Virtual Network Management

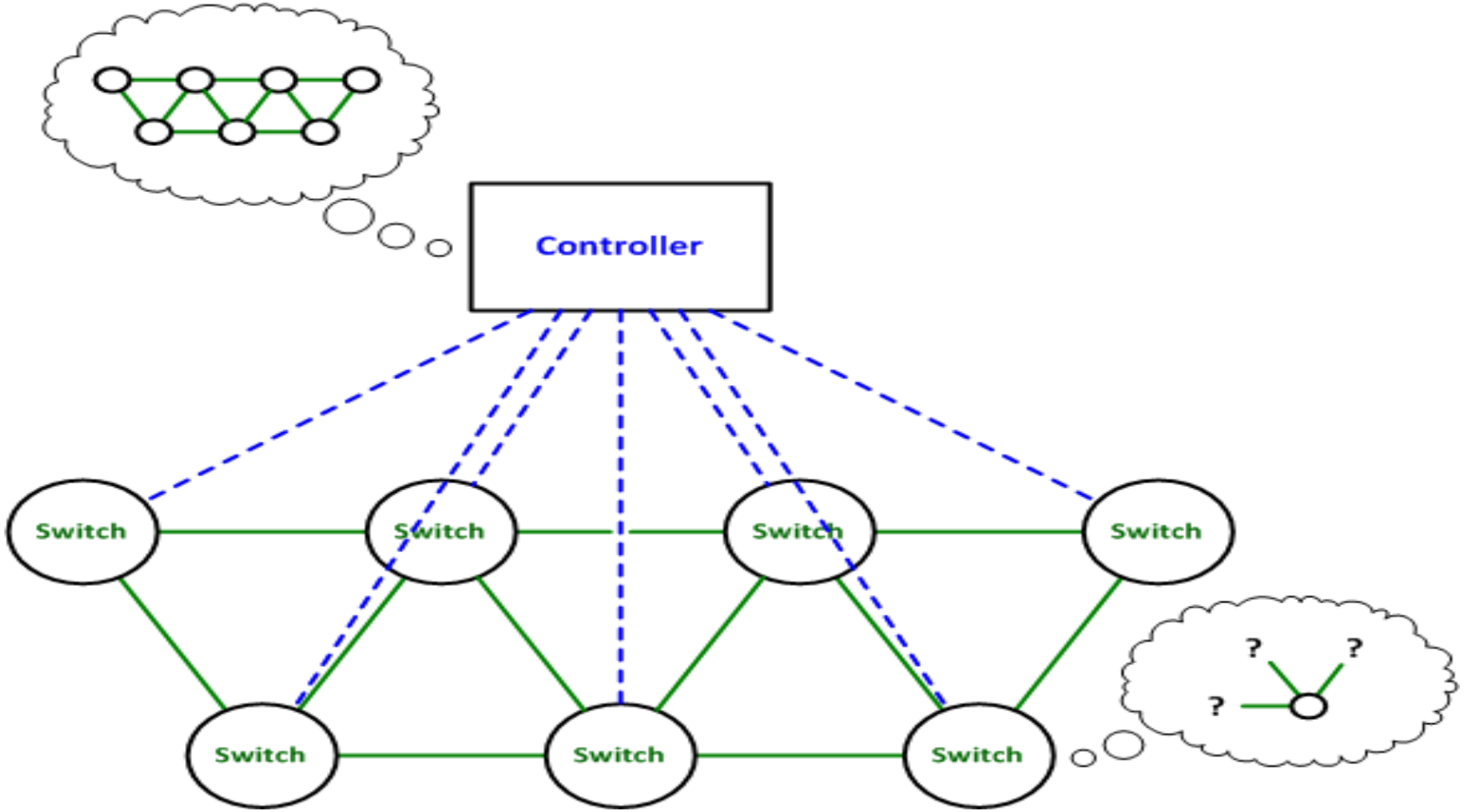
Group 2 - UnnA
January 7, 2015

OUTLINE

- Introduction
- SDN and NFV overview
- V-NM
- Scenarios
- Progress
- Learning Outcomes

