



# IXP Peering

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# Peering?

Peering:

is a voluntary interconnection of administratively separate Internet networks for the purpose of exchanging traffic between the "downstream" users of each network.

Neither party pays the other in association with the exchange of traffic.

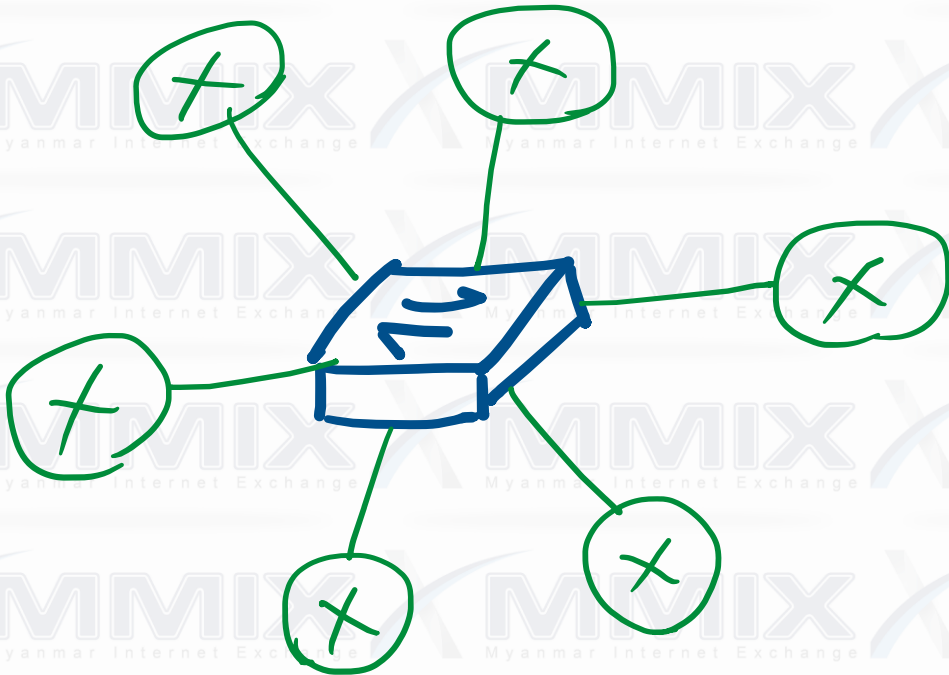
# Peering

## Public peering :

Interconnection utilizing a multi-party shared switch fabric such as an Ethernet switch.

## Private peering :

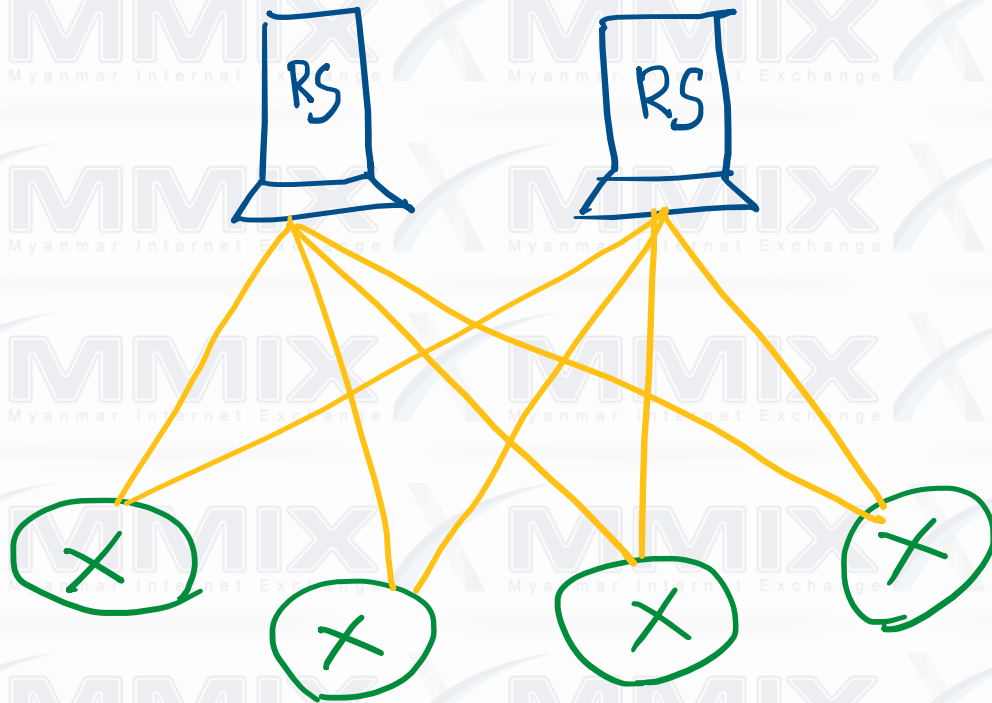
Interconnection utilizing a point-to-point link between two parties.



