

DCI (EoIP)

Data Center Interconnect
(Ethernet over IP)

ABOUT PRESENTER

Moeez Aftab

Electrical Engineer

MTCRE, MTCNA

CCIE Data Center

(CCIE # 53316)

CCNA R&S

[Fb.com/3bits1byte](https://www.facebook.com/3bits1byte)

0092-321-3955279



WORK HISTORY

Moez Aftab

Allied Bank Limited

Network Projects 2017 – Present

CYBERNET Service Provider

Sr. TAC Engineer 2015 - 2017

Superior Connection

NOC Engineer 2014 - 2015

Starlite Telecommunication

Support Engineer 2013 - 2014



WORK HISTORY

Moez Aftab

CORVIT Systems

Workshops on Mikrotik



Mother

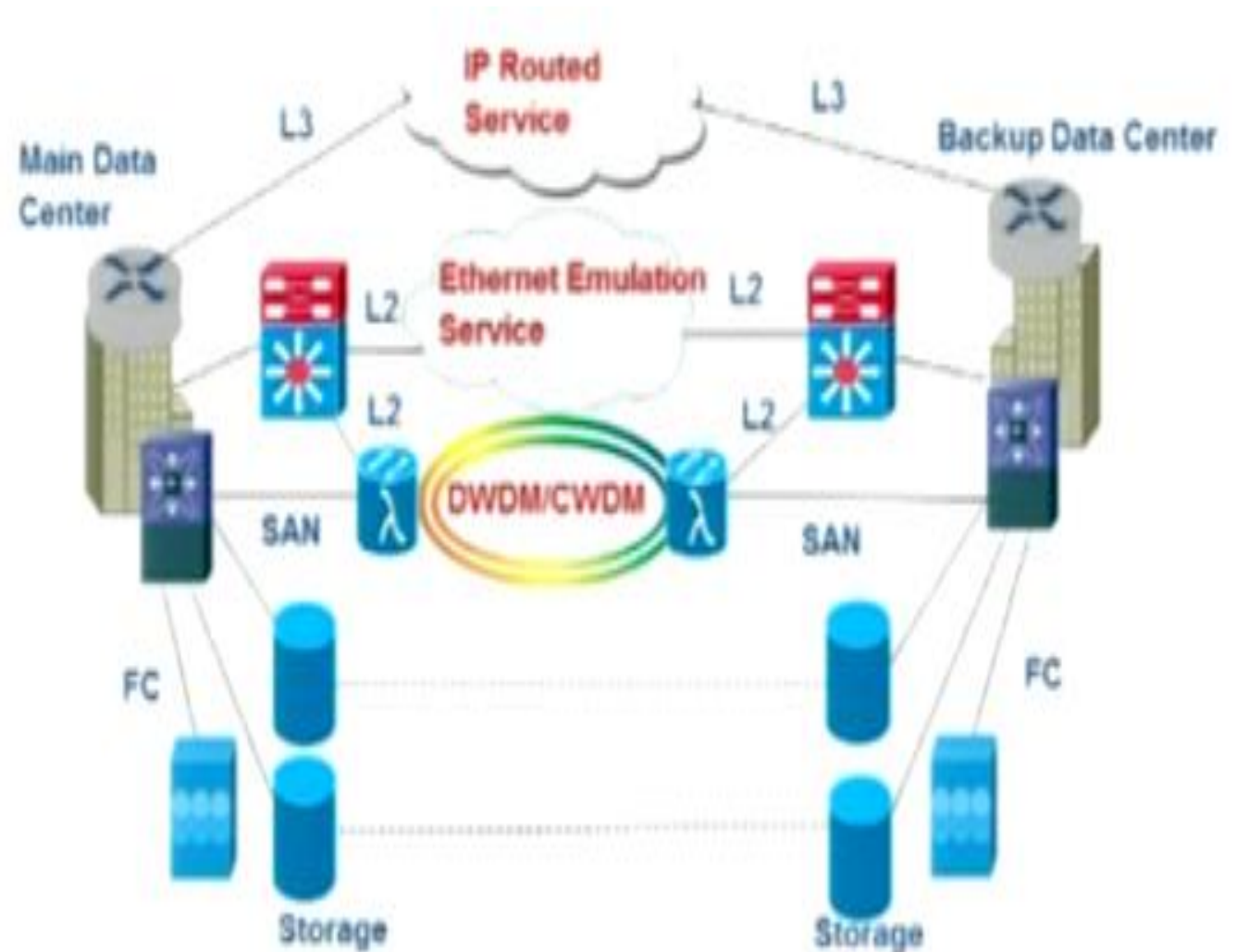


Agenda

- DCI technology
- DCI protocols Using IP/MPLS Domains
- Technical overview of EoIP
- Proposed design for DCI using EoIP
- Configuration steps

DCI Technology

- Data Center are expanding beyond traditional boundaries due to:
 - Extending operating system, file system cluster, data base cluster
 - Virtual/physical machine mobility due to load sharing, disaster prevention
 - Legacy devices/application with embedded IP addressing.
 - Time to deployment and operational reasons.
 - Extend DC to solve power/heat/space limitations.



Business Drivers for L2 connectivity

Business Drivers	IT Solutions
Disaster Prevention	Active / Standby migration
Business Continuance	Server HA clusters, “Geo-clustering”
Workload Mobility	Move, consolidate servers “Vmotion”

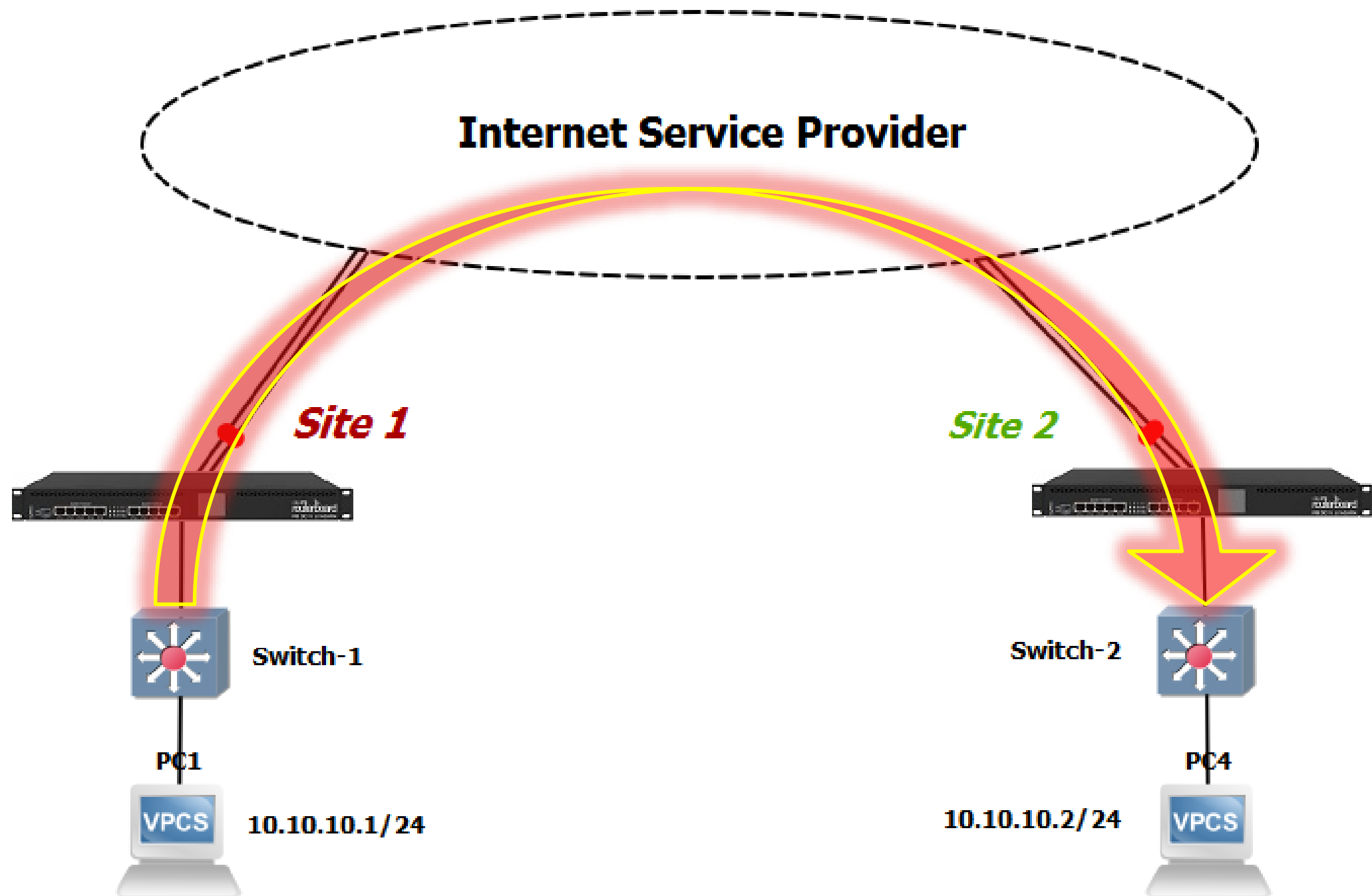
Layer 2 Extension (DCI) Protocols over IP/MPLS Based Network

IP	MPLS
L2TP	VPLS
EoIP	EVPN
EVPN	EVC
	NvGRE

Technical Overview of EoIP

EoIP

Ethernet over IP (EoIP) Tunneling is a MikroTik RouterOS protocol that creates an Ethernet tunnel between two routers on top of an IP connection.

