

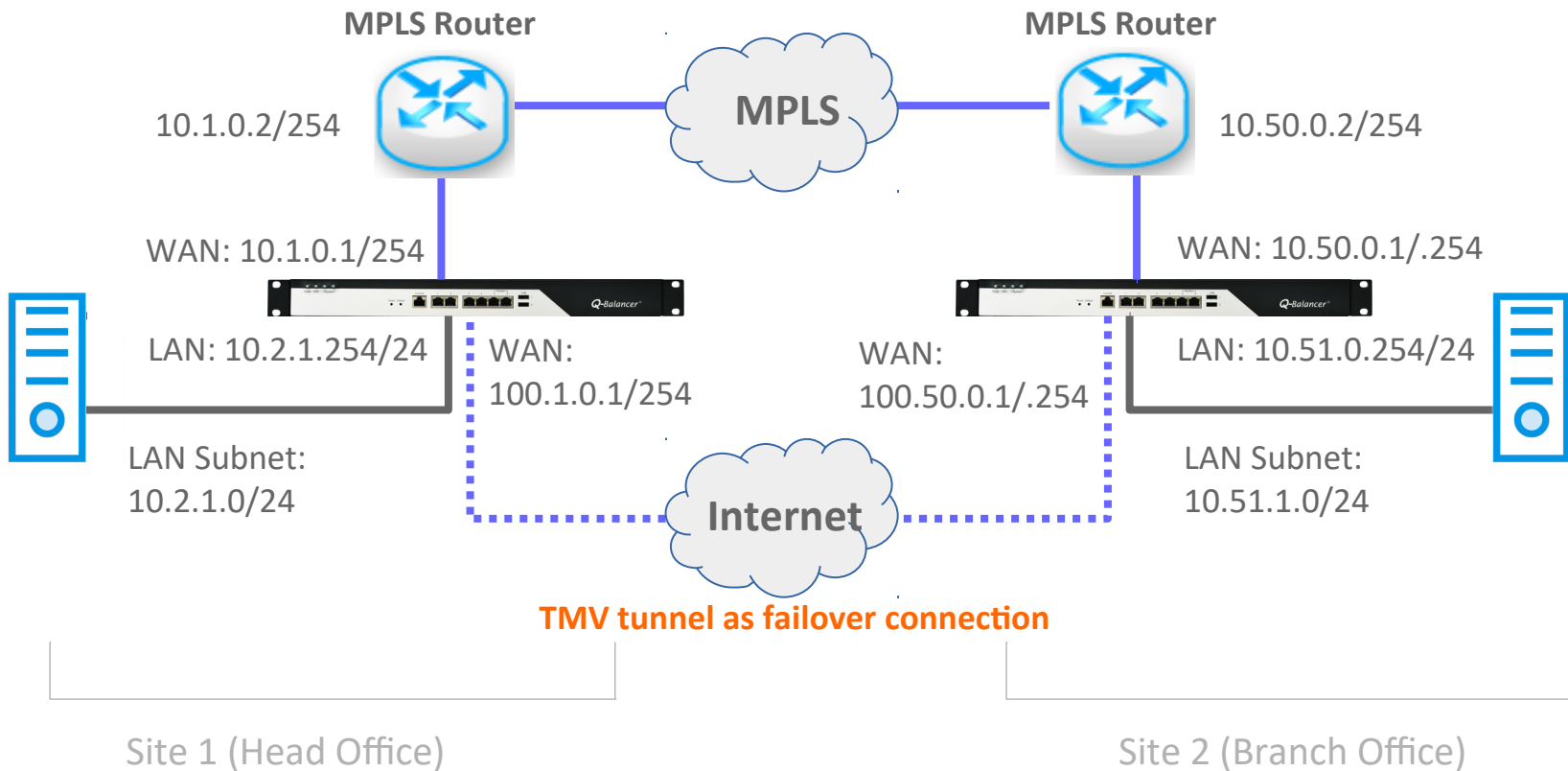


## **How To Guide:** *Hybrid WAN Configuration*

## *Introduction*

This article outlines the configuration of hybrid WAN network, which augments the traditional private WAN network. In the following example, a company with multiple locations wants users to experience high-quality and reliable VoIP calls over a private WAN network. The diagram below shows the network topology for this example, where branch and head office sites are connected using a single dedicated private network that is a point to point connection.

# Diagram Example



## Requirement

In this case, the configuration is requested to:

1. Direct VoIP traffic to the correspondent destinations mainly via MPLS network.
2. Divert VoIP traffic to internet connection If network issues such as disconnection, packet loss, latency, and jitter occur on the MPLS link.
3. Failback all VoIP traffic immediately to the MPLS link as soon as the link reinstated.

