Deploying Junos Subscriber Management

Education Services

COURSE OVERVIEW

This four-day course is designed to provide students with the knowledge required to configure and manage subscriber management on devices running the Junos operating system. This course focuses on the main configuration components of subscriber management, including subscriber authentication, authorization, and accounting (AAA), Dynamic Host Configuration Protocol (DHCP) local server and DHCP relay and proxy agent, the Point-to-Point Protocol (PPP), subscriber addressing, dynamic profiles, subscriber interfaces, Layer 3 and Layer 2 wholesale services, Pseudowire Headend Termination (PWHT), Layer 2 Tunneling Protocol (L2TP), dynamic firewall services, subscriber class of service (CoS), basic Network Address Translation (NAT) and Carrier-grade NAT (CGNAT) functions, Juniper Address Pool Manager, High-availability, Juniper BNG CUPS introduction, and Subscriber Secure Policy (SSP, or lawful intercept).

Through demonstrations and hands-on labs, students will gain experience in configuring, monitoring, and troubleshooting subscriber management features on MX Series routers running Junos OS.

This course is based on Junos OS Release 22.4R3.25.

COURSE LEVEL

Intermediate

AUDIENCE

Individuals responsible for network administrators who configure and administer subscriber management features on MX Series routers running Junos OS

PREREQUISITES

- A strong base of networking fundamentals
- A high-level understanding of broadband access concepts
- Experience and familiarity with Junos OS
- Familiarity with the Junos CLI
- *Introduction to the Junos Operating System* course, or equivalent knowledge

RELATED JUNIPER PRODUCTS

- Junos OS
- MX Series

RELATED CERTIFICATION

JNCIP-SP, JNCIS-SP

CONTACT YOUR REGIONAL EDUCATION SERVICES TEAM:

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OBJECTIVES

- Describe the fundamentals of subscriber management.
- Evaluate and configure subscriber management services.
- Configure L2TP subscriber access.
- Describe and configure subscriber management interfaces.
- Describe and configure dynamic profiles.
- Describe and configure Point-to-Point protocol over Ethernet (PPPoE) Services.
- Describe and configure wholesale services.
- Describe and configure L2TP services.
- Describe subscriber management high availability.
- Describe and configure PWHT.
- Describe and configure subscriber CoS.
- Describe and configure dynamic firewall services.
- Describe carrier-grade NAT and secure policy.
- Describe the concepts of BNG CUPS.
- Explain Address Pool Manager fundamentals.

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COURSE CONTENTS

DAY 1

1 Introduction to Subscriber Management

- Explain the basic concepts of subscriber management
- Characterize network concepts for broadband access
- Analyze subscriber management operational flow

2 Access Management

- Discuss subscriber access management
- Configure AAA services
- Configure an extended DHCP local server
- Configure an extended DHCP relay and proxy agent

Lab 1: Configuring subscriber addressing

3 PPP Tunneling with L2TP

- Describe PPP using L2TP
- Configure L2TP

4 Subscriber Management Interfaces

- Describe physical interface characteristics
- Configure static and dynamic subscriber interfaces
- Configure an IP demux interface
- List differences between static and dynamic VLANs
- Validate subscriber traffic
- Monitor and troubleshoot subscriber interfaces

5 Dynamic Profiles

- List common variables used in subscriber management

Lab 2: Configuring dynamic profiles

DAY 2

6 Dynamic PPPoE for Subscriber Access

- Describe PPPoE in subscriber access netwoks
- Explain the benefits and operation of dynamic PPPoE
- Configure dynamic PPPoE

Lab 3: Configuring PPPoE service name tables

7 Layer 3 Wholesale Services

- Describe wholesale operations
- Explain Layer 3 wholesale services

Lab 4: Configuring Layer 3 wholesale services

8 Layer 2 Operations

- Describe two common L2TP applications
- Configure an MX Series router as an LAC and as an LNS
- Verify the L2TP operation using show commands and logging

Lab 5: L2TP

9 High Availability

- Describe Virtual Router Redundancy Protocol
- Describe M:N subscriber redundancy on BNG

DAY 3

10 Pseudowire Headend Termination

- Use pseudowires in subscriber management
- Configure pseudowires
- Use class of service with pseudowires

Lab 6: Pseudowire Headend Termination

11 Subscriber Class of Service

- Describe the purpose and benefits of CoS
- List and explain components of CoS
- Implement dynamic Cos for subscribers
- Verify, monitor, and troubleshoot subscriber CoS

Lab 7: Configuring Subscriber Class of Service

12 Dynamic Firewall Services

- Describe the characteristics and functionality of firewall filters
- Implement firewall filters for subscriber management
- Monitor firewall filters and counters

Lab 8: Configuring Dynamic Firewall Services

Continued on the next page.

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COURSE CONTENTS (continued)

DAY 4

13 Carrier-Grade NAT and Subscriber Secure Policy

- Describe NAT services
- Configure NAT services for subscribers
- Describe Subscriber Secure Policy (lawful intercept)

14 An Introduction to BNG CUPS

- Describe the components of BNG CUPS
- Explain disaggregation
- Explain two common BNG CUPS use cases

15 Address Pool Manager

- Explain APM benefits and fundamental concepts
- Describe the functional components of APM
- Discuss the APM environment
- Describe the general operation of APM

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