Advanced Junos Enterprise Routing

Category: Networking & Security | **Vendor:** Juniper

Duration: 40.00 hours (5 days) **32.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format: Instructor Led - Online

Course Overview

This three-day 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, 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.

This course uses Juniper Networks SRX Series Services Gateways for the hands-on component, but the lab environment does not preclude the course from being applicable to other Juniper hardware platforms running the Junos OS. This course is based on the Junos OS Release 11.4R1.6.

About This Course

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Who Should Attend

This course benefits individuals responsible for configuring and monitoring devices running the Junos OS.

Prerequisites & Entry Requirements

General Prerequisites:

Students should have 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.

Students should also attend the Introduction to the Junos Operating System (IJOS), (!) , and Junos Intermediate Routing (JIR) courses prior to attending this class.

Learning Outcomes

Upon successful completion of this course, participants will be able to:

After successfully completing this course, you should be able to:

- 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.

Detailed Course Outline

Day 1

Chapter 1: Course Introduction

Chapter 2: OSPF

- OSPFv2 Review
- Link-State Advertisements
- Protocol Operations
- OSPF Authentication
- OSPFv3
- Lab 1: Configuring and Monitoring OSPF

Chapter 3: OSPF Areas

- Review of OSPF Areas
- Stub Area Operation

- Stub Area Configuration

- NSSA Operation

- NSSA Configuration

- Route Summarization

- Lab 2: Configuring and Monitoring OSPF Areas and Route Summarization

Chapter 4: OSPF Case Studies and Solutions

- IGP Transition Overview

- Transition Case Study

- OSPF Multiarea Adjacencies

- External Reachability

- Virtual Links

- Lab 3: Configuring and Monitoring Routing Policy and Advanced OSPF Policy

Day 2

Chapter 5: BGP

- Review of BGP

- BGP Operations

- Load Balancing Options

- Path Selection and Configuration Options

- Lab 4: Implementing BGP

Chapter 6: BGP Attributes and Policy

- Policy and BGP

- BGP Attributes

- Details and Manipulation of Common BGP Path Attributes

- Lab 5: BGP Attributes

Chapter 7: Enterprise Routing Policies

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

Day 3

Chapter 8: Introduction to Multicast

- Overview of Multicast
- Multicast Addressing
- RPF
- IGMP

Chapter 9: 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
- Lab 8: Implementing SSM

Chapter 10: 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

- Lab 9: Implementing CoS Features in the Enterprise

Appendix A: BGP Route Reflection

- Route Reflection Operation
- Configuration and Routing Knowledge
- Lab 10: BGP Route Reflection (Optional)

Skills You Will Learn:

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- 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.
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- 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.

Frequently Asked Questions

Q: What delivery options are available for Advanced Junos Enterprise Routing?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: How many CPD hours does this course provide?

The 5-day Advanced Junos Enterprise Routing course provides up to 32.5 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Advanced Junos Enterprise Routing training?

The training takes place over 5 day(s), with each day lasting approximately 40.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Advanced Junos Enterprise Routing?

Yes, we provide corporate training, dedicated training, and closed classes for Advanced Junos Enterprise Routing. Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: Advanced Junos Enterprise Routing, Enterprise Routing & Switching, AJER

Q: Why choose Nexus Human for Advanced Junos Enterprise Routing?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Advanced Junos Enterprise Routing training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

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