

*SKTelecom* NIC 기술원

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# Virtualization Brigade Update

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# Introduction to vBrigade

## ❖ 목적

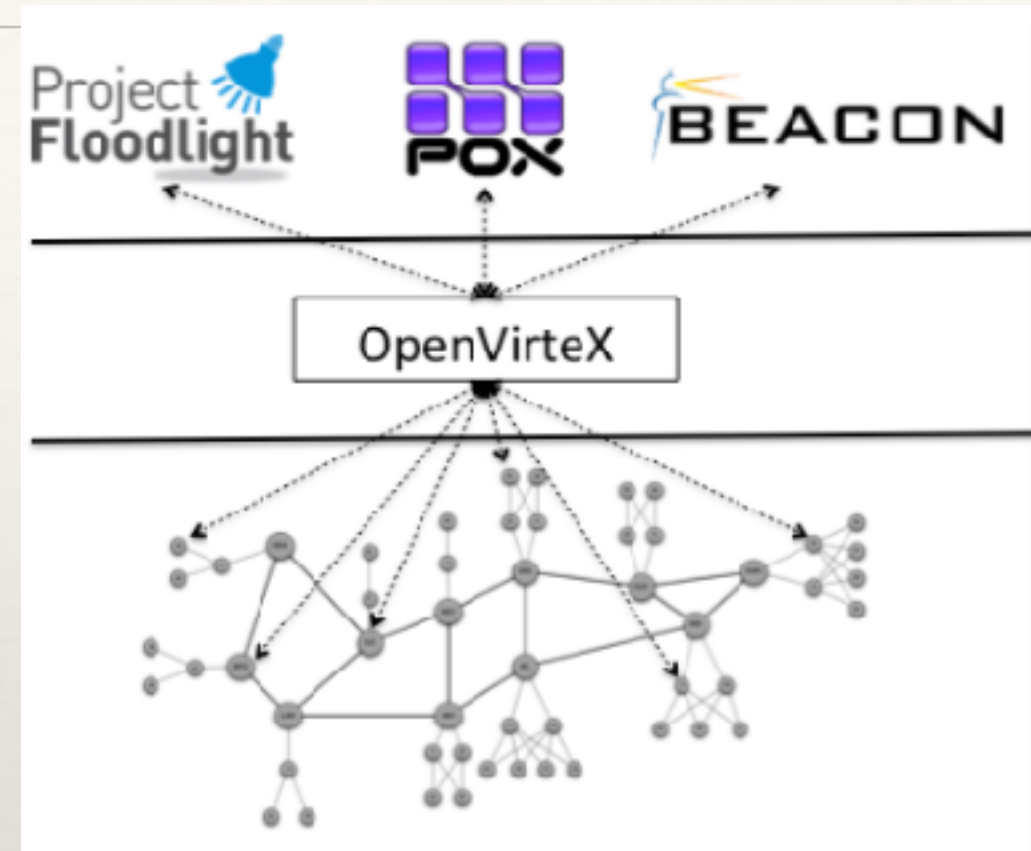
- Open VirteX (OVX) Style의 ONOS 공식 Network Virtualization Feature 개발

## ❖ Member 구성

- Lead: Ali-alshabibi(ON.LAB)
- Core Members: SKT 2 (문현선, 박민철), Ciena 2(Nithya, Cloudia Chiu), POSTECH 1 (한윤선), KHU 1 (한상윤), Avaya 1(Medha Joshi)