# Peering

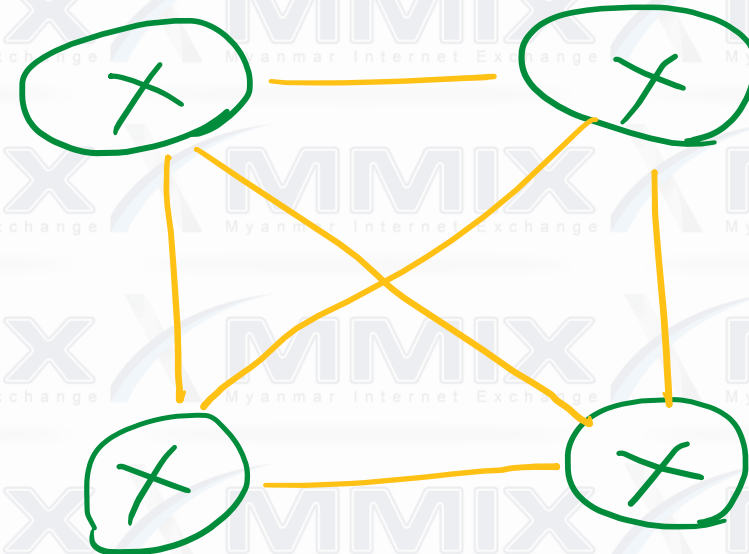
## Multilateral Peering :

Hub and Spoke Topology, bgp peering session via Route Server, accepting all peering prefixes.



## Bilateral peering :

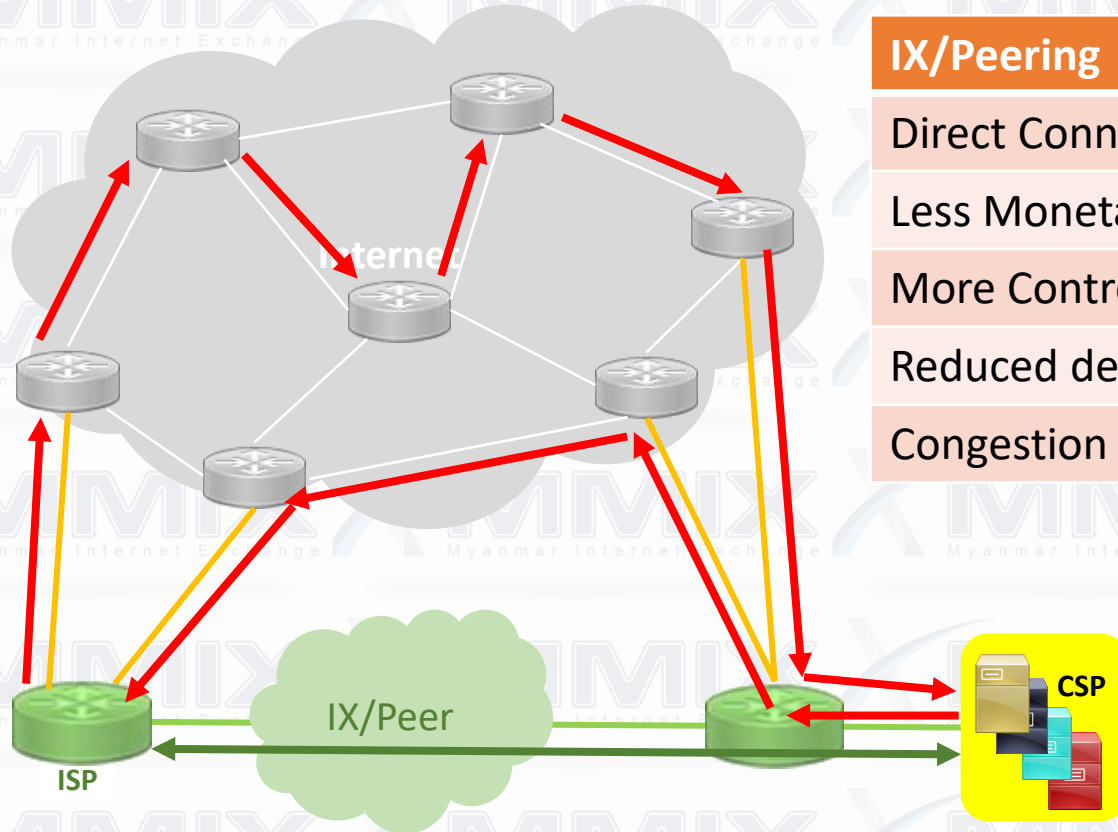
Partial mesh Topology, direct bgp meshing sessions between peers.



