

# Ask the Expert: Troubleshooting WAN...

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This discussion is locked [ciscomoderator](#) 2,634 posts since Jun 29, 2000

**Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 3, 2012 12:02 PM



## Troubleshooting WAN Links Using QoS

with [Sarala Akella](#)

Welcome to the Cisco Support Community Ask the Expert conversation. This is an opportunity to learn how to troubleshoot congestion on WAN links by using QoS and buffering best practices to optimize traffic flow. This includes queueing techniques (like WFQ, CBWFQ, or LLQ,) congestion avoidance (like WRED and CAR) as well as policing and traffic shaping mechanisms. Sarala is a customer support engineer at the Cisco Technical Assistance Center. She currently works in the WAN team where she focuses on various WAN related issues along with QoS issues on various interfaces. Sarala has been with Cisco for 11 years and has worked as a software engineer in the Network Software and Systems Technology Group. She holds a master's degree in computer engineering from Santa Clara University and a master's degree in mathematics from Osmania University, India. She also holds CCIE certification (#29921) in Routing and Switching.

Remember to use the rating system to let Sarala know if you have received an adequate response.

Sarala might not be able to answer each question due to the volume expected during this event. Remember that you can continue the conversation on the Network Infrastructure [WAN, Routing and Switching](#) discussion forum shortly after the event. **This event lasts through January 13, 2012.** Visit this forum often to view responses to your questions and the questions of other community members.

Tags: qos, car, llq, wan, cbwfq, wfq, wred, quality\_of\_service, ask\_the\_experts, ate, wide\_area\_networks, congestion\_avoidance



[Amit Goyal](#) 1 posts since Aug 3, 2011

**Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 4, 2012 10:28 PM

1. How does software queue and hardware queue works on WAN links.
2. What is the reason of output drops on WAN links? How can we minimize them?
3. What is the function of bandwidth configured on WAN link?



[sakella](#) 41 posts since Jun 8, 2007

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 6, 2012 4:06 PM

1: How does software queue and hardware queue works on WAN links

Cisco routers have **two types of queues**: a **hardware queue** and a **software queue**. The hardware

queue, which is sometimes referred to as the transmit queue (TxQ), always uses FIFO queuing, and only

when the **hardware queue is full** does the software queue handle packets.

Therefore, your queuing configuration only takes effect during periods of **interface congestion**, when the

hardware queue has overflowed.

Congestion must occur on the interface first, which causes packets to be held in the TX Ring/TX Queue.

When the TX Ring/TX Queue fills, IOS enables the queuing function on the interface

Software queue is configured using qos. When there is congestion on the link the software queue will kick it and prioritize the packets and put it in the hardware queue.

Depending on the type of interface you have you can configure different type of Qos to implement software queue.

2: What is the reason of output drops on WAN links? How can we minimize them?

Output drops are caused by a congested interface. For example, the traffic rate on the outgoing interface cannot accept all packets that should be sent out. The ultimate solution to resolve the problem is to increase the line speed. However, there are ways to prevent, decrease, or control output drops when you do not want to increase the line speed. You can prevent output drops only if output drops are a consequence of short bursts of data. If output drops are caused by a constant high-rate flow, you cannot prevent the drops. However, you can control them;

If you see short bursts that fill up the output queue buffer causing output drops, you can increase the hold queue to help with the burst.

```
Router(config-if)# hold-queue length out
```

This command is only for burst traffic.

If you are over congesting the interface you cannot prevent output drops, but you can make sure that priority traffic is not dropped by configuring qos on the interface.

This will drop low priority traffic at time of congestion and make sure you priority traffic is not affected.

Sometimes it could be a bug where the queues are not getting freed after use and that would need more troubleshooting to isolate and fix in code.

3: What is the function of bandwidth configured on WAN link?

Applying a bandwidth statement on a interface does not change the performance of the interface in any way.

