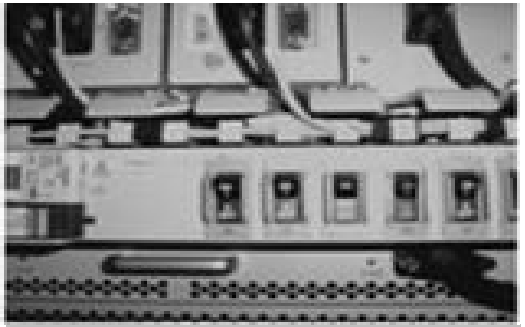
Ruijing Guo
Intel SSG OTC

High Performance in Edge Computing

ICT Demand



Past on Voice

Present on Data

Future ICT

High Bandwidth & Low Latency

Edge Gaming

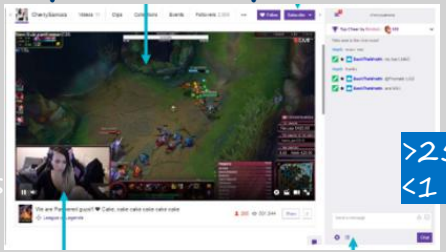
~20- 30m
20-50Mb/

Wireless VR/MR

15-20ms
~50Mb/s->1Gb/s

- Tethered to PC
- aaS via GW / MEC /Cloud
- AIO (compute in HMD)

eSport / adaptive streaming



>250Mb/s
<1 sec

6K stereo video @60fps is 20x larger than full HD video with an average bit rate of 245Mbps