# Peering and Transit

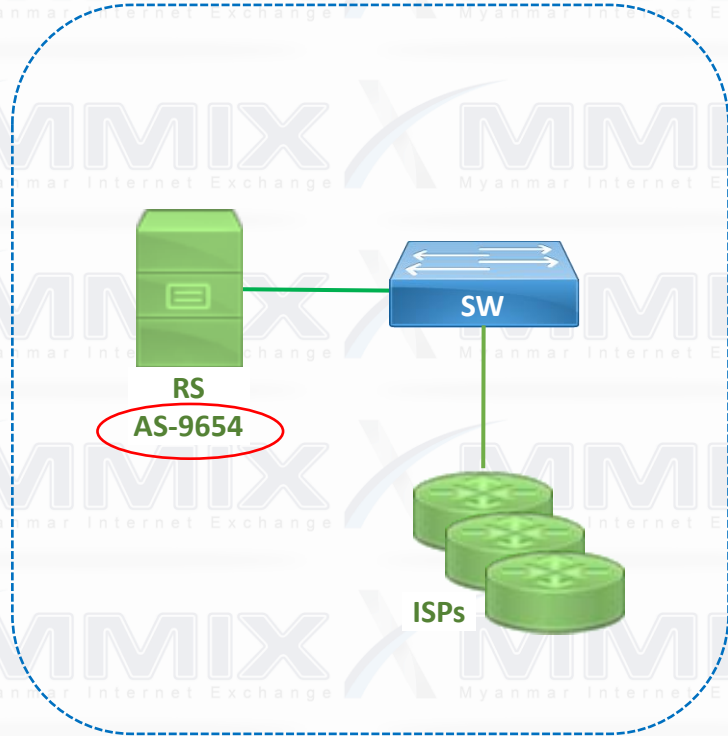
**Peering** – Two networks exchange traffic between their users freely, and for mutual benefit.

