Breaking Cloud Native Network Performance Barriers

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Agenda

- Problem Statement
- Multus
- virtual Data Path Acceleration (vDPA)
- vDPA and Containers
- Live Demo
- Takeaways

Red Hat

Problem Statement

- What are we showing and what does it mean?

- Are you a service provider, telco or any one with high perf workloads at Layers 2 or 3?

- We will show a single container image with a secondary accelerated interface leveraging vDPA.

- **Now a container image can be deployed on prem or in the cloud, independent of networking hardware.**
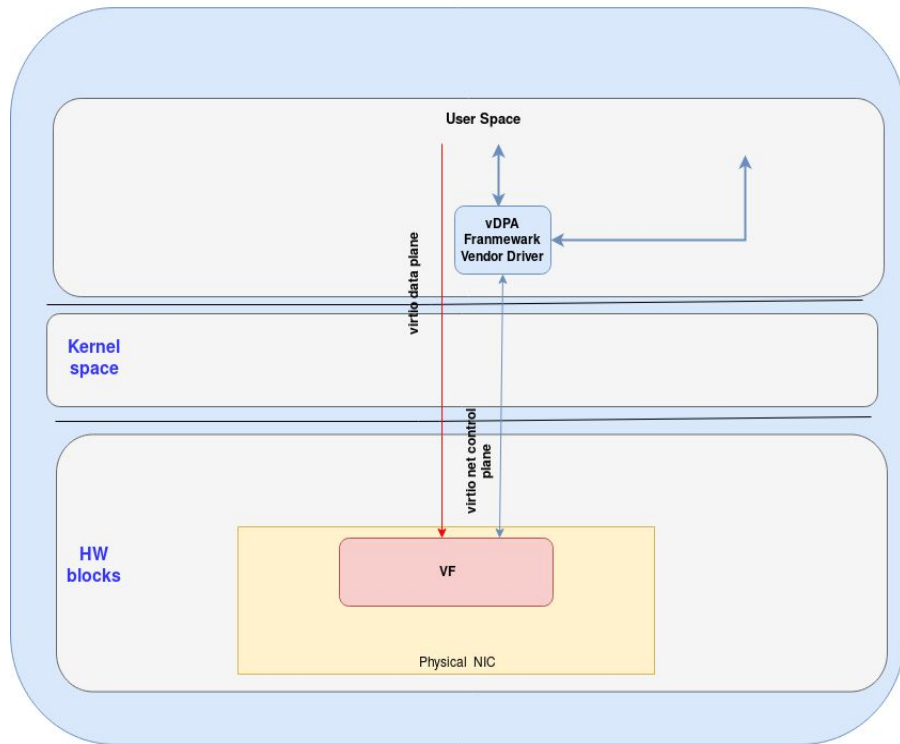
Multus

- Enables attaching multiple network interfaces to pods
- A CNI plugin that can call multiple other CNI plugins
- Enables SR-IOV CNIs today to accelerate containers
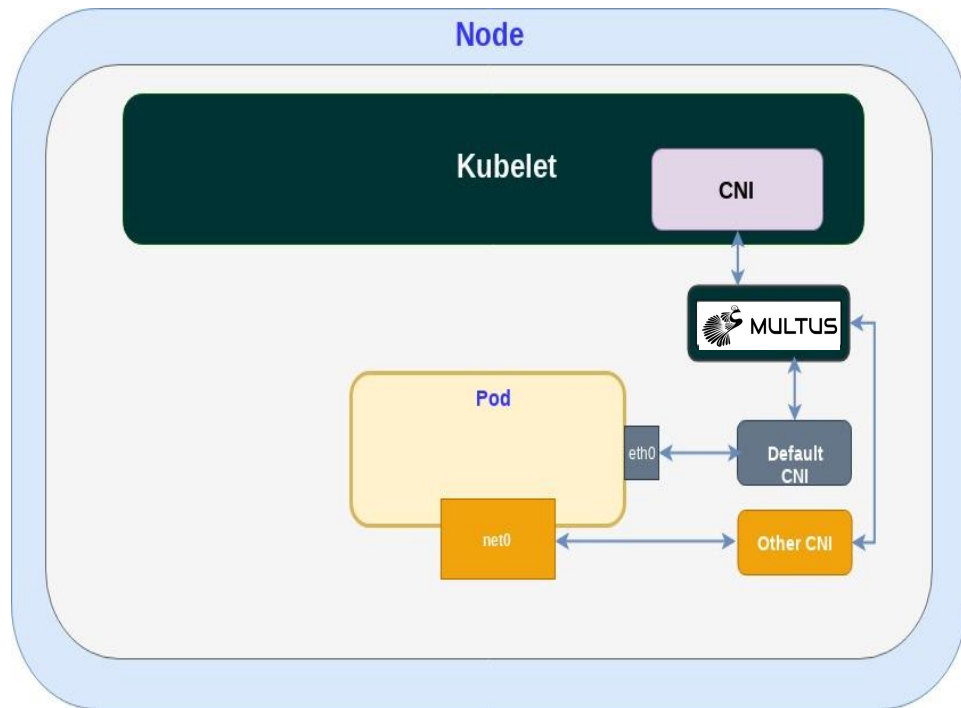
Virtual Data Path Acceleration (vDPA)

