

IP RTP Priority

This feature module describes IP RTP Priority. It includes the following sections:

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Feature Overview

The IP RTP Priority feature provides a strict priority queuing scheme for delay-sensitive data such as voice. Voice traffic can be identified by its Real-Time Transport Protocol (RTP) port numbers and classified into a priority queue configured by the **ip rtp priority** command. The result is that voice is serviced as strict priority in preference to other nonvoice traffic.

Note Although this section focuses mainly on voice traffic, IP RTP Priority is useful for any RTP traffic.

The IP RTP Priority feature extends and improves on the functionality offered by the **ip rtp reserve** command by allowing you to specify a range of User Datagram Protocol (UDP)/RTP ports whose traffic is guaranteed strict priority service over any other queues or classes using the same output interface. Strict priority means that if packets exist in the priority queue, they are dequeued and sent first—that is, before packets in other queues are dequeued. We recommend that you use the **ip rtp priority** command instead of the **ip rtp reserve** command for voice configurations.

The IP RTP Priority feature does not require that you know the port of a voice call. Rather, the feature gives you the ability to identify a range of ports whose traffic is put into the priority queue. Moreover, you can specify the entire voice port range—16384 to 32767—to ensure that all voice traffic is given strict priority service. IP RTP Priority is especially useful on slow-speed links whose speed is less than 1.544 Mbps.

This feature can be used in conjunction with either Weighted Fair Queueing (WFQ) or Class-Based WFQ (CBWFQ) on the same outgoing interface. In either case, traffic matching the range of ports specified for the priority queue is guaranteed strict priority over other CBWFQ classes or WFQ flows; packets in the priority queue are always serviced first.

- When used in conjunction with WFQ, the **ip rtp priority** command provides strict priority to voice, and WFQ scheduling is applied to the remaining queues.
- When used in conjunction with CBWFQ, the **ip rtp priority** command provides strict priority to voice. CBWFQ can be used to set up classes for other types of traffic (such as Systems Network Architecture [SNA]) that needs dedicated bandwidth and needs to be treated better than best effort and not as strict priority; the nonvoice traffic is serviced fairly based on the weights assigned to the enqueued packets. CBWFQ can also support flow-based WFQ within the default CBWFQ class if so configured.

Because voice packets are small in size and the interface also can have large packets going out, the Link Fragmentation and Interleaving (LFI) feature should also be configured on lower speed interfaces. When you enable LFI, the large data packets are broken up so that the small voice packets can be interleaved between the data fragments that make up a large data packet. LFI prevents a voice packet from needing to wait until a large packet is sent. Instead, the voice packet can be sent in a shorter amount of time.

How IP RTP Priority Works

If you want to understand its behavior and properly use the IP RTP Priority feature, it is important to consider its admission control and policing characteristics. When you use the **ip rtp priority** command to configure the priority queue for voice, you specify a strict bandwidth limitation. This amount of bandwidth is guaranteed to voice traffic enqueued in the priority queue. (This is the case whether you use the IP RTP Priority feature with CBWFQ or WFQ.)

Note IP RTP Priority does not have per-call admission control. The admission control is on an aggregate basis. For example, if configured for 96 kbps, IP RTP Priority guarantees that 96 kbps is available for reservation. It does not ensure that only four calls of 24 kbps are admitted. A fifth call of 24 kbps could be admitted, but because the five calls will only get 96 kbps, the call quality will be deteriorated. (Each call would get $96/5 = 19.2$ kbps.) In this example, it is the responsibility of the user to ensure that only four calls are placed at one time.

IP RTP Priority closely polices use of bandwidth for the priority queue, ensuring that the allocated amount is not exceeded in the event of congestion. In fact, IP RTP Priority polices the flow every second. IP RTP Priority prohibits transmission of additional packets once the allocated bandwidth is consumed. If it discovers that the configured amount of bandwidth is exceeded, IP RTP Priority drops packets, an event that is poorly tolerated by voice traffic. (Enable debugging to watch for this condition.) Close policing allows for fair treatment of other data packets enqueued in other CBWFQ or WFQ queues. To avoid packet drop, be certain to allocate to the priority queue the most optimum amount of bandwidth, taking into consideration the type of codec used and interface characteristics. IP RTP Priority will not allow traffic beyond the allocated amount.