**Transit** – One network pays another network for access to the Internet.

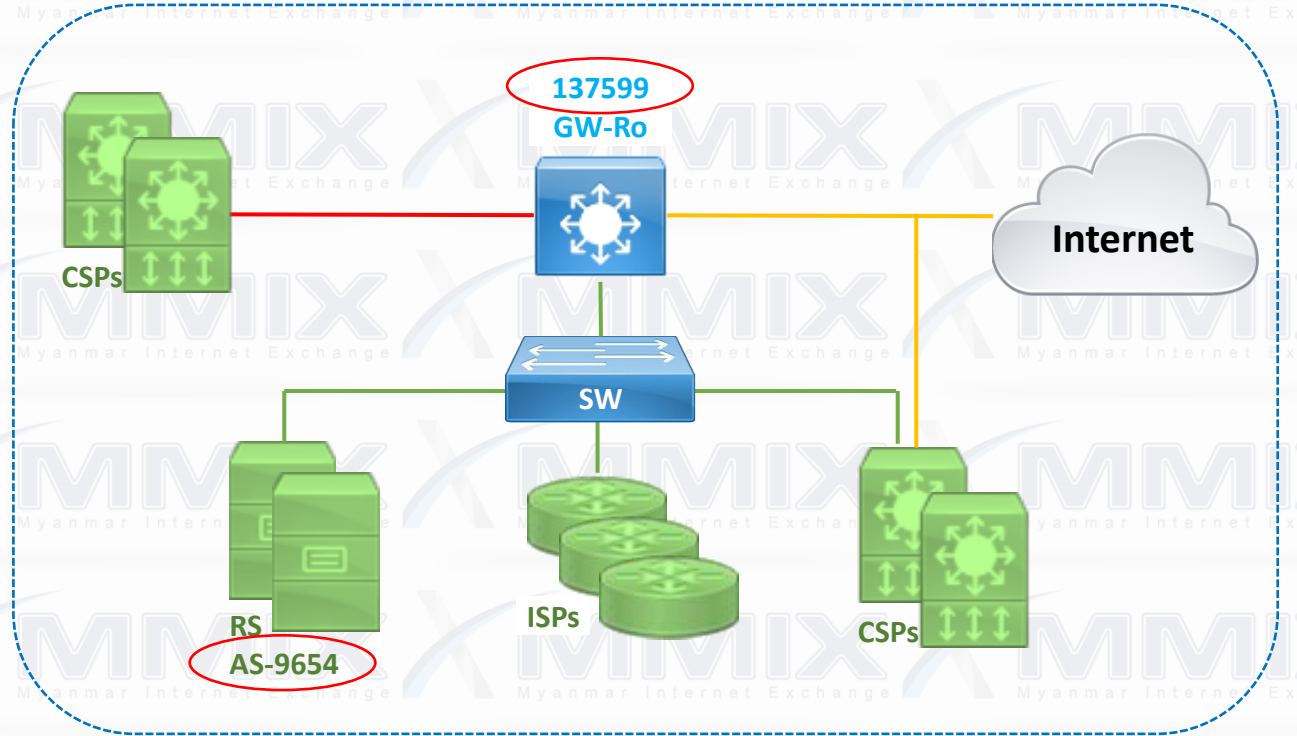


IX/Peering		IP Transit	
Direct Connection	😊	Global Reach	😊
Less Monetary Exchange	😊	Cost Structure	😞
More Control and Security	😊	Less Control and Security	😞
Reduced dependency	😊	Depend multiple upstream	😞
Congestion control	😊	Congestion Consideration	😞