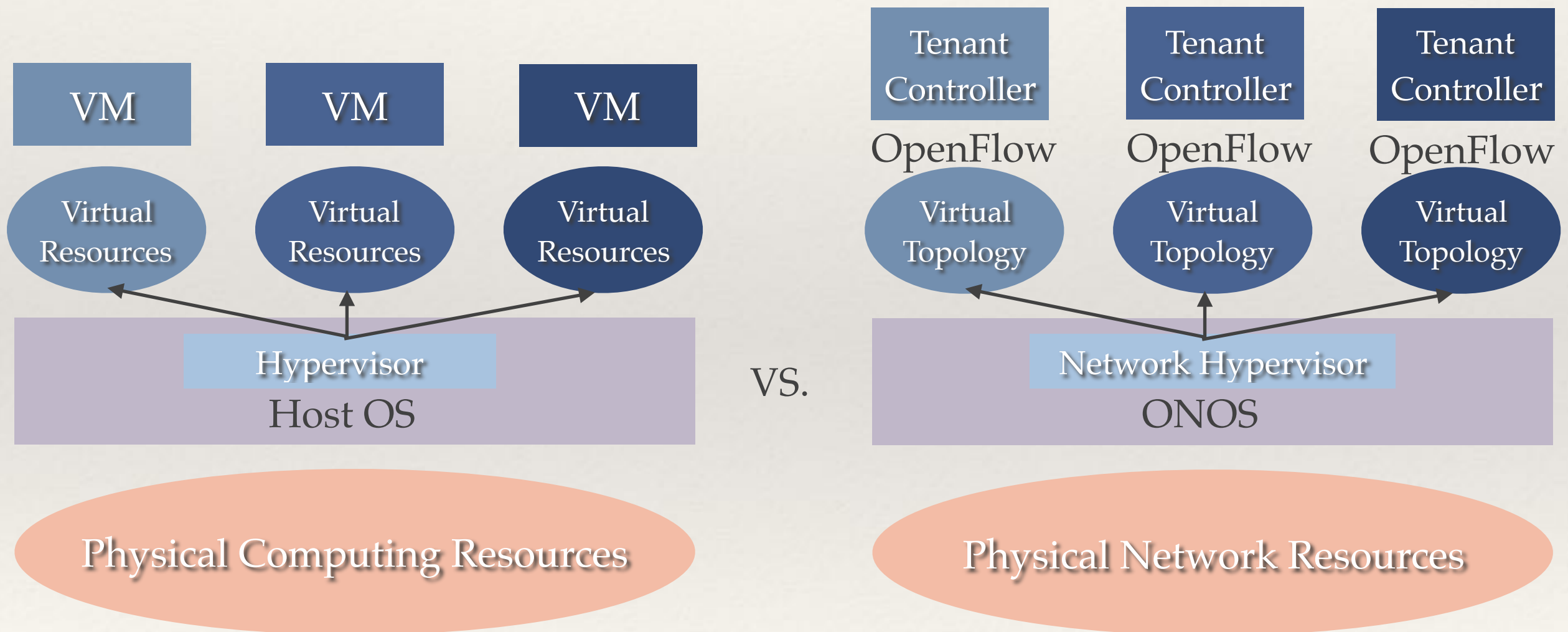
## ❖ 특이사항

- 한국인이 네명!



# Why Network Virtualization?

- ❖ 기존 Physical Computing Resources를 가상화하는 방식을 Network Resources에 대하여 Projection한 것



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# Main Features

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- ❖ Address Virtualization
- ❖ Topology Virtualization
- ❖ Controller Virtualization
- ❖ Virtual Network Starting, stopping
- ❖ Intent-based Topology Creation (Long-term focus)
- ❖ Virtual Network pausing, snapshot-ing (Long-term focus)
- ❖ Overlay-based Network Virtualization (Long-term focus, SONA integration, 희망사항)



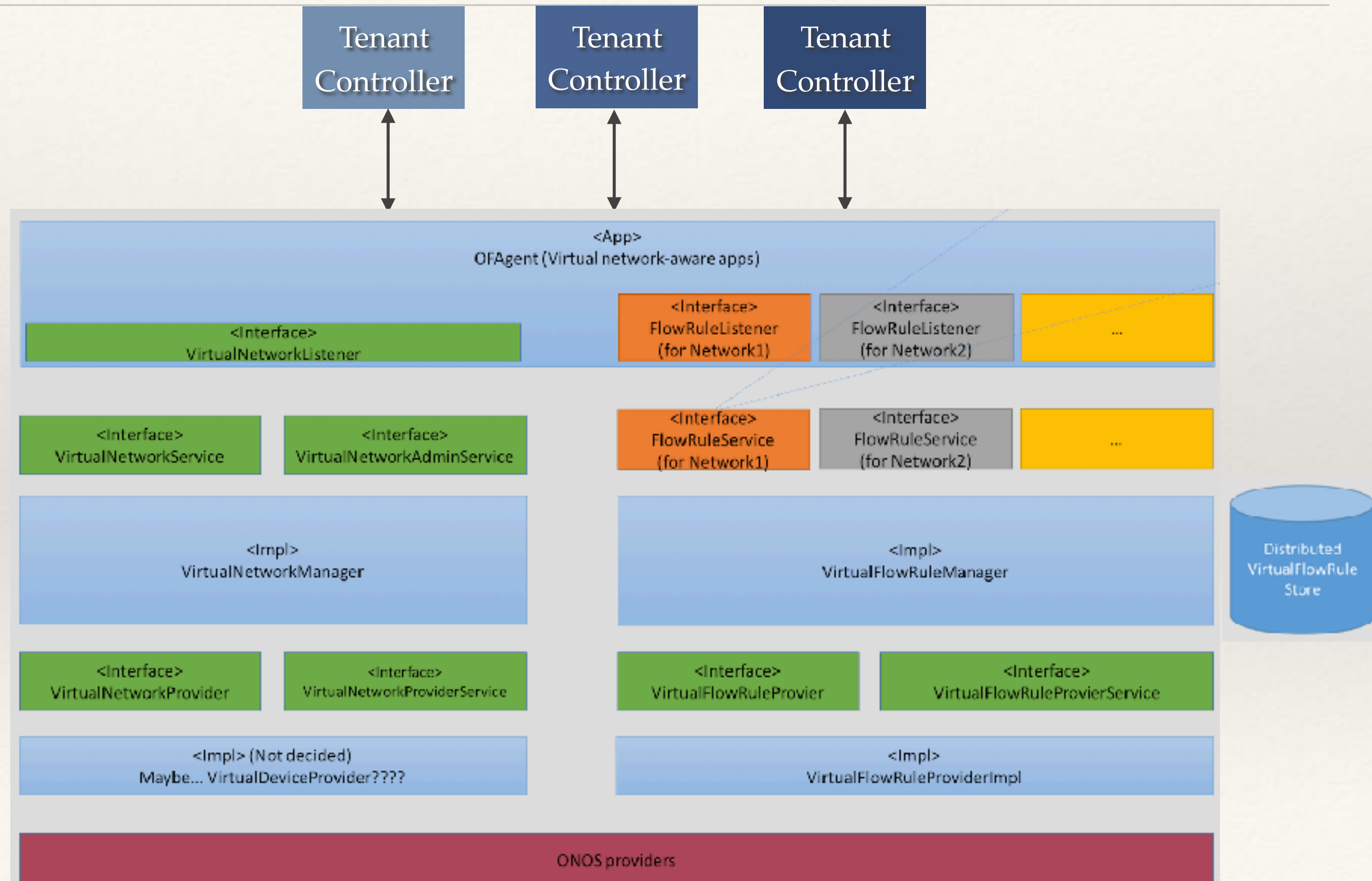
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# What are differences b/w Overlay and OVX?