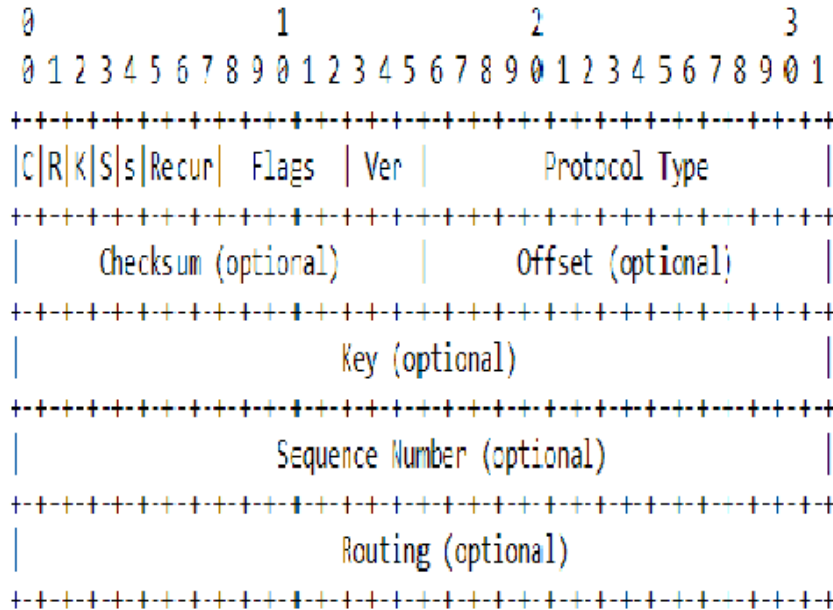


EoIP Header

- The EoIP protocol encapsulates Ethernet frames in GRE (IP protocol number 47) packets and sends them to the remote side of the EoIP tunnel.
- EoIP tunnel adds at least 42 byte overhead (8byte GRE + 14 byte Ethernet + 20 byte IP)

GRE vs EoIP Header

GRE Header



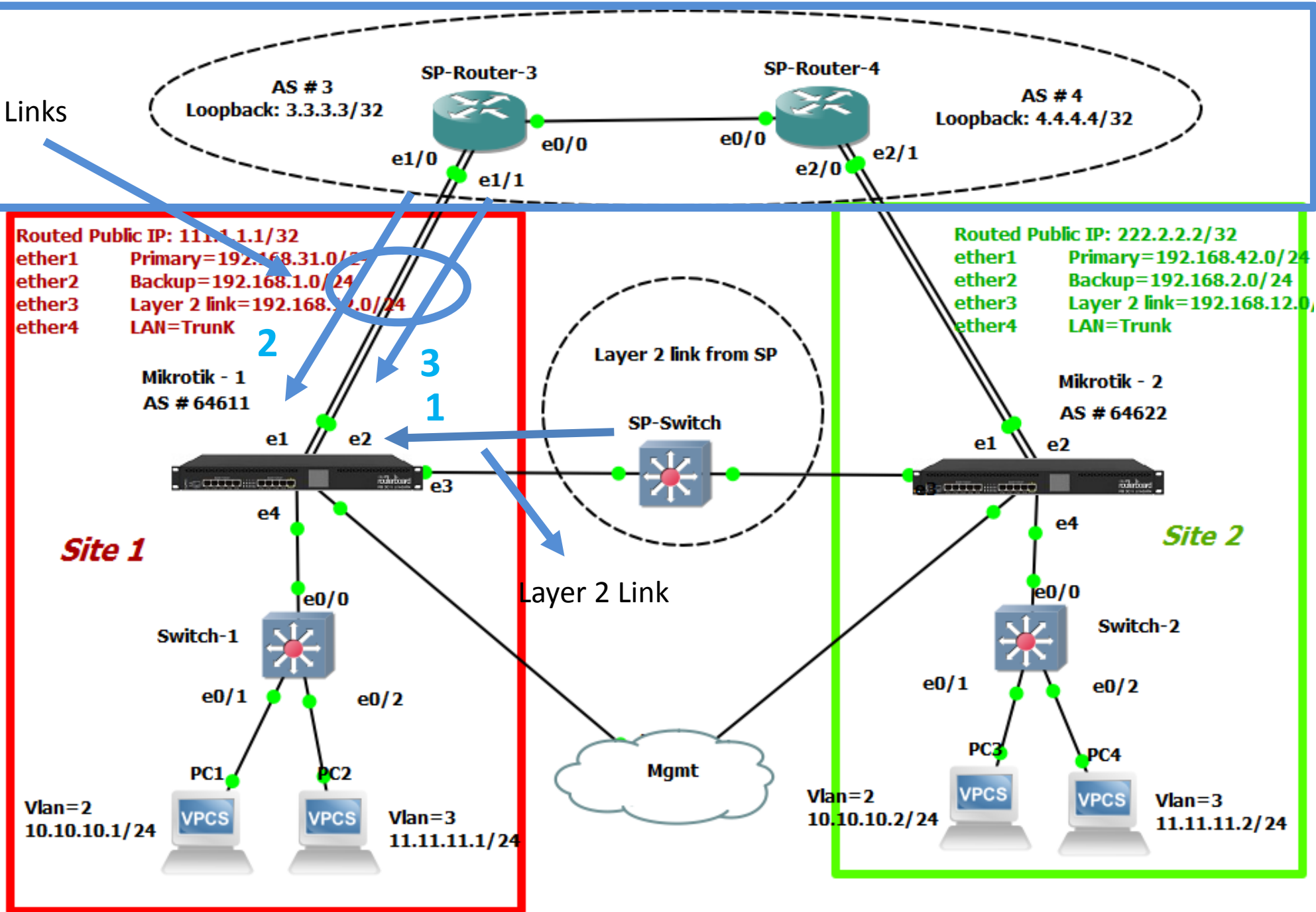
EoIP Header

```
→ 88 47.503007 10.10.10.1 10.10.10.2 ICMP 140 Echo (ping) request id=0x449b, seq=1/256
= 89 47.504874 10.10.10.2 10.10.10.1 ICMP 140 Echo (ping) reply id=0x449b, seq=1/256
> Frame 88: 140 bytes on wire (1120 bits), 140 bytes captured (1120 bits) on interface 0
> Ethernet II, Src: 00:9d:c2:32:78:02 (00:9d:c2:32:78:02), Dst: 00:9d:c2:44:97:02 (00:9d:c2:44:97:02)
> Internet Protocol Version 4, Src: 192.168.12.1, Dst: 192.168.12.2
  Generic Routing Encapsulation (MIKROTIK EoIP)
    Flags and Version: 0x2001
      0... .. = Checksum Bit: No
      .0.. .. = Routing Bit: No
      ..1. .. = Key Bit: Yes
      ...0 .. = Sequence Number Bit: No
      .... 0... = Strict Source Route Bit: No
      .... .000 .. = Recursion control: 0
      .... .. 0000 0... = Flags (Reserved): 0
      .... .. .. .001 = Version: Enhanced GRE (1)
    Protocol Type: MIKROTIK EoIP (0x6400)
    Key: 0x00020c00
    Ethernet II, Src: Private_66:68:00 (00:50:79:66:68:00), Dst: Private_66:68:02 (00:50:79:66:68:02)
    Internet Protocol Version 4, Src: 10.10.10.1, Dst: 10.10.10.2
    Internet Control Message Protocol
```

EoIP Proposed Design

From Client End
Perspective

Internet Links



Configuring EOIP tunnel

- Internet Link
 - Fiber (Primary Link)
 - RF (Backup Link)
- Layer 2 link

Configuration Steps

1. Configure routed pool given by your SP. In our case it's 111.1.1.1/32 for your site 1 and 222.2.2.2/32 for your site 2.
 - a) Primary Link = BGP & Static Route
 - b) Secondary Link = Static Route
2. Create the EoIP tunnel over this IP Prefix.
3. Create another EoIP tunnel over Layer 2 circuit.
4. Call both these EoIP tunnel's in Bridge/Bonding.