# IXP Networks

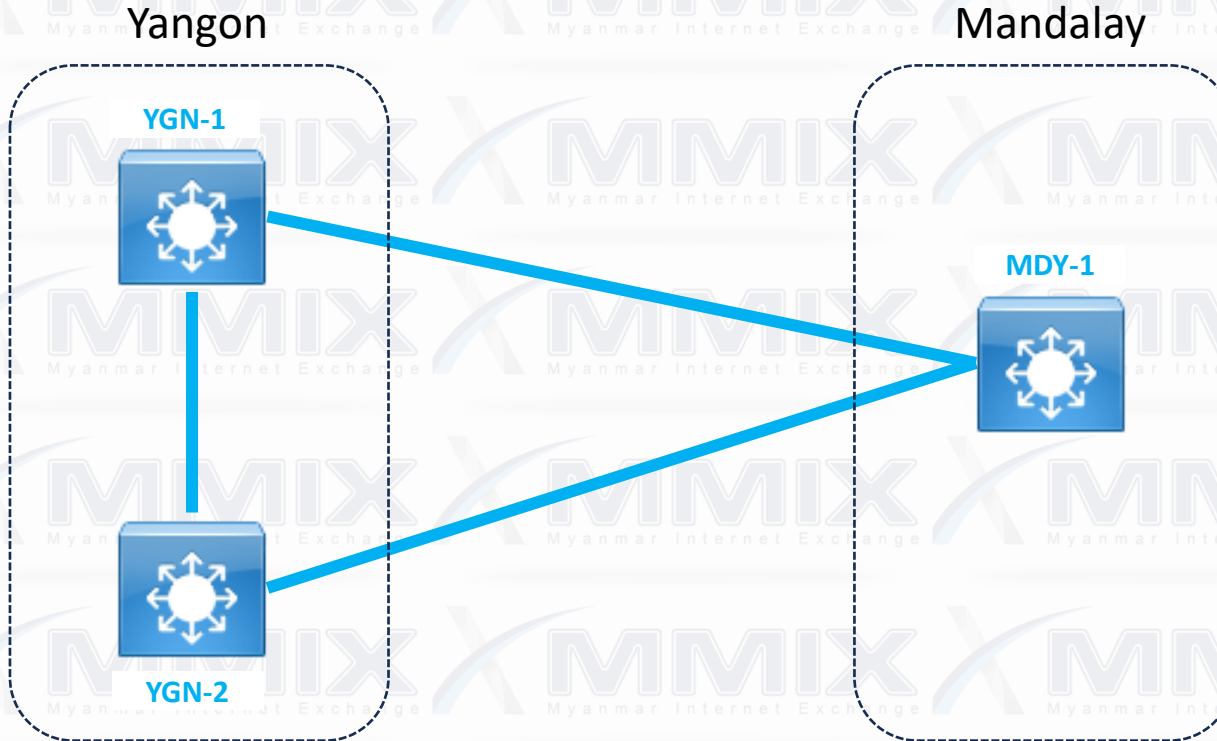


Initial Stage  
L2-Switch + Route Server



After arrive CDNs  
+ Gateway Router - for IP Transit filling

# Existing MMIX Network



Used public ASN-137955.

