Introduction to Juniper Data Center Networking

Education Services

COURSE OVERVIEW

This three-day course provides introductory instruction on data center switching using Juniper products. This course does not cover Ethernet VPN–Virtual Extensible LAN (EVPN-VXLAN) architecture, but lays the foundational knowledge necessary to understand a data center that is built upon an IP fabric. In addition, this course covers Ethernet switching, VLANs, Layer 2 security features, routing policies, link aggregation, load balancing, filter-based forwarding (FBF), routing instances, BGP, graceful restart, and Bidirectional Forwarding Detection (BFD).

COURSE LEVEL

Introductory

AUDIENCE

Individuals responsible for configuring and managing network equipment in data centers

PREREQUISITES

- Basic networking knowledge
- Knowledge of basic TCP/IP networking;
- Understanding of basic layer 2;
- 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

CONTACT YOUR REGIONAL EDUCATION SERVICES TEAM:

Americas: training-amer@juniper.net

EMEA: training-emea@juniper.net

APAC: training-apac@juniper.net

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.
- Implement link aggregation.
- Describe and implement protocol-independent routing and routing instances with Junos OS.
- Configure load balancing within Junos OS.
- Implement FBF using Junos OS.
- Describe and configure OSPF.
- Describe and deploy BGP.
- Implement graceful restart and BFD using Junos OS.

Introduction to Juniper Data Center Networking

Juniper Networks | Education Services

COURSE CONTENTS

DAY 1

1 Course Introduction

2 Traditional Data Center Architectures

- Explain traditional multitier architecture, its benefits, and challenges
- Describe a traditional data center-based scenario

3 Juniper's Modern Data Center Architectures

- Describe an IP fabric environment
- Explain routing in an IP fabric environment
- Explain using Juniper Apstra as a turnkey solution

4 Ethernet Switching Overview

- List the benefits of implementing switched LANs
- Describe transparent bridging concepts and operations
- Describe terms and design considerations for switched LANs

5 Configuring Ethernet Switching

- Configure interfaces for Ethernet switching
- Display and interpret the Ethernet switching table

Lab 1: Implementing Ethernet Switching

6 Virtual Networks Overview

- Explain the concept of a virtual LAN (VLAN)
- Describe access and trunk ports
- Explain access and trunk ports use and benefits

7 Configuring Virtual Networks

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

Lab 2: Implementing Virtual Networks

DAY 2

8 Port Security

- Describe MAC filtering
- Describe Storm Control

Lab 3: Implementing Layer 2 Security Features

9 Link Aggregation

- Describe and implement link aggregation

Lab 4: Configuring and Monitoring Link Aggregation

10 Protocol-Independent Routing

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

11 Routing Instances

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

Lab 5: Configuring Protocol-Independent Routing and Routing Instances

12 Load Balancing

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

Introduction to Juniper Data Center Networking

Education Services

COURSE CONTENTS (continued)

DAY 3

13 Filter-Based Forwarding

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

Lab 6: Load Balancing and Filter-Based Forwarding

14 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 7: Deploying OSPF (Optional)

15 Fundamentals of BGP

- Describe the basics of BGP
- Explain BGP attributes

16 Deploying BGP

- Compare IBGP versus EBGP
- Configure and monitor BGP

Lab 8: Deploying BGP

17 Graceful Restart and Bidirectional Forwarding Detection

- Describe the benefits of graceful restart and BFD
- Configure graceful restart
- Configure BFD

Lab 9: Configuring Graceful Restart and BFD

IJDC07112023