Basic Configuration

Name Interface
Assign IP address

Site 1

R	ether1 - Primary	Ethernet	1500
R	ether2 - Backup	Ethernet	1500
R	ether3 - DarkCore	Ethernet	1500
RS	ether4 - LAN	Ethernet	1500

Address List			
      Fin...			
Address	/	Network	Interface
111.1.1.1		111.1.1.1	Loopback
192.168.1.1/24		192.168.1.0	ether2 - Backup
192.168.12.1/24		192.168.12.0	ether3 - DarkCore
192.168.31.1/24		192.168.31.0	ether1 - Primary
192.168.48.11/24		192.168.48.0	ether10 - Mgmt

Site 2

R	ether1 - Primary	Ethernet	1500
R	ether2 - Backup	Ethernet	1500
R	ether3 - DarkCore	Ethernet	1500
RS	ether4 - LAN	Ethernet	1500

Address List			
      Fin...			
Address	/	Network	Interface
192.168.2.2/24		192.168.2.0	ether2 - Backup
192.168.12.2/24		192.168.12.0	ether3 - DarkCore
192.168.42.2/24		192.168.42.0	ether1 - Primary
192.168.48.22/24		192.168.48.0	ether10 - Mgmt
222.2.2.2		222.2.2.2	Loopback

BGP Pairing

Point to Ponder:
TTL for eBGP & iBGP

Define your AS in instance

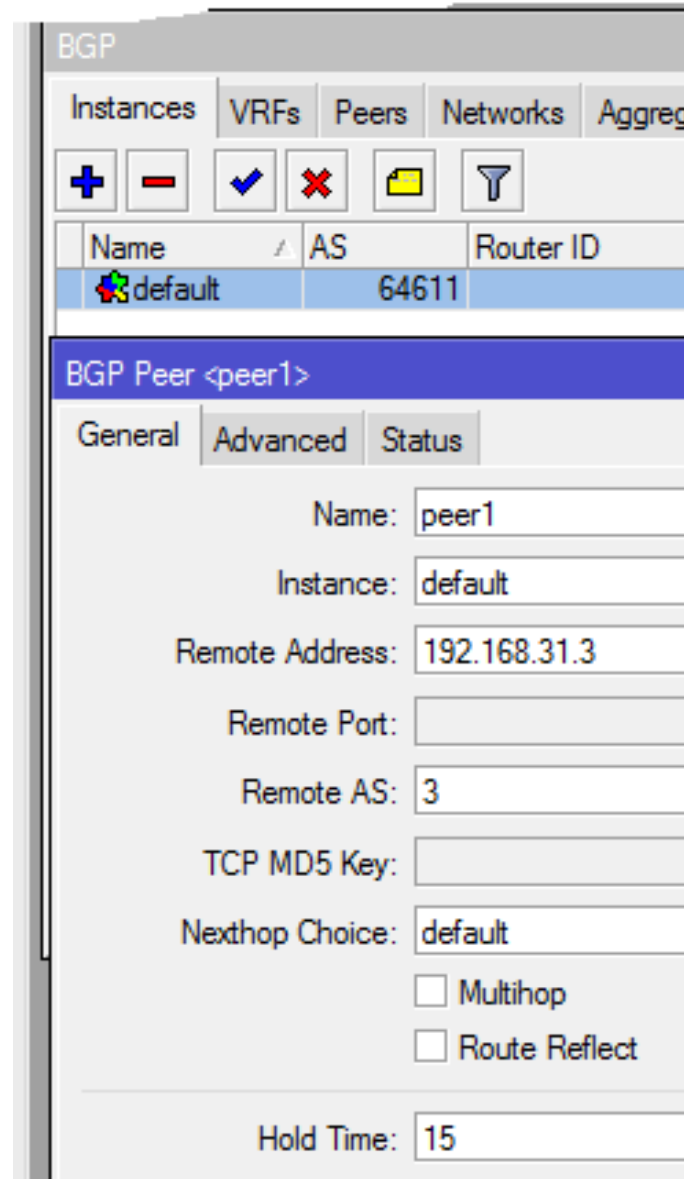
In peers define the
neighbor parameters

Instance (Own AS)

Remote Address

Remote AS

Site 1



The screenshot shows the BGP configuration for Site 1. The 'Instances' tab is active, displaying a table with one instance: 'default' with AS 64611. Below this, the 'BGP Peer <peer1>' configuration is shown in the 'General' tab. The fields are: Name: peer1, Instance: default, Remote Address: 192.168.31.3, Remote Port: (empty), Remote AS: 3, TCP MD5 Key: (empty), Nexthop Choice: default, and Hold Time: 15. There are checkboxes for 'Multihop' and 'Route Reflect' which are currently unchecked.

Name	AS	Router ID
default	64611	

BGP Peer <peer1>

General | Advanced | Status

Name: peer1

Instance: default

Remote Address: 192.168.31.3

Remote Port:

Remote AS: 3

TCP MD5 Key:

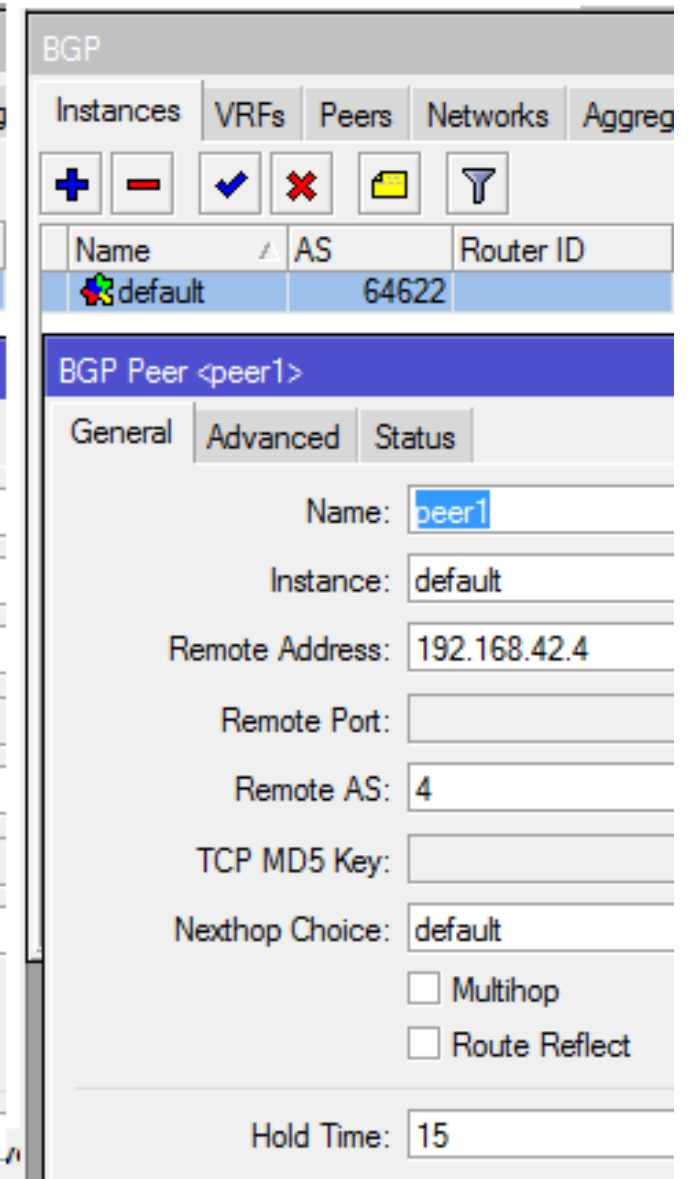
Nexthop Choice: default

☐ Multihop

☐ Route Reflect

Hold Time: 15

Site 2



The screenshot shows the BGP configuration for Site 2. The 'Instances' tab is active, displaying a table with one instance: 'default' with AS 64622. Below this, the 'BGP Peer <peer1>' configuration is shown in the 'General' tab. The fields are: Name: peer1, Instance: default, Remote Address: 192.168.42.4, Remote Port: (empty), Remote AS: 4, TCP MD5 Key: (empty), Nexthop Choice: default, and Hold Time: 15. There are checkboxes for 'Multihop' and 'Route Reflect' which are currently unchecked.