Volumetric 360, 3D video or point cloud

50Mb/s
-> 1Gb/s

360 video 8k, 90+ fps, HDR, stereosc. 50-200Mb/s

Plus 6DoF video or point cloud: 200Mb/s-1Gb/s

VR/MR Telepresence

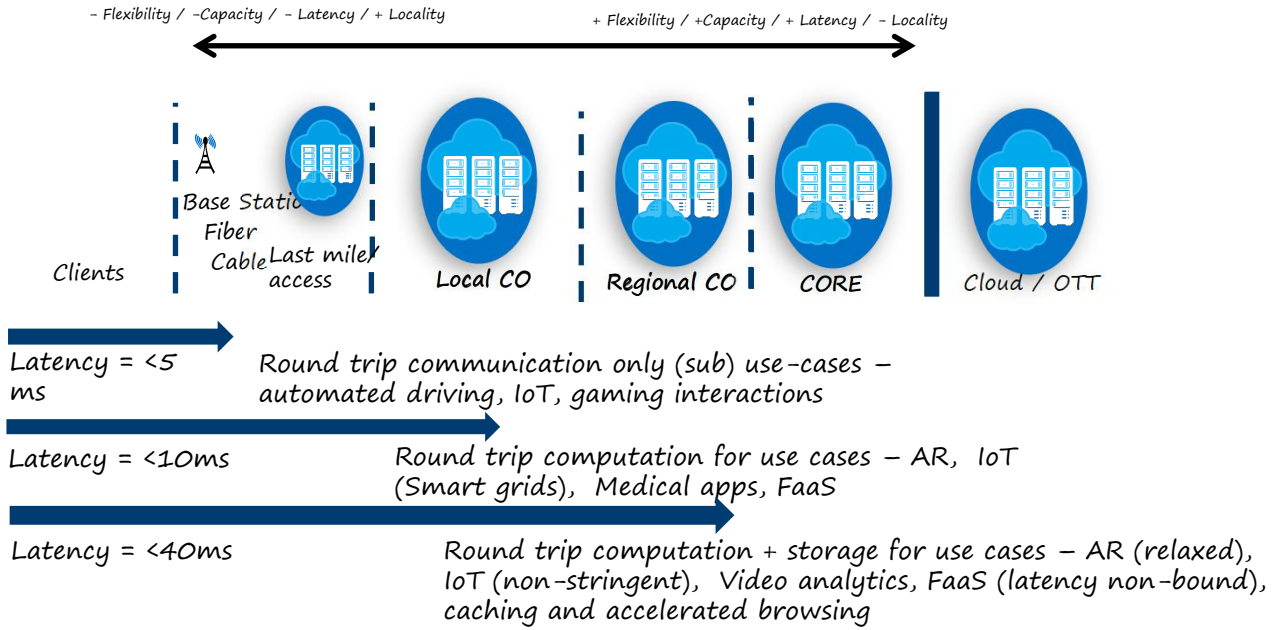
50Mb/s
-> 1Gb/s

Mobile Gaming

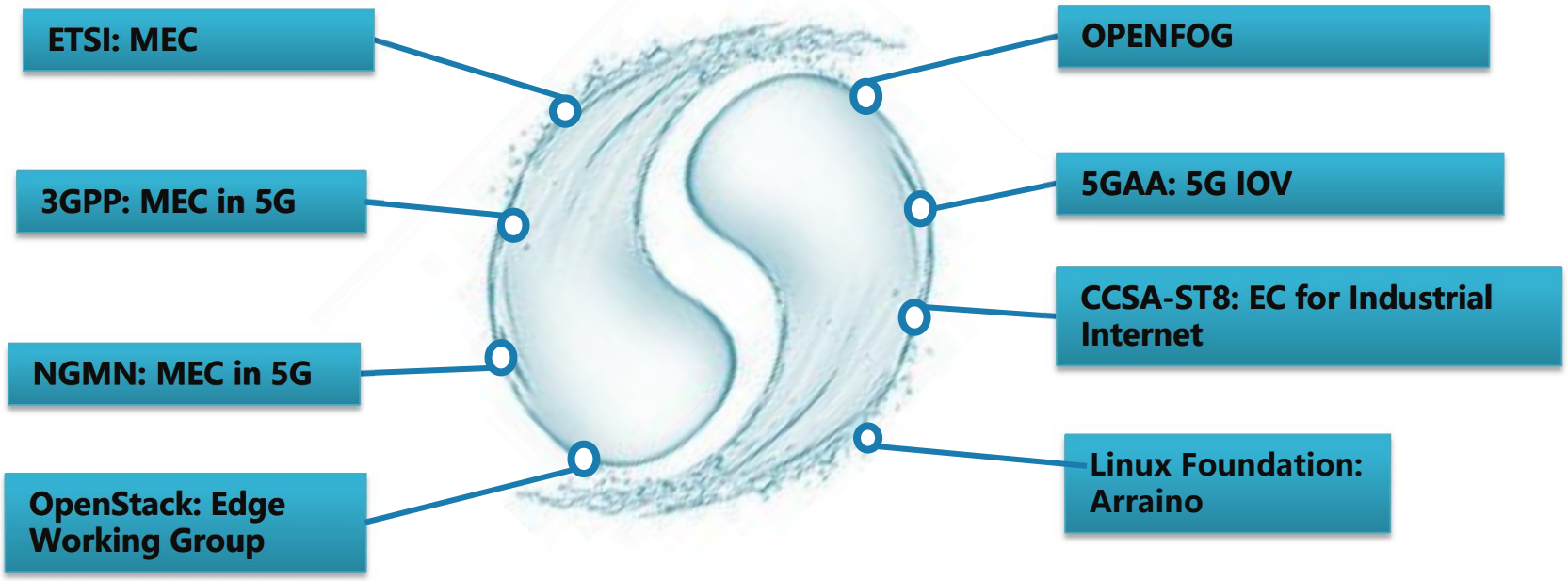
16->200Mb

2D streaming – 16Mb/s
3D streaming -> 50-200Mb/s

Telco Data Center



Status of Edge Computing Development



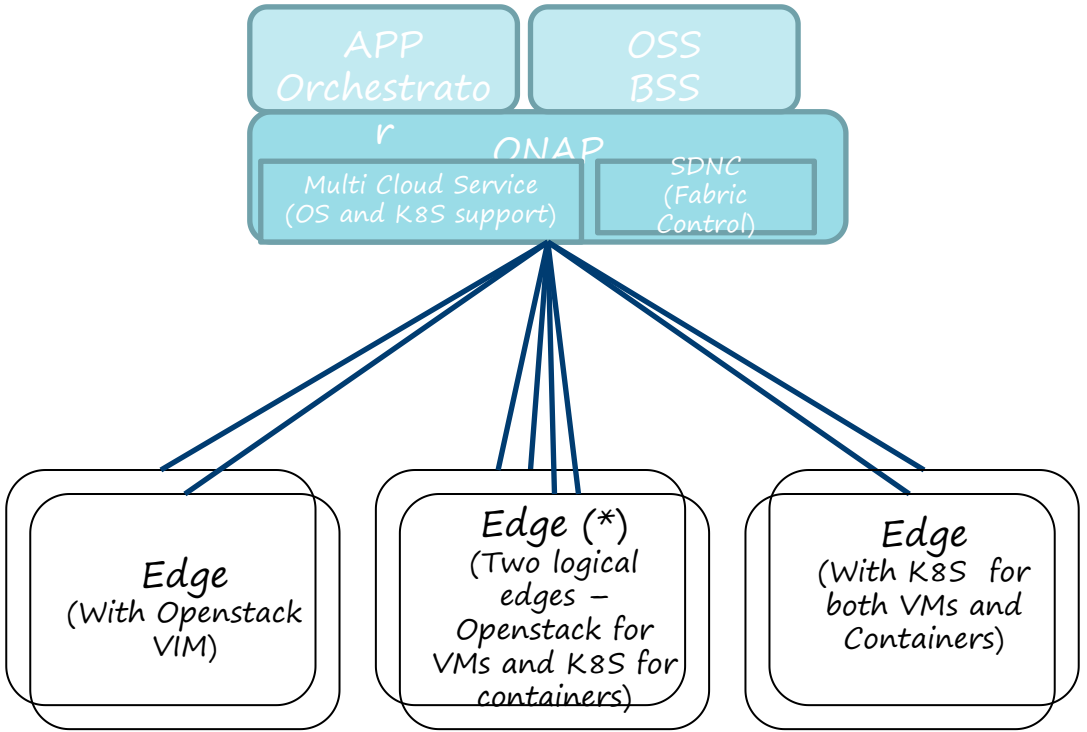
Challenges in OpenStack for Edge

- Scalability of the controller
- Wide Area Network limitations
- Security management
- Maintainability
- Fault tolerance issues

Akraino Edge Stack

- **Linux Foundation Launch Akraino**
  - carrier availability and performance
