

## Chapter 8. Quality of Service

This chapter covers the following key topics:

- QoS Overview
- Priority Queuing
- Custom Queuing
- Weighted Fair Queuing
- Modified Deficit Round Robin
- Weighted Random Early Detection
- Selective Packet Discard
- Other QoS Features

The growing availability of data networks has fueled tremendous momentum toward placing all traffic—voice, video, and data—onto the infrastructure that provides data service alone today. Among the obstacles network engineers face when trying to combine voice, video, and data onto one network is that different types of traffic require different levels of service from the network. For example,

- Video requires high bandwidth and a consistent transit delay. This delay doesn't necessarily have to be small unless the session is interactive, but it does have to be consistent to prevent choppiness and other visual artifacts.
- Interactive voice traffic requires much less bandwidth than video traffic, but it requires a very short transit delay through the network. Excessive delay on a voice session introduces audio artifacts, such as echo, which are difficult to eliminate.
- Interactive terminal sessions, such as Telnet, require low delay. Inconsistent delay usually isn't noticeable, but consistently long delays can be very noticeable and quite annoying to users.
- File transfers benefit from high bandwidth, but are the most forgiving of all the types of network traffic, tolerating moderate to large and inconsistent delays. Delay affects the total transfer time for a file and becomes more noticeable as the file size increases.

How can a single infrastructure provide all of these types of service? The answer is in using various Quality of Service (QoS) mechanisms to condition traffic streams based on the types of service they require.

Although a complete discussion of QoS methods and protocols is beyond the scope of this book, we explore how IOS implements key QoS mechanisms.

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