



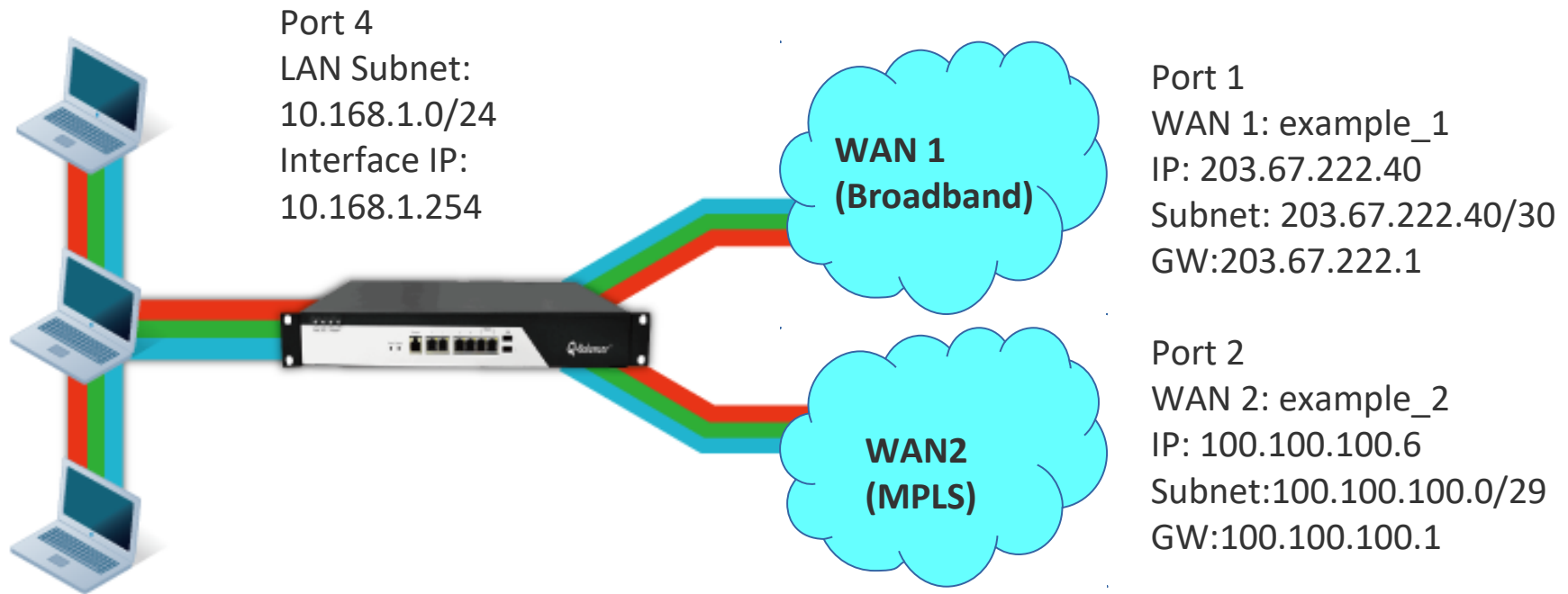
How To Guide:

Assuring Branch-to-Cloud Application Performance in Hybrid WAN

Introduction

This article outlines general procedures for configuring application-aware routing. In the following page, there is a diagram example of branch network in simplified version, where there are two different types of WAN links, broadband and MPLS. In this hybrid WAN network, the Q-Balancer's ability of application-aware routing based on business policies delivers optimal branch-to cloud application performance.

Diagram Example



Requirement

- > All traffic from LAN to the Internet is distributed across both WAN 1 (Broadband) and WAN 2 (MPLS).
- > To deliver high performance for branch-to-cloud applications, the Q-Balancer appliance is requested to direct specific application(s), e.g. **Google Drive** in this case, to the cloud via WAN 1 (Broadband); when/if WAN 1 is down, the application will go out via WAN 2 (MPLS).