  - VM and container
- **AT&T, Intel & Wind River donate seed code**
  - Wind River Titanium Cloud Software
  - Network Edge Virtualization Software Development Kit
- **Expanded Industry Commitment**
  - Altiostar, China Electronics Standardization Institute (CESI), China Mobile, China Telecom, China Unicom, Docker, Huawei, iFlyTek, Intel, New H3C Group, Tencent, ZTE, and 99Cloud

Edge Deployment Architecture – ONAP for Service Orchestration

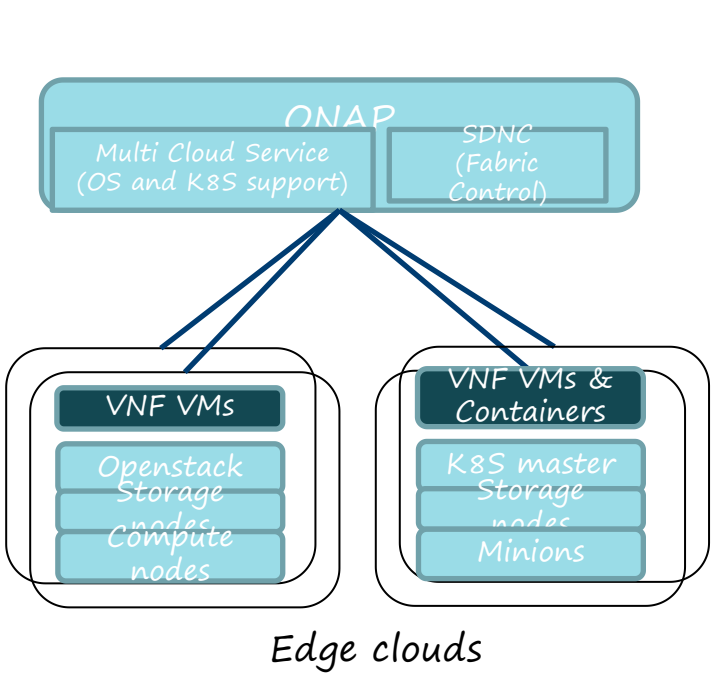


- Support for both Openstack based Edges and K8S based Edges.
- Support for K8S based Edges that do both VM and Container VNF management
- Fabric Control to manage switch (Manage Stratum, dNOS based switches)