The main function of using the bandwidth statement is for routing metrics. EIGRP uses the bandwidth of the link set by the bandwidth command when calculating the metrics.



[ArkadiuszBaca](#) 1 posts since Dec 11, 2009

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 5, 2012 6:20 AM

Hi I have Question about WAN. How can We send all traffic true central router from localization router? We have 2901 router in central or 891 router in localization. Problem is when We have that connection WWW works terrible in localization.



[dc-csa-blr](#) 36 posts since Dec 4, 2008

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 5, 2012 7:15 AM

Hi

I have question

We are using Cisco 3845 router in this router we created many Sub interfaces Ok

at present i have configured rate-limit for bandwidth limit as per our required , now i need to limit the bandwidth via QoS (both input/output) on sub interface.

e g one of our Customer having 5mb on interface gi0/1.5 , they need 3mb for voice and 2mb for data , what is the exact command i can configure on subinterface as per my require.

How can i achive on subinterface in cisco 3845 router via Qos.

Thanks in ADV,



[sakella](#) 41 posts since Jun 8, 2007

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 6, 2012 3:58 PM

An Ethernet subinterface is a logical interface in Cisco IOS. You can use the modular QoS command-line interface (CLI) (MQC) to create and apply a service policy to an Ethernet subinterface

Cisco IOS logical interfaces do not inherently support a state of congestion and do not support the direct application of a service policy that applies a queueing method. Instead, you first need to apply shaping to the subinterface using either generic traffic shaping (GTS) or class-based shaping

you must configure a hierarchical policy with the **shape** command at the parent level. Use the **bandwidth** command for CBWFQ, or the **priority** command for Low Latency Queueing (LLQ) at lower levels. Class-based shaping limits the output rate and (we can assume) leads to a congested state on the logical subinterface. The subinterface than applies "backpressure," and Cisco IOS begins queueing the excess packets that are held by the shaper.

## Applying a Hierarchical Policy

Follow these steps to apply a hierarchical policy:

1. Create a child or lower-level policy that configures a queueing mechanism. In the example below, we configure LLQ using the **priority**

command and CBWFQ using the **bandwidth** command.

```
policy-map child
class voice
priority 512
```

2. Create a parent or top-level policy that applies class-based shaping. Apply the child policy as a command under the parent policy since the admission control for the child class is done based on the shaping rate for the parent class.

```
policy-map parent
class class-default
shape average 2000000
service-policy child
```

3 Apply the parent policy to the subinterface.

```
interface ethernet0/0.1
service-policy parent
```



[sakella](#) 41 posts since Jun 8, 2007

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 6, 2012 4:49 PM

The question is not clear to me, I will try to answer the best from my interpretation 😊

We will be needing to ensure that the traffic leaving the 891 router QoS is configured on the outgoing interface to the central router.

```
class-map match-any voice
```

```
match access-group name sip-voip
```

!

```
policy-map QOS
```

```
class voice
```

```
priority 2000
```

```
class class-default
```

```
!
```

```
policy-map parentQOS
```

```
class class-default
```

```
shape average 5000000
```

```
service-policy QOS
```

For central router please let me what kind of connection is it? If it is it Hub and spoke kind of connection.

Then on central router we will have config in similar lines....

Step 1: Create class-maps

```
class-map match-all VIDEO_SIGNAL
```

```
match access-group 65
```

```
match access-group 165
```

```
class-map match-all VOICE_SIGNAL
```

```
match access-group 165
```

```
class-map match-all CITRIX
```

```
match protocol citrix
```

```
class-map match-all FTP
```

```
    match protocol ftp
```

```
class-map match-all VIDEO
```

```
    match access-group 65
```

```
class-map match-any VOICE
```

```
    match dscp ef
```

```
class-map match-all location1
```

```
    match access-group 161      (create access list to match destination subnets)
```

```
class-map match-all location2
```

```
    match access-group 162      (create access list to match destination subnets)
```

```
class-map match-all location3
```

```
    match access-group 163      (create access list to match destination subnets)
```

```
class-map match-all location4
```

```
    match access-group 164      (create access list to match destination subnets)
```

```
class-map
```

```
=====
```