## *Configuring Hybrid WAN on the Head Office Appliance*

Follow the steps below to configure Hybrid WAN on the head office appliance with the IP details given:

- 1. WAN > ADD*
- 2. LAN > ADD*
- 3. Tunnels > ADD*
- 4. Object > DPS > ADD*
- 5. Policy Routing > ADD*

# WAN > ADD > Static

Enabled

Name

MPLS

Port

Port 1

Path Monitoring

dns\_ipv4

Subnet

10.1.0.0/24

IP

10.1.0.1

Gateway

10.1.0.2

Down/Up Speed

10.0 / 10.0 Mbps

Additional Subnet 1

Additional Subnet 2

OK

CANCEL

# WAN > ADD > Static

Enabled

Name

Internet

Port

Port 2

Path Monitoring

dns\_ipv4

Subnet

100.1.0.0/24

IP

100.1.0.1

Gateway

100.1.0.2

Down/Up Speed

10.0 / 10.0 Mbps

Additional Subnet 1

Additional Subnet 2

OK





CANCEL

# WAN

WAN configuration on the head office appliance is done as follows:

## WAN

ADD ▾ DELETE

| Edit  | Enabled                             | Status | Type ↑↓ | Name ↑↓  | Port ↑↓ | Interface ↑↓ | Subnet ↑↓    | IP ↑↓     | Gateway 1 |
|---|-------------------------------------|--------|---------|--|---------|--------------|--------------|-----------|-----------|
|  | <input checked="" type="checkbox"/> | ✓      | Static  | Internet  | Port 2  | eth1_3       | 100.1.0.0/24 | 100.1.0.1 | 100.1.0.2 |
|  | <input checked="" type="checkbox"/> | ✓      | Static  | MPLS      | Port 1  | eth0_2       | 10.1.0.0/24  | 10.1.0.1  | 10.1.0.2  |



# LAN > ADD

Enabled

Name

LAN\_Head\_Office

Related ISP

Auto ▼

Port

Port 4 ▼

Subnet

10.2.1.0/24

Route

Interface  Gateway

IP

10.2.1.254

DHCP

Enabled

OK

CANCEL

# LAN

LAN configuration on the head office appliance is done as follows:

## LAN

|                          |   |         |                 |    |        |    |           |    |             |    |           |    |            |    |      |    |       |
|--------------------------|---|---------|-----------------|----|--------|----|-----------|----|-------------|----|-----------|----|------------|----|------|----|-------|
| <input type="checkbox"/> | ADD   | DELETE  |                 |    |        |    |           |    |             |    |           |    |            |    |      |    |       |
| <input type="checkbox"/> | Edit  | Enabled | Name            | ↑↓ | Port   | ↑↓ | Interface | ↑↓ | Subnet      | ↑↓ | Route     | ↑↓ | IP         | ↑↓ | DHCP | ↑↓ | Other |
| <input type="checkbox"/> |  | -       | LAN_Head_Office |    | Port 4 |    | eth3_4    |    | 10.2.1.0/24 |    | Interface |    | 10.2.1.254 |    | -    |    | ▼     |

## *Tunnels > ADD*

To set up a backup overlay connection to the MPLS link, there are two options to choose from the appliance, ***TMV*** and ***IPSec(QB2QB)***. In this case, we use ***TMV*** tunnel as a backup link to the MPLS link.

# Tunnels > ADD

Enabled

Name

tunnel\_head\_office

Role

Server  Client

Local

100.1.0.1

Remote

IP or Domain

Tunnel ID

4001

Down/Up Speed

10.0 / 10.0 Mbps

## Advanced



OK




CANCEL

Skip this field when it is in server role.

## Tunnels > ADD

*TMV* configuration on the head office appliance is done as follows:

### Tunnels

| <input type="checkbox"/> | ADD   | DELETE  |        |    |  |    |        |    |           |    |   |    |           |    |      |    |       |
|--------------------------|---|---------|--------|----|--|----|--------|----|-----------|----|---|----|-----------|----|------|----|-------|
| <input type="checkbox"/> | Edit  | Enabled | Status | ↑↓ | Name   | ↑↓ | Role   | ↑↓ | Local     | ↑↓ | Remote  | ↑↓ | Interface | ↑↓ | Port | ↑↓ | Other |
| <input type="checkbox"/> |  | -       | -      |    | tunnel_head_office  |    | Server |    | 100.1.0.1 |    | -  |    | tmv0      |    | 4001 |    | ▼     |