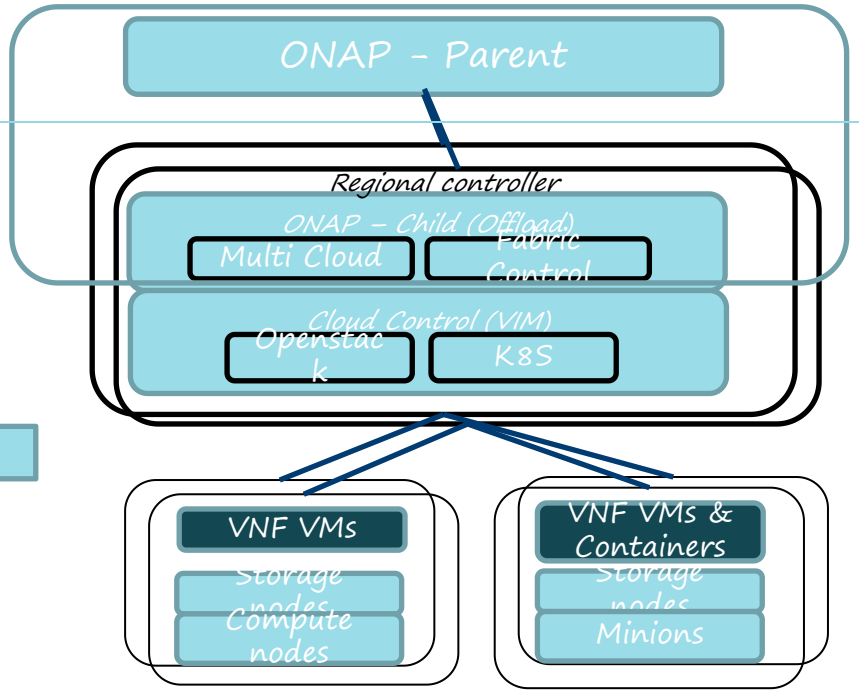
(*)
Two different sets of compute nodes – One for VMs and one for containers.
(TBS) – Common Ceph Cluster for both VMs and containers
Shared control node for both OS and K8S.
Openstack will see them as two different Edge clouds

ONAP & Edge Solutions – Opportunities

(Adding support for K8S edges AND Regional Controllers)

