Junos Service Provider Switching

Duration: 2 Days Course Code: JSPX

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, virtual LANs (VLANs), provider bridging, VLAN translation, spanning-tree protocols, and Ethernet Operation, Administration, and Maintenance (OAM). This course also covers Junos operating system-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). This course uses MX Series 3D Ethernet Universal Edge Routers for the hands-on component. This course is based on the Junos OS Release 14.2R3.8.
Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring the Junos OS and device operations.

Target Audience:

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

Objectives:

- After successfully completing this course, you should be able to:
- Describe carrier Ethernet.
- Describe the different Ethernet standards organizations.
- Describe the Layer 2 services that are available on the MX Series 3D Universal Edge 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 usage of a routing instance.
- Describe the function of a virtual router.
- Describe the function of a virtual switch.
- Implement a virtual switch.
- Describe interconnecting routing instances.
- Describe the different Institute of Electrical and Electronics Engineers (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 operation of the STP, the Rapid Spanning Tree Protocol (RSTP), the Multiple Spanning Tree Protocol (MSTP), and the VLAN Spanning Tree Protocol (VSTP).
- Configure and monitor the STP, the RSTP, the MSTP, and the VSTP.
- Explain the purpose of bridge protocol data unit (BPDU), 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 a LAG.

Prerequisites:

Content:

Day 1

Chapter 1: Course Introduction

Chapter 2: Carrier Ethernet

- Ethernet in the WAN
- Ethernet Standards Organizations
- MX Series Layer 2 Features

Chapter 3: Ethernet Switching and Virtual LANs

- Ethernet LANs
- Bridging
- Configuring and Monitoring VLANs
- Automating VLAN Administration
- Configuring and Monitoring IRB
- Layer 2 Address Learning and Forwarding
- Layer 2 Firewall Filtering
- Lab 1: Ethernet Switching and VLANs

Chapter 4: Virtual Switches

- Routing Instances Overview
- Configuring and Monitoring Virtual Switches
- Interconnecting Routing Instances
- Lab 2: Virtual Switches

Day 2

Chapter 5: Provider Bridging

- Expanding the Bridged Network
- Provider Bridging
- Configuring and Monitoring Provider Bridging
- Lab 3: Provider Bridging

Chapter 6: Spanning-Tree Protocols

- Overview of STP
- Overview of RSTP
- Overview of MSTP
- Overview of VSTP
- Configuring and Monitoring Spanning-Tree Protocols
- Understanding BPDU, Loop, and Root Protection
- Lab 4: MSTP

Chapter 7: Ethernet OAM

- OAM Overview
- LFM
- CFM
- Configuring and Monitoring Ethernet OAM
- Lab 5: Ethernet OAM

Chapter 8:High Availability and Network Optimization

- ERP Overview
- Configuring and Monitoring ERP
- LAG Overview
- Configuring and Monitoring a LAG
- Lab 6: High Availability and Network Optimization

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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