Ali Al-Shabibi, Marc De Leenheer, Matteo Gerola, Ayaka Koshibe, Guru Parulkar, William Snow
Network Virtualization

Killer App for SDN

- Enables **multi-tenancy**
- **Decouples** the physical network from the virtual network
- Allows **security** and isolation of the users’ traffic
- Sadly, solutions are not widely available yet.
Existing Network Virtualization solutions

**Closed Source**
- Some use overlay based approaches
- And/or use network core only for simple forwarding
- Use SDN to deliver NV but take SDN away from tenant

**Open Source**
- Flowspace slicing approaches
- Header space shared amongst tenants
- Configuration complexity increases exponentially with number of tenants

OpenVirteX overcomes these limitations.
What is OpenVirteX?

- OpenVirteX enables the **virtualization** of OpenFlow networks
  - Address Space Virtualization
  - Topology Virtualization
  - Programmability through OpenFlow
- Provides an OpenStack neutron plugin
- Open Source software
Address Virtualization

- Multiple vnets can use the same address space
- The rewriting inserts a tag to enable OVX to identify the packets owner
- Rewriting process is completely transparent to NOS and end hosts
Topology Virtualization

Each virtual network is controlled by its own Network Operating System.
Current Status

• OpenVirteX-0.0.1-prealpha released:
  • Full header space virtualization
  • Arbitrary topology support
  • Virtual Networks programmable by OpenFlow
  • Supports any OpenFlow controller
  • Start/Stop/Delete/Create/Modify Virtual Networks
  • Excellent documentation
  • Tutorial available at www.openvirtex.org

• Future possible features:
  • Virtual network snapshotting and migration
  • Virtual Network pausing
  • Physical switch exploding
Find out more at:
http://www.OpenVirteX.org

Thanks! Questions?