Cumulus® Linux® 2.5.5

What's New and Different since 2.5.3 (Technical)

Last Updated: Dec 14, 2015

What's New and Different in Cumulus Linux 2.5.5+2.5.4 vs. 2.5.3

- New supported hardware models
- Network virtualization
  LNV, head-end replication, VXLAN active-active mode
- Management VRF
- IPv6 resilient hashing
- BFD enhancements
- RMP enhancements
- Nutanix monitoring integration
- netshow troubleshooting tool

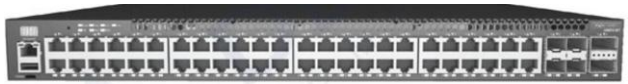
Hardware Platforms

- Penguin 4804iq
- Accton AS 4610-54P

Penguin 4804iq

Brand	Penguin
Type	1 Gigabit
Model	4804iq
CPU	x86
Form Factor	48 x 1G-T and 4 x 10G-SFP+
Switch Silicon	Broadcom Helix4
Similar Incumbent Designs	Arista 7010T-48, Arista 7048T-A, Cisco Nexus 3048

Edgecore AS4610-54P



Brand	Edgecore
Type	1 Gigabit – (PoE) Power over Ethernet
Model	AS4610-54P
CPU	ARM
Form Factor	48 x 1G-POE and 4 x 10G-SFP+
Switch Silicon	Broadcom Helix4
Similar Incumbent Designs	Cisco Catalyst 3650-48P, Cisco Catalyst 3850-48P, Juniper EX3300-48P

Network Virtualization: LNV

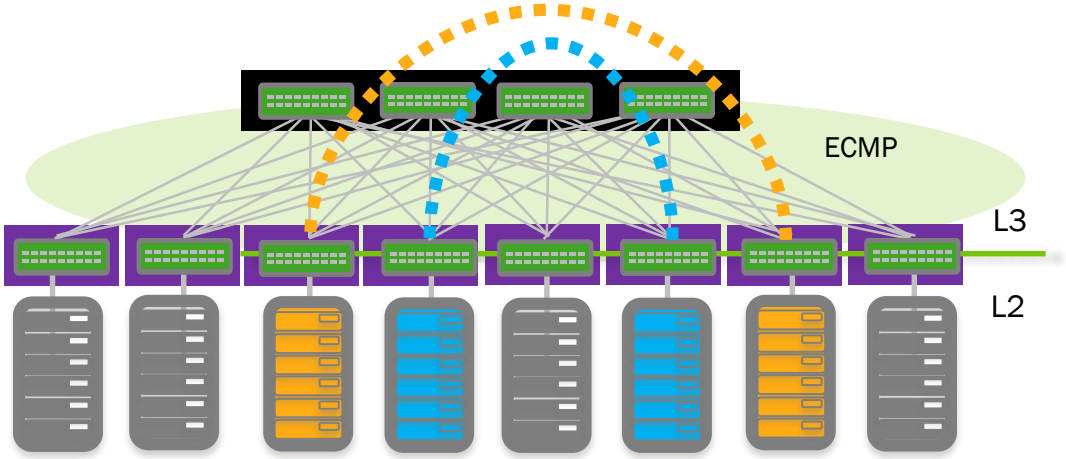
LNV: Lightweight Network Virtualization

- Deploy VXLAN without the need for a central controller in small to medium deployments
- Each leaf acts as VTEP (VXLAN tunnel endpoint)

Service node
VTEP

How does it work?

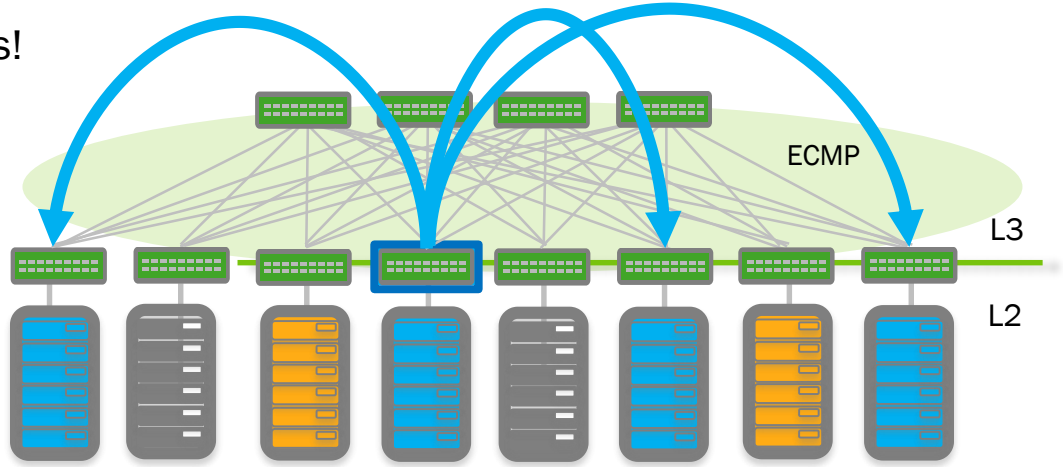
- Service node daemon on spine switches
- Each ToR runs a registration daemon
- Service nodes load balance via anycast