Name	AS	Router ID
default	64622	

BGP Peer <peer1>

General | Advanced | Status

Name: peer1

Instance: default

Remote Address: 192.168.42.4

Remote Port:

Remote AS: 4

TCP MD5 Key:

Nexthop Choice: default

☐ Multihop

☐ Route Reflect

Hold Time: 15

BGP

Point to Ponder:
**Classless prefix advertisement
in BGP**

- Advertise the IP prefix in BGP.
- For internet, common practice for BGP scenario is given below
 - Upstream inject the default route to client
 - Upstream advertise a loopback to customer. Customer will add the default route towards that Loopback.

Point to Ponder:
Recursive routing

- Default Route towards the Loopback advertised by SP.
- For backup link, default route with higher administrative distance.

Routes

Site 1

Route List				
Routes Nexthops Rules VRF				
+ - ✓ ✗ 📄 🔍 Find				
	Dst. Address	Gateway	Distance	
AS	▶ 0.0.0.0/0	3.3.3.3 recursive via 192.168.31.3 ether1 - Primary	1	
S	▶ 0.0.0.0/0	192.168.1.3 reachable ether2 - Backup	200	
DAb	▶ 3.3.3.3	192.168.31.3 reachable ether1 - Primary	20	

Site 2

Route List				
Routes Nexthops Rules VRF				
+ - ✓ ✗ 📄 🔍				
	Dst. Address	Gateway	Distance	
S	▶ 0.0.0.0/0	192.168.2.4 reachable ether2 - Backup	200	
AS	▶ 0.0.0.0/0	4.4.4.4 recursive via 192.168.42.4 ether1 - Primary	1	
DAb	▶ 4.4.4.4	192.168.42.4 reachable ether1 - Primary	20	

Routes (Recursive Routing)

Route <0.0.0.0/0>	
General	Attributes
Dst. Address: 0.0.0.0/0	
Gateway: 3.3.3.3	recursive via 192.168.31.3 ether1 - Primary
Check Gateway:	
Type: unicast	
Distance: 1	
Scope: 30	
Target Scope: 40	

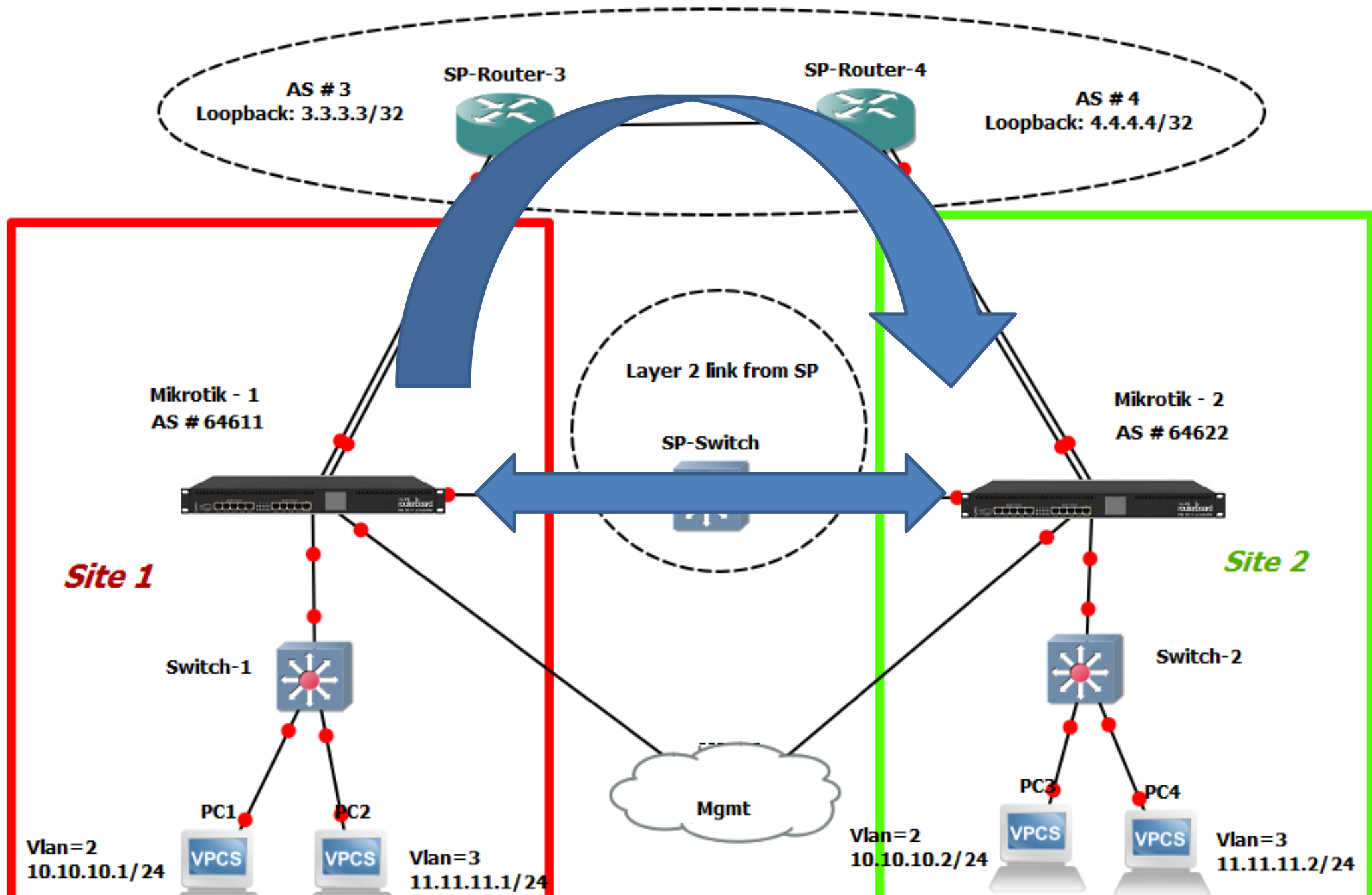
Route <0.0.0.0/0>	
General	Attributes
Dst. Address: 0.0.0.0/0	
Gateway: 4.4.4.4	recursive via 192.168.42.4 ether1 - Primary
Check Gateway:	
Type: unicast	
Distance: 1	
Scope: 30	
Target Scope: 40	

Food for thought:
Local Address in EOIP

Configuring EOIP

- Configure EOIP over Public IP
- Assign the IP address to Layer 2 link and configure the EOIP over it.

Site 1				Site 2											
Interface <eoip-tunnel1>				Interface <eoip-tunnel2>				Interface <eoip-tunnel1>				Interface <eoip-tunnel2>			
General	Loop Protect	Status		General	Loop Protect	Status	Traffic	General	Loop Protect	Status		General	Loop Protect	Status	Traffic
Name:	eoip-tunnel1			Name:	eoip-tunnel2			Name:	eoip-tunnel1			Name:	eoip-tunnel2		
Type:	EoIP Tunnel			Type:	EoIP Tunnel			Type:	EoIP Tunnel			Type:	EoIP Tunnel		
MTU:				MTU:				MTU:				MTU:			
Actual MTU:	1458			Actual MTU:	1458			Actual MTU:	1458			Actual MTU:	1458		
L2 MTU:	65535			L2 MTU:	65535			L2 MTU:	65535			L2 MTU:	65535		
MAC Address:	02:C2:5C:5E:4			MAC Address:	02:FE:EC:EA:57:1D			MAC Address:	02:5A:73:99:20			MAC Address:	02:A5:B2:51:98:7B		
ARP:	enabled			ARP:	enabled			ARP:	enabled			ARP:	enabled		
ARP Timeout:				ARP Timeout:				ARP Timeout:				ARP Timeout:			
Local Address:	111.1.1.1			Local Address:	192.168.12.1			Local Address:	222.2.2.2			Local Address:	192.168.12.2		
Remote Address:	222.2.2.2			Remote Address:	192.168.12.2			Remote Address:	111.1.1.1			Remote Address:	192.168.12.1		
Tunnel ID:	1			Tunnel ID:	2			Tunnel ID:	1			Tunnel ID:	2		



Food for thought:
Is it necessary to run STP

Bridge

- Call that EOIP in Bridge interface.
- Run STP on bridge interface and set the primary backup link using the cost of STP.

