

Windows Community Updates on OVS and OVN

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Agenda

- OVS
 - Introduction & Architecture
 - Features
 - Container support
 - Roadmap
- OVN
 - ovn-kubernetes
- Demo
- Questions

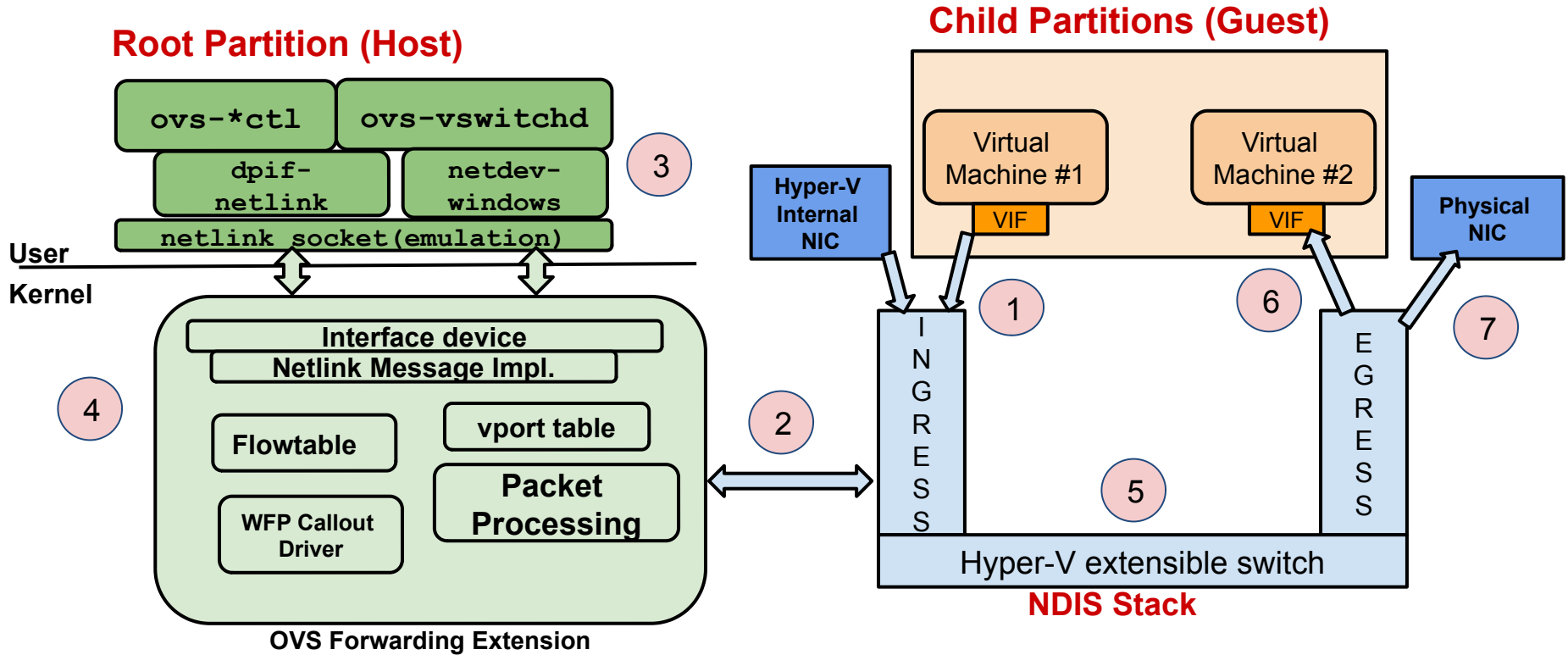
Introduction

- OVS solution for Microsoft Hyper-V
- Collaboration b/n VMware Inc. and Cloudbase Solutions
- Consists of:
 - Ported OVS userspace code
 - Windows datapath (OVSEXT – Hyper-V forwarding extension)

Architecture

- Hyper-V extensible switch
- OVS components
 - OVS userspace
 - OVSExt driver
- Userspace – Kernel communication
- Packet Flow
- Skb ~ Nbl (Net buffer list)

Architecture



Features

- Supported OS
 - Windows family 8 (2012/Win8)
 - Windows family 9 (2012 R2, Win 8.1)
 - Windows family 10 (2016 LTSC, 1709, 1803, 1809)
- Supports most of the matching flows and actions
- Supports **GRE, GENEVE, STT, VXLAN** tunnels
- Supports hardware offloads
- Stateful firewall support with connection tracking and recirculation
- Supports multiple **NICs, VTEPS and BONDING**

Containers on Windows

- Prerequisites: Windows 10 / Server 2016 family
- Containers also use “VM Switch” for networking
- OVS hooks on to the VM switch for managing container networking similar to VMs

Recent datapath changes

- Stabilizing driver
- Conntrack support
 - NAT
 - IP fragments
 - zone limits
 - Performance optimization
- Continuous integration with unit tests
- Introduce support for Host Network Stack (HNS) API's

Roadmap

- Adding support for PCAP interfaces
- MegafloWS
- UFID (unique flow identifier)
- IPv6 conntrack and tunnels
- Other tunnels (NSH, LISP)

