



**Enterprise Computing Solutions - Education Services**

## **TRAINING OFFERING**

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| CODE:      | LENGTH:           | PRICE:    |
|------------|-------------------|-----------|
| JUN_JND-SP | 40 Hours (5 days) | £4,125.00 |

## Description

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

This course covers both service provider and enterprise WAN design.

Juniper Networks Design–Service Provider (JND-SP) is an intermediate-level course. Relevant Juniper Product

• Design • Network Design • ACX Series • Contrail • EX Series • JCS1200 • JSA Series • Junos OS • Junos Space • Junos Space Network Director • Junos Space Security Director • Junos Space Services Activation Director • Junosphere / VJX • LN Series • M Series • MX Series • NFX Series • Odyssey Access Client • QFX Series • SRX Series • T Series • Design Track

## Objectives

- 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.

## 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.

## Prerequisites

- 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.

## Programme

Day 1 Course Introduction Overview of WAN Design • WAN Design Overview • WAN Domains

• Management, Operations, and Security • Implementation Considerations WAN Connectivity • Public and Private

• Service Provider • Enterprise Network Availability and Traffic Prioritization • Network Availability • Class of Service

LAB: Network Availability and CoS Design Day 2 Service Provider Core WAN • WAN Core Overview • Core Routing

- MPLS Design • CoS Considerations Lab : WAN Core Design Day 3 Service Provider Edge WAN • Provider Edge
- Lab: Service Provider Edge—VPN Design • Access and Aggregation Edge • Services • CoS Considerations • Multicast
- Lab: Service Provider Edge—Services Design Day 4 Enterprise WAN • Enterprise WAN Overview • WAN Topologies
- Campus and Branch • CoS Considerations • Large Enterprise Designs LAB: Enterprise WAN Design Data Center WAN
- WAN Overview • EVPN LAB: Data Center WAN Design WAN Security • Security Overview • WAN Versus LAN
- Service Provider Core WAN Security • Service Provider Edge WAN Security • Enterprise WAN Security LAB: Security Design
- Day 5 WAN Management • Best Practices and Considerations • OoB Management Design • Junos Space
- Juniper WAN Automation LAB: WAN Management Design WAN Device Portfolio • Platform and Junos Overview • MX Series
- SRX Series • PTX and T Series • ACX Series • QFX Series • EX Series • NFX Series WAN Virtualization and SDN
- SDN Overview • NorthStar • Contrail • SD-WAN LAB: SDN Design

## Test and Certification

Associated Certification JNCDS-SP Exams can be purchased and scheduled at an additional cost – please ask for details.

## Session Dates

On request. Please [Contact Us](#)

## Additional Information

[This training is also available as onsite training. Please contact us to find out more.](#)