It is always safest to allocate to the priority queue slightly more than the known required amount of bandwidth. For example, suppose you allocated 24 kbps bandwidth, the standard amount required for voice transmission, to the priority queue. This allocation seems safe because transmission of voice packets occurs at a constant bit rate. However, because the network and the router or switch can use some of the bandwidth and introduce jitter and delay, allocating slightly more than the required amount of bandwidth (such as 25 kbps) ensures constancy and availability.

The IP RTP Priority admission control policy takes RTP header compression into account. Therefore, while configuring the *bandwidth* parameter of the **ip rtp priority** command you only need to configure for the bandwidth of the compressed call. For example, if a G.729 voice call requires 24 kbps uncompressed bandwidth (not including Layer 2 payload) but only 12 kbps compressed bandwidth, you only need to configure a bandwidth of 12 kbps. You need to allocate enough bandwidth for all calls if there will be more than one call.

The sum of all bandwidth allocation for voice and data flows on the interface cannot exceed 75 percent of the total available bandwidth. Bandwidth allocation for voice packets takes into account the payload plus the IP, RTP, and UDP headers, but again, not the Layer 2 header. Allowing 25 percent bandwidth for other overhead is conservative and safe. On a PPP link, for instance, overhead for Layer 2 headers assumes 4 kbps. The amount of configurable bandwidth for IP RTP Priority can be changed using the **max-reserved-bandwidth** command on the interface.

If you know how much bandwidth is required for additional overhead on a link, under aggressive circumstances in which you want to give voice traffic as much bandwidth as possible, you can override the 75 percent maximum allocation for the bandwidth sum allocated to all classes or flows by using the **max-reserved-bandwidth** command. If you want to override the fixed amount of bandwidth, exercise caution and ensure that you allow enough remaining bandwidth to support best-effort and control traffic, and Layer 2 overhead.

As another alternative, if the importance of voice traffic far exceeds that of data, you can allocate most of the 75 percent bandwidth used for flows and classes to the voice priority queue. Unused bandwidth at any given point will be made available to the other flows or classes.

Benefits

Provides Strict Priority Service

The strict priority queueing scheme allows delay-sensitive data such as voice to be dequeued and sent first—that is, before packets in other queues are dequeued. Delay-sensitive data is given preferential treatment over other traffic.

Restrictions

Because the **ip rtp priority** command gives absolute priority over other traffic, it should be used with care. In the event of congestion, if the traffic exceeds the configured bandwidth, then all the excess traffic is dropped.

The **ip rtp reserve** and **ip rtp priority** commands cannot be configured on the same interface.

Related Features and Technologies

The IP RTP Priority feature is related to the following features:

- Class-Based Weighted Fair Queueing (CBWFQ)
- Link Fragmentation and Interleaving (LFI)
- Priority Queueing (PQ)
- Weighted Fair Queueing (WFQ)

Related Documents

- Cisco IOS Release 12.0 *Quality of Service Solutions Configuration Guide*
- Cisco IOS Release 12.0 *Quality of Service Solutions Command Reference*
- *Class-Based Weighted Fair Queueing*

Supported Platforms

- Cisco 1003
- Cisco 1004
- Cisco 1005
- Cisco 1600 series
- Cisco 2500 series
- Cisco 2600 series
- Cisco 3600 series
- Cisco 3800 series
- Cisco 4000 series (Cisco 4000, 4000-M, 4500, 4500-M, 4700, 4700-M)
- Cisco 5200 series
- Cisco 7000 series
- Cisco 7200 series
- Cisco 7500 series

This feature runs on the platforms listed. However, it is most useful on voice supported platforms, such as the Cisco 2600 series, Cisco 3600 series, Cisco 7200 series, and Cisco 7500 RSP series.

