



Juniper Networks Design-WAN

Duration: 5 Days **Course Code: JND-WAN** **Version: 16.a**

Overview:

This five-day course is designed to cover best practices, theory, and design principles for Wide Area Networks (WAN) design including WAN interconnects, security considerations, virtualization, and management/operations. This course covers both service provider and enterprise WAN design.

Target Audience:

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 WAN design.

The JND-WAN is an intermediate-level course.

Objectives:

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

- Describe high level concepts about the different WAN architectures.
- Identify key features used to interconnect WANs.
- Describe key high level considerations about securing and monitoring a WAN deployment.
- Outline high level concepts for implementing WANs.
- Explain various methods of WAN connectivity.
- Describe basic MPLS concepts as they are related to WANs.
- Identify basic Ethernet concepts as they are related to WANs.
- Describe key concepts of network availability.
- Explain high availability features and protocols.
- Describe the key aspects of class of service.
- Describe how core WAN technologies are used to solve specific problems facing network designers.
- Discuss core routing requirements.
- Explain how to design a high performance MPLS WAN core.
- Define CoS requirements for the WAN core.
- Discuss BGP peering and path selection.
- Design MPLS Layer 2 and Layer 3 services.

- Design metro Ethernet networks.
 - Understand role of class of service in provider edge.
 - Describe Next-generation MVPNs.
 - Explain how enterprise WAN technologies are used to solve specific problems facing network designers.
 - Outline various solutions regarding campus and branch WANs.
 - Explain how data centers are interconnected through WANs.
 - Identify various solutions regarding data center WAN interconnection.
 - Describe the benefits and use cases for EVPN.
 - Describe security concepts regarding WANs.
 - Explain the differences between LAN security concepts and WAN security concepts.
 - Explain VPN-related concepts regarding WANs.
 - Describe methods to manage WANs
 - Discuss key concepts related to WAN management.
 - Explain how virtualization and SDN can be leveraged in the WAN.
 - Describe various SDN products and how they are used in the WAN.
 - Describe MX, SRX, T, PTX, ACX, QFX, EX, and NFX Series devices and the basics of how they relate to WAN solutions.
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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.
- Completion of the Juniper Networks Design Fundamentals (JNDF) course.

Testing and Certification

- This course is recommended training for the Juniper Networks Certified Design Specialist WAN (JNCDS-WAN) exam

Content:

Chapter 1: Course Introduction

Chapter 2: Overview of WAN Design

- WAN Design Overview
- WAN Domains
- Management, Operations, and Security
- Implementation Considerations

Chapter 3: WAN Connectivity

- Public and Private
- Service Provider
- Enterprise

Chapter 4: Network Availability and Traffic Prioritization

- Network Availability
- Class of Service
- Lab: Network Availability and CoS Design

Chapter 5: Service Provider Core WAN

- WAN Core Overview
- Core Routing
- MPLS Design
- Class of Service Considerations
- Lab: WAN Core Design

Chapter 6: Service Provider Edge WAN

- Provider Edge
- Lab: Service Provider Edge—VPN Design
- Access and Aggregation Edge
- Services
- Class of Service Considerations
- Multicast
- Lab: Service Provider Edge—Services Design

Chapter 7: Enterprise WAN

- Enterprise WAN Overview
- WAN Topologies
- Campus and Branch
- Class of Service Considerations
- Large Enterprise Designs
- Lab: Enterprise WAN Design

Chapter 8: Data Center WAN

- WAN Overview
- EVPN
- Lab: Data Center WAN Design

Chapter 9: WAN Security

- Security Overview
- WAN Versus LAN
- Service Provider Core WAN Security
- Service Provider Edge WAN Security
- Enterprise WAN Security
- Lab: Security Design

Chapter 10: WAN Management

- Best Practices and Considerations
- OoB Management Design
- Junos Space
- Juniper WAN Automation
- Lab: WAN Management Design

Chapter 11: WAN Virtualization and SDN

- SDN Overview
- NorthStar
- Contrail
- SD-WAN
- Lab: SDN Design

Chapter 12: WAN Device Portfolio

- Platform and Junos Overview
- MX Series
- SRX Series
- PTX and T Series
- ACX Series
- QFX Series
- EX Series
- NFX Series

Further Information:

For More information, or to book your course, please call us on 00 971 4 446 4987

training@globalknowledge.ae

www.globalknowledge.com/en-ae/

Global Knowledge, Dubai Knowledge Village, Block 2A, First Floor, Office F68, Dubai, UAE