# Objects > DPS > ADD

Name

Priority\_DPS

Backup Pool

None

Algorithm

Priority

Links

MPLS, tunnel\_head\_office

Priority

☰ MPLS

☰ tunnel\_head\_office

Proxy


OK

CANCEL

## Objects > DPS

Configuration for **DPS** on the head office appliance is done as follows:

### Dynamic Path Selection

|                          |   |        |    |              |    |             |    |           |    |             |                    |       |  |  |  |  |  |  |  |  |
|--------------------------|---|--------|----|--------------|----|-------------|----|-----------|----|-------------|--------------------|-------|--|--|--|--|--|--|--|--|
| <input type="checkbox"/> | ADD   | DELETE |    |              |    |             |    |           |    |             |                    |       |  |  |  |  |  |  |  |  |
| <input type="checkbox"/> | Edit  | Status | ↑↓ | Name         | ↑↓ | Backup Pool | ↑↓ | Algorithm | ↑↓ | Information |                    | Other |  |  |  |  |  |  |  |  |
| <input type="checkbox"/> |  | -      |    | Priority_DPS |    | -           |    | Priority  |    | MPLS        | tunnel_head_office | ▼     |  |  |  |  |  |  |  |  |

# Policy Routing > ADD

Enabled

Priority 7

Highest Lowest

Source  
LAN\_Head\_Office +

Destination  
LAN\_Branch\_Office +

Direction  
 Both  Request  Reply

Services  
 Any  Services  Applications

Schedules  
 Always  Custom

Choose your option +

Pool  
Priority\_DPS ▼

NAT  
 Smart  Manual  No

Choose your option ▼

QoS  
Enabled

Comments

Set head office subnet here, which covers IP addresses of VoIP devices.

Set branch office subnet here, which covers IP addresses of VoIP devices.

Choose the DPS object Priority\_DPS.



## Policy Routing

Policy Routing for hybrid WAN configuration on the head office appliance is done as follows:

### Policy Routing

| ADD     | DELETE      |                 |                     |             |              |              |        |     |       |  |
|---------|-------------|-----------------|---------------------|-------------|--------------|--------------|--------|-----|-------|--|
| Enabled | Priority ↑↓ | Source ↑↓       | Destination ↑↓      | Services ↑↓ | Schedules ↑↓ | Pool ↑↓      | NAT ↑↓ | QoS | Other |  |
| -       | 7           | LAN_Head_Office | ↔ LAN_Branch_Office | Any         | Always       | Priority_DPS | No     | -   | ▼     |  |

## *Configuring Hybrid WAN on the Branch Office Appliance*

Follow the steps below to configure hybrid WAN on the branch office appliance:

- 1. WAN > ADD*
- 2. LAN > ADD*
- 3. Tunnels > ADD*
- 4. Object > DPS > ADD*
- 5. Policy Routing > ADD*

# WAN > ADD > Static

Enabled

Name

MPLS

Port

Port 1

Path Monitoring

dns\_ipv4

Subnet

10.50.0.0/24

IP

10.50.0.1

Gateway

10.50.0.2

Down/Up Speed

10.0 / 10.0 Mbps

Additional Subnet 1

Additional Subnet 2

OK

CANCEL

# WAN > ADD > Static

Enabled

Name

Internet

Port

Port 2

Path Monitoring

dns\_ipv4

Subnet

100.50.0.0/254

IP

100.50.0.1

Gateway

100.50.0.2

Down/Up Speed

10.0 / 10.0 Mbps

Additional Subnet 1

Additional Subnet 2

OK





CANCEL

# WAN

WAN configuration on the branch appliance is done as follows:

## WAN

ADD ▾ DELETE

| <input type="checkbox"/> | Edit  | Enabled                             | Status | Type ↑↓ | Name ↑↓  | Port ↑↓ | Interface ↑↓ | Subnet ↑↓     | IP ↑↓      | Gateway ↑↓ | Other |
|--------------------------|---|-------------------------------------|--------|---------|--|---------|--------------|---------------|------------|------------|-------|
| <input type="checkbox"/> |  | <input checked="" type="checkbox"/> | ✓      | Static  | Internet  | Port 2  | eth1_6       | 100.50.0.0/24 | 100.50.0.1 | 100.50.0.2 | ▾     |
| <input type="checkbox"/> |  | <input checked="" type="checkbox"/> | ✓      | Static  | MPLS      | Port 1  | eth0_5       | 10.50.0.0/24  | 10.50.0.1  | 10.50.0.2  | ▾     |

# LAN > ADD

Enabled

Name

LAN\_Branch\_Office

Related ISP

Auto ▼

Port

Port 4 ▼

Subnet

10.51.0.0/24

Route

Interface  Gateway

IP

10.51.0.254

DHCP

Enabled

OK

CANCEL

# LAN

LAN configuration on the branch office appliance is done as follows:

