

Junos Class of Service (JCOS)

Course Level

Junos Class of Service (JCOS) is an advanced level course.

Intended Audience

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

Students should attend the *Introduction to the Junos Operating System (I JOS)* course and the *Junos Intermediate Routing (JIR)* course, or have equivalent experience prior to attending this class. General knowledge of CoS concepts is also helpful.

Objectives

After successfully completing this 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.
- 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 Contents

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 Policer
- 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
- Lab 7: Case Study