Junos Layer 2 VPNs

Category: Networking & Security | **Vendor:** Juniper

Duration: 24.00 hours (3 days) **19.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format: Instructor Led - Online

Course Overview

This two-day course is designed to provide students with MPLS-based Layer 2 virtual private network (VPN) knowledge and configuration examples. The course includes an overview of MPLS Layer 2 VPN concepts, such as BGP Layer 2 VPNs, LDP Layer 2 circuits, FEC 129 BGP autodiscovery, virtual private LAN service (VPLS), Ethernet VPN (EVPN), and Inter-AS Layer 2 VPNs. This course also covers Junos operating system-specific implementations of Layer 2 VPN instances, VPLS, and EVPNs. 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.

About This Course

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Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring the Junos OS and in device operations.

Who Should Attend

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

Prerequisites & Entry Requirements

General Prerequisites:

The prerequisites for this course include the following:

- An intermediate-level networking knowledge and an understanding of OSPF, IS-IS, BGP, and Junos policy;
- Experience configuring MPLS label-switched paths using Junos;
- Introduction to the Junos Operating System (IJOS) course or equivalent;
- Junos Service Provider Switching (JSPX) course or equivalent;
- Junos Intermediate Routing (JIR) course or equivalent; and
- Junos MPLS Fundamentals (JMF) course or equivalent.

Learning Outcomes

Upon successful completion of this course, participants will be able to:

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

- Define the term virtual private network.
- Describe the business drivers for MPLS VPNs.
- Describe the differences between Layer 2 VPNs and Layer 3 VPNs.
- List advantages for the use of MPLS Layer 3 VPNs and Layer 2 VPNs.
- Describe the roles of a CE device, PE router, and P router in a BGP Layer 2 VPN.
- Explain the flow of control traffic and data traffic for a BGP Layer 2 VPN.
- Configure a BGP Layer 2 VPN and describe the benefits and requirements of over-provisioning.
- Monitor and troubleshoot a BGP Layer 2 VPN.
- Explain the BGP Layer 2 VPN scaling mechanisms and route reflection.
- Describe the Junos OS BGP Layer 2 VPN CoS support.
- Describe the flow of control and data traffic for an LDP Layer 2 circuit.
- Configure an LDP Layer 2 circuit.
- Monitor and troubleshoot an LDP Layer 2 circuit.
- Describe the operation of FEC 129 BGP autodiscovery for Layer 2 VPNs.
- Configure a FEC 129 BGP autodiscovery Layer 2 VPN.
- Monitor and troubleshoot a FEC 129 BGP autodiscovery for Layer 2 VPNs.
- Describe the difference between Layer 2 MPLS VPNs and VPLS.
- Explain the purpose of the PE device, the CE device, and the P device.
- Explain the provisioning of CE and PE routers.
- Describe the signaling process of VPLS.
- Describe the learning and forwarding process of VPLS.
- Describe the potential loops in a VPLS environment.
- Configure BGP, LDP, and FEC 129 BGP autodiscovery VPLS.
- Troubleshoot VPLS.
- Describe the purpose and features of Ethernet VPN.
- Configure Ethernet VPN.
- Monitor and troubleshoot Ethernet VPN.
- Describe the Junos OS support for hierarchical VPN models.
- Describe the Junos OS support for Carrier-of-Carriers VPN Option C.

- Configure the interprovider VPN Option C.
- Describe the Junos OS support for multisegment pseudowire for FEC 129.
- Describe and configure circuit cross-connect (CCC).