- Accelerating L2 container networking in an open standard manner (vs SR-IOV)
- Vendor NIC implements the ring layout
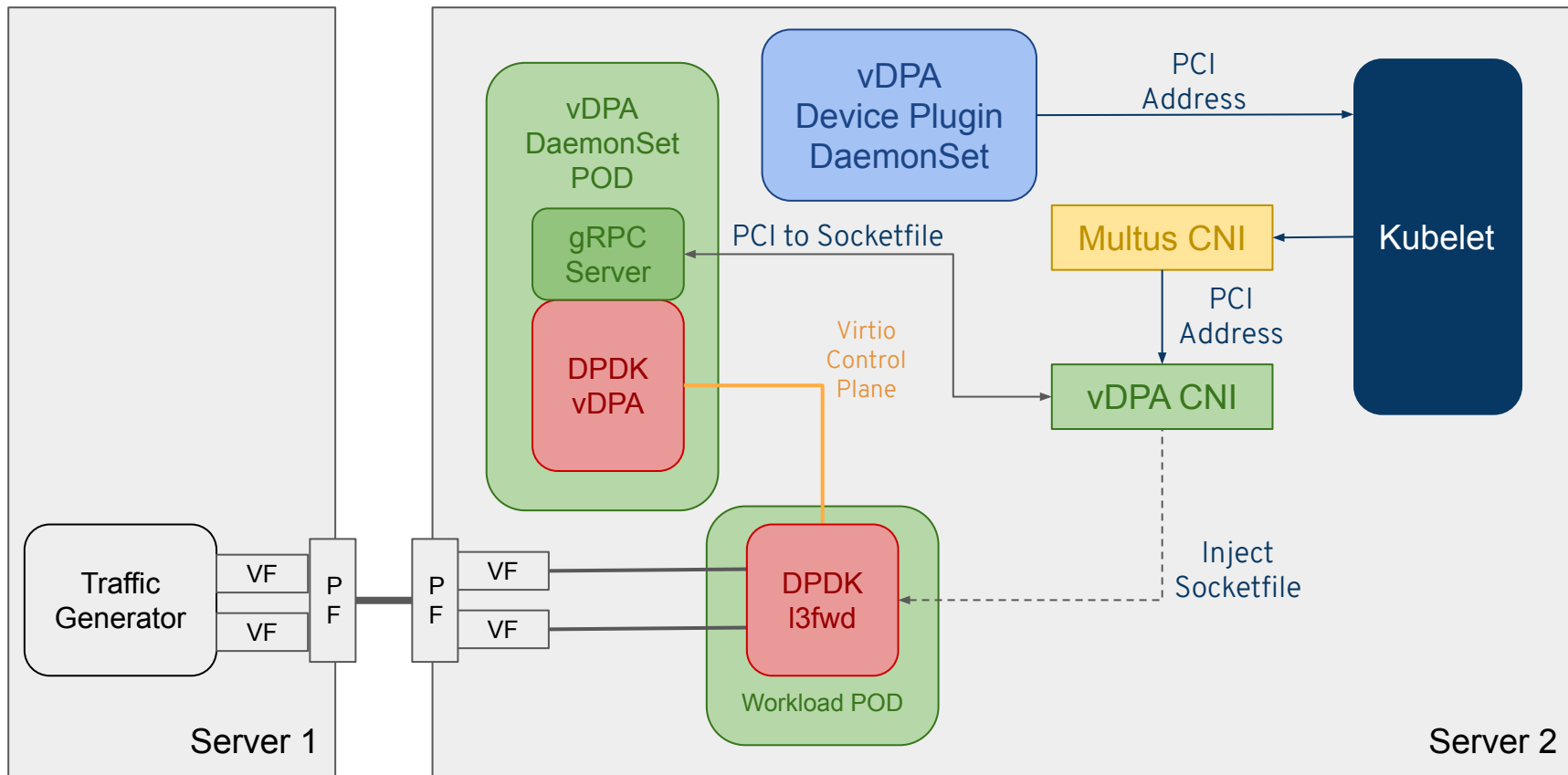- Control plane is translated