More info: http://bit.ly/1OTmxKw

Head-end Replication

- BUM (Broadcast, Unknown-Unicast and Multicast) traffic is replicated in hardware (Broadcom Trident II)
- Used as default configuration for LNV
- Eliminates need for complex multicast in underlay network
- Trident II supports up to 64 VTEPs
  63 additional leaf switches, 3000+ hosts!



More info: http://bit.ly/1MEUUPD

Network Virtualization: VXLAN Active-Active Mode

VXLAN Active-Active Mode

- VXLAN within a multi-chassis LAG (MLAG) deployment
- Two leaf switches act as one VTEP (for high availability)

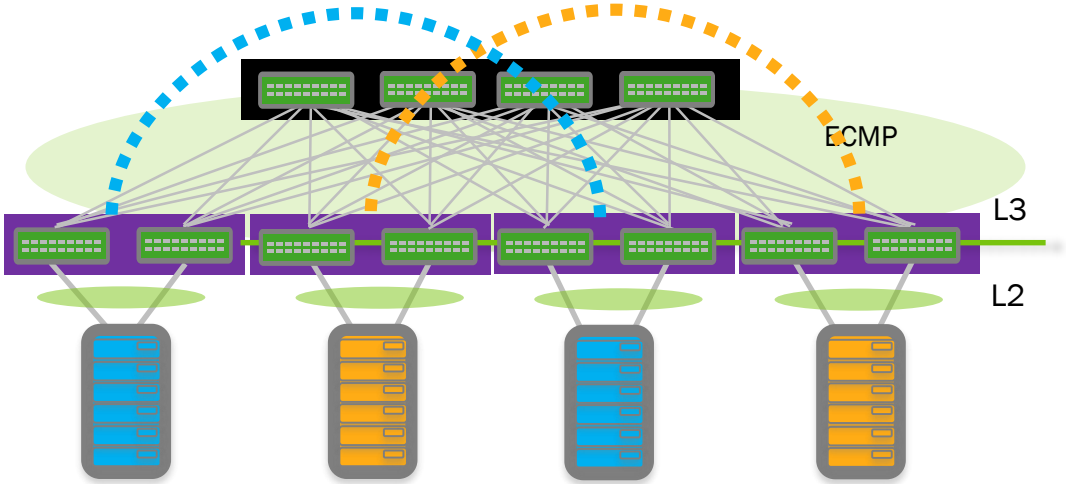
Leaf 1

```
auto lo
iface lo
  address 1.1.1.1/32
  clagd-vxlan-anycast-ip 36.0.0.11
```

Leaf 2

```
auto lo
iface lo
  address 2.2.2.2/32
  clagd-vxlan-anycast-ip 36.0.0.11
```