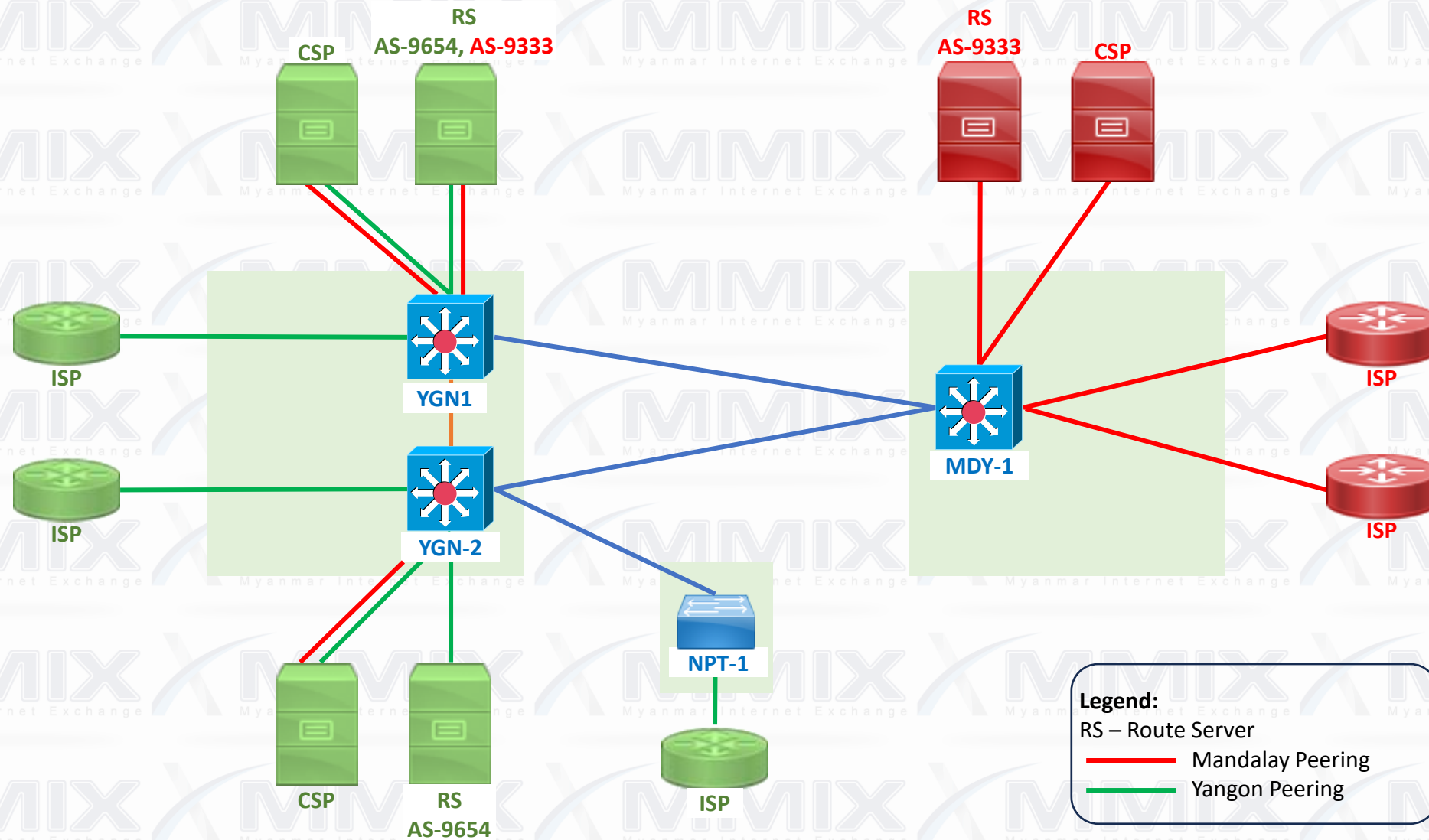
IBGP between POPs.

Seems every routes import/export are fine. All routes are working.

=> BUT ... got advice to setup multi-site design with "eBGP" between cities.



# Client Connectivity's



**Legend:**  
RS – Route Server  
— Mandalay Peering  
— Yangon Peering

# Technical Procedure peering with an IXP

1. Get peering IP, ASN, Route Server IPs from the IXP.
2. Create 'peeringDB' account and join with desired IX.
3. Setup physical connection
4. Setup BGP session with the Route Servers of the IXP.
5. Set BGP community for peering.
6. Get NMS access from the IXP.

