Introduction to Juniper Data Center Networking

COURSE OVERVIEW

This three-day introductory course covers Ethernet switching, VLANs, Layer 2 security features, routing policies, link aggregation, load balancing, filter-based forwarding (FBF), routing instances, OSPF, BGP, graceful restart, and Bidirectional Forwarding Detection (BFD). This course also addresses the Ethernet VPN–Virtual Extensible LAN (EVPN-VXLAN) architecture.
This course is based on the virtual EX network device running Junos OS 24.2R1.15.

COURSE LEVEL

Introduction to Juniper Data Center Networking is an introductory-level course.

AUDIENCE

This course benefits individuals responsible for configuring and managing network equipment in data centers.

PREREQUISITES

- Knowledge of basic TCP/IP networking.
- Understanding of basic layer 2 concepts.
- Moderate Junos CLI experience.
- Familiarity with data center technologies.
- Completion of the Introduction to the Junos Operating System course or equivalent Junos OS configuration experience.

RELATED CERTIFICATION

JNCIA-DC

RELATED JUNIPER PRODUCTS

QFX Series, EX Series

RECOMMENDED NEXT COURSE

Data Center Automation using Juniper Apstra (APSTRA) , Data Center Fabric with EVPN and VXLAN (ADCX), or both

OBJECTIVES

- Identify and describe how to configure a typical data center layout, including spine-and-leaf placements.
- Describe an IP fabric architecture.
- Explain and configure basic Ethernet switching.
- Explain and configure virtual networks (VLANs).
- Describe Layer 2 security.
- Configure load balancing within Junos OS.
- Implement link aggregation.
- Describe and implement protocol-independent routing.
- Create routing instances with Junos OS.
- Implement FBF using Junos OS.
- Explain load balancing.
- Describe and configure OSPF.
- Describe and deploy BGP.
- Implement graceful restart and BFD using Junos OS.

Course Outline

COURSE CONTENTS

DAY 1

Module 1: Traditional Data Centers Versus Modern Data Centers

- Explain the traditional multitier architecture
- Describe an IP fabric environment
- Explain routing in an IP fabric environment
- Discuss Juniper Apstra as a turnkey solution

Module 2: Ethernet Switching Overview

- Explain the basics of Ethernet switching
- Provide an overview of enterprise switching platforms

Module 3: Configuring Ethernet Switching

- Manage and interpret the Ethernet switching table

Module 4: Virtual Networks Overview

- Describe access port mode and trunk port mode
- Discuss alternate VLAN and data VLAN concepts
- Explain native VLAN routing operations

Module 5: Configuring Virtual Networks

- Configure and monitor VLANs
- Configure and monitor inter-VLAN routing

Lab 1: Configuring Ethernet Switching and VLANs

DAY 2

Module 6: High Availability

- Explain the purpose of high availability
- Identify link aggregation groups
- Review graceful Routing Engine switchover
- Explain nonstop active routing
- Review nonstop bridging
- Explain system-id and multihoming

Lab 2: Configuring High Availability and Link Aggregation

Module 7: Protocol-Independent Routing

- Describe and configure static routes
- Explain and configure aggregate routes
- Explain and configure generated routes

Module 8: Routing Instances

- Describe routing instances
- Configure and share routes between routing instances

Lab 3: Configuring Protocol-Independent Routing and Routing Instances

Module 9: Filter-Based Forwarding

- Explain the benefits of filter-based forwarding
- Configure and monitor filter-based forwarding

Module 10: Load Balancing

- Describe load-balancing concepts and operations
- Implement and monitor Layer 3 load balancing

Lab 4: Configuring Filter-Based Forwarding and Load Balancing

DAY 3

Module 11: Fundamentals of OSPF

- Provide an overview of OSPF
- Explain OSPF scalability
- Describe adjacency formation and designated router election
- Configure and monitor OSPF
- Perform OSPF troubleshooting

Lab 5: Configuring OSPF

Module 12: Fundamentals of BGP

- Describe the basics of BGP
- Explain BGP attributes
- Identify route distinguishers and route targets

Module 13: Deploying BGP

- Compare IBGP versus EBGP
- Configure and monitor BGP

Lab 6: Deploying BGP

Module 14: Graceful Restart and Bidirectional Forwarding Detection

- Configure graceful restart
- Configure BFD

Lab 7: Configuring Graceful Restart and BFD

SELF-STUDY MODULE

Module 15: Port Security

- Identify MAC limiting
- Review the basics of persistent MAC learning
- Review the operational parameters of storm control

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