## Step 2: Create your child policy maps.

```
policy-map LLQ2
```

```
  class VOICE_SIGNAL
```

```
    bandwidth percent 2
```

```
  class VIDEO_SIGNAL
```

```
    bandwidth percent 3
```

```
  class VOICE
```

```
    priority percent 10
```

```
  class VIDEO
```

```
    bandwidth percent 20
```

```
  police 9000000 conform-action transmit exceed-action drop
```

```
  class CITRIX
```

```
    bandwidth percent 25
```

```
  class FTP
```

```
    police 5000000 conform-action transmit exceed-action drop
```

```
=====
```

## Step 3: Create the parent policy map.

```
policy-map Parent1
```

```
class location1
```

```
  shape average 3000000      (exmaple shaping value)
```

```
  service-policy LLQ2
```

```
class location2
```

```
  shape average 1500000      (exmaple shaping value)
```

```
  service-policy LLQ2
```

```
class location3
```

```
  shape average 1000000      (exmaple shaping value)
```

```
  service-policy LLQ2
```

```
class location4
```

```
  shape average 750000      (exmaple shaping value)
```

```
  service-policy LLQ2
```

```
=====
```

Step 4: Apply map class interface

ON WAN interface

service-policy output Parent1

If I have not answered your question., please provide me the config for 891 and 2911 and the problem. I will be able to help better. 😊



[huangedmc](#) 273 posts since Aug 15, 2006

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 5, 2012 7:28 AM

It's our understanding that it's best to perform QoS marking as close to the source as possible, so that's what we're doing:

We mark appropriate DSCP values on our datacenter aggregation switches.

However, our Nexus 7K's & Cat 6K's don't seem to support classification of Citrix ICA Traffic by ICA Tag Number using NBAR.

We're running 5.1(3) on the 7K's, and 12.2(33)SXI5 on the 6K's.

Could you please tell us what versions of NX-OS & IOS for Catalyst support Citrix ICA Tag Number through NBAR?

IOS 12.4(24)T5 on an ISR 2800 supports it.

[http://www.cisco.com/en/US/docs/ios/ios\\_xe/qos/configuration/guide/clsfy\\_traffic\\_nbar\\_xe.html#wp1167057](http://www.cisco.com/en/US/docs/ios/ios_xe/qos/configuration/guide/clsfy_traffic_nbar_xe.html#wp1167057)

=====

```
N7K(config)# class-map ICA
```

```
N7K(config-cmap-qos)# match protocol ?
```

```
arp      IP ARP
```

```
bridging Bridging
```

```
cdp      Cisco Discovery Protocol
```

```
clns     ISO CLNS
```

```
clns_es  ISO CLNS End System
```

```
clns_is  ISO CLNS Intermediate System
```

```
dhcp     Dynamic Host Configuration
```

```
isis     Intermediate System Intermediate System Protocol
```

```
ldp      Label Distribution Protocol
```

```
netbios  NetBIOS
```

```
N7K(config-cmap-qos)#
```

=====

```
C6K(config)#class-map ICA
```

```
C6K(config-cmap)#match protocol citrix ?
```

```
app      Match Application Name String
```

```
<cr>
```

```
C6K(config-cmap)#
```

=====

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```
ISR(config)#class-map ICA
```

```
ISR(config-cmap)#match protocol citrix ?
```

```
app    Published App in Server Browser Mode
```

```
ica-tag Citrix ICA tag 0-high 1-medium 2-low 3-background
```

```
<cr>
```

```
ISR(config-cmap)#
```

## Classification of Citrix ICA Traffic by ICA Tag Number



**sakella** 41 posts since Jun 8, 2007

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 6, 2012 3:40 PM

Hi

Unfortunatley There is no NBAR support on n7k for now and foreseeable future, The 5.2 feature set is documented in the release notes.

[http://www.cisco.com/en/US/docs/switches/datacenter/sw/5\\_x/nx-os/release/notes/52\\_nx-os\\_release\\_note.html#wp388984](http://www.cisco.com/en/US/docs/switches/datacenter/sw/5_x/nx-os/release/notes/52_nx-os_release_note.html#wp388984)

