

## JUNOS CoS for EX-series Switches Overview

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When a network experiences congestion and delay, some packets must be dropped. JUNOS class of service (CoS) divides traffic into classes to which you can apply different levels of throughput and packet loss when congestion occurs. This allows packet loss to happen according to rules that you configure. CoS also allows you to rewrite the Differentiated Service Code Point (DSCP), IP precedence, or 802.1p CoS bits of packets egressing out of a specific interface, thus allowing you to tailor packets for the remote peers' network requirements.

CoS provides multiple classes of service for different applications. You can configure multiple forwarding classes for transmitting packets, define which packets are placed into each output queue, and schedule the transmission service level for each queue.

In designing CoS applications, you must give careful consideration to your service needs, and you must thoroughly plan and design your CoS configuration to ensure consistency and interoperability across all platforms in a CoS domain.

Because EX-series switches implement CoS in hardware rather than in software, you can experiment with and deploy CoS features without affecting packet forwarding and switching performance.



**NOTE:** CoS policies can be enabled or disabled on each interface of an EX-series switch. Also, each physical and logical interface on the switch can have custom CoS rules associated with it.

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### How JUNOS CoS Works

JUNOS CoS works by examining traffic entering at the edge of your network. The access switches classify traffic into defined service groups, to provide the special treatment of traffic across the network. For example, voice traffic can be sent across certain links, and data traffic can use other links. In addition, the data traffic streams can be serviced differently along the network path to ensure that higher-paying customers receive better service. As the traffic leaves the network at the far edge, you can rewrite the traffic to meet the policies of the targeted peer.

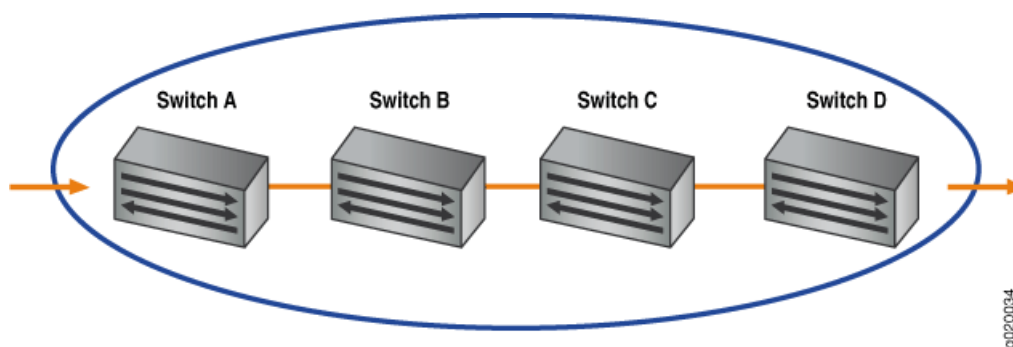
To support CoS, you must configure each switch in the network. Generally, each switch examines the packets that enter it to determine their CoS settings. These settings then dictate which packets are transmitted first to the next downstream switch. Switches at the edges of the network might be required to alter the CoS settings of the packets that enter the network to classify the packets into the appropriate service groups.

Figure 1 on page 2 represents the network scenario of an enterprise. Switch A is receiving traffic from various network nodes such as desktop computers, servers, surveillance cameras, and VoIP telephones. As each packet enters, Switch A examines the packet's CoS settings and classifies the traffic into one of the groupings defined

by the enterprise. This definition allows Switch A to prioritize resources for servicing the traffic streams it receives. Switch A might alter the CoS settings of the packets to better match the enterprise's traffic groups.

When Switch B receives the packets, it examines the CoS settings, determines the appropriate traffic groups, and processes the packets according to those settings. It then transmits the packets to Switch C, which performs the same actions. Switch D also examines the packets and determines the appropriate groups. Because Switch D sits at the far end of the network, it can rewrite the CoS bits of the packets before transmitting them.

**Figure 1: Packet Flow Across the Network**



### **Default CoS Behavior on EX-series Switches**

If you do not configure any CoS settings on your switch, the software performs some CoS functions to ensure that user traffic and protocol packets are forwarded with minimum delay when the network is experiencing congestion. Some CoS settings, such as classifiers are automatically applied to each logical interface that you configure. Other settings, such as, rewrite rules, are applied only if you explicitly associate them with an interface.

- Related Topics**
- Understanding JUNOS CoS Components for EX-series Switches
  - Understanding JUNOS EZQoS for CoS Configurations on EX-series Switches
  - Example: Configuring CoS on EX-series Switches