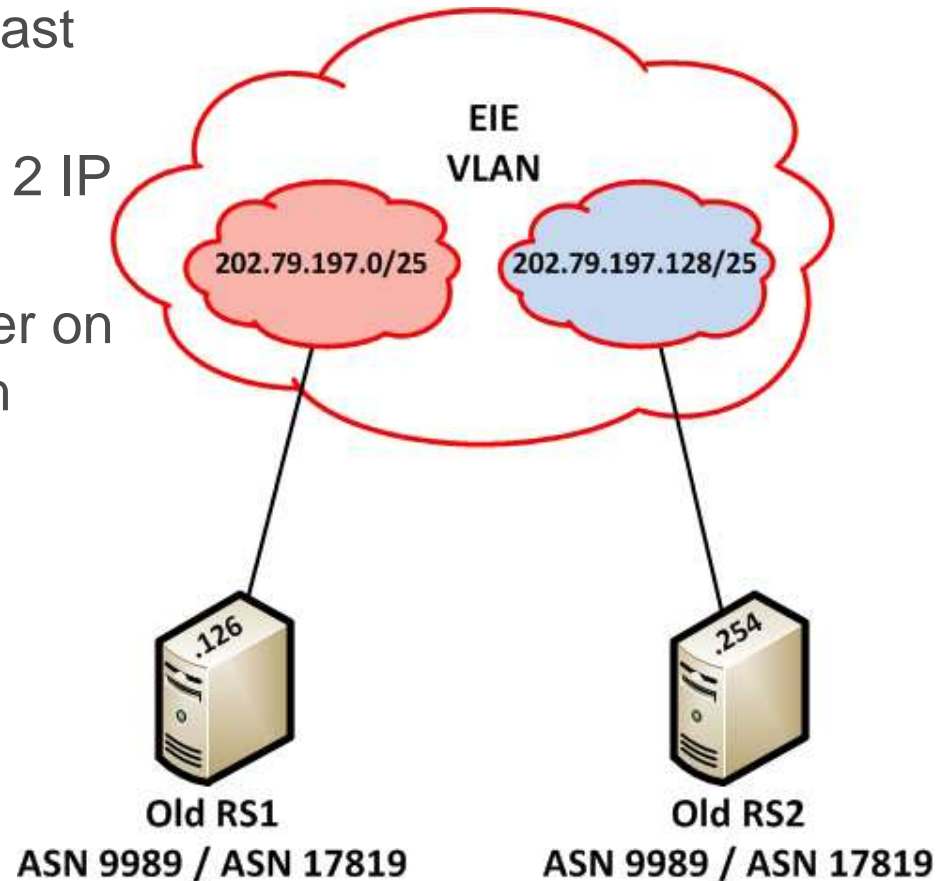# Equinix Internet Exchange

## Subnet Expansion

Vijayakumar S
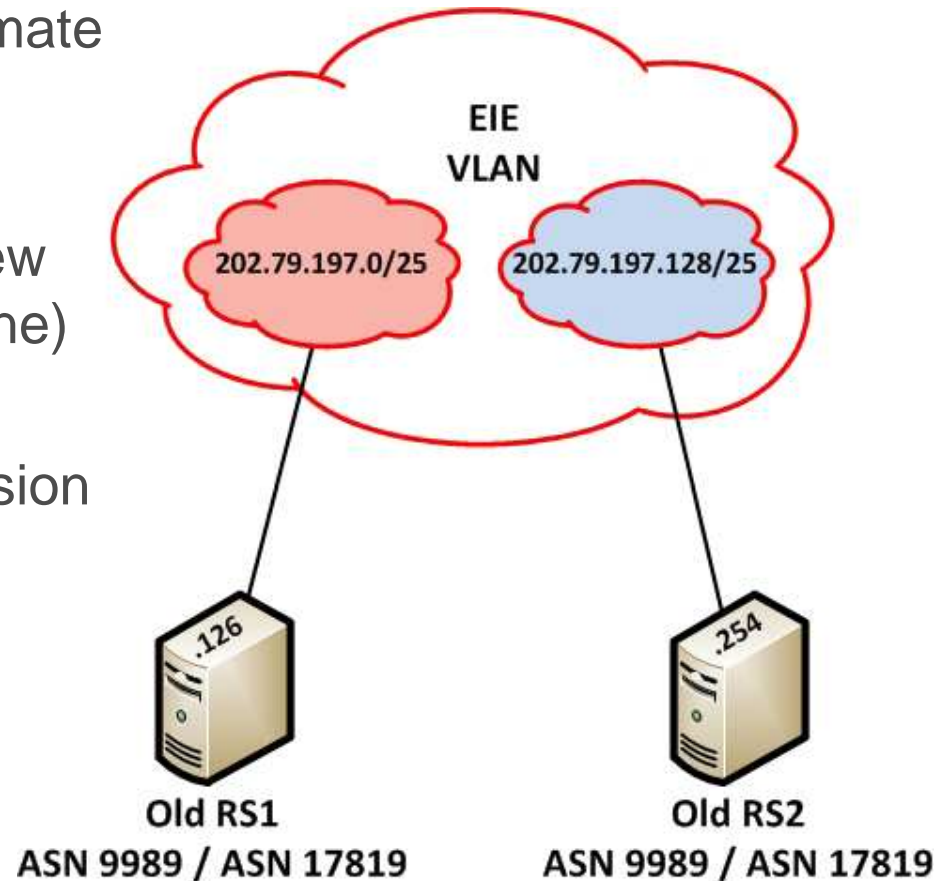
Vijay.s@ap.equinix.com

# Equinix Internet Exchange – Old architecture

- Two subnets on single broadcast domain (VLAN 599)

- Each Customer allocated with 2 IP (1 from each subnet).

- 1st IP to peer with Route Server on first /25 and 2nd IP to peer with second /25



EIE
VLAN

202.79.197.0/25          202.79.197.128/25

.126                     .254

Old RS1                  Old RS2
ASN 9989 / ASN 17819     ASN 9989 / ASN 17819

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## Drawbacks on old setup

- Complicated scripting to automate on Quagga route servers

- Operational challenge (Eg: view entire configuration to find a line)

