Junos Service Provider Switching

Course overview

This two-day course provides students with intermediate switching knowledge and configuration examples. The course includes an overview of switching concepts such as LANs, Layer 2 address learning, bridging, VLANs, provider bridging, VLAN translation, spanning-tree protocols, and Ethernet Operation, Administration, and Maintenance (OAM).

This course also covers Junos operating system (OS)–specific implementations of integrated routing and bridging (IRB) interfaces, routing instances, virtual switches, load balancing, and port mirroring. Furthermore, this course covers the basics of Multiple VLAN Registration Protocol (MVRP), link aggregation groups (LAGs), and multichassis LAG (MC-LAG). The lab environment uses Juniper Networks® vMX Virtual Routers and is based on Junos OS Release 25.2R1.8. Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring Junos OS operations.

Course level

Junos Service Provider Switching is an intermediate-level course.

Audience

The primary audiences for this course includes individuals responsible for configuring, managing, and monitoring devices running Junos OS.

Prerequisites

The prerequisites for this course include:

- Basic networking knowledge and an understanding of the OSI model and the TCP/IP protocol suite.
- Completion of the *Introduction to the Junos Operating System* course prior to attending this class.

Related products

Juniper Networks® MX Series Universal Routers

Related certification

Service Provider Routing and Switching, Specialist (JNCIS-SP) Certification

Recommended next course

Junos MPLS Fundamentals

Junos Layer 2 VPNs

Junos Layer 3 VPNs

Advanced Junos Service Provider Routing

Objectives

- Describe the different Ethernet standards organizations.
- Describe the Layer 2 services that are available on the MX Series Routers.
- Describe the function of an Ethernet LAN.
- Describe learning and forwarding in a bridging environment.
- Describe Ethernet frame filtering.
- Implement VLAN tagging.
- Describe and implement MVRP.
- Implement IRB.
- Implement a Layer 2 firewall filter.
- Describe the use of a routing instance.
- Describe the function of a virtual router.
- Describe the function of a virtual switch.
- Describe the usage of logical systems.

- Implement a virtual switch.
- Describe interconnecting routing instances.
- Describe the different IEEE VLAN stacking models.
- Describe the components of provider bridging.
- Configure and monitor provider bridging.
- Explain the purpose of the Spanning Tree Protocol (STP).
- Describe the basic operations of STP, Rapid Spanning Tree Protocol (RSTP), Multiple Spanning Tree Protocol (MSTP), and VLAN Spanning Tree Protocol (VSTP).
- Configure and monitor STP, RSTP, MSTP, and VSTP.
- Explain the purpose of bridge protocol data units (BPDUs), loop, and root protection.
- Explain typical OAM features.
- Describe the basic operation of link fault management (LFM).
- Describe the basic operation of connectivity fault management (CFM).
- Configure and monitor Ethernet OAM.
- Describe the basic operation of Ethernet ring protection (ERP).
- Configure and monitor ERP.
- Describe the basic operation of LAGs and MC-LAGs.
- Configure and monitor LAGs and MC-LAGs.
- Describe the basic functionality of MX Series Virtual Chassis.
- Describe a basic troubleshooting method.
- List common issues that disrupt network operations.
- Identify tools used in network troubleshooting.
- Use available tools to resolve network issues.

Course contents

Day 1

Module 01: Ethernet Switching and Layer 2

- Describe the functions of an Ethernet LAN
- Describe learning and forwarding in a bridging environment
- Implement Layer 2 address learning and forwarding
- Implement Layer 2 firewall filters

Module 02: VLANs and IRBs

- Configure and monitor VLANs
- Automate VLAN administration
- Configure and monitor IRBs

Lab 01: Ethernet Switching and VLANs

Module 03: Virtual Switches

- Describe the use of a routing instance
- Configure and monitor virtual switches
- Identify the ways to interconnect different routing instances
- Explain the purpose of logical systems

Lab 02: Virtual Switches

Module 04: Provider Bridging

- Define a bridged network
- Explain how provider bridging works
- Configure and monitor provider bridging

Lab 03: Provider Bridging

Module 05: Spanning-Tree Protocols

- Summarize spanning-tree protocols
- Explain how RSTP works
- Review the functions of MSTP
- Identify VSTP improvements

Module 06: Configuring Spanning-Tree Protocols

- Configure and monitor spanning-tree protocols
- Configure BPDU, loop protection, and root protection

Lab 04: MSTP

Day 2

Module 07: Ethernet OAM

- Summarize Ethernet operation, administration, and maintenance
- Identify capabilities in link fault management
- Review the features of connectivity fault management

Module 08: Configuring OAM

- Configure and monitor Ethernet OAM

Lab 05: Ethernet OAM (LFM and CFM)

Module 09: ERP and LAG

- Summarize what ERP does
- Configure and monitor ERP
- Describe LAG
- Configure and monitor LAG

Lab 06: HA and Network Optimization

Module 10: MC-LAG and Virtual Chassis

- Provide a brief overview of MC-LAG
- Configure and monitor an MC-LAG
- Provide a brief synopsis of the MX Virtual Chassis

Lab 07: MC-LAG

Module 11: Troubleshooting and Monitoring

- Identify basic approaches to troubleshooting and monitoring
- Introduce troubleshooting and monitoring tools
- Review a troubleshooting case study on network congestion

Lab 08: Troubleshooting and Monitoring

Resources

All-Access Training Pass

On-Demand

Courses

Schedule

Learning Paths

Certification

Key contacts

Americas: networking.training.ams@hpe.com

Europe, Middle East, Africa: networking.training.emea@hpe.com

Asia Pacific & Japan: networking.training.apj@hpe.com

Asset ID

Visit HPE.com

Chat now

© Copyright 2026 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty.
Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

Trademark acknowledgments, if needed. All third-party marks are property of their respective owners.

EDU-JUN-JSPX, Revision 26A

HPE.com