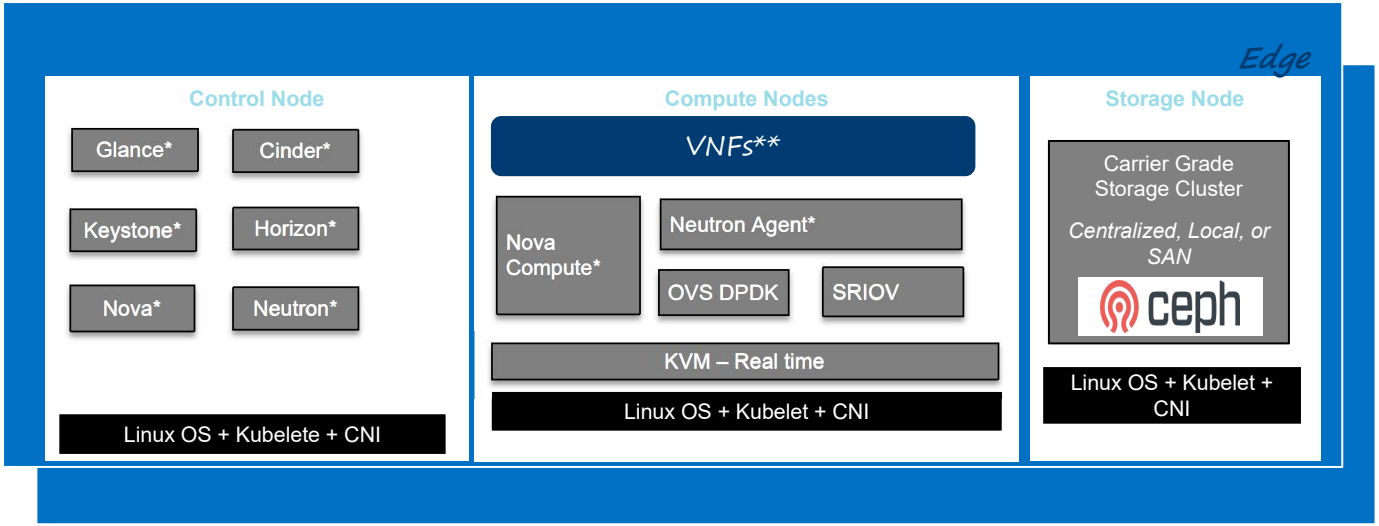


Openstack support and K8S Support

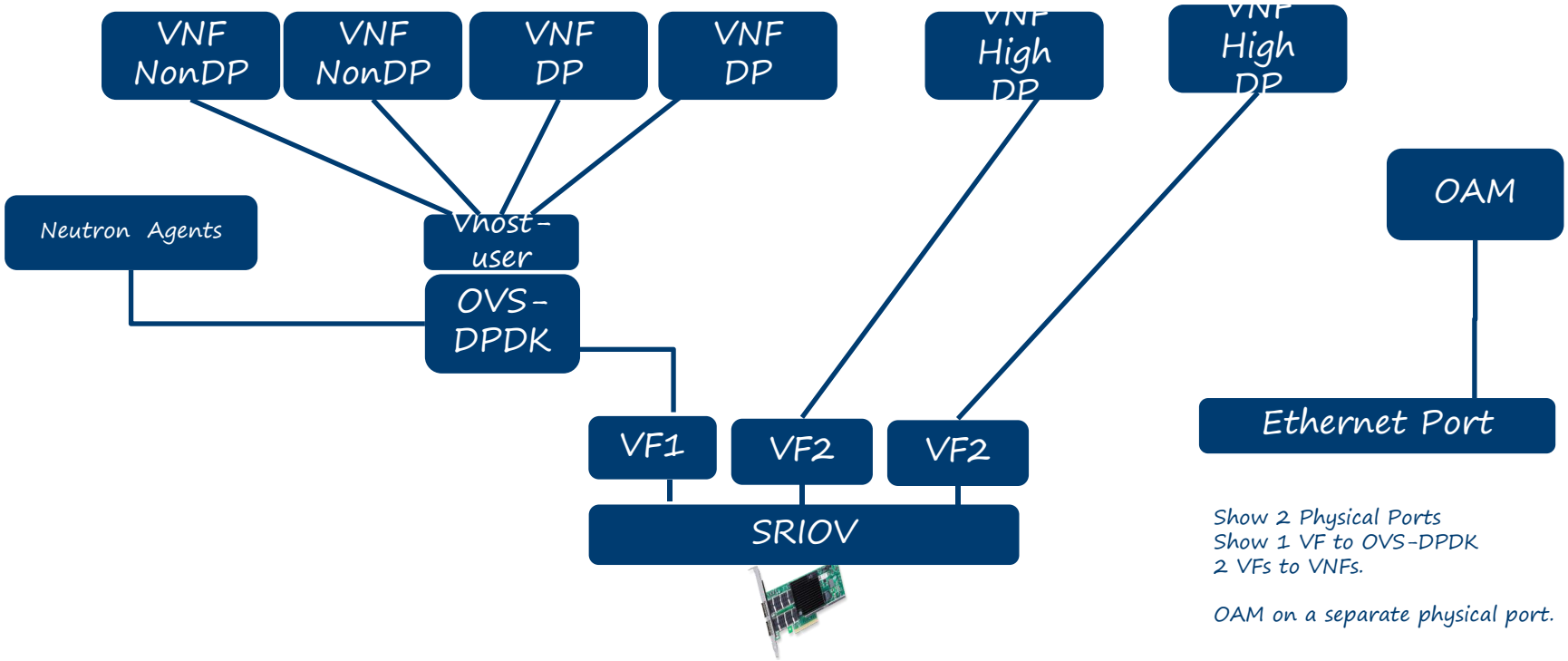


(for thin edges, Large number of edges)

