Juniper Networks Certified Professional Enterprise Routing and Switching Bootcamp, AJER and AJEX (JNCIP-ENT BC)

Course Summary

Description

This course combines both Advanced Junos Enterprise Routing (AJER) and Advanced Junos Enterprise Switching (AJEX) into five consecutive days of training. Students can choose to attend the individual classes (AJEX or AJER) or attend the five-day course.

ADVANCED JUNOS ENTERPRISE ROUTING (AJER) OVERVIEW
This 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.

ADVANCED JUNOS ENTERPRISE SWITCHING (AJEX) OVERVIEW
This course provides detailed coverage of virtual LAN (VLAN) operations, Multiple Spanning Tree Protocol (MSTP) and VLAN Spanning Tree Protocol (VSTP), authentication and access control for Layer 2 networks, IP telephony features, class of service (CoS), and monitoring and troubleshooting tools and features supported on the EX Series Ethernet Switches.

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 EX Series Ethernet Switches 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 operating system.

Objectives
At the end of this course, students will be able to:

ADVANCED JUNOS ENTERPRISE ROUTING (AJER) 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.

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Course Summary (cont'd)

- 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.

ADVANCED JUNOS ENTERPRISE SWITCHING (AJEX) OBJECTIVES:

- Implement filter-based VLAN assignments.
- Restrict traffic flow within a VLAN.
- Manage dynamic VLAN registration.
- Tunnel Layer 2 traffic through Ethernet networks.
- Review the purpose and operations of a spanning tree.
- Implement multiple spanning-tree instances in a network.
- Implement one or more spanning-tree instances for a VLAN.
- List the benefits of implementing end-user authentication.
- Explain the operations of various access control features.
- Configure and monitor various access control features.
- Describe processing considerations when multiple authentication and access control features are enabled.
- Describe some common IP telephony deployment scenarios.
- Describe features that facilitate IP telephony deployments.
- Configure and monitor features used in IP telephony deployments.
- Explain the purpose and basic operations of CoS.
- Describe CoS features used in Layer 2 networks.
- Configure and monitor CoS in a Layer 2 network
- Describe a basic troubleshooting method.
- List common issues that disrupt network operations.
- Identify tools used in network troubleshooting.
- Use available tools to resolve network issues.

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Course Summary (cont'd)

Topics

- Course Introduction
- OSPF
- OSPF Areas
- OSPF Case Studies and Solutions
- BGP
- BGP Attributes and Policy
- Enterprise Routing Policies
- Introduction to Multicast
- Multicast Routing Protocols and SSM
- Class of Service
- Appendix: BGP Route Reflection
- Advanced Ethernet Switching
- Advanced Spanning Tree
- Authentication and Access Control
- Deploying IP Telephony Features
- Class of Service
- Monitoring and Troubleshooting Layer 2 Networks

Audience

ADVANCED JUNOS ENTERPRISE ROUTING (AJER) TARGET AUDIENCE
This course benefits individuals responsible for configuring and monitoring devices running the Junos OS.
Course Level: AJER is an advanced-level course.

ADVANCED JUNOS ENTERPRISE SWITCHING (AJEX) TARGET AUDIENCE
This course benefits individuals responsible for configuring and monitoring EX Series switches.
Course Level: AJEX is an advanced-level course

Prerequisites

ADVANCED JUNOS ENTERPRISE ROUTING (AJER) 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), Junos Routing Essentials (JRE), and Junos Intermediate Routing (JIR) courses prior to attending this class.

ADVANCED JUNOS ENTERPRISE SWITCHING (AJEX) PREREQUISITES:
Students should have an intermediate-level of networking knowledge and an understanding of the Open Systems Interconnection (OSI) reference model and the TCP/IP protocol suite. Students should also attend the Introduction to the Junos Operating System (IJOS) course, the Junos Routing Essentials (JRE) course, and the Junos Enterprise Switching (JEX) course prior to attending this class.

Duration

Five days