

# IPv6 in Cloud Providers

World IPv6 Day  
Tomás Lynch - Vultr, LLC.

lacnic

webinars



# IPv6 in Vultr highlights

Dual stack since day one

Products are dual stack

Core network is dual stack

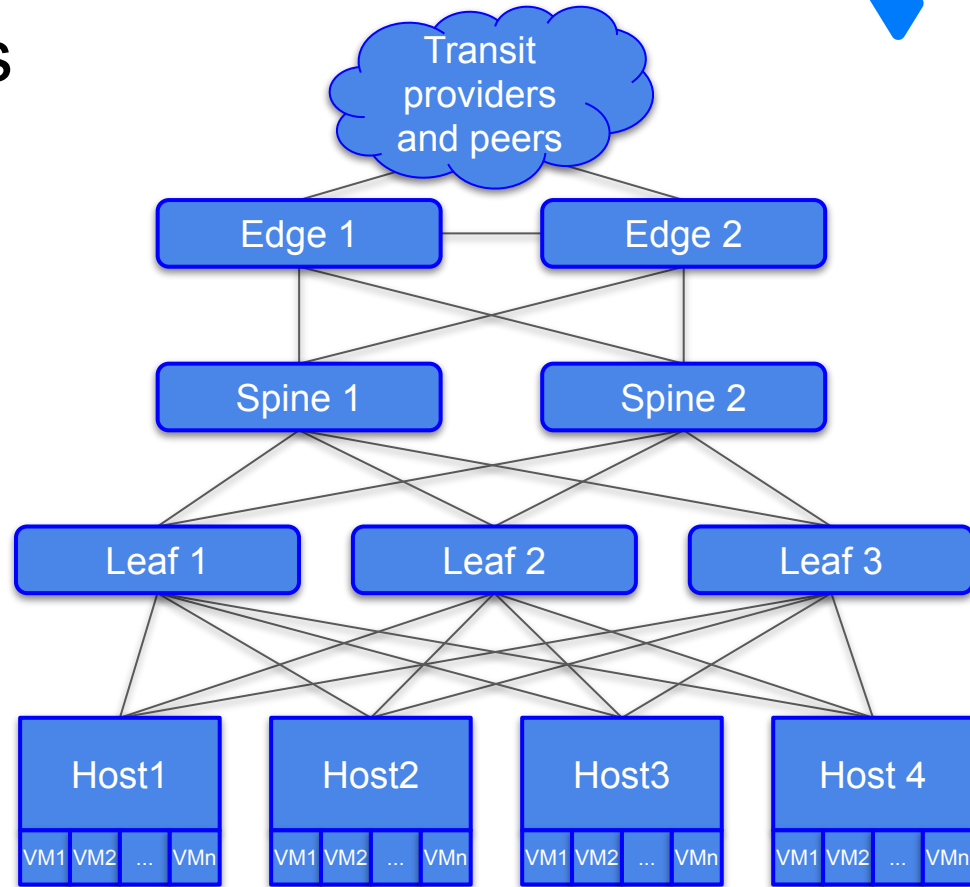
Transit providers and peers are dual stack

Everybody is happy!



# Assigning IPv6 addresses

- Leaf and spine architecture
- IPv4 interfaces are /30
  - 192.0.2.1/30
- IPv6 interfaces are /127 from a /48
  - 2001:db8:ffff::c000:0201/127
- An IPv6 /38 is assigned per datacenter
  - 67,108,864 /64
- Customers may bring their own IP
  - Either version





# BGP configuration

- Core BGP sessions are always dual stack
- Unified BGP policies for IPv4 and IPv6
  - Import and export policies contain terms for both versions
  - Terms, peering groups, etc. are labeled either as -v4 or -v6 if they only apply for one version
  - Example shows part of an import policy
- Customer BGP sessions are dual stack but have separated policies for each version

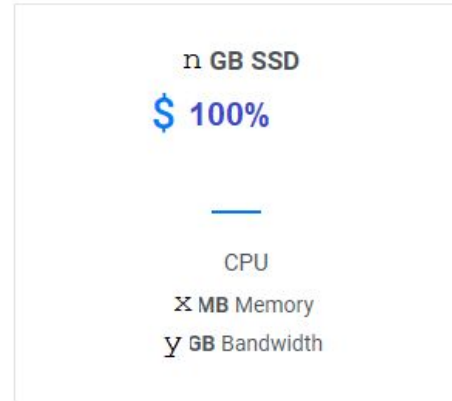
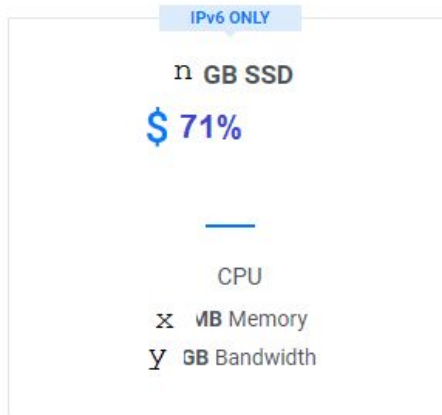
```
term NO_MARTIANS-v4 {
  from {
    route-filter-list rf-MARTIANS-v4;
  }
  then reject;
}
term NO_MARTIANS-v6 {
  from {
    route-filter-list rf-MARTIANS-v6;
  }
  then reject;
}
term RPKI_INVALID {
  from {
    protocol bgp;
    validation-database invalid;
  }
  then {
    validation-state invalid;
    community set origin-validation-state-invalid;
    reject;
  }
}
...
```



# Dealing with IPv4 shortage

- We suffer from IPv4 shortage as any other industry
- IPv4 addresses are still available at a price
- We cannot NAT our customers
- We need more customers to embrace IPv6
  - Most of our customers are dual stack
  - While having IPv6, only use IPv4
  - IPv6 traffic is around 10-15%
- To deal with it we provide an IPv6 only VM option at a lower price

## Server Size





# Conclusion

- Full dual stack
- Not affected by network elements that do not support IPv6
  - No CPEs
- Cannot use NAT and IPv4 consumption is faster than ISPs
  - Must use IP brokers
- Have IPv6 only options but not everybody is attracted to



# Thank you!

Tomas Lynch

tlynch at vultr dot com