```
N7K(config-cmap-qos)# match protocol ?
```

```
arp    IP ARP
```

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bridging Bridging

cdp Cisco Discovery Protocol

clns ISO CLNS

clns\_es ISO CLNS End System

clns\_is ISO CLNS Intermediate System

dhcp Dynamic Host Configuration

isis Intermediate System Intermediate System Protocol

ldp Label Distribution Protocol

netbios NetBIOS

All the above option

if nbar is supported, I would expect to see things like "telnet" "http" "ftp" and the like....something that would require looking at L4 info or using signatures .

The work around would be to configure QoS using MQC with ACL etc.

Here is the document to configure QoS on Nexus

<http://www.cisco.com/en/US/docs/switches/datacenter/nexus5000/sw/configuration/guide/cli/QoS.html>

Ask the Expert: Troubleshooting WAN...

But please note that this is OUT of scope for the discussion as it falls in datacenter switching domain. Our topic of discussion is QoS on WAN.

I would request you to open a TAC case for more questions on nexus.



**s-sheffield** 66 posts since Apr 24, 2003

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 10, 2012 6:29 AM

Hi

I already submitted this question on the LAN switching board before I noticed your thread. I have re-submitted it here as I may hit the QOS "jackpot" for knowledge 😊

I have a query about the following command

**srr-queue bandwidth shape 30 0 0 0**

I understand what the command does and how the weights work.

With the example above weight1 is 1/30 of the interface bandwidth but.....

is this 1/30 of the physical port (say 1Gb) or can it be 1/30 of the configured bandwidth command?

The reason behind this is I have a throttled link from my ISP.

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I connect to the CPE locally via a 1Gb sfp (fibre), the link between my two sites in question is also a 1Gb link but for now has been software throttled by the ISP to 100Mb (trying to get this changed as the link is on its way to some congestion in the near future).

Can i simply put the bandwidth statement **bandwidth 100000** on my interface and the original command above use this in its calculation?

I dont want to use the speed command on my interface.

any help is always appreciated

regards

Stuart



[sakella](#) 41 posts since Jun 8, 2007

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 11, 2012 8:10 PM

Here is the response to the question:

```
srr-queue bandwidth shape <weight queue1> 0 0 0
```

The above command will calculate percentage of bandwidth for queue 1 based on the link speed (But not the interface bandwidth you configure).

Eg:



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```
config t
```

```
int gi1/0/1
```

```
srr-queue bandwidth shape 10 0 0 0
```

The bandwidth weight for queue 1 in here is  $1/10 == 10\%$  of link speed (i.e.  $10\%$  of 1gig = 100Mb)

Here is the link which gives more information:

[http://www.cisco.com/en/US/partner/docs/switches/lan/catalyst3750/software/release/12.2\\_55\\_se/commmand/reference/cli3.html#wp1947494](http://www.cisco.com/en/US/partner/docs/switches/lan/catalyst3750/software/release/12.2_55_se/commmand/reference/cli3.html#wp1947494)

As I understand correctly, You want to rate limit traffic to 100 Mb on gig interface right?

Then you can either change the link speed (which you dont want to do) or shape the traffic to  $10\%$  of gig interface i.e. "srr-queue bandwidth shape 10 0 0 0" under the interface.

Configuring bandwidth 10000 will not help here, interface bandwidth configuration is used for metric calculations in routing protocols.



**s-sheffield** 66 posts since Apr 24, 2003

**Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 12, 2012 2:06 AM

Sarala

thankyou for the confirmation about the bandwidth statement being ignored as I couldn't really test this out on the live link.



