Junos Layer 2 VPNs (JL2V)

ID JL2V **Price** CHF 2,100.—(excl. VAT) **Duration** 2 days

Who should attend

This course benefits individuals responsible for configuring and monitoring devices running the Junos OS in a service provider environment, in MPLS-based data centers, and in larger enterprises.

This course is part of the following Certifications

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

Prerequisites

The prerequisites for this course include:

- Intermediate-level networking knowledge.
- An understanding of OSPF, IS-IS, BGP, and Junos routing policy.
- Experience configuring MPLS label-switched paths using Junos.
- Completion of the following courses, or equivalent knowledge:
  - Introduction to the Junos Operating System (IJOS)
  - Junos Service Provider Switching (JSPX)
  - Junos Intermediate Routing (JIR)
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Course Objectives

- Describe some of the different kinds of VPNs, their mechanics, and their use cases.
- Describe the types of MPLS VPNs that operate at Layer 2.
- Describe the mechanics of BGP-signaled pseudowires, also known as L2VPNs.
- Configure BGP-signaled L2VPNs with Ethernet and Ethernet-VLAN encapsulations.
- Demonstrate how to troubleshoot some of the most common BGP-signaled L2VPN configuration problems.
- Describe how BGP-signaled L2VPNs use a block of labels to bring efficiency to hub-and-spoke advertisements.
- Configure advanced BGP-signaled L2VPN features, such as multihoming, VLAN normalization, and route target constraint.
- Describe the mechanics of LDP-signaled pseudowires, also known as Layer 2 Circuits.
- Describe the causes and solutions of some of the most common L2Circuit configuration problems.
- Configure advanced LDP-signaled L2Circuit features, such as multihoming and local switching.
- Explain how the FEC 129 pseudowire method combines BGP for autodiscovery and LDP for signaling.
- Describe the purpose and mechanics of a VPLS.
- Create a VPLS instance that is signaled using BGP and demonstrate the commands that verify its status.
- Create VPLS instances that are signaled using LDP and FEC 129 and demonstrate the commands available to verify their status.
- Describe how mismatched VLAN tags are handled in a default VPLS configuration.
- Configure a VPLS to swap mismatched VLAN tags automatically and to create multiple bridge domains inside a single VPLS instance.
- Configure the most important VPLS traffic management features, including flood protection, MAC limiting, integrated routing and bridging (IRB) interfaces, and automated Site IDs.
- Configure hub-and-spoke VPLS topologies.
- Configure multihomed sites in a VPLS.
- Describe the features of Ethernet VPN and the enhancements that EVPN brings over VPLS.
- Explain how EVPNs advertise MAC addresses and how they request to receive flooded traffic within a bridge domain.
- Configure and verify a single-homed VLAN-based EVPN instance (EVI).
- Configure and verify a single-homed VLAN-aware bundle EVI.
- Configure a multihomed EVPN and explain the purpose of the EVPN Type 4 route.
- Describe the features provided by EVPN Type 1 routes.
- Describe how to use MAC Mobility and IRB interfaces in an EVPN.
- Explain how EVPNs can tightly integrate themselves into MPLS Layer 3 VPNs to provide highly efficient forwarding.
- Describe and configure various solutions that create MPLS VPNs between service providers.
- Describe the circuit cross-connect pseudowire method and explain how this old method can still have value in modern networks.
- Describe how multisegment pseudowires can create Layer