Supported Standards, MIBs, and RFCs

MIBs

This feature supports no new MIBs.

For descriptions of supported MIBs and how to use MIBs, see the Cisco MIB web site on CCO at <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>.

RFCs

None

Standards

None

Prerequisites

To use this feature, you should be familiar with the following:

- Access control lists
- Bandwidth management
- CBWFQ
- The **ip rtp reserve** command
- LFI
- Virtual templates and virtual access interfaces

Configuration Tasks

See the following sections for configuration tasks for the IP RTP Priority feature. Each task in the list indicates if the task is optional or required.

- Configuring IP RTP Priority (Required)
- Configuring the Bandwidth Limiting Factor (Optional)
- Verifying IP RTP Priority (Optional)

Configuring IP RTP Priority

To reserve a strict priority queue for a set of RTP packet flows belonging to a range of UDP destination ports, use the following command in interface configuration mode:

Command	Purpose
Router(config-if)# ip rtp priority <i>starting-rtp-port-number port-number-range bandwidth</i>	Reserves a strict priority queue for a set of RTP packet flows belonging to a range of UDP destination ports.

Note Because the **ip rtp priority** command gives absolute priority over other traffic, it should be used with care. In the event of congestion, if the traffic exceeds the configured bandwidth, then all the excess traffic is dropped.

The **ip rtp reserve** and **ip rtp priority** commands cannot be configured on the same interface.

Configuring the Bandwidth Limiting Factor

To change the maximum reserved bandwidth allocated for CBWFQ and the IP RTP Priority feature, use the following command in interface configuration mode:

Command	Purpose
Router(config-if)# max-reserved-bandwidth <i>percent</i>	Changes the maximum configurable bandwidth for CBWFQ and IP RTP Priority. The default is 75 percent.

Verifying IP RTP Priority

To see the contents of the priority queue (such as queue depth and the first packet queued), use the following command in EXEC mode:

Command	Purpose
Router# show queue <i>interface-type interface-number</i>	Displays fair queueing configuration and statistics for a particular interface.

Monitoring and Maintaining IP RTP Priority

To tune your RTP bandwidth or decrease RTP traffic if the priority queue is experiencing drops, use one or more of the following commands in EXEC mode:

Command	Purpose
Router# debug priority	Displays priority queueing output if packets are dropped from the priority queue.
Router# show queue <i>interface-type interface-number</i>	Lists fair queueing configuration and statistics for a particular interface.

Configuration Examples

This section provides the following configuration examples:

- CBWFQ Configuration
- Virtual Template Configuration
- Multilink Bundle Configuration
- Debug

CBWFQ Configuration

The following example first defines a CBWFQ configuration and then reserves a strict priority queue:

```
! The following commands define a class map:
router(config)# class-map class1
router(config-cmap)# match access-group 101
router(config-cmap)# exit

! The following commands create and attach a policy map:
router(config)# policy-map policy1
router(config-pmap)# class class1
router(config-pmap-c)# bandwidth 3000
router(config-pmap-c)# queue-limit 30
router(config-pmap-c)# random-detect
router(config-pmap-c)# random-detect precedence 0 32 256 100
router(config-pmap-c)# exit
router(config)# interface Serial1
router(config-if)# service-policy output policy1

! The following command reserves a strict priority queue:
router(config-if)# ip rtp priority 16384 16383 40
```

The **queue-limit** and **random-detect** commands are optional commands for CBWFQ configurations. The **queue-limit** command is used for configuring tail drop limits for a class queue. The **random-detect** command is used for configuring RED drop limits for a class queue, similar to the **random-detect** command available on an interface.

