Introduction to Juniper Data Center Networking

Course overview

This introductory three-day 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

The primary audiences for this course include 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 products

EX Series, QFX Series

Related certification

JNCIA-DC

Related Juniper products

QFX Series, EX Series

Recommended next courses

Data Center Automation using Juniper Apstra, *Data Center Fabric with EVPN and VXLAN*, 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 contents

Day 1

Module 01: 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 02: Ethernet Switching Overview

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

Module 03: Configuring Ethernet Switching

- Manage and interpret the Ethernet switching table

Module 04: Virtual Networks Overview

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

Module 05: Configuring Virtual Networks

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

Lab 01: Configuring Ethernet Switching and VLANs

Day 2

Module 06: 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 02: Configuring High Availability and Link Aggregation

Module 07: Protocol-Independent Routing

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

Module 08: Routing Instances

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

Lab 03: 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 04: 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 05: 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 06: Deploying BGP

Module 14: Graceful Restart and Bidirectional Forwarding Detection

- Configure graceful restart
- Configure BFD

Lab 07: Configuring Graceful Restart and BFD

Self-study modules

Module 15: Port Security

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

Resources

All-Access Training Pass

On-Demand

Courses

Schedule

Learning Paths

Certification

Key contacts

Americas: networking.training.ams@hpe.com

Europe, Middle East, Africa: networking.training.emea@hpe.com

Asia Pacific & Japan:-networking.training.apj@hpe.com

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