Site 1

Bridge						
Bridge Ports Filters NAT Hosts						
+ - ✓ ✕ [] []						
Interface	Bridge	Priority (hex)	Path Cost	Role	Root Path Cost	
eoip-tunnel1	EOIO-B	80	10	alternate port	10	
eoip-tunnel2	EOIO-B	80	5	root port	5	
ether4 - LAN	EOIO-B	80	10	designated port		

Site 2

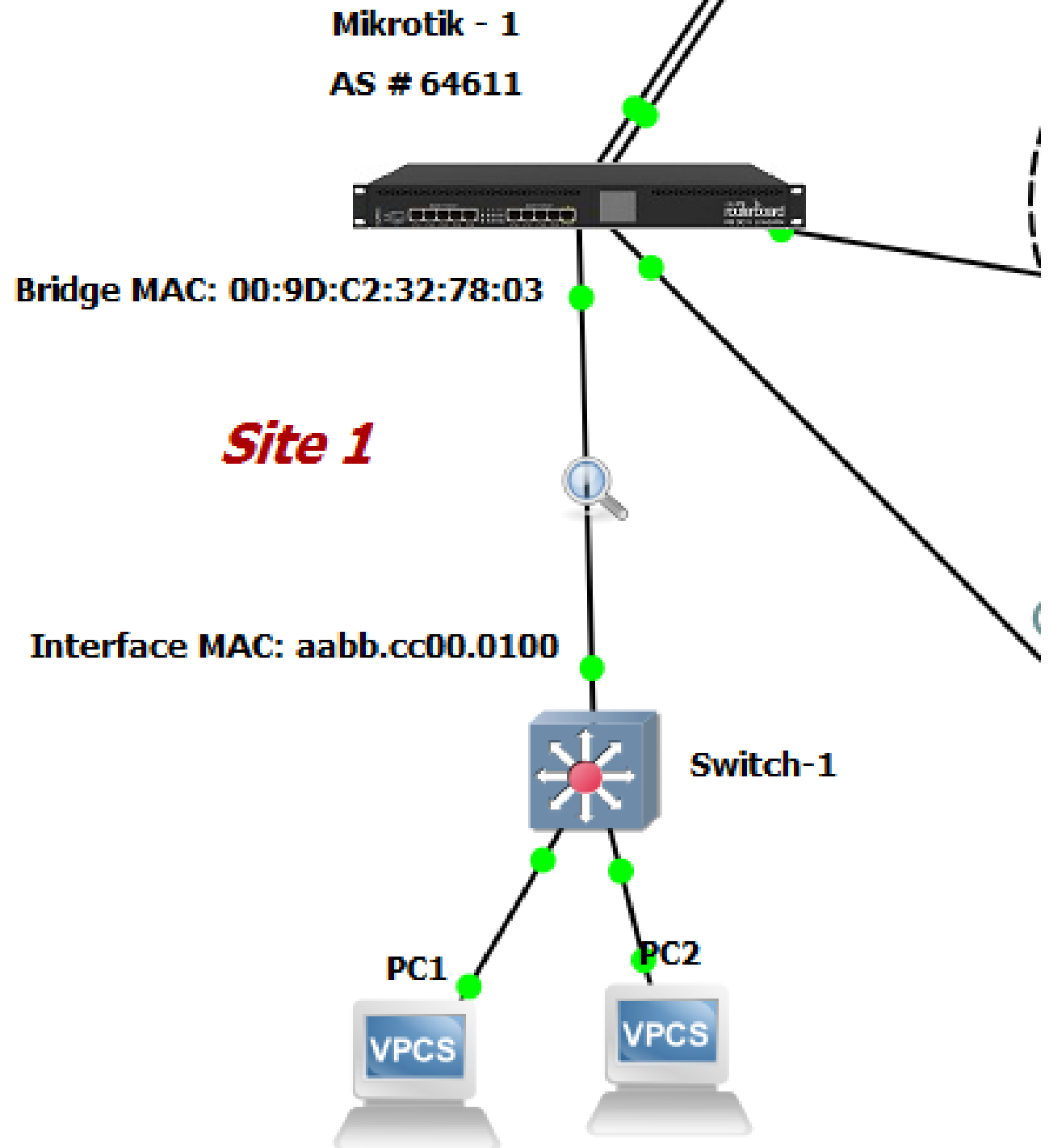
Bridge						
Bridge Ports Filters NAT Hosts						
+ - ✓ ✕ [] []						
Interface	Bridge	Priority (hex)	Path Cost	Role	Root Path Cost	
eoip-tunnel1	EOIO-B	80	10	designated port		
eoip-tunnel2	EOIO-B	80	10	designated port		
ether4 - LAN	EOIO-B	80	10	designated port		

Point to Ponder

- STP run on bridge don't need to leave Mikrotik.
- STP running at Network side encapsulate in EoIP tunnels and forwarded on both side.

STP Wireshark

Capturing the packet
between
Router and Switch



STP for Bridges

STP running on Bridge
send BPDU's down to the
Switch as-well. Which is
don't need of it.

Mikrotik Bridge MAC: 00:9D:C2:32:78:03
Switch Interface MAC: aabb.cc00.0100

The screenshot displays the Mikrotik WinBox interface. On the left, the 'Interface <B-VLAN2>' configuration window is open, showing the 'General' tab. The 'Name' is 'B-VLAN2', 'Type' is 'Bridge', 'MTU' is empty, 'Actual MTU' is '1434', 'L2 MTU' is '65535', 'MAC Address' is '00:9D:C2:32:78:03', 'ARP' is 'enabled', 'ARP Timeout' is empty, and 'Admin. MAC Address' is empty. At the bottom, 'enabled' and 'running' checkboxes are visible.

On the right, a packet capture window shows a list of packets. A red box highlights packet 10, which is an STP BPDU. Below the list, the packet details for frame 10 are expanded, showing the 'Spanning Tree Protocol' section.

No.	Time	Source	Destination	Protocol
8	3.033782	aa:bb:cc:00:01:00	CDP/VTP/DTP/PAgP/UDLD	DTP
9	3.737973	aa:bb:cc:00:01:00	PVST+	STP
10	4.017457	00:9d:c2:32:78:03	Spanning-tree-(for-bridges)_00	STP
11	4.030000	aa:bb:cc:00:01:00	PVST+	STP
12	4.991190	aa:bb:cc:00:01:00	Spanning-tree-(for-bridges)_00	STP
13	5.742485	aa:bb:cc:00:01:00	PVST+	STP
14	6.014686	00:9d:c2:32:78:03	Spanning-tree-(for-bridges)_00	STP
15	6.004370	aa:bb:cc:00:01:00	PVST+	STP
16	6.994457	aa:bb:cc:00:01:00	Spanning-tree-(for-bridges)_00	STP

Frame 10: 57 bytes on wire (456 bits), 57 bytes captured (456 bits) on interface
Ethernet II, Src: 00:9d:c2:32:78:03 (00:9d:c2:32:78:03), Dst: Spanning-tr
802.1Q Virtual LAN, PRI: 0, DEI: 0, ID: 2
Logical-Link Control
Spanning Tree Protocol
Protocol Identifier: Spanning Tree Protocol (0x0000)
Protocol Version Identifier: Rapid Spanning Tree (2)
BPDU Type: Rapid/Multiple Spanning Tree (0x02)
BPDU flags: 0x3c, Forwarding, Learning, Port Role: Designated
Root Identifier: 32768 / 0 / 00:9d:c2:32:78:03
Root Path Cost: 0
Bridge Identifier: 32768 / 0 / 00:9d:c2:32:78:03
Port identifier: 0x8001
Message Age: 0
Max Age: 20
Hello Time: 2
Forward Delay: 15
Version 1 Length: 0

STP for Bridges

After configuring it to
Edge there is no BPDU
Coming down to network

The screenshot displays a network configuration interface for a bridge port named 'vlan2'. The 'General' tab is active, showing the following settings:

- Interface: vlan2
- Bridge: B-VLAN2
- Priority: 80
- Path Cost: 10
- Horizon: (empty)
- Edge: **yes** (highlighted with a red box)
- Point-to-Point: auto
- External FDB: auto
- Auto Isolate: ☐

At the bottom, the status is 'enabled'.