## LAN

|                          |   |         |                   |    |        |    |           |    |              |    |           |    |             |    |      |    |       |
|--------------------------|---|---------|-------------------|----|--------|----|-----------|----|--------------|----|-----------|----|-------------|----|------|----|-------|
| <input type="checkbox"/> | ADD   | DELETE  |                   |    |        |    |           |    |              |    |           |    |             |    |      |    |       |
| <input type="checkbox"/> | Edit  | Enabled | Name              | ↑↓ | Port   | ↑↓ | Interface | ↑↓ | Subnet       | ↑↓ | Route     | ↑↓ | IP          | ↑↓ | DHCP | ↑↓ | Other |
| <input type="checkbox"/> |  | -       | LAN_Branch_Office |    | Port 4 |    | eth3_7    |    | 10.51.0.0/24 |    | Interface |    | 10.51.0.254 |    | -    |    | ▼     |

# Tunnels > ADD

Enabled

Name

tunnel\_branch\_office

Role

Server  Client

Local

100.50.0.1

Remote

100.1.0.1

Tunnel ID

4001

Down/Up Speed

10.0 / 10.0 Mbps

## Advanced

OK

CANCEL




It is required to type in the remote IP when the tunnel is in client role.



## Tunnels > ADD

TMV configuration on the branch appliance is done as follows:

### Tunnels

| <input type="checkbox"/> | ADD   | DELETE  |           |  |         |            |   |              |         |       |  |  |
|--------------------------|---|---------|-----------|--|---------|------------|---|--------------|---------|-------|--|--|
| <input type="checkbox"/> | Edit  | Enabled | Status ↑↓ | Name ↑↓  | Role ↑↓ | Local ↑↓   | Remote ↑↓   | Interface ↑↓ | Port ↑↓ | Other |  |  |
| <input type="checkbox"/> |  | -       | -         | tunnel_branch_office  | Client  | 100.50.0.1 | 100.1.0.1  | tmv0         | 4001    | ▼     |  |  |

# Objects > DPS > ADD

Name

Priority\_DPS

Backup Pool

None

Algorithm

Priority

Links

MPLS, tunnel\_branch\_office

Priority

≡ MPLS

≡ tunnel\_branch\_office

Proxy


OK

CANCEL

## Objects > DPS

Configuration for **DPS** on the branch office appliance is done as follows:

### Dynamic Path Selection

|                          |   |        |    |              |    |             |    |           |    |             |                      |   |
|--------------------------|---|--------|----|--------------|----|-------------|----|-----------|----|-------------|----------------------|---|
| <input type="checkbox"/> | ADD   | DELETE |    |              |    |             |    |           |    |             |                      |   |
| <input type="checkbox"/> | Edit  | Status | ↑↓ | Name         | ↑↓ | Backup Pool | ↑↓ | Algorithm | ↑↓ | Information | Other                |   |
| <input type="checkbox"/> |  | -      |    | Priority_DPS |    | -           |    | Priority  |    | MPLS        | tunnel_branch_office | ▼ |

# Policy Routing > ADD

Enabled

Priority

Highest Lowest 7

Source  
LAN\_Branch\_Office ▼ +

Destination  
LAN\_Head\_Office ▼ +

Direction

Both  Request  Reply

Services

Any  Services  Applications

Schedules

Always  Custom

Choose your option ▼ +

Pool  
Priority\_DPS ▼

NAT

Smart  Manual  No

Choose your option ▼

QoS

Enabled

Comments

OK CANCEL

Set branch office subnet here, which covers IP addresses of VoIP devices.

Set head office subnet here, which covers IP addresses of VoIP devices.

Select the DPS object Priority\_DPS.

## Policy Routing

Policy Routing for hybrid WAN configuration on the branch office appliance is done as follows:

### Policy Routing

| ADD         | DELETE            |                 |             |              |              |        |     |       |  |  |
|-------------|-------------------|-----------------|-------------|--------------|--------------|--------|-----|-------|--|--|
| Priority ↑↓ | Source ↑↓         | Destination ↑↓  | Services ↑↓ | Schedules ↑↓ | Pool ↑↓      | NAT ↑↓ | QoS | Other |  |  |
| 7           | LAN_Branch_Office | LAN_Head_Office | Any         | Always       | Priority_DPS | No     | -   | ▼     |  |  |

***Done!***

Do simple tests as follows:

1. if the devices on both ends are able to ping each other now.
2. If the devices on both ends are still able to ping each other when the MPLS link failed.