OVN in Kubernetes

- OVN provides virtualization for containers
- [ovn-kubernetes](#)
- **overlay model**
- On Linux/Windows:
 - Implements CNI plugin
- Daemonsets for easier deployment
- HA for OVN is available from OVS 2.10

How to deploy ovn-kubernetes

- Vagrant setup:
 - <https://github.com/openvswitch/ovn-kubernetes/tree/master/vagrant>
- Ansible playbook:
 - <https://github.com/openvswitch/ovn-kubernetes/tree/master/contrib>
- Please check them out
- Feel free to open issues and provide feedback

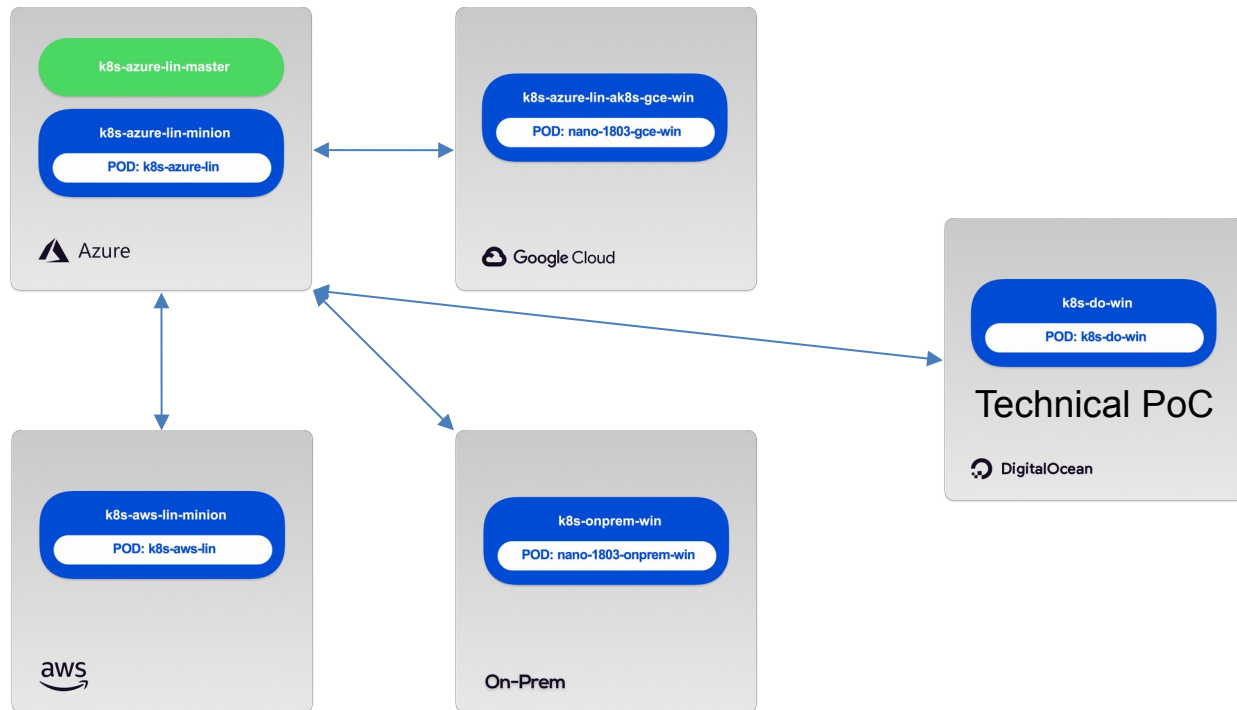
Benefits of an **ovn-kubernetes** deployment

- Distributed firewalling for PODs
- Can be used together with service-meshes (Istio, etc)
- Full heterogenous deployment (Linux + Windows, on-prem + off-prem with IPSEC support via OVN for encryption)
- **ovn-kubernetes** is heavily used in mixed environments (since alpha Windows support in Kubernetes)
- [OpenShift Tech. Preview](#) (starting 3.9) supports **ovn-kubernetes** environments (including Windows nodes)

Roadmap for ovn-kubernetes

- OVN golang bindings ([branch](#))
- Integration with kops, kubespray, etc
- Add Kubernetes operator for ovn-kubernetes
- Enhance ansible playbooks and vagrant setup

Diagram of the demo environment



Useful links

- Where to download OVS/OVN distribution: <http://openvswitch.org/download/> ; <https://cloudbase.it/openvswitch/> (includes signed drivers!)
- Open vSwitch documentation: <http://docs.openvswitch.org/en/latest/>
- Where to report bugs and ask questions: bugs@openvswitch.org, ovs-discuss@openvswitch.org, <https://github.com/openvswitch/ovs-issues>, <https://ask.cloudbase.it>
- OVS conference presentations: <http://openvswitch.org/support/ovscon2016/>, <http://openvswitch.org/support/ovscon2015/>, <http://openvswitch.org/support/ovscon2014/>
- ovn-kubernetes: <https://github.com/openvswitch/ovn-kubernetes>

Questions?

- Join us on the ovs IRC channel `#openvswitch` every Tuesday at 10:00 AM PST.