- IPv6 not supported on old version

EIE VLAN

202.79.197.0/25

202.79.197.128/25

.126

.254

Old RS1
ASN 9989 / ASN 17819

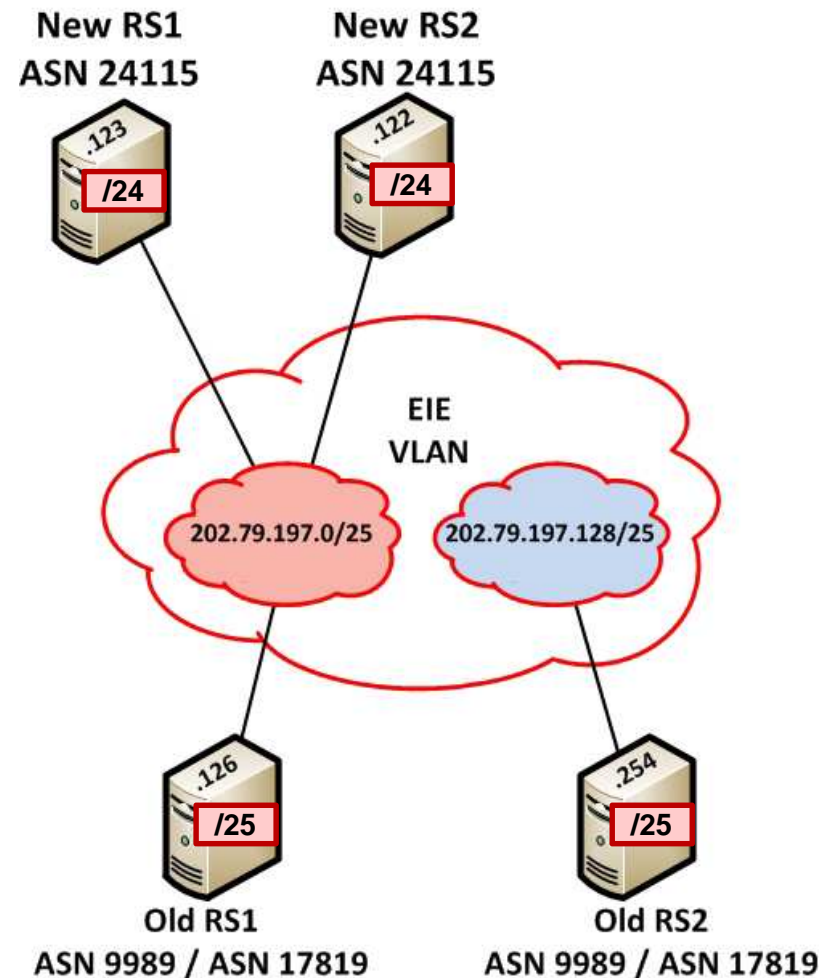Old RS2
ASN 9989 / ASN 17819

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# Equinix Internet Exchange – Changes planned

- Single Global ASN for Multi Lateral peering (ASN 24115)
- Expand IPv4 peering subnet from /25 to /24 net mask
- Install new route server platform (OpenBGPd) to support both IPv4 and IPv6
- Allow Transparent AS by default
- Allow Community based traffic manipulation
- Implementation of prefix filtering

**EIE VLAN**

**202.79.197.0/24**

.123

.122

New RS1
ASN 24115

New RS2
ASN 24115

EQUINIX
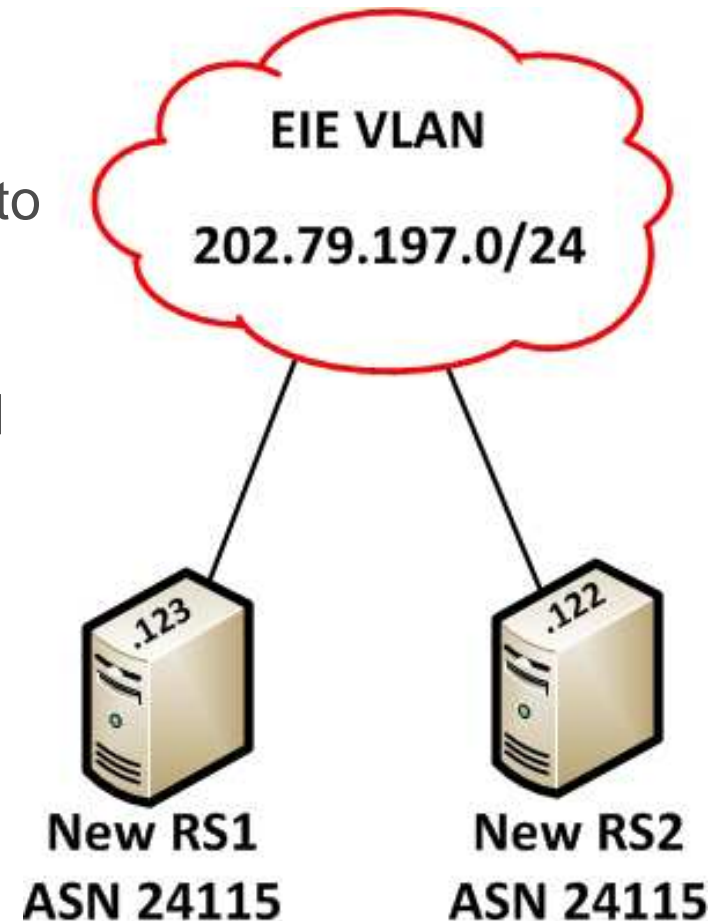
# Subnet Expansion – Step 1

- Install two new route servers
- Use ASN 24115
- Configure new RS with /24 subnet mask.
- Notify customers to Change their subnet mask to /24 and build additional peering to New RS1 and RS2.



