Making High Performance Networking Applications Work on Hybrid Clouds

Maxime Coquelin, Billy McFall

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SCYLLA.

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Agenda

- Problem Statement
- On-prem - vDPA
- Alibaba Bare Metal Cloud - virtio Full HW Offloading
- AWS Cloud - Mediation Layer
- Live Demo
- Takeaways

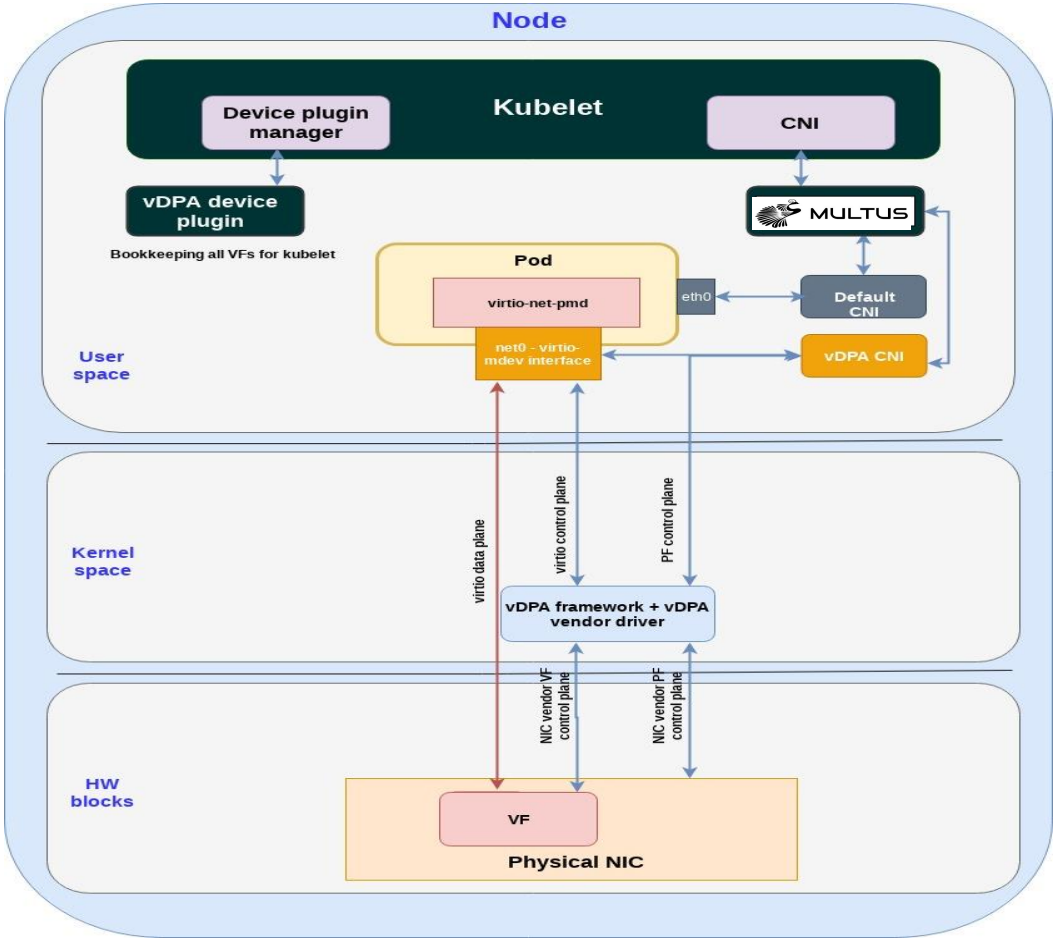
Problem Statement

- A single container image with a secondary accelerated interface (using Multus) that can run over multiple clouds without changes in the container image.

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

On-prem - vDPA

- Data plane implemented in the physical NIC
- Going directly to the container
- Control plane translated from vendor proprietary to virtio standard
- Performance can reach wirespeed/wirelatency



