JUNIPER - Junos Class of Service

Duration: 2 Days
Course Price: $1,400

Course Description

Course Objectives

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

- Understand the history and evolution of CoS.
- Identify the CoS fields in various packet headers.
- List the CoS processing stages on devices running the Junos OS.
- Identify the default CoS settings on devices running the Junos OS.
- Configure and verify behavior aggregate (BA) and multifield (MF) classification.
- Configure and verify two-color and tricolor marking policers.
- Configure and verify schedulers and their components.
- Configure and verify the multiple levels of hierarchical schedulers.
- Configure and verify packet header rewriting.
- Configure and verify class-based forwarding.
- Create a CoS configuration based on a set of design requirements.

Course Content

This two-day training course provides students with advanced class-of-service (CoS) knowledge and configuration examples. The course begins with an overview of CoS before going into classification, policing, scheduling, and rewriting. The training course then covers class-based forwarding and finishes with a case study. This course is based on the Junos operating system Release 11.4R1.14. Through demonstrations and hands-on labs, you will gain experience in configuring and verifying Junos CoS features.

Course Outline

Day 1

Chapter 1: Course Introduction

Chapter 2: CoS Overview
- CoS History and Evolution
- CoS and DiffServ
- CoS Fields in Packet Headers
- CoS Processing

Chapter 3: Packet Classification
- Classification Overview
- Forwarding Classes and Packet Loss Priority
- Fixed Classification
- Multifield Classification
- Behavior Aggregate Classification
- Lab 1: Configuring Packet Classification

Chapter 4: Policing
- Policing Overview
- Single-Rate Two-Color Policier
- Tricolor Marking Policers
- Hierarchical Policers
- Application—Directly on an Interface
- Application—Within a Firewall Filter
- Lab 2: Configuring Policers

Chapter 5: Scheduling
- Scheduling Overview
- Transmission Rate
- Queue Priority
- Delay Buffers
- Drop Profiles and Drop Profile Maps
- Scheduling Configuration
- Lab 3: Configuring Schedulers

Day 2

Chapter 6: Hierarchical Scheduling
- Hierarchical Scheduling Overview
Scheduler Modes
Hierarchical Scheduling Levels
Throughput Example
Remaining Traffic
Queue Properties in a Hierarchical Scheduling Context
Putting It All Together
Lab 4: Configuring Hierarchical Schedulers

Chapter 7: Rewrite Rules

- Packet Header Rewrite Overview
- Rewrite Rules and Tables
- Rewrite Combinations
- Lab 5: Configuring Rewrite Rules

Chapter 8: CoS-Based Forwarding

- CBF Overview
- CBF Configuration
- Lab 6: Configuring CBF

Chapter 9: Case Study

- VOIP Case Study Overview
- VOIP Case Study: Ingress Node
- VOIP Case Study: Transit and Egress Nodes

Appendix A: CoS Processing on M Series, T Series, and MX Series Devices

- M Series and T Series Architecture
- M Series and T Series CoS Packet Handling
- IQ2 PIC CoS Packet Handling

Prerequisites

Who should attend
This course benefits individuals responsible for configuring and monitoring devices running the Junos OS, especially those in a service provider environment. It also benefits individuals responsible for designing networks containing devices running the Junos OS.

Prerequisites
You should attend the Introduction to the Junos Operating System (IJOS), Junos Routing Essentials (JRE), and Junos Intermediate Routing (JIR) courses, or have equivalent experience prior to attending this class. General knowledge of CoS concepts is also helpful.