New RS1
ASN 24115
.123
/24

New RS2
ASN 24115
.122
/24

EIE
VLAN

202.79.197.0/25    202.79.197.128/25

.126
/25

.254
/25

Old RS1
ASN 9989 / ASN 17819

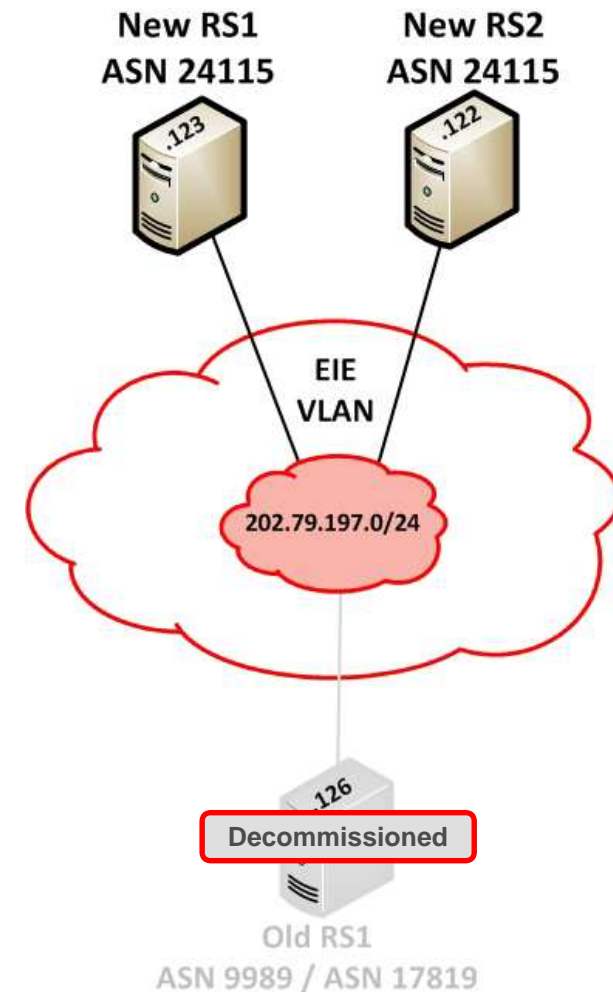Old RS2
ASN 9989 / ASN 17819

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# Subnet Expansion – Step 2

- Maintenance day 1
  - Change subnet mask of Old RS1 to /24
  - Shutdown Old RS2 process.