# Peering IP & Route Servers for an IXP

## peer IP :

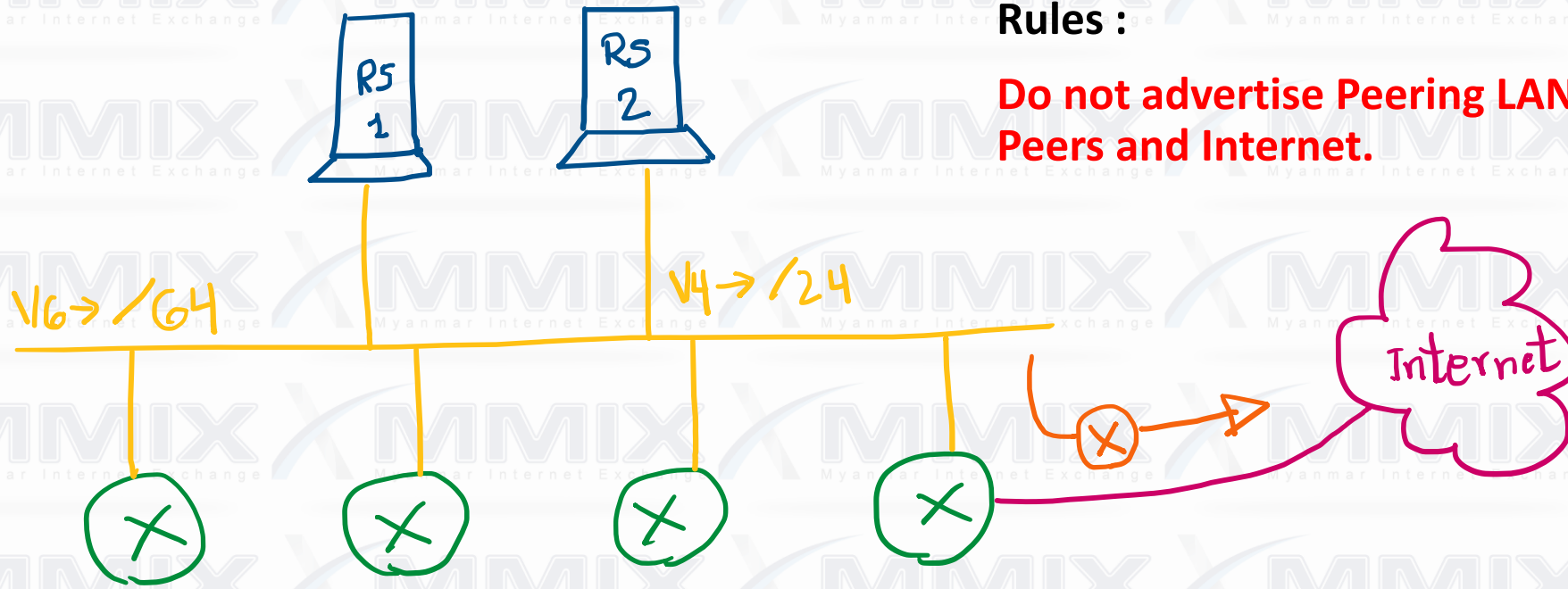
It is not Point to Point link like /30 but Peering LAN address shall be /24 or more/less. Same concept for IPv6, it shall be /64.

## Route Servers :

Normally, 2 Route Servers are used for redundancy.

## Rules :

**Do not advertise Peering LAN prefix to other Peers and Internet.**



# Protocol













## peer Protocol :

Only BGP routing protocol is accepted.

## Port Control :

MAC control on Switch port.

# Create 'route object' at APNIC Portal

<input type="checkbox"/>	Prefix <span>↕</span>	Origin AS <span>↕</span>	ROA status ⓘ	Whois status ⓘ	Actions
<input type="checkbox"/>	103.103.194.0/24	AS137955	<b>EXISTS</b>	<b>EXISTS</b>	 
<input type="checkbox"/>	103.116.192.0/24	AS137955	<b>EXISTS</b>	<b>EXISTS</b>	 
<input type="checkbox"/>	2405:1340::/32	AS137955	<b>EXISTS</b>	<b>EXISTS</b>	 
<input type="checkbox"/>	103.116.193.0/24	AS0	<b>EXISTS</b>	<b>DISABLED</b>	 
<input type="checkbox"/>	103.116.194.0/24	AS0	<b>EXISTS</b>	<b>DISABLED</b>	 
<input type="checkbox"/>	2001:df3:1300::/48	AS0	<b>EXISTS</b>	<b>DISABLED</b>	 

# Create 'AS-SET' at APNIC Portal

Object type

as-set

✓ Added object successfully.

✓ New OK: [as-set] AS137955:AS-MMIX

as-set

AS137955:AS-MMIX

descr

MMIX Peer Router AS

tech-c

MIE2-AP

admin-c

MIE2-AP

mnt-by

MAIBT-MM-MMIX

source

APNIC

descr

Add field

Submit

# Create 'AS-SET' at APNIC Portal

Object Type	↕	Object	↕	Delete
as-set		AS9654:AS-RS		<a href="#">Delete</a>
as-set		AS9333:AS-M_RS		<a href="#">Delete</a>
as-set		AS137955:AS-MMIX		<a href="#">Delete</a>

To be continued

**Will update my slides soon... Please accept meanwhile to finalize the topic of the event.**



Thank you



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