

## Junos Layer 3 VPNs (JL3V)

ID JL3V Price CHF 3,150.—(excl. VAT) Duration 3 days

### Who should attend

This course benefits individuals responsible for configuring and monitoring devices running the Junos OS.

### This course is part of the following Certifications

Juniper Networks Certified Internet Professional Service Provider Routing & Switching (JNCIP-SP)

### Prerequisites

Students should have intermediate-level networking knowledge and an understanding of OSPF, IS-IS, BGP, and Junos policy. Students should have experience configuring MPLS label-switched paths using Junos. Students should also attend the [Introduction to the Junos Operating System \(IJOS\)](#), [Junos Intermediate Routing \(JIR\)](#) and the [Junos MPLS Fundamentals \(JMF\)](#) courses prior to attending this class.

### Course Objectives

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

- Describe the value of MPLS VPNs.
- Describe the differences between provider-provisioned VPNs and customer-provisioned VPNs.
- Describe the differences between Layer 2 VPNs and Layer 3 VPNs.
- List the provider-provisioned MPLS VPN features supported by the JUNOS software.
- Describe the roles of a CE device, PE router, and P router in a BGP Layer 3 VPN.
- Describe the format of the BGP routing information, including VPN-IPv4 addresses and route distinguishers.
- Describe the propagation of VPN routing information within an AS.
- List the BGP design constraints to enable Layer 3 VPNs within a provider network.
- Explain the operation of the Layer 3 VPN data plane within a provider network.
- Create a routing instance, assign interfaces to a routing instance, create routes in a routing instance, and

- import/export routes from a routing instance using route distinguishers/route targets.
- Describe the purpose of BGP extended communities, configure extended BGP extended communities, and use BGP extended communities.
- List the steps necessary for proper operation of a PE-CE dynamic routing protocol.
- List the troubleshooting and monitoring techniques for routing instances.
- Explain the difference between the bgp.l3vpn table and the inet.0 table of a routing instance.
- Monitor the operation of a CE-PE dynamic routing protocol.
- Explain the operation of a PE multi-access interface in a Layer 3 VPN and list commands to modify that behavior.
- Describe ways to support communication between sites attached to a common PE router.
- Provision and troubleshoot hub-and-spoke Layer 3 VPNs.
- Describe the flow of control traffic and data traffic in a hub-and-spoke Layer 3 VPN.
- Describe QoS mechanisms available in L3VPNs.
- Configure L3VPN over GRE tunnels.
- Describe the RFC 4364 VPN options.
- Describe the carrier-of-carriers model.
- Configure the carrier-of-carriers and “Option C” configuration.
- Describe the flow of control and data traffic in a draft-rosen multicast VPN.
- Describe the configuration steps for establishing a draft-rosen multicast VPN.
- Monitor and verify the operation of draft-rosen multicast VPNs.
- Describe the flow of control traffic and data traffic in a next-generation multicast VPN.
- Describe the configuration steps for establishing a next-generation multicast VPN.
- Describe the configuration steps for establishing a next-generation multicast VPN.
- Monitor and verify the operation of next-generation multicast VPNs.
- Describe the flow of control traffic and data traffic when using MPVPNs for Internet multicast.
- Describe the configuration steps for enabling internet multicast using MVPNs.
- Monitor and verify the operation of MVPN internet multicast.

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### Course Content

This three-day course is designed to provide students with MPLS-based Layer 3 virtual private network (VPN) knowledge and configuration examples. The course includes an overview of MPLS Layer 3 VPN concepts, scaling Layer 3 VPNs, Internet access, Interprovider L3VPNs, and Multicast for Layer 3 VPNs. This course also covers Junos operating system-specific implementations of Layer 3 VPNs. This course is based on the Junos OS Release 15.1R2.9. Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring the Junos OS and in device operations.

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## Training Centres worldwide



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