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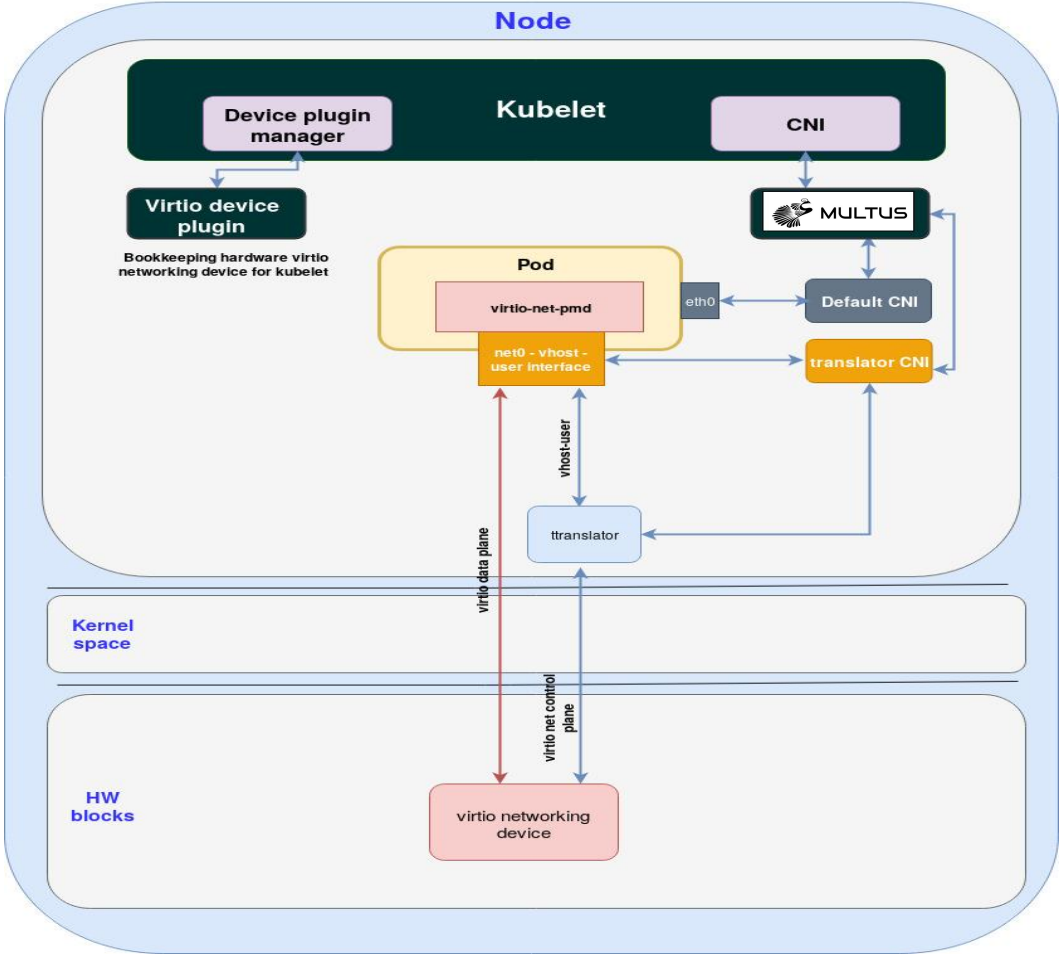
Alibaba Bare Metal Cloud - virtio Full HW Offloading

- Data plane implemented in the physical NIC
- Control plane implemented in the physical NIC
- Using a translation layer from PCI to vhost-user
- Performance can reach wirespeed/wirelatency



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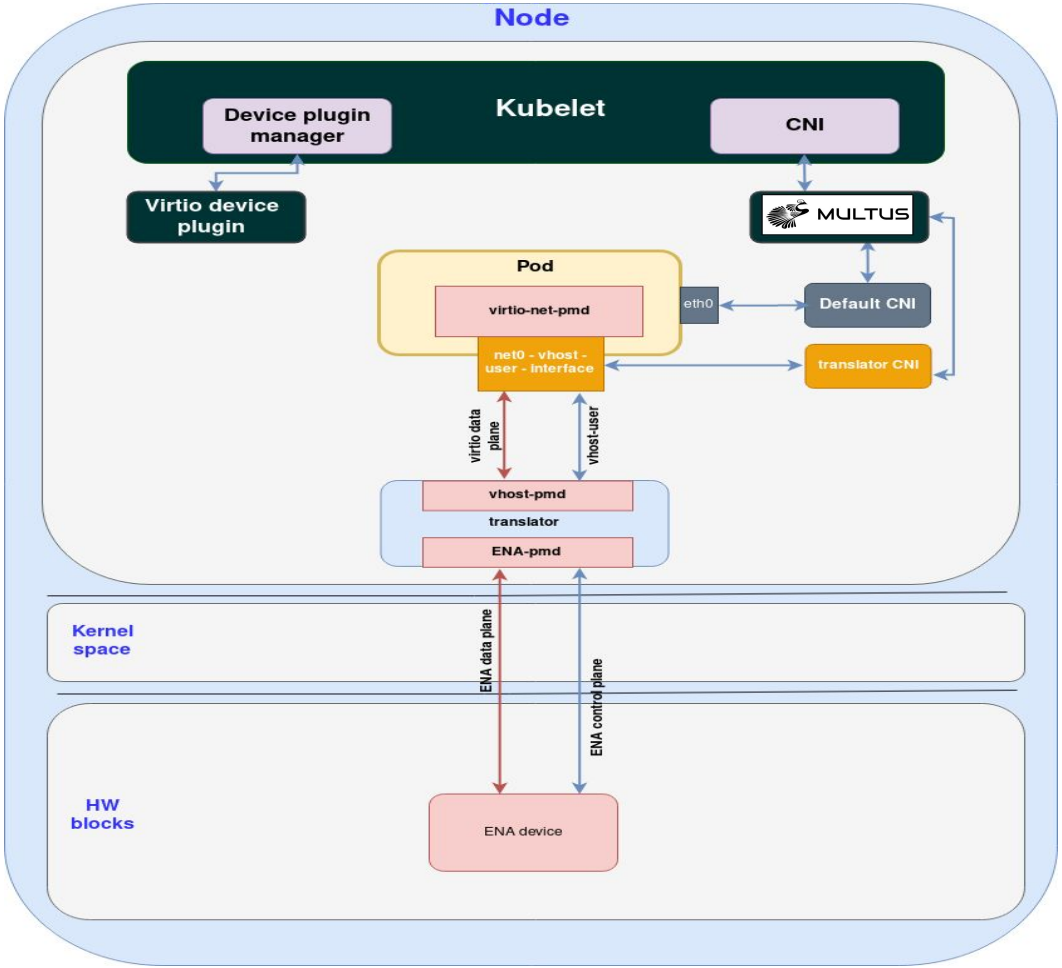
AWS Cloud - Mediation Layer