Configuring Application-Aware Routing

Follow the steps below to configure the appliance:

- 1. WAN > ADD > Static*
- 2. LAN > ADD*
- 3. Object > DPS > ADD > WRR by Connection (for all LAN traffic)*
- 4. Object > DPS > ADD > Priority (for Google Drive)*
- 5. Policy Routing > ADD*

WAN > ADD > Static

Name

example_1

Port

Port 1 ▼

Path Monitoring

dns_ipv4

Subnet

203.67.222.40/30

IP

203.67.222.40

Gateway

203.67.222.1

OK

CANCEL

WAN > ADD > Static

Name

example_2

Port

Port 2 ▼

Path Monitoring

dns_ipv4 ▼

Subnet

100.100.100.0/29

IP

100.100.100.6

Gateway

100.100.100.1

Down/Up Speed

15.3 / 2.9 Mbps

OK

CANCEL

WAN

WAN configuration is done as follows:

WAN

ADD



DELETE

Status	Type	↑↓	Name	↑↓	Port	↑↓	Interface	↑↓	Subnet	↑↓	IP	↑↓	Gateway	↑↓
✓	Static		example_1		Port 1		eth0_6		203.67.222.40/30		203.67.222.40		203.67.222.1	
✓	Static		example_2		Port 2		eth1_2		100.100.100.0/29		100.100.100.6		100.100.100.1	

LAN > ADD

Name

LAN_10.168.1.0

Related ISP

Auto ▼

Port

Port 4 ▼

Subnet

10.168.1.0/24

Route

☒ Interface ☐ Gateway

IP

10.168.1.254

DHCP

Enabled



OK

CANCEL

LAN

LAN configuration is done as follows:

LAN

ADD

DELETE

Name	↑↓	Port	↑↓	Interface	↑↓	Subnet	↑↓	Route	↑↓	IP	↑↓
LAN_10.168.1.0		Port 4		eth3_3		10.168.1.0/24		Interface		10.168.1.254	

Objects > DPS > ADD > WRR by Connection (for All LAN traffic)

Name

WRRbyConn_DPS

Backup Pool

None

Algorithm

Weighted Round Robin by Connection

Links

example_1, example_2

Weight

example_1



1

example_2



1

Proxy

OK

CANCEL

Objects > DPS > ADD > Priority (for application of Google Drive)

Name

Google_drive

Backup Pool

None

Algorithm

Priority

Links

example_1, example_2

Priority



example_1



example_2

OK

CANCEL

Dynamic Path Selection (DPS)

DPS configuration is done as follows:

Dynamic Path Selection

ADD

DELETE

Name	↑↓ Backup Pool ↑↓	Algorithm ↑↓	Information	
Google_drive	-	Priority	example_1	example_2
WRRbyConn_DPS	-	WRR	example_1 1	example_2 1

Policy Routing > ADD (for all LAN traffic)

Priority

Highest

Lowest

7

Source

LAN_10.168.1.0/24

+

Destination

Any

+

Direction

☒ Both ☐ Request ☐ Reply

Services

☒ Any ☐ Services ☐ Applications

Schedules

☒ Always ☐ Custom

Choose your option

+

Pool

WRRbyConn_DPS

NAT

☒ Smart ☐ Manual ☐ No

OK

CANCEL

Policy Routing > Add (for Google Drive)

Priority 7

Highest Lowest

Source
LAN_10.168.1.0/24

Destination
Any

Direction
☒ Both ☐ Request ☐ Reply

Services
☐ Any ☐ Services ☒ Applications

googledrive

Schedules
☒ Always ☐ Custom
Choose your option

Pool
Google_drive

NAT
☒ Smart ☐ Manual ☐ No

OK CANCEL

google
google_maps
googledocs
☒ googledrive
gre
gtp
guildwars

Policy Routing

Configuration for **Google Drive** and all LAN traffic to the Internet on **Policy Routing** is done as follows:

Policy Routing

ADD DELETE

Q Search

Priority	Source	Destination	Services	Schedules	Pool	NAT
7	LAN_10.168.1.0/24	Any	googledrive	Always	Google_drive	Smart
7	LAN_10.168.1.0/24	Any	Any	Always	WRRbyConn_DPS	Smart