- Notify customers that are still not changed their subnet mask and setup new peering.
  - Run ping script from RS(s)
  - Check ARP table
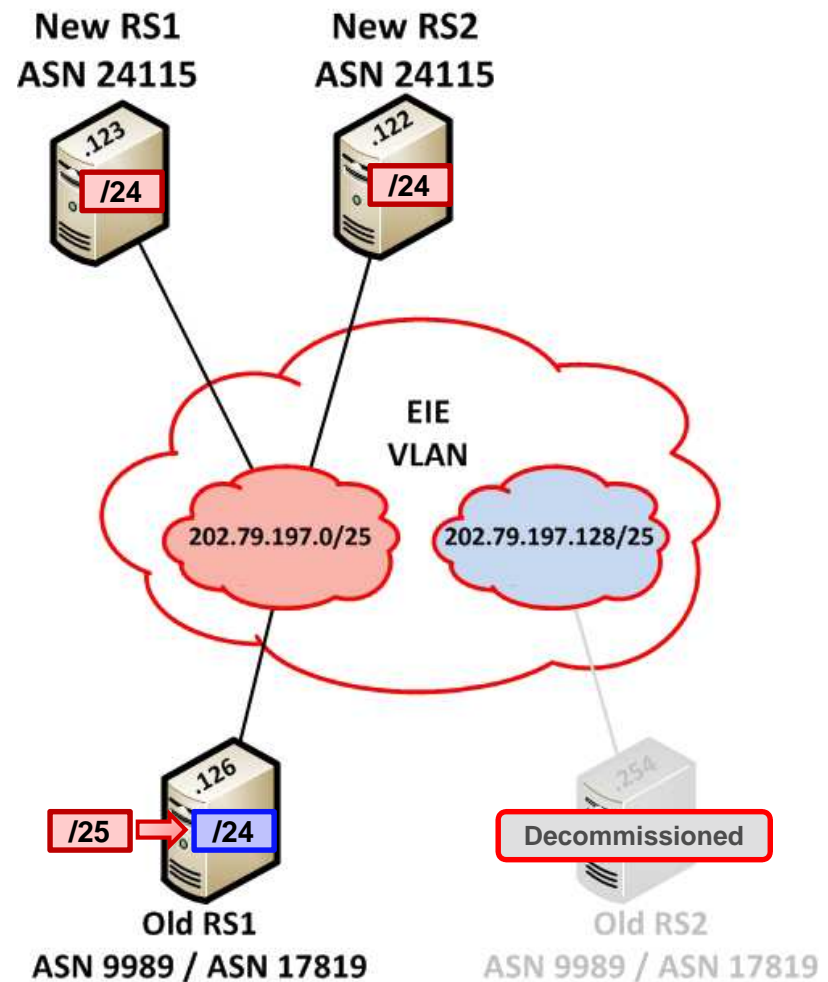
# Subnet Expansion – Step 3

- Maintenance day 1
  - Change subnet mask of RS1 to /24
  - Shutdown RS2

- Notify customers that are still not changed their subnet mask and setup new peering.

- Maintenance day 2
  - Shutdown old RS1 process

New RS1
ASN 24115
.123

New RS2
ASN 24115
.122

EIE
VLAN

202.79.197.0/24

.126
Decommissioned

Old RS1
ASN 9989 / ASN 17819

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# Equinix Internet Exchange – Problems & Solutions

- ARP Poisoning
    - Advised customers to disable "proxy arp"

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# Equinix Internet Exchange – Problems & Solutions

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  - Added "prepend-self" into neighbor configuration

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# Equinix Internet Exchange – Problems & Solutions

- ARP Poisoning
  - Advised customers to disable "proxy arp"
- Customer equipment not supporting Transparent AS
  - Added "prepend-self" into neighbor configuration
- BGP doesn't come up, RS shows error log
  - `neighbor xx.xx.xx.xx (Customer): received notification: error in UPDATE message, AS-Path unacceptable`
  - Advise customer to configure "no bgp enforce-first-as"

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## Subnet Expansion – Problems & Solutions

- ARP Poisoning
  - Advised customers to disable "proxy arp"
- Customer equipment not supporting Transparent AS
  - Added "prepend-self" into neighbor configuration
- BGP doesn't come up, RS shows error log
  - `neighbor xx.xx.xx.xx (Customer): received notification: error in UPDATE message, AS-Path unacceptable`
  - Advise customer to configure "no bgp enforce-first-as"
- Customer not releasing the 2nd IP Address
  - Monitor RS "arp table" and remind customer to release the IP.

# Equinix Internet Exchange Communities

| Action | Community |
|---|---|
| Default Open (Announce to All) | 24115:24115 |
| Default Open except AS12345 | 24115:24115 0:12345 |
| Default Closed (Announce to None) | 0:24115 |
| Default Closed except AS12345 | 0:24115 24115:12345 |
| Prepend 1x to AS12345 | 65501:12345 |
| Prepend 2x to AS12345 | 65502:12345 |
| Prepend 3x to AS12345 | 65503:12345 |

For details and Example configuration:

https://ix.equinix.com/public.action?action=mlpCommunityInfo

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# Questions ?