Use Linux on Your Whole Rack with RDO and Open Networking

Scott Suehle
Community Manager, Cumulus Networks
6/29/16
Who am I and why should you care?

- Community Manager for Cumulus Networks
- Former customer support junkie
- scotts@cumulusnetworks.com
- @8bitdad on the twitters
- kilted1 on #CumulusNetworks on Freenode
Who is Cumulus Networks?
- Cumulus Networks created a Debian-based (Wheezy and Jessie) network operating system
- The same L2 and L3 experience compared to legacy network vendors, but without proprietary APIs or controllers
- 41+ certified hardware platforms from 8 different vendors (Agema, Dell, Edgecore, HP, Mellanox, Penguin, QCT, Supermicro) with ONIE
Transformation: First Servers, Now Networking

First: Compute Transformed

Now: Networking Transforms

Applications, OS and Hardware

Open Ecosystem
Agile, open, scalable with unprecedented cost savings

Open Networking Enables Platform Choice and Affordable Capacity
That’s great but what can Cumulus add to RDO?
Design 1: ML2 + VLAN: MLAG Between Host/Leaf and Leaf/Spine

Overall: A well known and common design using MLAG at the spine layer, MLAG at leaf layer, but least scalable and least flexible. An “old school” but proven network design.
Design 2: MLAG at Top-of-rack, IP Fabric Between Leaf/Spine

Overall: Uses less MLAG, more Layer 3, VXLAN, and is therefore more scalable.
Caveat: Utilizes third-party SDN overlays, which could add to overall complexity.
Design 3: Layer 3 to the Host: Single-Attached

Overall: “Good Enough” for single links from hosts to switches, and recommended by Openstack.org

Caveat: Not unique/novel - other networking vendors can accomplish this
Design 4: Layer 3 to the Host: Multiple-Attached (Quagga on the Host)

Overall: The best overall networking solution with OpenStack and Cumulus Networks in large configurations. 100% simple and flexible architecture with Layer-3 networking using Cumulus Quagga to make it extendable to other software solutions.
What is Cumulus Quagga?
Cumulus Quagga

- Layer 3 all the way to the host and build a modern unified data center that is simple to scale and provides increased freedom
- Network complexity reduction
- Subnet freedom and mobility
- Increased redundancy
- Stateless anycast load balancing
- Free packages can be downloaded at cumulusnetworks.com/roh
  - RPM, DEB, and container versions available
Come see what we did in the lab….
Red Hat and Cumulus

Installing, Configuring, and Managing a 300+ OpenStack Node...

... network in 15 minutes
... overcloud in 6 hours

Nolan Leake — Co-Founder, Cumulus Networks
Brad Watkins — NFV Partner Engineer, Red Hat
Jaiwant Virk — Senior Product Manager, Dell

April 28, 2016 @ OpenStack Summit Austin 2016

cumulusnetworks.com | redhat.com | dell.com

Step 0: Find a lab, thank you to Dell!
Red Hat and Cumulus

- Can we quickly deploy the compute nodes?
- Can the entire pod be prototyped virtually first?
- Can the entire pod be entirely layer 3 with VXLAN?
- Can Ansible and Git be the common “language” between network engineers and system admins?
- Can RHOSP Director handle the bulk deployment?
- Can the entire project be done remotely with ease?

Spoiler Alert: Answer is YES to all of the above!
Links and Resources

Git: Ansible playbooks, quagga package builds and deployment:
- https://github.com/leifmadsen/quagga-config-deploy
- https://github.com/leifmadsen/quagga-rpm
- https://github.com/CumulusNetworks/dellrh_openstack_ansible
Stop by our booth for a quick demo….
VirtualBox Appliance Contains:
- 2 leafs, 1 spine, 2 RDO compute nodes, 1 Debian router
- Custom tenant creation and tear-down script
- Command line input via any local Web browser
- netshow
Demo Topology

Cumulus VX Virtual Experience
Spine 1

Leaf 1

Leaf 2

OpenStack Controller
Compute Node (Nova)
Network Node (Neutron)
Dashboard Node (Horizon)

CentOS

Compute Node
Join the Cumulus Networks Community!

So, what’s next?

- Keep on learning
- Join the community http://community.cumulusnetworks.com/
- Participate in discussions
- Download Cumulus VX to work on proofs of concept, automation building, and continued practice: https://cumulusnetworks.com/cumulus-vx/
- Use lab guides and demo modules to learn at your own pace: https://support.cumulusnetworks.com/hc/en-us/articles/201787686 and https://support.cumulusnetworks.com/hc/en-us/sections/200398866
- Sign up for our Boot Camp and get 30% off with code RHS30: https://cumulusnetworks.com/education/instructor-led-training/
Visit our Booth for a Demo or Questions

- Booth 930 in the Exhibit Hall
- Free T-shirts, Stickers
- Register to win a Red Hat Keyboard or a Rocket Turtle
- Find out more information on what I talked about here
LEARN. NETWORK.
EXPERIENCE OPEN SOURCE.