[strangeroad](#) 45 posts since Oct 21, 2008

**Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 11, 2012 7:19 AM

Hello Sarala,

My question is in regards to QoS on an MFR interface/subinterfaces. We have a remote site with two bundled T1's terminating on a 2951 router for a total bandwidth of 3072. The circuit is provided by Paetec and the subinterfaces are designated for internet and MPLS traffic respectively. The issue we are facing is with outbound voice quality. It seems that no matter how we apply QoS, either to the main MFR interface or the MFR subinterfaces, voice packets do not seem to be prioritized. We tried FRTS, which slowed the entire link down to a crawl, we tried applying a class map to the main interface as well as a service policy, none of which seemed to affect anything. Please see below for current partial configuration. Any input will be greatly appreciated.

```
class-map match-all VOICE
```

```
match ip dscp ef
```

```
class-map match-any SIGNALING
```

```
match ip dscp af31
```

```
match ip dscp cs3
```

```
class-map match-all AZ-SERVERS
```

```
match access-group 10
```

```
!
```

```
!
```

```
policy-map VOICE-POLICY
```

```
class VOICE
```

```
    priority 640
class SIGNALING
    bandwidth 64
    set dscp af41
class AZ-SERVERS
    police 1000000
class class-default
    fair-queue
!
!
!
!
!
interface Loopback1
no ip address
!
interface Tunnel1
no ip address
!
interface MFR1
no ip address
ip flow ingress
```

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```
ip flow egress
```

```
load-interval 30
```

```
frame-relay lmi-type ansi
```

```
service-policy output VOICE-POLICY
```

```
!
```

```
interface MFR1.501 point-to-point
```

```
description => Internet via PAETEC
```

```
ip vrf forwarding internet
```

```
ip address 63.255.X.X 255.255.255.252
```

```
ip flow ingress
```

```
ip flow egress
```

```
no cdp enable
```

```
frame-relay interface-dlci 501 IETF
```

```
!
```

```
interface MFR1.502 point-to-point
```

```
description => MPLS VPN via PAETEC
```

```
ip address 63.253.X.X 255.255.255.252
```

```
ip flow ingress
```

```
ip flow egress
```

```
no cdp enable
```

```
frame-relay interface-dlci 502 IETF
```



[strangeroad](#) 45 posts since Oct 21, 2008

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 11, 2012 7:20 AM

Hello Sarala,

My question is in regards to QoS on an MFR interface/subinterfaces. We have a remote site with two bundled T1's terminating on a 2951 router for a total bandwidth of 3072. The circuit is provided by Paetec and the subinterfaces are designated for internet and MPLS traffic respectively. The issue we are facing is with outbound voice quality. It seems that no matter how we apply QoS, either to the main MFR interface or the MFR subinterfaces, voice packets do not seem to be prioritized. We tried FRTS, which slowed the entire link down to a crawl, we tried applying a class map to the main interface as well as a service policy, none of which seemed to affect anything. Please see below for current partial configuration. Any input will be greatly appreciated.

```
class-map match-all VOICE
```

```
match ip dscp ef
```

```
class-map match-any SIGNALING
```

```
match ip dscp af31
```

```
match ip dscp cs3
```

```
class-map match-all AZ-SERVERS
```

```
match access-group 10
```

```
!
```

```
!
```

```
policy-map VOICE-POLICY
```

```
class VOICE
```

```
    priority 640
```

```
class SIGNALING
```

```
    bandwidth 64
```

```
set dscp af41
```

```
class AZ-SERVERS
```

```
    police 1000000
```

```
class class-default
```

```
    fair-queue
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
interface Loopback1
```

```
no ip address
```

```
!
```

```
interface Tunnel1
```

```
no ip address
```

```
!
```

```
interface MFR1
```

```
no ip address
```

```
ip flow ingress
```

```
ip flow egress
```

```
load-interval 30
```

```
frame-relay lmi-type ansi
```

```
service-policy output VOICE-POLICY
```

!

