OSPF network.
- Describe the shortest-path-first (SPF) algorithm.
- Describe OSPF area types and operations.
- Configure various OSPF area types.
- Summarize and restrict routes.
- Identify scenarios that require routing policy or specific configuration options.
- Use routing policy and specific configuration options to implement solutions for various scenarios.
- Describe basic BGP operation and common BGP attributes.
- Explain the route selection process for BGP.
- Describe how to alter the route selection process.
- Configure some advanced options for BGP peers.
- Describe various BGP attributes in detail and explain the operation of those attributes.
- Manipulate BGP attributes using routing policy.
- Describe common routing policies used in the enterprise environment.
- Explain how attribute modifications affect routing decisions.
- Implement a routing policy for inbound and outbound traffic using BGP.
- Identify environments that might require a modified CoS implementation.
- Describe the various CoS components and their respective functions.
- Explain the CoS processing along with CoS defaults on SRX Series Services Gateways.
- Describe situations when some CoS features are used in the enterprise.
- Implement some CoS features in an enterprise environment.
- Describe IP multicast traffic flow.
- Identify the components of IP multicast.
- Explain how IP multicast addressing works.
- Describe the need for reverse path forwarding (RPF) in multicast.
- Explain the role of Internet Group Management Protocol (IGMP) and describe the available IGMP versions.
- Configure and monitor IGMP.
- Identify common multicast routing protocols.
- Describe rendezvous point (RP) discovery options.
- Configure and monitor Protocol Independent Multicast (PIM) sparse modes.
- Configure and monitor RP discovery mechanisms.
- Describe the basic requirements, benefits, and caveats of source-specific multicast (SSM).
- List the address ranges used for SSM.
- Illustrate the role of Internet Group Management Protocol version 3 (IGMPv3) and PIM sparse mode (PIM-SM) in an SSM implementation.
- Configure and monitor SSM.

Prerequisites:

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

- Basic networking knowledge and an understanding of the Open Systems Interconnection (OSI) model and the TCP/IP protocol suite. Students should also have working experience with basic routing principles.

To gain the prerequisite skills and knowledge, Juniper strongly recommends the knowledge of the following courses:

- Junos Operating System (IJS)
- Junos Routing Essentials (JRE)
- Junos Intermediate Routing (JIR)

Testing and Certification

Recommended as preparation for:

- JN0-643 - Juniper Networks Certified Internet Professional (JNCIP-ENT)
AJER and AJEX are the courses required for the **Juniper Networks Certified Internet Professional (JNCIP-ENT)** Certification

Follow-on-Courses:

- AJEX - Advanced Junos Enterprise Switching

The above course is part of the **Juniper Networks Certified Internet Professional (JNCIP-ENT)** Certification

Content:

OSPF

- OSPFv2 Review
- Link-State Advertisements
- Protocol Operations
- OSPF Authentication
- OSPFv3

OSPF Areas

- Review of OSPF Areas
- Stub Area Operation
- Stub Area Configuration
- NSSA Operation
- NSSA Configuration
- Route Summarization

OSPF Case Studies and Solutions

- IGP Transition Overview
- Transition Case Study
- OSPF Multiarea Adjacencies
- External Reachability
- Virtual Links

BGP

- Review of BGP
- BGP Operations
- Load Balancing Options
- Path Selection and Configuration Options

BGP Attributes and Policy

- Policy and BGP
- BGP Attributes
- Details and Manipulation of Common BGP Path Attributes

Enterprise Routing Policies

- Enterprise BGP Core Network Design
- Enterprise External Network Deployment
- Lab 6: Implementing Enterprise Routing Policies

Introduction to Multicast

- Overview of Multicast
- Multicast Addressing
- RPF
- IGMP

Multicast Routing Protocols and SSM

- Overview of Multicast Routing Protocols
- PIM-SM Using the ASM Model
- Lab 7: Implementing PIM-SM
- PIM-SM Using the SSM Model

Class of Service

- CoS Components Review and Case Study
- CoS Processing and CoS Defaults on the SRX Series Device
- Policing
- Virtual Channels
- Monitoring with Resource Performance Monitoring

Further Information:

For More information, or to book your course, please call us on +254 713 027 191

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