Product Name:

Quality of Service (QoS)

Availability:

QOS service is available on all MPLS circuits that utilize Qwest as the underlying carrier.

Port speeds for EnTelegent MPLS range from T-1 (1.5Mb) to DS-3 (45Mb) and OC-n or GigE for larger business enterprises.

Capabilities:

EnTelegent Solutions supports four quality of service (QoS) queues allowing you to prioritize your applications into different priority classes based on IP precedence (IPP) bits.

For example, you can set priorities so real-time applications, such as voice and video, get priority over applications that do not require real-time handling.

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Data Services | MPLS QoS

Product Description

Simple decisions - maximum performance

To use the QoS feature, for each port choose:

- Bandwidth allocations for the four queues—P1 through P4 (P1 has the highest priority)
- One of the four queuing options—Option A through Option D.

Recommended process

First, classify your traffic based on performance requirements. That classification determines which of the four queues each type of traffic uses. Mark the traffic classification using IPP; packets are then queued according to your assigned IPP classification. This classification designation determines how you use the four available queues.

We recommend you:

- Minimize the number of queues you use
- Lump traffic with similar jitter and latency requirements together; simplifying queue management
- Place real-time traffic into one the top two queues, P1 and P2.

Suggested prioritization

If both voice and video are present, place voice into P1 and video into P2. If only video is present, it should go into P1. Place traffic with more liberal latency and jitter requirements into the P3 and/or P4 queues. *Note: P2 automatically includes network control traffic, so it is essential that this queue not be oversubscribed.*
Next, you need to determine how you want the four queues serviced—defined by the queuing option you select. The following section explains your queuing options and details use of the four-queue implementation.

Product Description (Continued)

Queuing options

EnTelegent offers four different queuing options—Option A, Option B, Option C and Option D. You may select any of the queuing implementations on a per-port basis, restricted only by what options are available on the applicable access type for the port.

All queuing methods described are applied at the network egress router port (traffic leaving the Qwest network provider edge (PE) on the access line towards your customer edge (CE) router).

Therefore, the queuing prioritizes one (or more) type(s) of your traffic over other types of your traffic. Because it is applied at the port level, these mechanisms are not prioritizing your traffic over another customer's traffic and vice versa.

All traffic that exceeds the speed of your port is buffered or discarded at the egress point in the network.

Note: Queuing differs somewhat, depending on the access method: Dedicated IP Access (DIPA), Frame Relay Access (FR), or ATM Access (ATM).

Table 2 – Available Private and Enhanced Port QoS Queuing Templates

Template #	Queuing Option	Priority 1	Priority 2	Priority 3	Priority 4
0 (No QoS) **2**	A	0%	5%	0%	95%
1	B	60%	10%	10%	20%
2	B	80%	10%	0%	10%
3	C3	60%	10%	0%	30%
4	C3	60%	10%	15%	15%
5	C3	40%	10%	0%	50%
6	C3	40%	10%	25%	25%
7	C3	40%	20%	20%	20%
8	C3	20%	10%	0%	70%
9	C3	20%	10%	35%	35%
10	C3	20%	20%	20%	40%
11	D	25%	25%	25%	25%
12	D	60%	10%	10%	20%
13	D	40%	20%	20%	20%

Table 2 Notes: 2 This is the default template. **3**Queuing option C not available on Frame Relay or ATM access (Dedicated).

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Product Description (Continued)

Queuing Option A – first in, first out (FIFO)

- This is the default queuing option.
- Recommended if you don't need to prioritize one type of traffic over another.
- Available with Private Port and Enhanced Port, all access types.
- Available with SmartPVC.

This option is FIFO—no specialized queuing. Packets are simply sent in the order they are received.
Note: A small amount of bandwidth is reserved for network control traffic, even though there is no customer-directed queuing.

Queuing Option B – unlimited P1 bandwidth

- Recommended only if you have a sophisticated understanding of your traffic types and flows and the implications of queue starvation that may occur.
- Available with Private Port and Enhanced Port, all access types.

This option always services the P1 queue first until it is empty, at the expense of the other queues, regardless of the percentage value assigned to the P1 queue.

Queuing Option C – P1 low latency

- Recommended when using voice or video, but also have a need to guarantee availability of some minimum amount of bandwidth to other applications. This option should be considered the standard option if you have voice or video traffic and DIPA local loops.
- Available with Private Port, DIPA *only*.

Similar to Option B. The difference is this option limits the amount of bandwidth the P1 queue can consume to the percentage assigned to P1.

Queuing Option D – No special P1 queue treatment

- Recommended for general use if you have Frame Relay and/or ATM access, including voice and/or video traffic. It is also recommended for use with DIPA where P1 should be allowed to burst.
- Available with Private Port and Enhanced Port, all access types.

This option does not include a P1 queue that is serviced differently from the other queues. Instead, all four queues are included in a deficit-weighted round-robin algorithm that services each queue fairly according to a percentage allocation.