```
interface MFR1.501 point-to-point
description => Internet via PAETEC

ip vrf forwarding internet

ip address 63.255.X.X 255.255.255.252
ip flow ingress
ip flow egress
no cdp enable

frame-relay interface-dlci 501 IETF
```

!

```
interface MFR1.502 point-to-point
description => MPLS VPN via PAETEC

ip address 63.253.X.X 255.255.255.252
ip flow ingress
ip flow egress
no cdp enable

frame-relay interface-dlci 502 IETF
```



[sakella](#) 41 posts since Jun 8, 2007

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 11, 2012 8:13 PM

You have mentioned that you tried FRTS. Can you please confirm what configuration you had. It should have worked with FRTS. if you are not seeing any match we may need to troubleshoot if the packets coming into the router are marked correctly.

Here is the sample config for FRTS

!

class-map match-all MEDIA

match dscp ef

class-map match-all SIGNALING

match dscp af41

!

!

policy-map VOIP

class MEDIA

priority percent 50

class SIGNALING

priority percent 20

!

!

!

!

!

interface MFR1

no ip address

ip route-cache flow

load-interval 30

no arp frame-relay





Ask the Expert: Troubleshooting WAN...

frame-relay mincir 64000 <<<< Change as needed

service-policy output VOIP

!

please provide show policy-map output. We may have to open TAC case as would be needing interactive/troubleshooting session.



[strangeroad](#) 45 posts since Oct 21, 2008

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 12, 2012 1:18 PM

Hello Sakella,

That worked perfectly. I may need to tweak the CIR / mincir a bit, but packets are being marked and treated properly.

Thanks!



[ymcacisco](#)

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 11, 2012 7:05 PM

I like so many people have been trying to figure out why my QOS policy doesn't give priority to voice. I have an 1841 router and below is my policy map:

When I look at Strict Priority I have 0\0.

<<< Here is my policy and class map>>>

class-map match-any voice

```
match access-group 105
match ip dscp ef
!
!
policy-map test
class voice
    priority 500
class class-default
policy-map QOS
class class-default
    shape average 50000000
    service-policy test
```

<<< policy applied to interface>>>>

```
interface FastEthernet0/0.80
encapsulation dot1Q 80
ip address 10.2.17.2 255.255.255.0
ip nat outside
ip virtual-reassembly
no snmp trap link-status
service-policy output QOS
```

<<<Policy Output results>>>>

Service-policy output: QOS

```
Class-map: class-default (match-any)
  266957331 packets, 64135687944 bytes
```

5 minute offered rate 3000 bps, drop rate 0 bps

Match: any

Traffic Shaping

Target/Average Rate	Byte Limit	Sustain bits/int	Excess bits/int (ms)	Interval (bytes)	Increment
50000000/50000000	312500	1250000	1250000	25	156250

Adapt	Queue	Packets	Bytes	Packets	Bytes	Shaping
Active	Depth		Delayed	Delayed	Active	
-	0	266957344	4006146670	0	0	no

Service-policy : test

Class-map: voice (match-any)

49575139 packets, 10644477652 bytes

5 minute offered rate 0 bps, drop rate 0 bps

Match: access-group 105

49546103 packets, 10638278904 bytes

5 minute rate 0 bps

Match: ip dscp ef (46)

29035 packets, 6198530 bytes

5 minute rate 0 bps

Queueing

Strict Priority

Output Queue: Conversation 264

Bandwidth 500 (kbps) Burst 12500 (Bytes)

**(pkts matched/bytes matched) 0/0**

(total drops/bytes drops) 0/0

Class-map: class-default (match-any)

217382198 packets, 53491210234 bytes

5 minute offered rate 3000 bps, drop rate 0 bps



**Which mean** the number of packets which match the criteria of the class when the interface was congested. In other words, the interface transmit ring was full, and the driver and the L3 processor system worked together to queue the excess packets in the L3 queues, where the service policy applies. Packets that are process-switched always go through the L3 queuing system and thus increment the "packets matched" counter.

At the time this output was taken there is no congestion as the offered rate was 0 , and hence

**(pkts matched/bytes matched) 0/0 is expected .as this counter will only increment for processes switched packets or when there is congestion .**

Here is a good link for reference

[http://www.cisco.com/en/US/tech/tk543/tk760/technologies\\_tech\\_note09186a0080108e2d.shtml](http://www.cisco.com/en/US/tech/tk543/tk760/technologies_tech_note09186a0080108e2d.shtml)



**Desmond Smith** 22 posts since Dec 8, 2011

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 12, 2012 6:54 AM

Hello Sarala,

I have two sites:

Site A                      2 T1(3Mbps)                      Site B  
2911-----2911

Multilink

Multilink

Data Vlan

Data Vlan

MGMT Vlan

MGMT Vlan

I want to ensure that the data vlan always has the highest priority sending traffic from A to B and B to A, how can I accomplish this?

Thank you!



[sakella](#) 41 posts since Jun 8, 2007

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 13, 2012 3:25 PM

Create a class-map to match Data Vlan Traffic

