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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