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Register

JNCIS-SP Certification Training

3 days (21 hours)

Overview

The Juniper JNCIS-SP certification is an advanced training course for network operators and backbone infrastructure professionals. Designed for service provider environments, it validates key skills in the design, deployment, and troubleshooting of modern MPLS architectures based on Junos OS.

Our JNCIS-SP training will allow you to deepen your knowledge of technologies essential to operator networks: MPLS, LDP, RSVP-TE, L2VPN/L3VPN services, MP-BGP, as well as advanced MPLS dataplane monitoring. You will discover how operators build high-performance, resilient, and highly scalable multiservice topologies.

You will learn how to deploy L2/L3 circuits, manage label distribution, set up traffic engineering tunnels, and monitor MPLS flows with dedicated Junos tools. Hands-on workshops in each chapter allow you to reinforce your skills in real-world carrier scenarios.

The last part is entirely dedicated to certification preparation, including a complete mock exam, sample questions, and a final end-to-end deployment workshop to help you approach the JNCIS-SP exam with confidence.

Like all our training courses, this one is based on the latest stable version of Junos OS and focuses on a practical, operational, and skills-oriented approach.

Note: Ambient IT does not own the JNCIS-SP certification; it belongs to Juniper Networks Inc.

Objectives

- Understand the Service Provider MPLS architecture.
- Master LDP, RSVP-TE, MP-BGP, L2/L3VPN/.

- Deploy multi-service MPLS environments.
- Monitor and diagnose an operator backbone.
- Implement Juniper SP best practices.
- Effectively prepare for JNCIS-SP certification.

Target audience

- Network engineers
- Service provider engineers
- Backbone/MPLS administrators
- Professionals aiming for JNCIS-SP certification

Prerequisites

- Advanced L2/L3 network knowledge
- Dynamic routing skills (OSPF/BGP)
- Some experience with Junos OS is a plus

JNCIS-SP - Service Provider training program

[Day 1 - Morning]

Introduction to Service Provider and Juniper Fundamentals

- Understanding the architecture of a Service Provider network
- Differences between control plane and data plane
- Essential concepts of Junos OS
- Operational and Configuration Modes
- Scope of JNCIS-SP certification
- Hands-on workshop: Getting started with Junos and SP commands.

[Day 1 - Afternoon]

MPLS architecture and forwarding operation

- MPLS principles: labels, LSP, LFIB
- Push/swap/pop operation
- PHP (Penultimate Hop Popping) concept
- Difference between IP and MPLS forwarding
- MPLS integration in a carrier network
- Hands-on workshop: Analyzing the MPLS data plane in the LFIB.

LDP: label discovery and distribution

- How the LDP protocol works
- Establishing and monitoring sessions (hello, keepalive)
- FEC and label management
- Relationship between IGP and LDP
- Diagnosing LDP errors
- Hands-on workshop: Configuring LDP and correcting common errors.

[Day 2 - Morning]

MPLS Traffic Engineering

- Key concepts of traffic engineering
- How the RSVP-TE protocol works
- Creating and signaling TE tunnels
- Protection and Preemption Management
- Using TE in Operator Networks
- Hands-on workshop: Deploying an LSP TE with primary and backup paths.

[Day 2 - Afternoon] L2VPN

services

- Understanding L2VPN services in MPLS
- Martini encapsulation and CCC services
- How a VPLS works and the role of split horizon
- L2 transport in SP environments
- Troubleshooting L2VPN services
- Hands-on workshop: Deploying a complete VPLS between multiple provider edges.

L3VPN services: architecture and VRF

- Understanding how an L3VPN MPLS works
- Role of VRFs and route targets
- How import/export mechanisms work
- Integration between MP-BGP and MPLS
- Provider Edge - Customer Edge connection: static, OSPF, or BGP
- Hands-on workshop: Complete implementation of an L3VPN PE-CE.

[Day 3 - Morning]

MP-BGP in Service Provider environments

- VPNv4 and VPNv6 address families
- Extended communities function

- Configuring an SP Route Reflector
- MP-BGP troubleshooting
- Optimizing VPN route transport
- Hands-on workshop: Configuring an RR and exchanging VPNv4 routes.

[Day 3 - Afternoon]

SP monitoring and troubleshooting tools

- Using ping mpls and traceroute mpls
- Analyzing MPLS dataplane behavior
- Reading the MPLS table (LFIB) and checking VPN routes in BGP
- Operator diagnostic methodology
- Total verification of SP services
- Hands-on workshop: MPLS/LDP/RSVP incident resolution.

Preparation for JNCIS-SP certification

- Detailed structure of the JNCIS-SP exam
- Most frequently tested topics: MPLS, LDP, RSVP-TE, L2VPN/L3VPN
- Tips, pitfalls, and strategies for success
- Review of essential Junos commands
- Simulation of sample questions
- Hands-on workshop: Mock exam + correction.

Companies concerned

This training is aimed at both individuals and companies, large or small, wishing to train their teams in new advanced IT technology or to acquire specific professional knowledge or modern methods.

Placement at the start of training

The placement test at the start of the training course complies with Qualiopi quality criteria. Once they have finalized their registration, learners receive a self-assessment questionnaire that allows us to assess their estimated level of proficiency in different types of technologies, as well as their expectations and personal objectives for the upcoming training course, within the limits imposed by the selected format. This questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could be problematic for the monitoring and smooth running of the training session.

Teaching methods

Practical training: 60% practical, 40% theory. Training materials distributed in digital format to all participants.

Organization

The course alternates between theoretical input from the trainer, supported by examples and reflection sessions, and group work.

Validation

At the end of the session, a multiple-choice questionnaire is used to verify that the skills have been correctly acquired.

Certification

A certificate will be issued to each trainee who has completed the entire training course.