The hosts on LAN IP subnet 10.168.1.0/24 should be able to access the Internet via WAN 1 & WAN 2 now.

```
C:\> C:\WINDOWS\system32\cmd.exe
```

```
C:\Users\installation>ping 8.8.8.8
```

```
Pinging 8.8.8.8 with 32 bytes of data:
```

```
Reply from 8.8.8.8: bytes=32 time=24ms TTL=56
```

```
Reply from 8.8.8.8: bytes=32 time=23ms TTL=56
```

```
Reply from 8.8.8.8: bytes=32 time=23ms TTL=56
```

```
Reply from 8.8.8.8: bytes=32 time=23ms TTL=56
```

```
Ping statistics for 8.8.8.8:
```

```
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

```
Approximate round trip times in milli-seconds:
```

```
    Minimum = 23ms, Maximum = 24ms, Average = 23ms
```

```
C:\Users\installation>_
```

To check if **Google Drive** goes to the Internet via WAN 1,

Click on here

Policy Routing

ADD DELETE

Search

Priority ↑↓	Source ↑↓	Destination ↑↓	Services ↑↓	Schedules ↑↓	Pool ↑↓	NAT ↑↓	QoS	Other
7	LAN_10.168.1.0/24	↔ Any	googledrive	Always	Google_drive	Smart	example_1 example_2	▼
7	LAN_10.168.1.0/24	↔ Any	Any	Always	WRRbyConn_DPS	Smart	example_1 example_2	▼

QoS Other

example_1 examp

example_1 examp

Duplicate

Detail

Status

And click on **Status** when the dropdown menu expands.

The status of *Policy Routing* for *Google Drive*:

Policy Routing

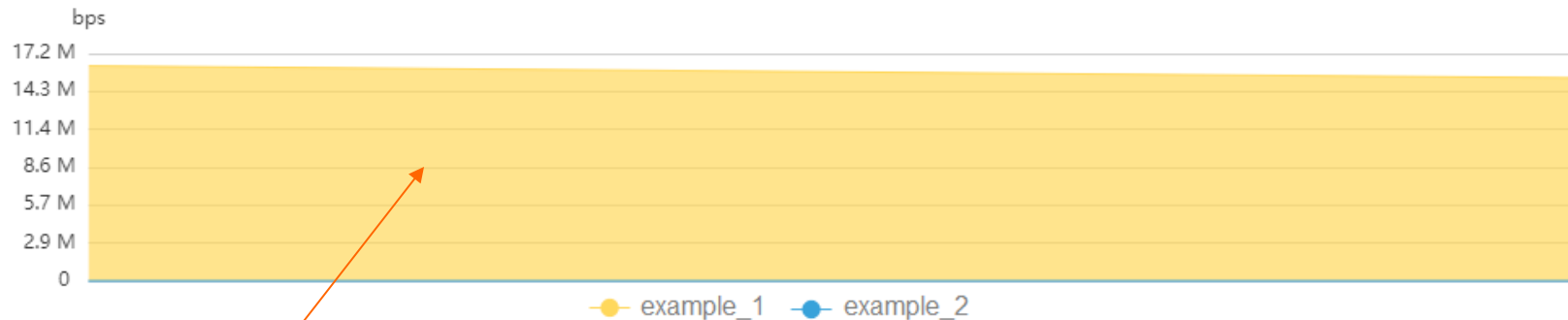
Source	LAN_10.168.1.0/24
Destination	Any
Direction	Both
Services	googledrive
Pool	Google_drive
NAT	Smart

WAN	Application	Duration(s)	State	Protocol	Request		
					Src IP:Port	Dst IP:Port	Bytes
example_1	googledrive	409	ESTABLISHED	TCP	10.168.1.114:62084	172.217.160.65:443	10.5 M

According to the session table, the application of **Google Drive** is going out via **example_1** (WAN 1).

The traffic usage for **Google Drive** on *example_1* (WAN 1):

Download



The real-time bandwidth usage for **Google Drive** on *example_1* (WAN 1).