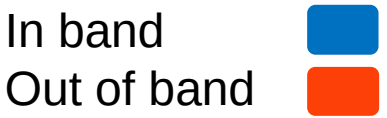
More info: http://bit.ly/1SJ0unF

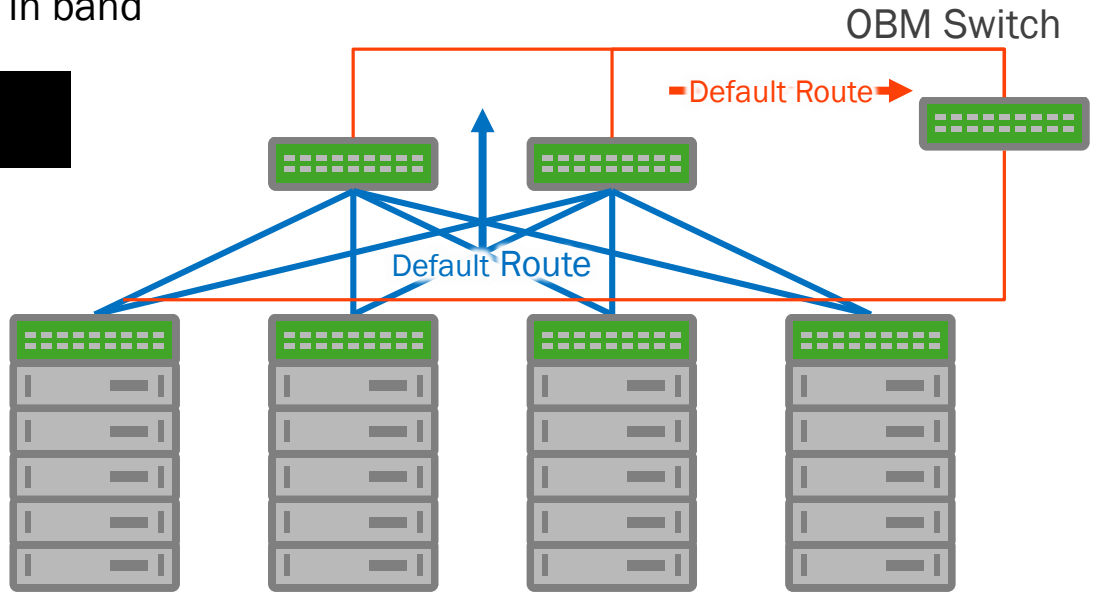


Management Virtual Routing and Forwarding

- Enables separation of OOB (out-of-band) management traffic from in band
- Equal routes can exist for both OOB and in band

```
cumulus@leaf1$ ip route show table mgmt
default via 192.168.0.1 dev eth0
```

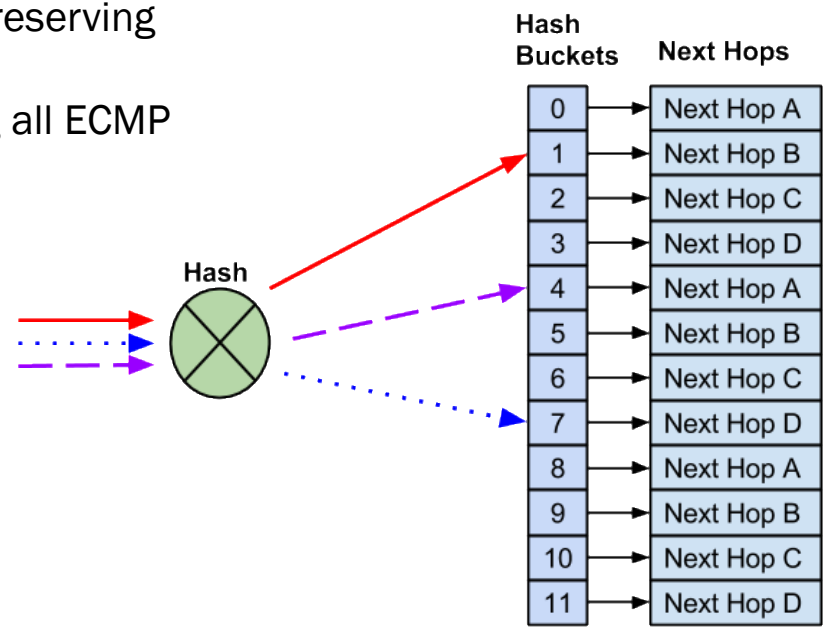




More info: http://bit.ly/1Oid2RZ

Equal Cost Multipath (ECMP) Load Sharing: Resilient Hashing

- IPv6 parity for IPv4 resilient hashing (released with 2.5.2)
- Ensures that when a member in an ECMP group fails, flows on that link are moved to unaffected link while preserving existing flows on unaffected links
- 65,536 buckets are created to be shared among all ECMP routes



More info: http://bit.ly/1Z8xwBF

BFD Enhancements

Bidirectional Forwarding Enhancements

- BFD support for IPv6 OSPF
- BFD IPv4 operational enhancements

BGP

```
quagga(config)# router bgp X
quagga(config-router)# neighbor <neighbor ip> bfd
```