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	Overlay vs. Underlay	Address Virtualization	Topology Virtualization	Controller Virtualization	Resiliency
Openstack, SONA, NSX	Overlay	O	X	X	-
OVX	Underlay	O	O	O	O

# Architecture



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# Tenant Admin API

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Name	Description
addControllers	Add a new controller to connect a virtual switch (OVXSwitch) to
removeControllers	Remove a controller from the list of controllers a OVXSwitch can connect to
createNetwork	Create a new virtual network (OVXNetwork)
createSwitch	Create a new OVXSwitch
createPort	Add a new port to an OVXSwitch
SetOVXBigSwitchRouting	Configure the routing method within a Big Virtual Switch (OVXBigSwitch)
connectHost	Connect a host to an OVXNetwork
connectLink	Add a virtual link to an OVXNetwork
setLinkPath	Add a physical network path to a virtual link (OVXLink)
connectRoute	Create a new route within a OVXBigSwitch
removeNetwork	Remove an OVXNetwork
removeSwitch	Remove an OVXSwitch from an OVXNetwork
removePort	Remove a port from an OVXSwitch

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# Tenant Admin API

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disconnectHost	Detach (remove) a host from a OVXNetwork
disconnectLink	Detach (remove) a virtual link from an OVXNetwork
disconnectRoute	Detach (remove) a route from an OVXBigSwitch
startNetwork	Initialize (boot) an OVXNetwork
startSwitch	Intialize (boot) an OVXSwitch
startPort	Enable a port on an OVXSwitch
stopNetwork	Disable an OVXNetwork temporarily
stopSwitch	Disable an OVXSwitch temporarily
stopPort	Disable a port on an OVXSwitch temporarily



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# Monitoring API

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Method Name	Method Description
getPhysicalTopology	Get the current PhysicalNetwork topology
listVirtualNetworks	List all of the virtual networks
getVirtualTopology	Get the topology of a virtual network
getVirtualSwitchMapping	Get the PhysicalSwitch(es) mapped to an OVXSwitch
getVirtualLinkMapping	Get the PhysicalLink(s) mapped to a virtual link
getVirtualHosts	Get all of the hosts on a virtual network. Hosts are described by virtual network addresses.
getPhysicalSwitchPorts	Get all of the ports on a PhysicalSwitch
getPhysicalHosts	Get all hosts from all virtual networks. Hosts are described by physical network addresses.
getSubnet	Get the Address/Mask of a virtual network
getVirtualFlowtable	Get the flow table of a OVXSwitch
getPhysicalFlowtable	Get the flow table of a PhysicalSwitch
getVirtualAddressMapping	Get the mappings between all available physical and virtual network addresses
getVirtualSwitchPorts	Get all of the ports on a OVXSwitch

Use cases?

WAN, Data Center Network.., MCORD?

Thank you