Detailed Course Outline

Day 1

Chapter 1:\tCourse Introduction

Chapter 2: MPLS VPNs

- MPLS VPNs
- Provider-Provisioned VPNs

Chapter 3:\tBGP Layer 2 VPNs

- Overview of Layer 2 Provider-Provisioned VPNs
- BGP Layer 2 VPN Operational Model: Control Plane
- BGP Layer 2 VPN Operational Model: Data Plane
- Preliminary BGP Layer 2 VPN Configuration
- BGP Layer 2 Configuration
- Monitoring and Troubleshooting BGP Layer 2 VPNs
- Lab: BGP Layer 2 VPNs

Chapter 4:\tLayer 2 VPN Scaling and CoS

- Review of VPN Scaling Mechanisms
- Layer 2 VPNs and CoS
- Lab: Layer 2 VPN Scaling

Chapter 5: LDP Layer 2 Circuits

- LDP Layer 2 Circuit Operation

- LDP Layer 2 Circuit Configuration

- LDP Layer 2 Circuit Monitoring and Troubleshooting

- FEC 129 BGP Autodiscovery Layer 2 Circuit Operation

- FEC 129 BGP Autodiscovery Layer 2 Circuit Configuration

- FEC 129 BGP Autodiscovery Monitoring and Troubleshooting

- Lab: LDP Layer 2 Circuit and FEC 129 BGP Autodiscovery L2VPNs

Day 2

Chapter 6:\tVirtual Private LAN Service

- Layer 2 MPLS VPNs Versus VPLS

- BGP VPLS Control Plane

- LDP VPLS Control Plane

- FEC 129 BGP Autodiscovery Control Plane

- Learning and Forwarding Process

- Loops

Chapter 7:\tVPLS Configuration

- VPLS Configuration

- VPLS Troubleshooting

- Lab: VPLS

Chapter 8:\tEthernet VPN

- EVPN Overview

- EVPN Operation

- EVPN Configuration

- EVPN Troubleshooting

- Lab: EVPN

Appendix A: Interprovider Backbones for Layer 2 VPNs

- Hierarchical VPN Models
- Carrier-of-Carriers VPN Option C
- Interprovider VPN Option C
- Multisegment Pseudowires

Appendix B: Circuit Cross-Connect

- Circuit Cross-Connect
- Lab: Circuit Cross-Connect (optional)

Skills You Will Learn:

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- Describe the business drivers for MPLS VPNs.
- Describe the differences between Layer 2 VPNs and Layer 3 VPNs.
- List advantages for the use of MPLS Layer 3 VPNs and Layer 2 VPNs.
- Describe the roles of a CE device, PE router, and P router in a BGP Layer 2 VPN.
- Explain the flow of control traffic and data traffic for a BGP Layer 2 VPN.
- Configure a BGP Layer 2 VPN and describe the benefits and requirements of over-provisioning.
- Monitor and troubleshoot a BGP Layer 2 VPN.
- Explain the BGP Layer 2 VPN scaling mechanisms and route reflection.
- Describe the Junos OS BGP Layer 2 VPN CoS support.
- Describe the flow of control and data traffic for an LDP Layer 2 circuit.
- Configure an LDP Layer 2 circuit.
- Monitor and troubleshoot an LDP Layer 2 circuit.
- Describe the operation of FEC 129 BGP autodiscovery for Layer 2 VPNs.
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- Explain the purpose of the PE device, the CE device, and the P device.
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- Describe the Junos OS support for Carrier-of-Carriers VPN Option C.
- Configure the interprovider VPN Option C.
- Describe the Junos OS support for multisegment pseudowire for FEC 129.
- Describe and configure circuit cross-connect (CCC).

Frequently Asked Questions

Q: What delivery options are available for Junos Layer 2 VPNs?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: How many CPD hours does this course provide?

The 3-day Junos Layer 2 VPNs course provides up to 19.5 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Junos Layer 2 VPNs training?

The training takes place over 3 day(s), with each day lasting approximately 24.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Junos Layer 2 VPNs?

Yes, we provide corporate training, dedicated training, and closed classes for Junos Layer 2 VPNs. Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: Junos Layer 2 VPNs, Service Provider Routing and Switching, JL2V

Q: Why choose Nexus Human for Junos Layer 2 VPNs?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Junos Layer 2 VPNs training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

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