OpenVirteX
A Network Hypervisor

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in collaboration with: CREATE-NET
Why Network Virtualization?

- Enables **multi-tenancy**
- Allows **security** and **isolation** of user traffic
- **Decouples** the physical network from the virtual network
Why build OpenVirteX?

- Enable the **virtualization** of OpenFlow networks
- Bring SDN to virtual networks
- Provide virtual networks with:
  - Separation of data and control
  - Logically centralized control plane
  - Programmability through OpenFlow
OpenVirteX Architecture
Bump in wire

- Building on lessons from FlowVisor
- Infrastructure- and tenant-facing OpenFlow interfaces
- Idea to empower users to control and define behaviour of their virtual network
- Bump in control channel, thus OVX must be as efficient as possible
OpenVirteX Architecture

Virtual
- Network
- Link
- Address
- vSwitch
- Port

Map

Physical
- Network
- Link
- Address
- Switch
- Port

Northbound OpenFlow Interface

NOS IO Loop

LLDP Resolution
NOS Message Handling
Switch message handling
LLDP Discovery

Southbound OpenFlow Interface

Switch IO Loop

API
Current Status

- Experimental implementation (Java) complete
  - Add/Delete/Start/Stop vSDN elements dynamically
  - Virtual switch/link resiliency through backup routes
  - UI, topology embedder
- To-Do’s (future iterations):
  - Virtual network snapshotting and migration
  - HA and Scalability
- Upcoming release - Aiming for Q1 ’14
  - Open source, contributions welcome!
Demos

- On Internet 2 with ONOS
- Functions and features
- Showcase, Booths A10 and A12
Thanks!

Find out more at:
http://tools.onlab.us/ovx.html