OSPF

```
quagga(config)# interface X
quagga(config-if)# ipv6 ospf6 bfd
    <2-255> Detect Multiplier
    <cr>
```

More info: http://bit.ly/1PDgjOR

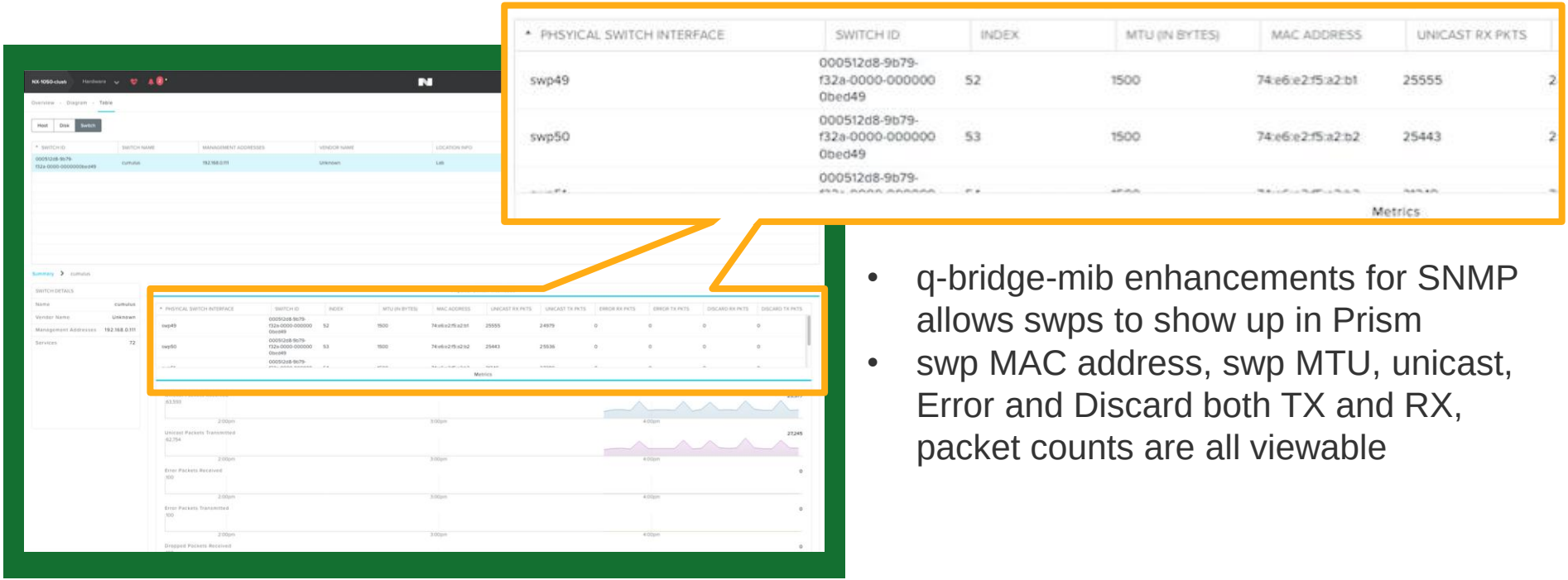
RMP Enhancements

- RMP 2.5.5 is the default image for new RMP orders

https://cumulusnetworks.com/cumulus-rmp/overview/

Nutanix Monitoring Integration

Prism on Nutanix can see switches running Cumulus Linux



- q-bridge-mib enhancements for SNMP allows swps to show up in Prism
- swp MAC address, swp MTU, unicast, Error and Discard both TX and RX, packet counts are all viewable

netshow Troubleshooting Tool

netshow tool is installed by default on Cumulus Linux 2.5.5

- netshow aggregates output from both physical interfaces, VLANs, etherchannels as well as helping with troubleshooting spanning tree, MLAG and much more
- Can be installed on servers as well
  https://github.com/CumulusNetworks/netshow-core

```
cumulus@leaf1$ netshow interface
    Name    Speed   Mtu    Mode      Summary
--  ------  ------- -----  --------  -------------------------
UP  lo      N/A     16436  Loopback  IP: 127.0.0.1/8, ::1/128
UP  eth0    1G      1500   Mgmt      IP: 192.168.0.11/24 (DHCP)
```

More info: http://bit.ly/1TLQYke

Thank You!