Junos Class of Service (JCOS)

JUNIPER NETWORKS
EDUCATION SERVICES

COURSE OVERVIEW

This two-day 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 course then covers class-based forwarding and finishes with a case study. Through demonstrations and hands-on labs, students will gain experience in configuring and verifying Junos CoS features. This course is based on the Junos operating system Release 21.1R1.

COURSE LEVEL

Advanced

AUDIENCE

This course is intended for network administrators who configure and administer class-of-service features on MX routers running the Junos OS.

PREREQUISITES

- A strong base of networking fundamentals
- Experience and familiarity with the Junos OS
- Familiarity with the Junos command-line interface (CLI)
- Completion of the *Introduction to the Junos Operating System* (IJOS) course
- Completion of the *Junos Intermediate Routing* (JIR) course

CONTACT YOUR REGIONAL EDUCATION SERVICES TEAM:

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OBJECTIVES

- 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 CONTENTS

DAY 1

1 Course Introduction

2 CoS Overview

- CoS History and Evolution
- CoS and DiffServ
- CoS Fields in Packet Headers
- CoS Processing

3 Packet Classification

- Classification Overview
- Forwarding Classes and Packet Loss Priority
- Fixed Classification
- Multifield Classification
- Behavior Aggregate Classification

Lab 1: Configuring Packet Classification

COURSE CONTENTS

DAY 1 (contd.)

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

5 Scheduling

- Scheduling Overview
- Transmission Rate
- Queue Priority
- Delay Buffers
- Drop Profiles and Drop Profile Maps
- Scheduling Configuration

Lab 3: Configuring Schedulers

DAY 2

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 Scheduling

7 Rewrite Rules

- Packet Header Rewrite Overview
- Rewrite Rules and Tables
- Rewrite Combinations

Lab 5: Configuring Rewrite Rules

8 CoS-Based Forwarding

- CBF Overview
- CBF Configuration

Lab 6: Configuring CBF

9 Case Study

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

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