

## Juniper Networks Design Data Center (JND-DC)

### COURSE OVERVIEW:

This five-day course is designed to cover best practices, theory, and design principles for data center design including data center architectures, data center interconnects, security considerations, virtualization, and data center operations.

### WHO WILL BENEFIT FROM THIS COURSE?

This course is targeted specifically for those who have a solid understanding of operation and configuration and are looking to enhance their skill sets by learning the principles of design for the data center.

Course Level: JND-DC is an intermediate-level course.

### PREREQUISITES:

The following are the prerequisites for this course:

- Knowledge of routing and switching architectures and protocols.
- Knowledge of Juniper Networks products and solutions.
- Understanding of infrastructure security principles.
- Basic knowledge of hypervisors and load balancers.
- Completion of the Juniper Networks Design Fundamentals (JNDF) course.

### COURSE OBJECTIVES:

After successfully completing this course, you should be able to:

- State high-level concepts about different data center architectures.
- Identify features used to interconnect data centers.
- Identify key high-level considerations about securing and monitoring a data center deployment.
- Outline key high-level concepts when implementing different data center approaches.
- Recommend data center cooling designs and considerations.
- Explain device placement and cabling requirements.
- Outline different data center use cases with basic architectures.
- Describe a traditional multitier data center architecture.
- Explain link aggregation and redundant trunk groups.
- Explain multichassis link aggregation.
- Summarize and discuss key concepts and components of a Virtual Chassis.
- Summarize and discuss key concepts and components of a VCF.
- Summarize and discuss key concepts and components of a QFabric System.
- Summarize and discuss key concepts and components of Junos Fusion.
- List the reasons for the shift to IP fabrics.
- Summarize how to scale an IP fabric.
- State the design considerations of a VXLAN overlay.
- Define the term Data Center Interconnect.

- List differences between the different Layer 2 and Layer 3 DCIs.
- Summarize and discuss the benefits and use cases for EVPN.
- Discuss the security requirements and design principles of the data center.
- Identify the security elements of the data center.
- Explain how to simplify security in the data center.
- Discuss the security enforcement layers in the data center.
- Summarize and discuss the purpose of SDN.
- Explain the function of Contrail.
- Summarize and discuss the purpose of NFV.
- Discuss the purpose and function of vSRX and vMX.
- Discuss the importance of understanding the baseline behaviors in your data center.
- List the characteristics of the Junos Space Network Management Platform and describe its deployment options.
- Describe the importance of analytics.
- Discuss automation in the data center.
- Discuss the benefits of QoS and CoS.
- State the benefits of a converged network.
- Identify general aspects of data center migration.
- Summarize and discuss best practices for migration planning.
- Outline some common migration scenarios.
- Summarize high availability design considerations in the data center.
- Provide an overview of high availability offerings and solutions in the data center.

## **COURSE OUTLINE:**

### **Day 1**

#### **Module 1: Course Introduction**

#### **Module 2: Overview of Data Center Design**

- Initial Considerations
- Architectures and Design Considerations
- Connecting Data Centers
- Security and Operation
- Implementation Considerations

#### **Module 3: Initial Design Considerations**

- Physical Layout and Placement
- Environmental Conditions
- Cabling Options
- Data Center Use Cases

#### **Module 4: Traditional Data Center Architecture**

- Traditional Multitier Architecture
- Link Aggregation and Redundant Trunk Groups
- Multichassis Link Aggregation
- Lab: Designing a Multitier Architecture

## Day 2

### Module 5: Ethernet Fabric Architectures

- Virtual Chassis
- Virtual Chassis Fabric
- QFabric
- Junos Fusion
- Ethernet Fabric Design Considerations
- Lab: Ethernet Fabric Architecture

## Day 3

### Module 6: IP Fabric Architecture

- The Shift To IP Fabrics
- IP Fabric Routing Design
- IP Fabric Scaling
- VXLAN
- Lab: IP Fabric Architecture

### Module 7: Data Center Interconnect

- DCI Overview
- Layer 2 DCI
- EVPN Use Cases
- Layer 3 DCI
- Lab: Data Center Interconnect

## Day 4

### Module 8: Securing the Data Center

- Overview of Data Center Security
- Security Elements
- Simplifying Security in the Data Center
- Advanced Data Center Security
- Lab: Securing the Data Center

### Module 9: SDN and Virtualization in the Data Center

- Designing SDN in the Data Center
- Using Contrail in the Data Center
- Using NFV in the Data Center
- Understanding How Contrail Works in the Data Center
- Working in Virtual Environments in the Data Center
- Lab: SDN and Virtualization

**Module 10: Data Center Operation**

- Understanding Baseline Behaviors
- Deploying Junos Space and JSA
- Understanding Analytics
- Deploying Automation in the Data Center
- Lab: Operating a Data Center

**Day 5**

**Module 11: Traffic Prioritization for Converged Networks**

- Understanding QoS and CoS
- Converging Networks
- Lab: Prioritizing Data in the Data Center

**Module 12: Migration Strategies**

- Migration Overview
- Common Scenarios
- Migration Case Study
- Lab: Data Center Migration

**Module 13: High Availability**

- Data Center High Availability Overview
- Link Level and Physical Device Redundancy
- Device-Level Redundancy

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