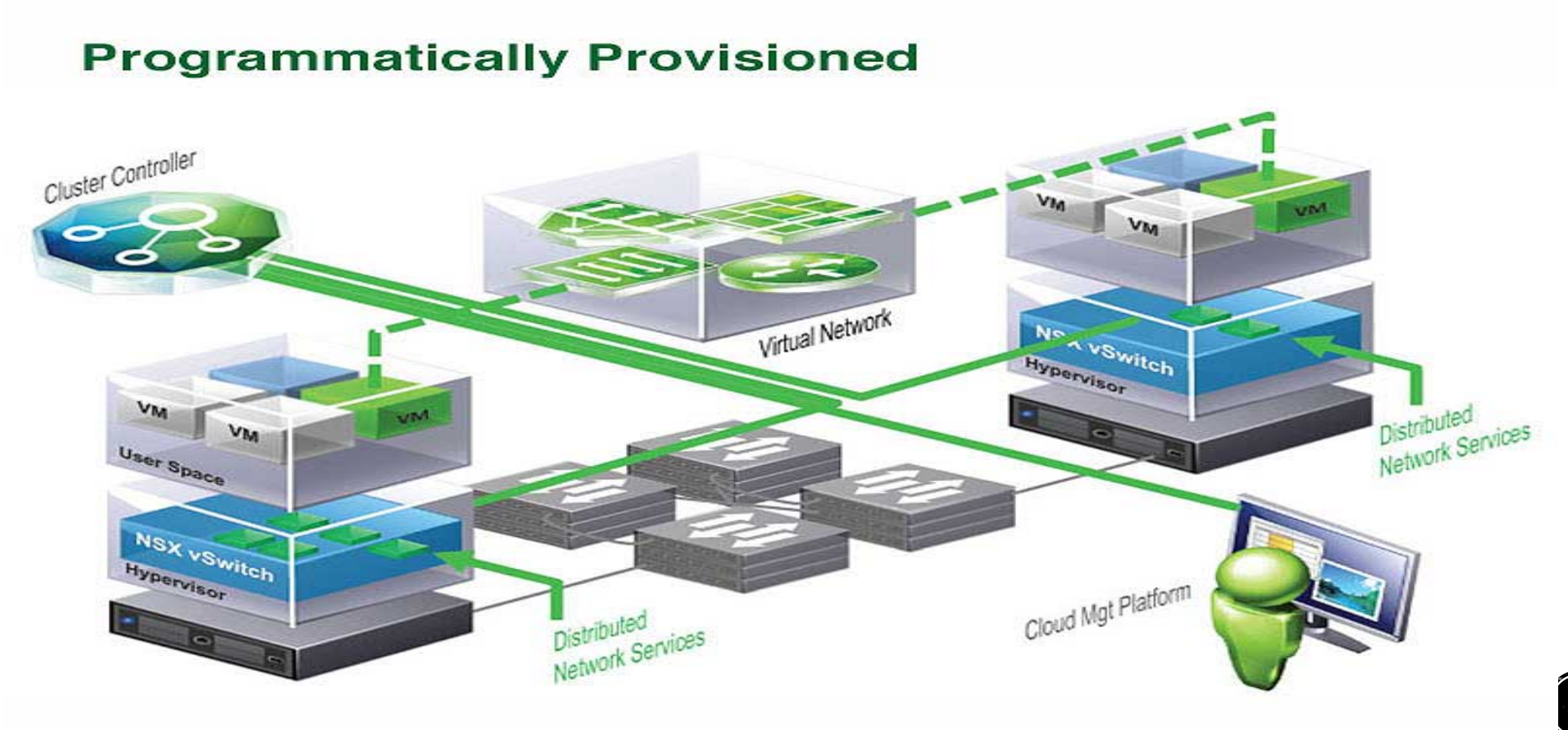
SDN (Software Defined Networks)

- What is SDN ?
- How is SDN different from traditional networks?



