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Learning Style: Virtual Classroom

Technology: Juniper Networks

Difficulty: Intermediate

Course Duration: 4 Days

JNCIS-ENT Bundle - JIR & JEX



About this course:

The JNCIS-ENT Bundle combines two essential courses, JIR (Juniper Networks Certified Specialist Enterprise Routing and Switching) and JEX (Juniper Networks Certified Specialist Enterprise Switching), into a comprehensive learning experience. This bundle is designed to provide networking professionals with in-depth knowledge and practical skills in enterprise routing, switching, and troubleshooting using Juniper Networks technologies. Participants will gain

expertise in configuring, managing, and optimizing complex network infrastructures, making them well-equipped to tackle real-world challenges in modern enterprise environments. Whether you're looking to enhance your networking career or strengthen your organization's IT capabilities, the JNCIS-ENT Bundle offers a focused and valuable training opportunity.

Course Objectives:

Describe typical uses of static, aggregate, and generated routes.
Configure and monitor static, aggregate, and generated routes.
Explain the purpose of Martian routes and add new entries to the default list.
Describe typical uses of routing instances.
Configure and share routes between routing instances.
Describe load-balancing concepts and operations.
Implement and monitor Layer 3 load balancing.
Illustrate benefits of filter-based forwarding.
Configure and monitor filter-based forwarding.
Explain the operations of OSPF.
Describe the role of the designated router.
List and describe OSPF area types.
Configure, monitor, and troubleshoot OSPF.
Describe BGP and its basic operations.
Name and describe common BGP attributes.
List the steps in the BGP route selection algorithm.
Describe BGP peering options and the default route advertisement rules.
Configure and monitor BGP.
Describe IP tunneling concepts and applications.
Explain the basic operations of generic routing encapsulation (GRE) and IP over IP (IP-IP) tunnels.
Configure and monitor GRE and IP-IP tunnels.
Describe various high availability features supported by the Junos OS.
Configure and monitor some of the highlighted high availability features.
List the benefits of implementing switched LANs.
Describe transparent bridging concepts and operations.
Describe terms and design considerations for switched LANs.
List enterprise platforms that support Layer 2 switching.
Configure interfaces for Layer 2 switching operations.
Display and interpret the Ethernet switching table.
Explain the concept of a VLAN.
Describe access and trunk port modes.
Configure and monitor VLANs.
Describe voice VLAN and native VLAN concepts.
Explain inter-VLAN routing operations.
Configure and monitor inter-VLAN routing.
Explain when a spanning tree is required.
Describe STP and Rapid Spanning Tree Protocol (RSTP)

operations.
List some advantages of using RSTP over STP.
Configure and monitor RSTP.
Describe the bridge protocol data unit (BPDU), loop, and root protection features.
Configure and monitor the BPDU, loop, and root protection features.
List and describe various port security features.
Configure and monitor port security features.
Describe the storm control feature.
Configure and monitor storm control.
Describe firewall filter support for EX Series Ethernet Switches.
Implement and monitor the effects of a firewall filter.
List and describe some features that promote high availability.
Configure and monitor high availability features.
Describe the basic concepts and operational details of a virtual chassis.
Implement a virtual chassis with multiple EX4300 switches.
Explain the concepts of Ethernet Ring Protection Switching (ERPS).
Configure and monitor ERPS.
Explain the concepts of Multiple Spanning Tree Protocol (MSTP).
Configure and monitor MSTP.

Audience:

Network engineers, technical support personnel, reseller support engineers, and others responsible for implementing and/or maintaining the Juniper Networks products covered in this course.

Prerequisite:

Students should have basic networking knowledge and an understanding of the Open Systems Interconnection (OSI) reference model and the TCP/IP protocol suite.

Course Outline:

Module 1: Course Introduction Junos Intermediate Routing

Module 2: Protocol-Independent Routing

Learning Objectives:

- Static Routes
- Aggregated Routes
- Generated Routes
- Martian Addresses
- Routing Instances

Module 3: Load Balancing and Filter-Based Forwarding

Learning Objectives:

- Overview of Load Balancing
- Configuring and Monitoring Load Balancing
- Overview of Filter-Based Forwarding
- Configuring and Monitoring Filter-Based Forwarding

Module 4: Open Shortest Path First

Learning Objectives:

- Overview of OSPF
- Adjacency Formation and the Designated Router Election
- OSPF Scalability
- Configuring and Monitoring OSPF
- Basic OSPF Troubleshooting

Module 5: Border Gateway Protocol

Learning Objectives:

- Overview of BGP
- BGP Attributes
- IBGP Versus EBGP
- Configuring and Monitoring BGP

Module 6: IP Tunneling

Learning Objectives:

- Overview of IP Tunneling
- GRE and IP-IP Tunnels
- Implementing GRE and IP-IP Tunnels

Module 7: High Availability

Learning Objectives:

- Overview if High Availability Networks
- GR
- Graceful RE Switchover
- Nonstop Active Routing
- BFD
- VRRP

Module 8: Course Introduction Jex Junos Enterprise Switching

Module 9: Layer 2 Switching

Learning Objectives

- Ethernet Bridging Basics
- Terminology and Design Considerations
- Overview of Enterprise Switching Platforms
- Enabling and Monitoring Layer 2 Switching Operations
- Lab 1: Implementing Layer 2 Switching

Module 10: Virtual Network

Learning Objectives

- Overview of VLANs
- Configuring and Monitoring VLANs
- Voice VLAN
- Native VLAN
- Routed VLAN Interfaces
- Lab 2: Implementing Virtual Networks

Module 11: Routing Instances

Learning Objectives:

- Routing Instances Overview
- Configuring and Monitoring Virtual Switches

Module 12: Spanning Tree

Learning Objectives

- Spanning Tree Protocol
- Rapid Spanning Tree Protocol
- Configuring and Monitoring STP and RSTP
- Protection Features: BPDU Protection
- Protection Features: Loop Protection
- Protection Features: Root Protection
- Lab 3: Implementing Spanning Tree

Module 13: Port Security

Learning Objectives

- MAC Limiting
- Persistent MAC Learning
- DHCP Snooping
- Dynamic ARP Inspection (DAI)
- IP Source Guard
- Lab 4: Implementing Port Security

Module 14: Device Security and Firewall Filters

Learning Objectives

- Storm Control
- Firewall Filters
- Lab 5: Implementing Storm Control and Firewall Filters

Module 15: Virtual Chassis

Learning Objectives

- Overview of Virtual Chassis
- Configuring and Monitoring a Virtual Chassis
- Lab 6: Implementing a Virtual Chassis System
- Describe the operation and configuration of unicast RPF
- Lab 10: Firewall Filters

Module 16: High Availability Features

Learning Objectives

- Overview of High Availability Networks
- Link Aggregation Groups
- Redundant Trunk Groups
- Graceful Routing Engine Switchover (GRES)
- Nonstop Active Routing (NSR)
- Nonstop Bridging (NSB)
- Lab 7: Implementing High Availability Features

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