- Container image is the same however no HW acceleration at this time
- Translator for data plane and control plane
- Extra copy for data plane thus no wirespeed/wirelatency



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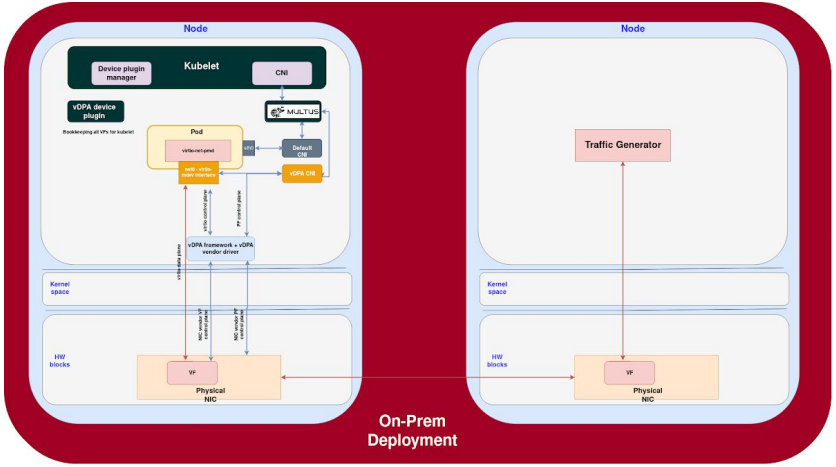
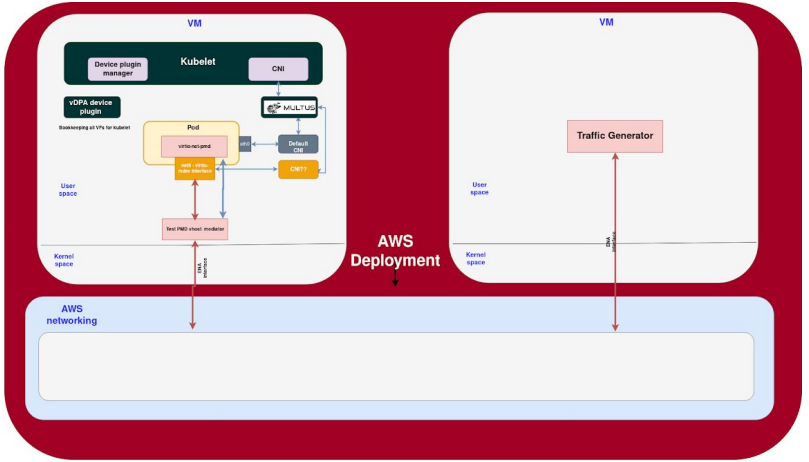
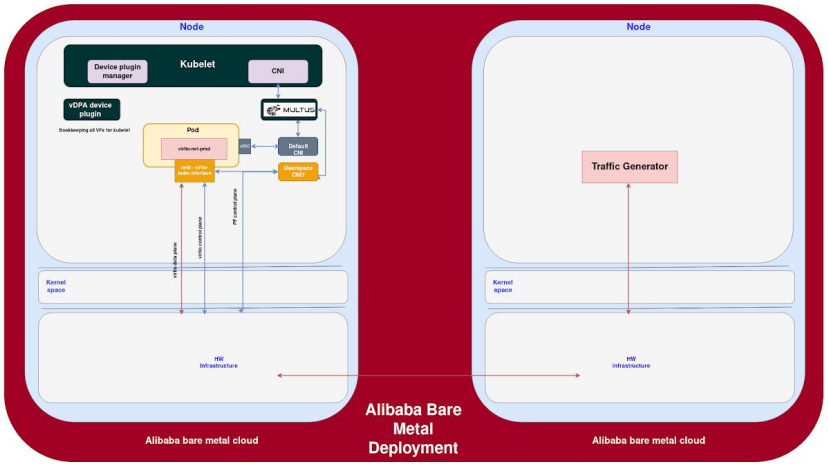
Live Demo

Demo Architecture







Takeaways

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- Virtio-networking technologies have the potential of allowing accelerated containers to run anywhere.
- This is a critical problem to solve when hybrid cloud solutions are becoming mainstream.

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/

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THANK YOU