Virtual Template Configuration

The following example configures a strict priority queue in a virtual template configuration with CBWFQ. The **max-reserved-bandwidth** command changes the maximum reserved bandwidth allocated for CBWFQ and IP RTP Priority from the default (75 percent) to 80 percent.

```
router(config)# multilink virtual-template 1
router(config)# interface virtual-template 1
router(config-if)# ip address 172.16.1.1 255.255.255.0
router(config-if)# no ip directed-broadcast
router(config-if)# ip rtp priority 16384 16383 25
router(config-if)# service-policy output policy1
router(config-if)# ppp multilink
router(config-if)# ppp multilink fragment-delay 20
router(config-if)# ppp multilink interleave
router(config-if)# max-reserved-bandwidth 80
router(config-if)# end

router(config)# interface Serial0/1
router(config-if)# bandwidth 64
router(config-if)# ip address 1.1.1.2 255.255.255.0
router(config-if)# no ip directed-broadcast
router(config-if)# encapsulation ppp
router(config-if)# ppp multilink
router(config-if)# end
```

Note To make the virtual-access interface function properly, the **bandwidth** policy-map class configuration command should not be configured on the virtual template. It needs to be configured on the actual interface, as shown in the example.

Multilink Bundle Configuration

The following example configures a strict priority queue in a multilink bundle configuration with WFQ. The advantage to using multilink bundles is that you can specify different **ip rtp priority** parameters on different interfaces.

The following commands create multilink bundle 1, which is configured for a maximum **ip rtp priority** bandwidth of 200 kbps. The **max-reserved-bandwidth** command changes the maximum reserved bandwidth allocated for WFQ and IP RTP Priority.

```
router(config)# interface multilink 1
router(config-if)# ip address 172.17.254.161 255.255.255.248
router(config-if)# no ip directed-broadcast
router(config-if)# ip rtp priority 16384 16383 200
router(config-if)# no ip mroute-cache
router(config-if)# fair-queue 64 256 0
router(config-if)# ppp multilink
router(config-if)# ppp multilink fragment-delay 20
router(config-if)# ppp multilink interleave
router(config-if)# max-reserved-bandwidth 80
```

The following commands create multilink bundle 2, which is configured for a maximum **ip rtp priority** bandwidth of 100 kbps:

```
router(config)# interface multilink 2
router(config-if)# ip address 172.17.254.162 255.255.255.248
router(config-if)# no ip directed-broadcast
router(config-if)# ip rtp priority 16384 16383 100
router(config-if)# no ip mroute-cache
router(config-if)# fair-queue 64 256 0
router(config-if)# ppp multilink
router(config-if)# ppp multilink fragment-delay 20
router(config-if)# ppp multilink interleave
```

In the next part of the example, the **multilink-group** command configures serial interface 2/0 to be part of multilink bundle 1.

```
router(config)# interface serial 2/0
router(config-if)# bandwidth 256
router(config-if)# no ip address
router(config-if)# no ip directed-broadcast
router(config-if)# encapsulation ppp
router(config-if)# no ip mroute-cache
router(config-if)# no fair-queue
router(config-if)# clockrate 256000
router(config-if)# ppp multilink
router(config-if)# multilink-group 1
```

Next, serial interface 2/1 is configured to be part of multilink bundle 2.

```
router(config)# interface serial 2/1
router(config-if)# bandwidth 128
router(config-if)# no ip address
router(config-if)# no ip directed-broadcast
router(config-if)# encapsulation ppp
router(config-if)# no ip mroute-cache
router(config-if)# no fair-queue
router(config-if)# clockrate 128000
router(config-if)# ppp multilink
router(config-if)# multilink-group 2
```

Debug

The following example shows a sample output from the **debug priority** command:

```
Router# debug priority
*Feb 28 16:46:05.659:WFQ:dropping a packet from the priority queue 64
*Feb 28 16:46:05.671:WFQ:dropping a packet from the priority queue 64
*Feb 28 16:46:05.679:WFQ:dropping a packet from the priority queue 64
*Feb 28 16:46:05.691:WFQ:dropping a packet from the priority queue 64
*Feb 28 16:46:05.699:WFQ:dropping a packet from the priority queue 64
*Feb 28 16:46:05.711:WFQ:dropping a packet from the priority queue 64
*Feb 28 16:46:05.719:WFQ:dropping a packet from the priority queue 64
```

In this example, 64 indicates the actual priority queue depth at the time the packet was dropped.

Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.0 command reference publications.

- **ip rtp priority**
- **max-reserved-bandwidth**

ip rtp priority

To reserve a strict priority queue for a set of Real-Time Transport Protocol (RTP) packet flows belonging to a range of User Datagram Protocol (UDP) destination ports, use the **ip rtp priority** interface configuration command. To disable the strict priority queue, use the **no** form of this command.

ip rtp priority *starting-rtp-port-number port-number-range bandwidth*
no ip rtp priority

Syntax Description

<i>starting-rtp-port-number</i>	The starting RTP port number. The lowest port number to which the packets are sent.
<i>port-number-range</i>	The range of UDP destination ports. Number, which added to the <i>starting-rtp-port-number</i> , yields the highest UDP port number.
<i>bandwidth</i>	Maximum allowed bandwidth (in kbps).

Defaults

This command has no default behavior or values.

Command Modes

Interface configuration

Command History

Release	Modification
12.0(5)T	This command was introduced.

Usage Guidelines

This command is most useful for voice applications, or other applications that are delay-sensitive.

This command extends and improves on the functionality offered by the **ip rtp reserve** command by allowing you to specify a range of UDP/RTP ports whose voice traffic is guaranteed strict priority service over any other queues or classes using the same output interface. Strict priority means that if packets exist in the priority queue, they are dequeued and sent first—that is, before packets in other queues are dequeued. We recommend that you use the **ip rtp priority** command instead of the **ip rtp reserve** command for voice configurations.

This command can be used in conjunction with either Weighted Fair Queueing (WFQ) or Class-Based WFQ (CBWFQ) on the same outgoing interface. In either case, traffic matching the range of ports specified for the priority queue is guaranteed strict priority over other CBWFQ classes or WFQ flows; voice packets in the priority queue are always serviced first.

- When used in conjunction with WFQ, the **ip rtp priority** command provides strict priority to voice, and WFQ scheduling is applied to the remaining queues.

- When used in conjunction with CBWFQ, the **ip rtp priority** command provides strict priority to voice. CBWFQ can be used to set up classes for other types of traffic (such as Systems Network Architecture [SNA]) that need dedicated bandwidth and need to be treated better than best effort and not as strict priority; the nonvoice traffic is serviced fairly based on the weights assigned to the enqueued packets. CBWFQ can also support flow-based WFQ within the default CBWFQ class if so configured.

Keep the following guidelines in mind when configuring the bandwidth parameter:

- It is always safest to allocate to the priority queue slightly more than the known required amount of bandwidth, to allow room for network bursts.
- The IP RTP Priority admission control policy takes RTP header compression into account. Therefore, while configuring the *bandwidth* parameter of the **ip rtp priority** command you only need to configure for the bandwidth of the compressed call. Because the *bandwidth* parameter is the maximum total bandwidth, you need to allocate enough bandwidth for all calls if there will be more than one call.
- Configure a bandwidth that allows room for Layer 2 headers. The bandwidth allocation takes into account the payload plus the IP, UDP, and RTP headers but does not account for Layer 2 headers. Allowing 25 percent bandwidth for other overhead is conservative and safe.
- The sum of all bandwidth allocation for voice and data flows on an interface cannot exceed 75 percent of the total available bandwidth, unless you change the default maximum reservable bandwidth. To change the maximum reservable bandwidth, use the **max-reserved-bandwidth** command on the interface.