vDPA and Containers

- vDPA CNI injects the vHost-User socket file into container
- Containers use a DPDK PMD to consume the accelerated interface
- Container achieving wirespeed/wirelatency going directly to HW NIC
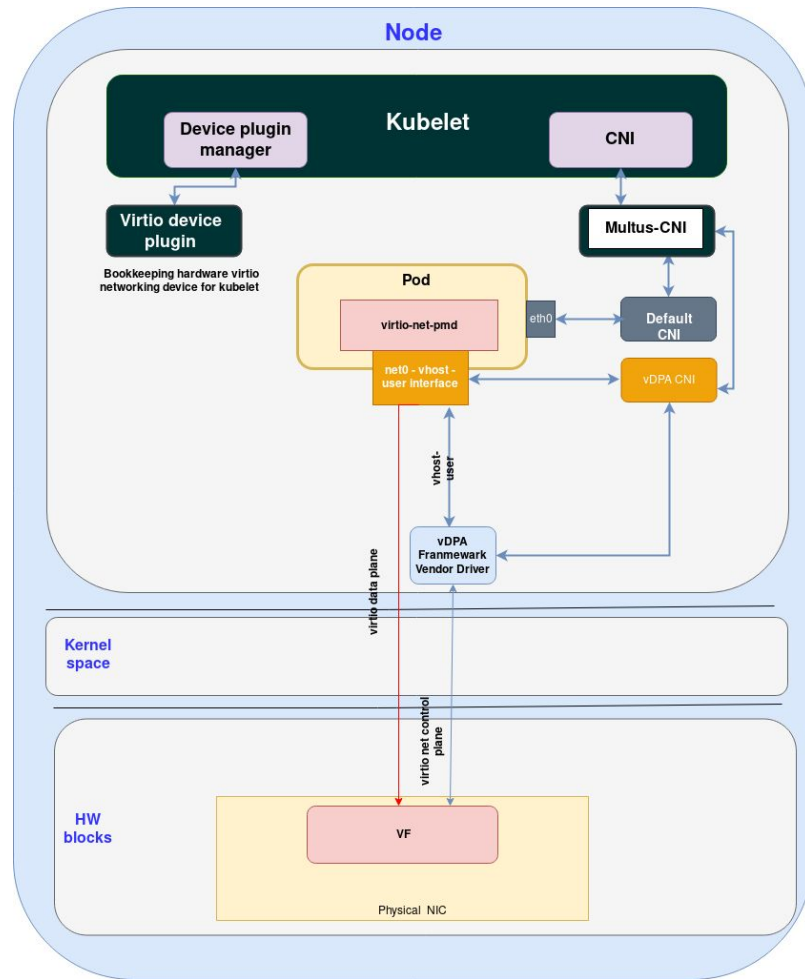
Live Demo
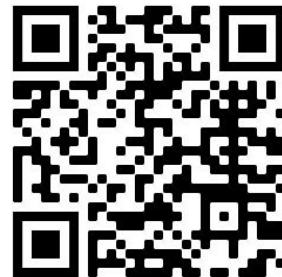
Demo Architecture

Takeaways

Takeaways

- vDPA is based on open public specifications compared to vendor proprietary SR-IOV.
- Enables single container certification decoupled from the vendors NIC driver.
- Future proof for other HW platform technologies (scaleable IOV).
- Major NIC vendors will be coming out with vDPA cards in the next 12-18 month.

For More Info

Read the virtio Blog Series:
    https://www.redhat.com/en/virtio-networking-series

Code Repo and Additional Information:
    https://github.com/redhat-nfvpe/vdpa-deployment/

THANK YOU