To the right, a packet capture table shows the following data:

No.	Time	Source	Destination	Protocol	Length
51	19.017267	aa:bb:cc:00:01:00	PVST+	STP	
52	19.017330	aa:bb:cc:00:01:00	Spanning-tree-(for-bridges)_00	STP	
53	19.764741	aa:bb:cc:00:01:00	PVST+	STP	
54	21.024706	aa:bb:cc:00:01:00	PVST+	STP	
55	21.024831	aa:bb:cc:00:01:00	Spanning-tree-(for-bridges)_00	STP	
56	21.764449	aa:bb:cc:00:01:00	PVST+	STP	
57	23.029144	aa:bb:cc:00:01:00	PVST+	STP	
58	23.029195	aa:bb:cc:00:01:00	Spanning-tree-(for-bridges)_00	STP	
59	23.772638	aa:bb:cc:00:01:00	PVST+	STP	
60	25.033259	aa:bb:cc:00:01:00	PVST+	STP	
61	25.033324	aa:bb:cc:00:01:00	Spanning-tree-(for-bridges)_00	STP	
62	25.776767	aa:bb:cc:00:01:00	PVST+	STP	

Below the table, a packet capture analysis for Frame 52 is shown:

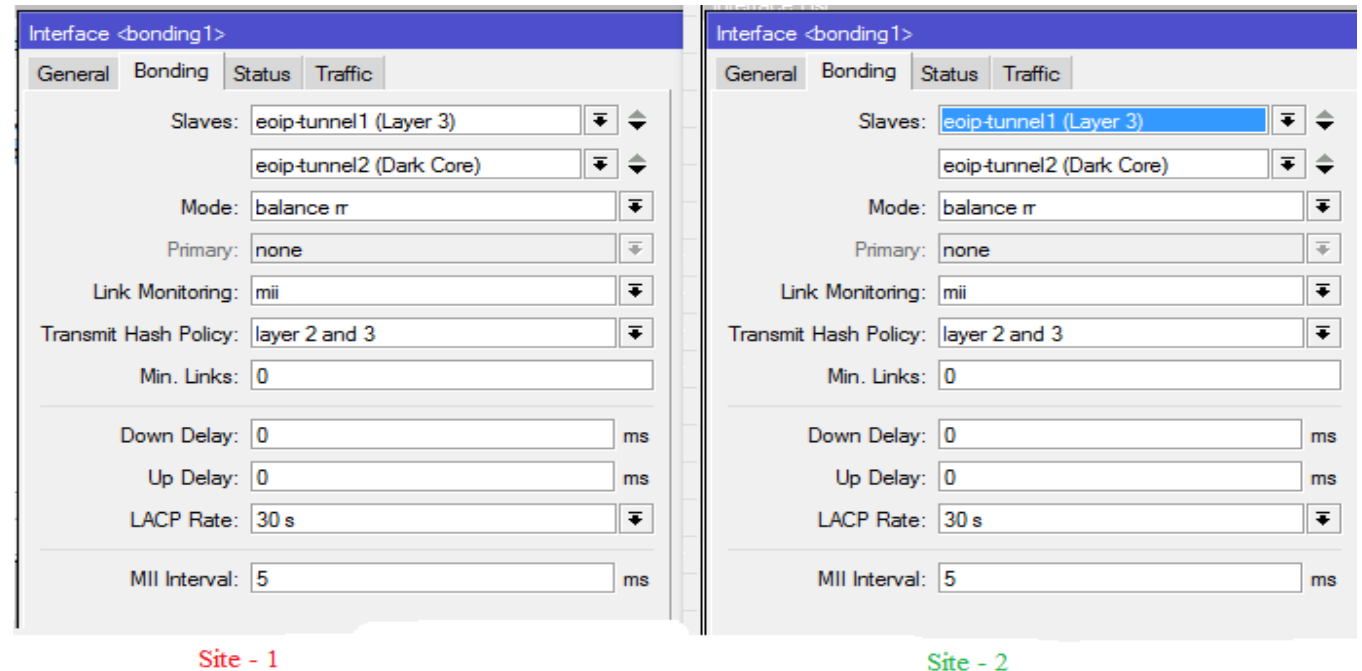
- Frame 52: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface
- IEEE 802.3 Ethernet
- Logical-Link Control
- Spanning Tree Protocol
 - Protocol Identifier: Spanning Tree Protocol (0x0000)
 - Protocol Version Identifier: Spanning Tree (0)
 - BPDU Type: Configuration (0x00)
 - BPDU flags: 0x00
 - Root Identifier: 32768 / 1 / aa:bb:cc:00:01:00
 - Root Path Cost: 0
 - Bridge Identifier: 32768 / 1 / aa:bb:cc:00:01:00

Second Solution: Bonding

- To increase the uptime and throughput, we use multiple links. And configure them in such a way that we achieve **Load Balance** alongside of **Failover**

Second Solution: Bonding

By using bonding, we can increase the throughput by utilizing all links alongside of failover.




```
PC1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>

PC1 x

NAME      : PC1[1]
IP/MASK    : 10.10.10.1/24
GATEWAY    : 0.0.0.0
DNS        :
MAC        : 00:50:79:66:68:00
LPORT      : 10007
RHOST:PORT : 192.168.48.128:10010
MTU        : 1500

PC1> ping 10.10.10.2
84 bytes from 10.10.10.2 icmp_seq=1 ttl=64 time=4.890 ms
84 bytes from 10.10.10.2 icmp_seq=2 ttl=64 time=4.331 ms
84 bytes from 10.10.10.2 icmp_seq=3 ttl=64 time=4.280 ms
84 bytes from 10.10.10.2 icmp_seq=4 ttl=64 time=3.689 ms
84 bytes from 10.10.10.2 icmp_seq=5 ttl=64 time=3.590 ms
```

```
PC2 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>

PC2 x

NAME      : PC2[1]
IP/MASK    : 11.11.11.1/24
GATEWAY    : 0.0.0.0
DNS        :
MAC        : 00:50:79:66:68:01
LPORT      : 10013
RHOST:PORT : 192.168.48.128:10011
MTU        : 1500

PC2> ping 11.11.11.2
84 bytes from 11.11.11.2 icmp_seq=1 ttl=64 time=3.683 ms
84 bytes from 11.11.11.2 icmp_seq=2 ttl=64 time=4.021 ms
84 bytes from 11.11.11.2 icmp_seq=3 ttl=64 time=4.488 ms
84 bytes from 11.11.11.2 icmp_seq=4 ttl=64 time=3.712 ms
84 bytes from 11.11.11.2 icmp_seq=5 ttl=64 time=3.797 ms

PC2>
```

```
PC3 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>

PC3 x

PC3>
PC3> sho ip

NAME      : PC3[1]
IP/MASK    : 10.10.10.2/24
GATEWAY    : 10.10.10.1
DNS        :
MAC        : 00:50:79:66:68:02
LPORT      : 10009
RHOST:PORT : 192.168.48.128:10012
MTU        : 1500

PC3> ping 10.10.10.1
84 bytes from 10.10.10.1 icmp_seq=1 ttl=64 time=10.704 ms
84 bytes from 10.10.10.1 icmp_seq=2 ttl=64 time=11.141 ms
84 bytes from 10.10.10.1 icmp_seq=3 ttl=64 time=10.881 ms
84 bytes from 10.10.10.1 icmp_seq=4 ttl=64 time=9.465 ms
84 bytes from 10.10.10.1 icmp_seq=5 ttl=64 time=8.068 ms
```

```
PC4 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>

PC4 x

PC4> sho ip

NAME      : PC4[1]
IP/MASK    : 11.11.11.2/24
GATEWAY    : 0.0.0.0
DNS        :
MAC        : 00:50:79:66:68:03
LPORT      : 10015
RHOST:PORT : 192.168.48.128:10014
MTU        : 1500

PC4> ping 11.11.11.1
84 bytes from 11.11.11.1 icmp_seq=1 ttl=64 time=4.875 ms
84 bytes from 11.11.11.1 icmp_seq=2 ttl=64 time=4.053 ms
84 bytes from 11.11.11.1 icmp_seq=3 ttl=64 time=3.945 ms
84 bytes from 11.11.11.1 icmp_seq=4 ttl=64 time=4.013 ms
84 bytes from 11.11.11.1 icmp_seq=5 ttl=64 time=4.013 ms

PC4>
```

EoIP Proposed Design

From SP Perspective

Additional things

- To extend a particular VLAN
 - Create a sub interface of that particular VLAN
 - Call that sub interface in the bridge
 - Apply the queue policy to EOIP interface to restrict the bandwidth.
- You can create multiple EOIP interface to extend multiple VLAN and apply the policy accordingly.

Question

Why are we creating multiple EoIP interface over different subnet?

We can create multiple EoIP tunnels by using the tunnel ID but you cannot apply the **Queue policy** in that scenario.

Multiple EoIP Interface

- There are many methods for multiple EoIP tunnels are to be reachable. Suggested method is given below.