Examples

The following example first defines a CBWFQ configuration and then reserves a strict priority queue with the following values: a starting RTP port number of 16384, a range of 16383 UDP ports, and a maximum bandwidth of 40 kbps.

```
! The following commands define a class map:
class-map class1
  match access-group 101
  exit

! The following commands create and attach a policy map:
policy-map policy1
  class class1
    bandwidth 3000
    queue-limit 30
    random-detect
    random-detect precedence 0 32 256 100
  exit
interface Serial1
  service-policy output policy1

! The following command reserves a strict priority queue:
ip rtp priority 16384 16383 40
```

Related Commands

Command	Description
bandwidth (policy map)	Specifies or modifies the bandwidth allocated for a class belonging to a policy map.
fair queue (WFQ)	Enables WFQ for an interface.
frame-relay ip rtp priority	Reserves a strict priority queue on a Frame Relay PVC for a set of RTP packet flows belonging to a range of UDP destination ports.
ip rtp reserve	Reserves a special queue for a set of RTP packet flows belonging to a range of UDP destination ports.
max-reserved-bandwidth	Changes the percent of interface bandwidth allocated for CBWFQ and IP RTP Priority.
policy-map	Creates or modifies a policy map that can be attached to one or more interfaces to specify a service policy.
ppp multilink	Enables MLP on an interface and, optionally, enables dynamic bandwidth allocation.
ppp multilink fragment-delay	Configures a maximum delay allowed for transmission of a packet fragment on an MLP bundle.
ppp multilink interleave	Enables interleaving of RTP packets among the fragments of larger packets on an MLP bundle.
priority	Gives priority to a class within a policy map.
service-policy	Attaches a policy map to an input interface or VC, or an output interface or VC, to be used as the service policy for that interface or VC.
show policy-map	Displays the configuration of all classes comprising the specified service policy map or all classes for all existing policy maps.
show queue	Displays the contents of packets inside a queue for a particular interface or VC.

max-reserved-bandwidth

To change the percent of interface bandwidth allocated for Class-Based Weighted Fair Queueing (CBWFQ) and IP RTP Priority, use the **max-reserved bandwidth** interface configuration command. To restore the default value, use the **no** form of this command.

```
max-reserved-bandwidth percent
no max-reserved-bandwidth
```

Syntax Description

percent Percent of interface bandwidth allocated for CBWFQ and IP RTP Priority.

Defaults

75 percent

Command Modes

Interface configuration

Command History

Release	Modification
12.0(5)T	This command was introduced.

Usage Guidelines

The sum of all bandwidth allocation on an interface should not exceed 75 percent of the available bandwidth on an interface. The remaining 25 percent of bandwidth is used for overhead, including Layer 2 overhead, control traffic, and best-effort traffic.

If you need to allocate more than 75 percent for CBWFQ and IP RTP Priority, you can use the **max-reserved- bandwidth** command. The *percent* argument specifies the maximum percentage of the total interface bandwidth that can be used by CBWFQ classes and IP RTP Priority.

If you do use the **max-reserved-bandwidth** command, care should be taken not to take too much bandwidth away from best-effort and control traffic when using this command.

The **max-reserved-bandwidth** command can be used only on interfaces; it cannot be used on virtual circuits (VCs).

Examples

In the following example, the policy1 policy map is configured for three classes with a total of 8 Mbps configured bandwidth, as shown in the output from the **show policy-map** command:

```
Router# show policy-map policy1
Policy Map policy1
  Weighted Fair Queueing
    Class class1
      Bandwidth 2500 (kbps) Max Threshold 64 (packets)
    Class class2
      Bandwidth 2500 (kbps) Max Threshold 64 (packets)
    Class class3
      Bandwidth 3000 (kbps) Max Threshold 64 (packets)
```

When the **service-policy output** command is entered in an attempt to attach the policy map on a 10 Mbps Ethernet interface, an error message such as the one shown below is produced:

```
I/f Ethernet1/1 class class3 requested bandwidth 3000 (kbps) Available only 2500 (kbps)
```

