Update on OVS and OVN

Open vSwitch 2016 Fall Conference

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Highlights from the Year

- The Open vSwitch project moved to the Linux Foundation
- Released the 2.5 and 2.6 series
- Moving to a more regular six month release interval
  - Next release in February
- First release of OVN
OVS Releases

- Improved support for OpenFlow in every release
- Version 2.5
  - Connection tracking to support stateful firewalls (Linux kernels)
  - Multicast Listener Discovery (MLDv1 and MLDv2)
  - sFlow agent reports tunnel and MPLS structures
  - Multiqueue support to vhost-user for DPDK
- Version 2.6
  - OVN
  - NAT support (Linux kernels)
  - QoS and policing for DPDK
  - Basic connection tracking on DPDK and Hyper-V
What is OVN?

- Virtual networking for Open vSwitch (OVS)
- Developed within the OVS project
- Linux Foundation Collaborative Project
- License under the Apache license
- First release of OVN comes with OVS 2.6
- First release of OpenStack Neutron integration available in the Newton release
OVN Feature Overview

- Manages overlays and physical network connectivity
- Flexible security policies (ACLs)
- Distributed L3 routing, IPv4 and IPv6
- Native support for NAT, load-balancing, DHCP
- Works with Linux, DPDK, and Hyper-V
- L2 and L3 gateways
- Designed to be integrated into another system
  - OpenStack, Kubernetes, Docker, Mesos, oVirt
OVN Future work

- Database clustering
- Scaling improvements
- Service function chaining
- Encrypted tunnels
Platforms

• Containers
• DPDK
  ○ Bypasses the kernel and packets go straight to userspace
  ■ Potentially very fast if traffic doesn’t need kernel
  ■ Need to recreate services supplied by kernel
• Hyper-V
  ○ Windows-based hypervisor
  ○ Different from Windows support, but that’s also being worked on
• Non-Linux kernel datapaths sometimes lag on features provided by the kernel
BPF

- BPF provides a safe, virtual sandbox in the Linux kernel (as well as other platforms)
- DPDK-like performance in Linux kernel with XDP
- Potentially greater portability across kernel versions and platforms
- Insert new functionality at run-time:
  - New network and tunneling protocols
  - Push OVN-specific actions into the datapath
Thank you for attending!

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