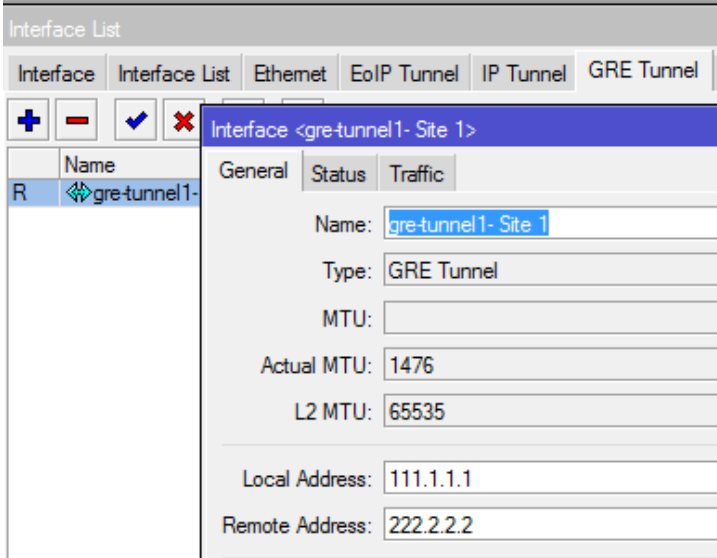
Method 1: Configure GRE tunnel and run Routing Protocol on it

Method2: Configure GRE tunnel and add Static Routes

Creating GRE tunnel

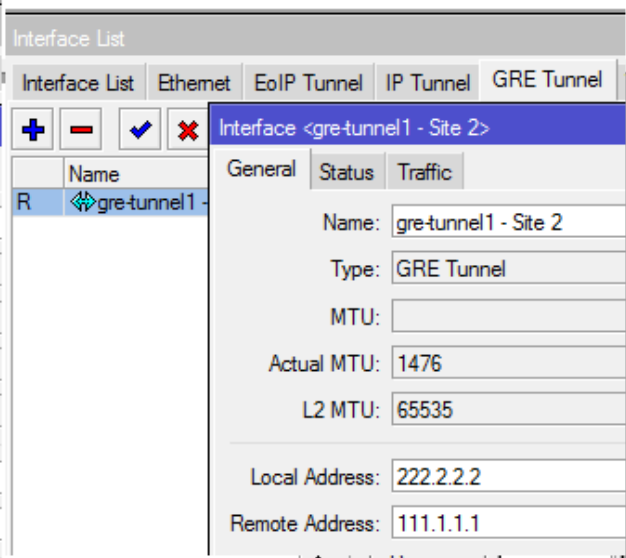
Create a GRE tunnel over the Public IP

Site 1



The screenshot shows the configuration for a GRE tunnel on Site 1. The interface is named 'gre-tunnel1 - Site 1', type is 'GRE Tunnel', MTU is empty, Actual MTU is 1476, L2 MTU is 65535, Local Address is 111.1.1.1, and Remote Address is 222.2.2.2.

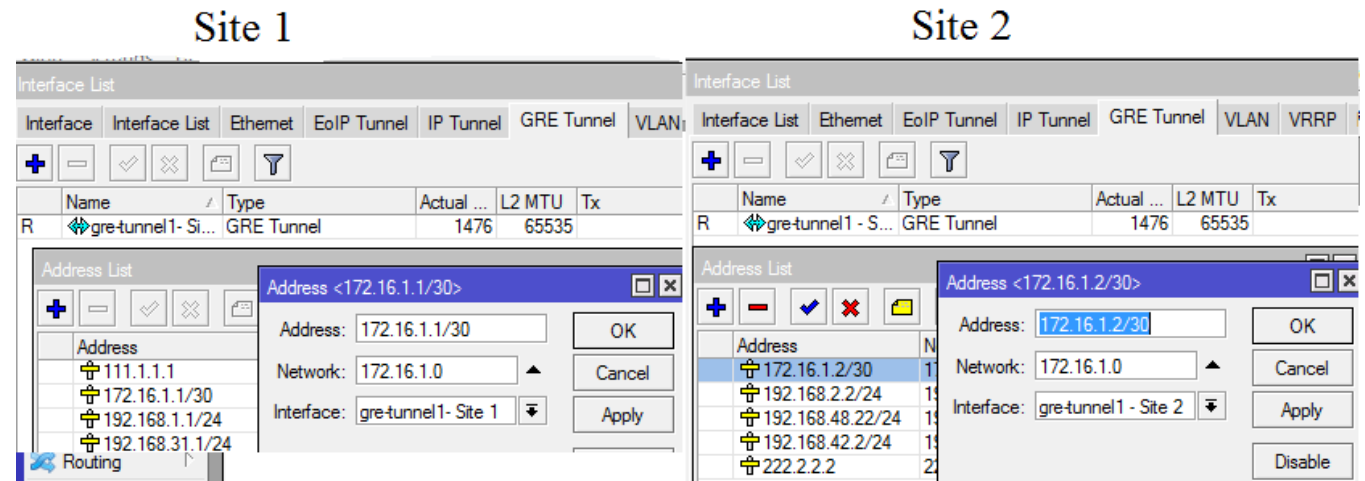
Site 2



The screenshot shows the configuration for a GRE tunnel on Site 2. The interface is named 'gre-tunnel1 - Site 2', type is 'GRE Tunnel', MTU is empty, Actual MTU is 1476, L2 MTU is 65535, Local Address is 222.2.2.2, and Remote Address is 111.1.1.1.

Assign IP address to GRE

Assign the Private IP to GRE tunnel



Method1: Create and assign IP address on Interface and advertise in OSPF

- Create one Bridge Interface
- Configure multiple /32 IP on it
- Advertise the subnet and GRE interface IP in OSPF

The screenshot displays the Mikrotik WinBox interface for configuring OSPF on two sites, Site 1 and Site 2. A vertical red line separates the two configurations.

Site 1 Configuration:

- Bridge:** The 'Address List' tab shows two entries:

Address	Network	Interface
192.168.11.2	192.168.11.2	B-EOIP
192.168.11.3	192.168.11.3	B-EOIP
- OSPF:** The 'Networks' tab shows two entries:

Network	Area
172.16.1.0/30	backbone
192.168.11.0/24	backbone
- Route List:** The 'Routes' tab shows two entries:

Dst. Address	Gateway	Distance
192.168.22.2	172.16.1.2 reachable gre-tunnel1 - Site 1	110
192.168.22.3	172.16.1.2 reachable gre-tunnel1 - Site 1	110

Site 2 Configuration:

- Bridge:** The 'Address List' tab shows two entries:

Address	Network	Interface
192.168.22.2	192.168.22.2	B-EOIP
192.168.22.3	192.168.22.3	B-EOIP
- OSPF:** The 'Networks' tab shows two entries:

Network	Area
172.16.1.0/30	backbone
192.168.22.0/24	backbone
- Route List:** The 'Routes' tab shows two entries:

Dst. Address	Gateway	Distance
192.168.11.2	172.16.1.1 reachable gre-tunnel1 - Site 2	110
192.168.11.3	172.16.1.1 reachable gre-tunnel1 - Site 2	110

Create EOIP tunnels

Create multiple EoIP tunnels over the Loopback configure at both end

Site 1

Interface List

Interface	Name	Type	Actual ...	L2 MTU	Tx	Rx
R	eoip-tunnel-VLAN2	EoIP Tunnel	1434	65535	0 bps	0
R	eoip-tunnel-VLAN3	EoIP Tunnel	1434	65535	0 bps	0

Interface <eoip-tunnel-VLAN2>

General	Loop Protect	Status	Traffic
Name: eoip-tunnel-VLAN2			
Type: EoIP Tunnel			
MTU:			
Actual MTU: 1434			
L2 MTU: 65535			
MAC Address: 02:A5:9D:4B:83:95			
ARP: enabled			
ARP Timeout:			
Local Address: 192.168.11.2			
Remote Address: 192.168.22.2			
Tunnel ID: 2			

Interface <eoip-tunnel-VLAN3>

General	Loop Protect	Status	Traffic
Name: eoip-tunnel-VLAN3			
Type: EoIP Tunnel			
MTU:			
Actual MTU: 1434			
L2 MTU: 65535			
MAC Address: 02:37:30:F2:51:BF			
ARP: enabled			
ARP Timeout:			
Local Address: 192.168.11.3			
Remote Address: 192.168.22.3			
Tunnel ID: 3			

Site 2

Interface List

Interface	Name	Type	Actual ...	L2 MTU	Tx	Rx
R	eoip-tunnel-VLAN2	EoIP Tunnel	1434	65535	0 bps	0 bps
R	eoip-tunnel-VLAN3	EoIP Tunnel	1434	65535	0 bps	0 bps

Interface <eoip-tunnel-VLAN2>

General	Loop Protect	Status	Traffic
Name: eoip-tunnel-VLAN2			
Type: EoIP Tunnel			
MTU:			
Actual MTU: 1434			
L2 MTU: 65535			
MAC Address: 02:C2:08:0C:F3:80			
ARP: enabled			
ARP Timeout:			
Local Address: 192.168.22.2			
Remote Address: 192.168.11.2			
Tunnel ID: 2			