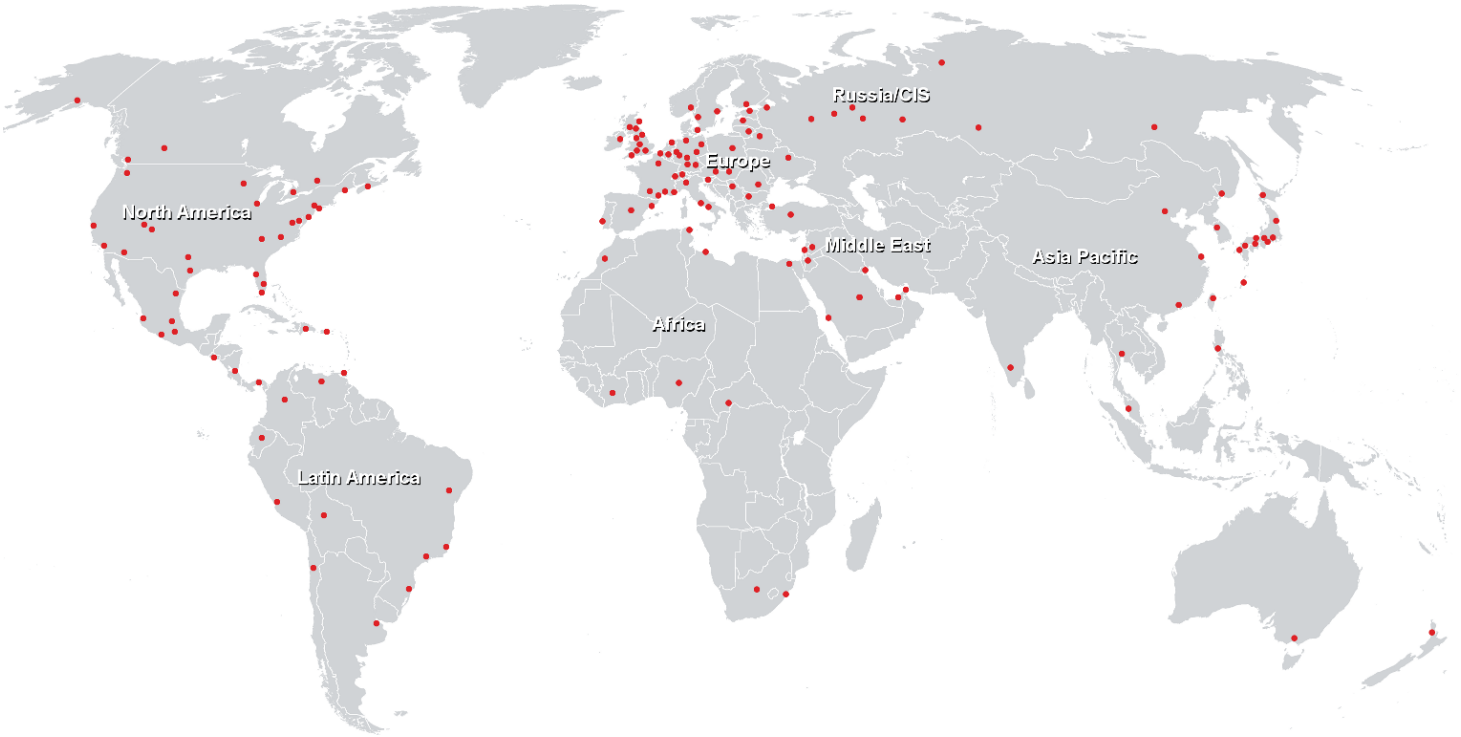
2 VPNs across autonomous system boundaries.

Course Content

- Module 01: Refresher—VPNs and MPLS
- Module 02: The Different Flavors of Layer 2 VPN
- Module 03: L2VPN, aka BGP-Signaled Pseudowires
- Module 04: L2VPN—Configuration
- Module 05: L2VPN—Troubleshooting
- Module 06: L2VPN—Site IDs, the Label Base, and Overprovisioning
- Module 07: L2VPN—Advanced Concepts
- Module 08: L2Circuit—LDP-Signaled Pseudowires
- Module 09: L2Circuit—Troubleshooting
- Module 10: L2Circuit—Advanced Concepts
- Module 11: FEC 129 Pseudowires
- Module 12: Virtual Private LAN Service—Introduction
- Module 13: VPLS—BGP Configuration and Verification
- Module 14: VPLS—LDP and FEC 129 Configuration and Verification
- Module 15: VPLS—The Default VLAN Mode
- Module 16: VPLS—VLAN Normalization, VLAN-Aware Instances, and Dual-Stacked VLANs
- Module 17: VPLS—Advanced Features and Troubleshooting
- Module 18: VPLS—Multihoming
- Module 19: EVPN—Introduction
- Module 20: EVPN—Using BGP to Advertise MACs and to Flood Traffic
- Module 21: EVPN—Configuring a Single-Homed VLAN-Based EVI
- Module 22: EVPN—Configuring a Single-Homed VLAN-Aware Bundle EVI
- Module 23: EVPN—Multihoming Configuration and Type 4 Routes
- Module 24: EVPN—Multihoming Features Using Type 1 Routes
- Module 25: EVPN—MAC Mobility and IRB Interfaces
- Self-Study Module 26: EVPN—Integration with L3VPNs
- Self-Study Module 27: Inter-AS MPLS VPNs
- Self-Study Module 28: Circuit Cross-Connect
- Self-Study Module 29: Multisegment Pseudowires
- Self-Study Module 30: VPLS—Hub-and-Spoke Topologies

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Training Centres worldwide





Fast Lane Institute for Knowledge Transfer (Switzerland) AG

Husacherstrasse 3
CH-8304 Wallisellen
Tel. +41 44 832 50 80

info@flane.ch, https://www.flane.ch