The error message is produced because the default maximum configurable bandwidth is 75 percent of the available interface bandwidth, which in this example is 7.5 Mbps. To change the maximum configurable bandwidth to 80 percent, use the **max-reserved-bandwidth** command in interface configuration mode:

```
max-reserved-bandwidth 80
service output policy1
end
```

To verify that the policy map was attached, enter the **show policy-map interface** command:

```
Router# show policy-map interface e1/1
Ethernet1/1  output :policy1
  Weighted Fair Queueing
    Class class1
      Output Queue:Conversation 265
      Bandwidth 2500 (kbps) Packets Matched 0 Max Threshold 64 (packets)
      (discards/tail drops) 0/0
    Class class2
      Output Queue:Conversation 266
      Bandwidth 2500 (kbps) Packets Matched 0 Max Threshold 64 (packets)
      (discards/tail drops) 0/0
    Class class3
      Output Queue:Conversation 267
      Bandwidth 3000 (kbps) Packets Matched 0 Max Threshold 64 (packets)
      (discards/tail drops) 0/0
```

Virtual Template Configuration Example

The following example configures a strict priority queue in a virtual template configuration with CBWFQ. The **max-reserved-bandwidth** command changes the maximum bandwidth allocated between CBWFQ and IP RTP Priority from the default (75 percent) to 80 percent.

```

multilink virtual-template 1
interface virtual-template 1
 ip address 172.16.1.1 255.255.255.0
 no ip directed-broadcast
 ip rtp priority 16384 16383 25
 service-policy output policy1
 ppp multilink
 ppp multilink fragment-delay 20
 ppp multilink interleave
 max-reserved-bandwidth 80
end

interface Serial0/1
 bandwidth 64
 ip address 10.1.1.2 255.255.255.0
 no ip directed-broadcast
 encapsulation ppp
 ppp multilink
end

```

Note To make the virtual-access interface function properly, the **bandwidth** command should not be configured on the virtual template. It needs to be configured on the actual interface, as shown in the above example.

Related Commands

Command	Description
bandwidth (policy map)	Specifies or modifies the bandwidth allocated for a class belonging to a policy map.
ip rtp priority	Reserves a strict priority queue for a set of RTP packet flows belonging to a range of UDP destination ports.

Glossary

CBWFQ—Class-Based Weighted Fair Queueing. Extends the standard WFQ functionality to provide support for user-defined traffic classes.

Class-Based Weighted Fair Queueing—See CBWFQ.

PPP—Point-to-Point Protocol. Successor to SLIP that provides router-to-router and host-to-network connections over synchronous and asynchronous circuits. Whereas SLIP was designed to work with IP, PPP was designed to work with several network layer protocols, such as IP, IPX, and ARA. PPP also has built-in security mechanisms, such as CHAP and PAP. PPP relies on two protocols: LCP and NCP.

RTP—Real-Time Transport Protocol. One of the IPv6 protocols. RTP is designed to provide end-to-end network transport functions for applications sending real-time data such as audio, video, or simulation data over multicast or unicast network services. RTP provides services such as payload type identification, sequence numbering, time-stamping, and delivery monitoring to real-time applications.

SNA—Systems Network Architecture. Large, complex, feature-rich network architecture developed in the 1970s by IBM. Similar in some respects to the OSI reference model, but with a number of differences.

UDP—User Datagram Protocol. Connectionless transport layer protocol in the TCP/IP protocol stack. UDP is a simple protocol that exchanges datagrams without acknowledgments or guaranteed delivery, requiring that error processing and retransmission be handled by other protocols. UDP is defined in RFC 768.

Weighted Fair Queueing—See WFQ.

WFQ—Weighted Fair Queueing. Congestion management algorithm that identifies conversations (in the form of traffic streams), separates packets that belong to each conversation, and ensures that capacity is shared fairly between these individual conversations. WFQ is an automatic way of stabilizing network behavior during congestion and results in increased performance and reduced retransmission.