Interface <eoip-tunnel-VLAN3>

General	Loop Protect	Status	Traffic
Name: eoip-tunnel-VLAN3			
Type: EoIP Tunnel			
MTU:			
Actual MTU: 1434			
L2 MTU: 65535			
MAC Address: 02:4A:69:AF:33:6D			
ARP: enabled			
ARP Timeout:			
Local Address: 192.168.22.3			
Remote Address: 192.168.11.3			
Tunnel ID: 3			

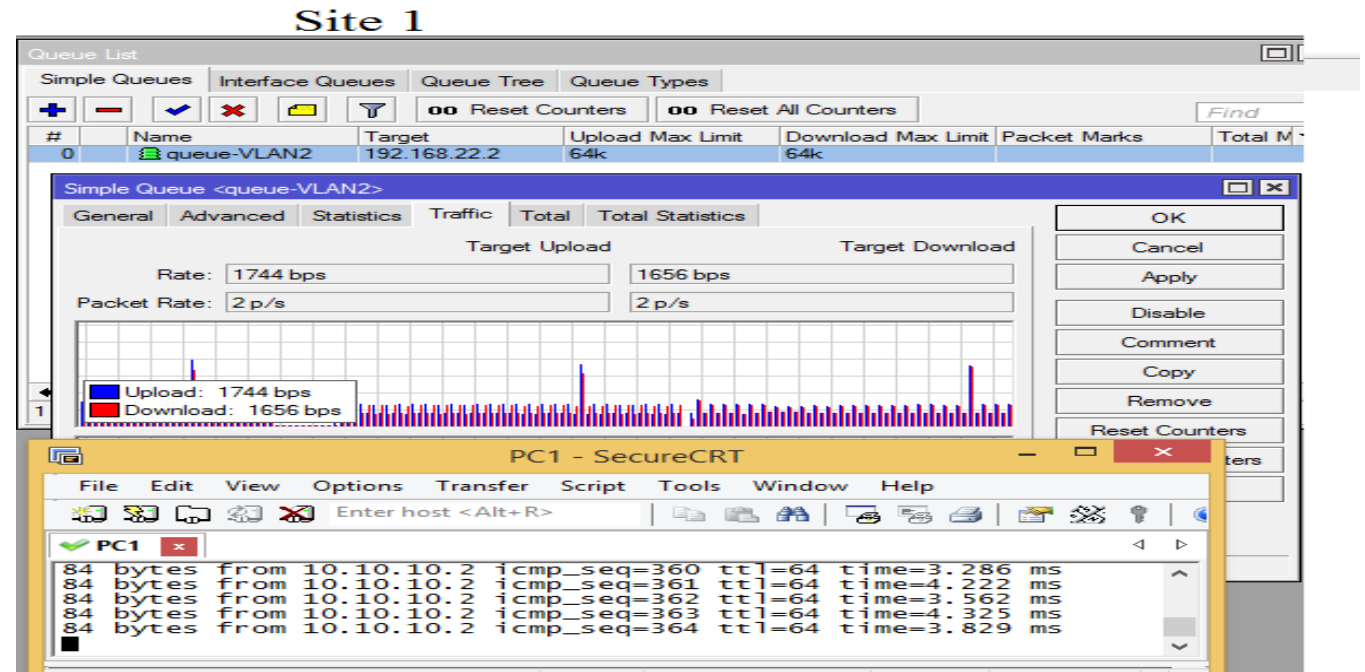
Creating the Bridge for particular VLAN

Create a Bridge Interface and allocate the particular VLAN and EoIP tunnel into it

Site 1						Site 2					
Bridge						Bridge					
Bridge Ports Filters NAT Hosts						Bridge Ports Filters NAT Hosts					
+ - ✓ ✗ [] ⏏						+ - ✓ ✗ [] ⏏					
Interface	Bridge	Priority (...)	Path Cost	Role		Interface	Bridge	Priorit...	Path Cost	Role	Root P...
teoip-tunnel-VLAN2	B-VLAN2	80	10	designated port		teoip-tunnel-VLAN2	B-VLAN2	80	10	root port	10
vlan2	B-VLAN2	80	10	designated port		vlan2	B-VLAN2	80	10	designated port	
teoip-tunnel-VLAN3	B-VLAN3	80	10	designated port		teoip-tunnel-VLAN3	B-VLAN3	80	10	root port	10
vlan3	B-VLAN3	80	10	designated port		vlan3	B-VLAN3	80	10	designated port	

Apply the Queue Policy

Use the destination IP address (Loopback IP of other end) in Queue policy.



Method 2: By Static Route

Add the static for the
subnet towards
GRE tunnel destination

Site 1

Route List				
Routes	Nexthops	Rules	VRF	
+	-	✓	✗	📁
Static				
AS	Dst. Address	Gateway	Distance	Route
	192.168.22.0/24	172.16.1.2 reachable gre-tunnel1- Site 1	1	

Route <192.168.22.0/24>

General

Attributes

Dst. Address: 192.168.22.0/24

Gateway: 172.16.1.2 reachable gre-tunnel1- Site 1

Check Gateway:

Type: unicast

Distance: 1

Scope: 30

Target Scope: 10

Site 2

Route List				
Routes	Nexthops	Rules	VRF	
+	-	✓	✗	📁
Static				
AS	Dst. Address	Gateway	Distance	Route
	192.168.11.0/24	172.16.1.1 reachable gre-tunnel1 - Site 2	1	

Route <192.168.11.0/24>

General

Attributes

Dst. Address: 192.168.11.0/24

Gateway: 172.16.1.1 reachable gre-tunnel1 - Site 2

Check Gateway:

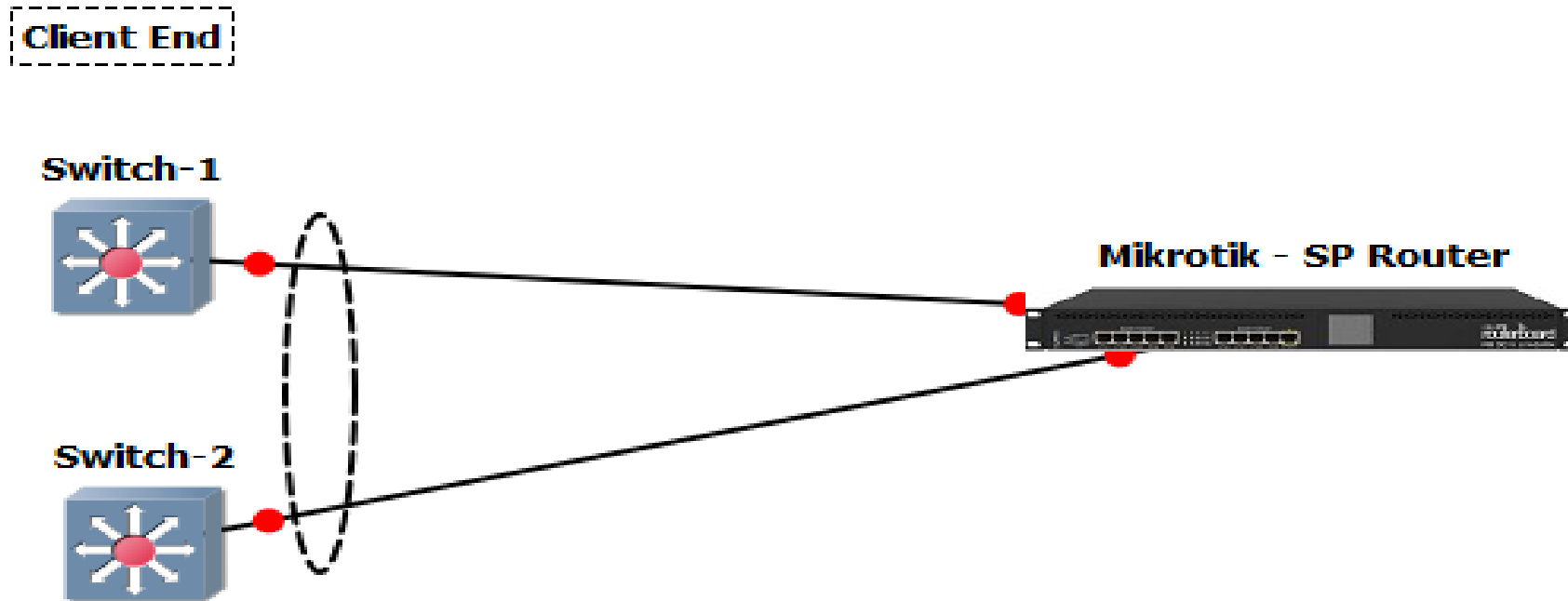
Type: unicast

Distance: 1

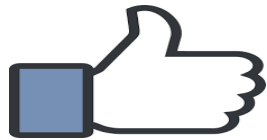
Scope: 30

Target Scope: 10

Home Assignment



MOEEZ AFTAB
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