```
class-map <Class-name>
```

```
match vlan <data-vlan>
```

<<<If you are unable to use "match vlan", configure access-list to match data vlan traffic and then "match access-group <acl-no.>">>>

Now create policy-map to mark the traffic

```
policy-map <policy-name>
```

```
class <class-name>
```

```
...mark the traffic as needed
```

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Now Apply the policy on the interfaces connected to 2911

```
interface <int-no connected to 2911>
```

```
service-policy output <policy-name>
```

Verify:

You can look at the output "show policy-map interface <int-no.>"

Example:

```
class-map class-vlan
```

```
match vlan 100
```

```
policy-map policy-vlan
```

```
class class-vlan
```

<<Use priority or To enable CBWFQ, use the bandwidth command (or use the command for the QoS feature that you want to enable).>>

```
interface gi1/1
```

```
service-policy output policy-vlan
```

Support Restrictions to match vlan:

The following restrictions apply to the match vlan command:



- The match vlan command is supported for IEEE 802.1q and Inter-Switch Link (ISL) VLAN encapsulations only.
- As of Cisco IOS Release 12.2(31)SB2, the match vlan command is supported on Cisco 10000 series routers only.

Here is the link:

[http://www.cisco.com/en/US/docs/ios/qos/command/reference/qos\\_m1.html#wp1038903](http://www.cisco.com/en/US/docs/ios/qos/command/reference/qos_m1.html#wp1038903)

Another useful link:

[http://www.cisco.com/en/US/docs/ios/qos/configuration/guide/qos\\_on\\_lac\\_ps6350\\_TSD\\_Products\\_Configuration\\_Guide\\_Chapter.html](http://www.cisco.com/en/US/docs/ios/qos/configuration/guide/qos_on_lac_ps6350_TSD_Products_Configuration_Guide_Chapter.html)



**Kaven John** 14 posts since Dec 27, 2011

**Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 12, 2012 1:40 PM

I have a question.

I have an agreement with my ISP for 100mb dedicated bandwidth. Can I test it using any QOS method ?



**sakella** 41 posts since Jun 8, 2007

**Re: Ask the Expert: Troubleshooting WAN Links Using QoS** Jan 13, 2012 3:53 PM

For testing purpose you can have policer for 100 MB which will controll the traffic so that it would not go beyond 100 MB

here is the sample configuration

policy-map LIMIT

Ask the Expert: Troubleshooting WAN...

```
class class-default
```

```
police 100000000
```

```
interface XXX
```

```
service-policy out LIMIT
```

show policy-map int XXX should show the drops if packets go above 100 MBPS.

if you have a QoS policy already then you will be needing to configure 2 level parent-child policy