OpenStack in K8S



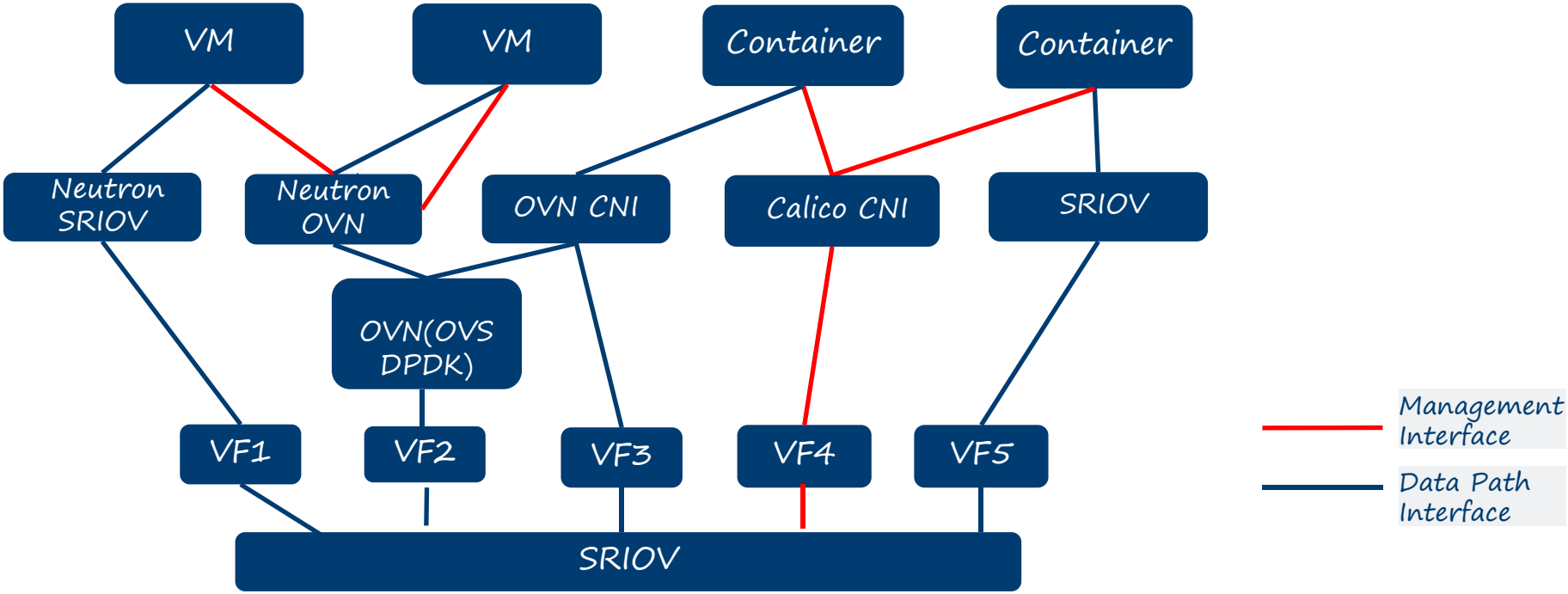
OVSDPDK & SRIOV in OpenStack



Show 2 Physical Ports
Show 1 VF to OVS-DPDK
2 VFs to VNFs.

OAM on a separate physical port.

OVSDPDK & SRIOV in OpenStack & K8S



Neutron OVSDPDK Enhancement

- Support Neutron OVSDPDK in Openstack Helm
- DVR
- QoS
- Service Management
- VLAN Transparency
- Security Group

Q & A

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SRIOV in DPDK