NFV (Network Function Virtualization)

§ What is NFV?

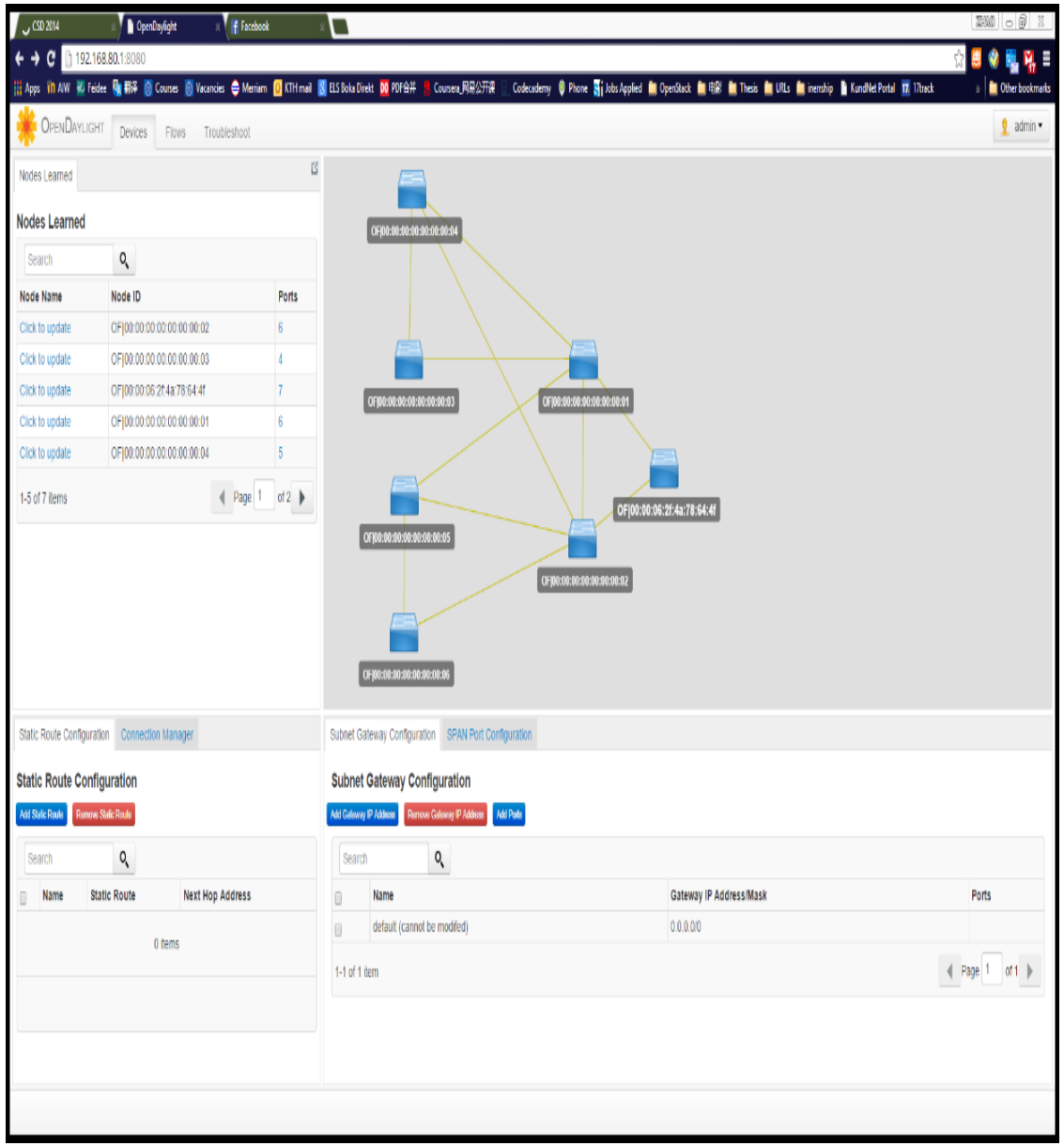


Softwares for SDN and NFV

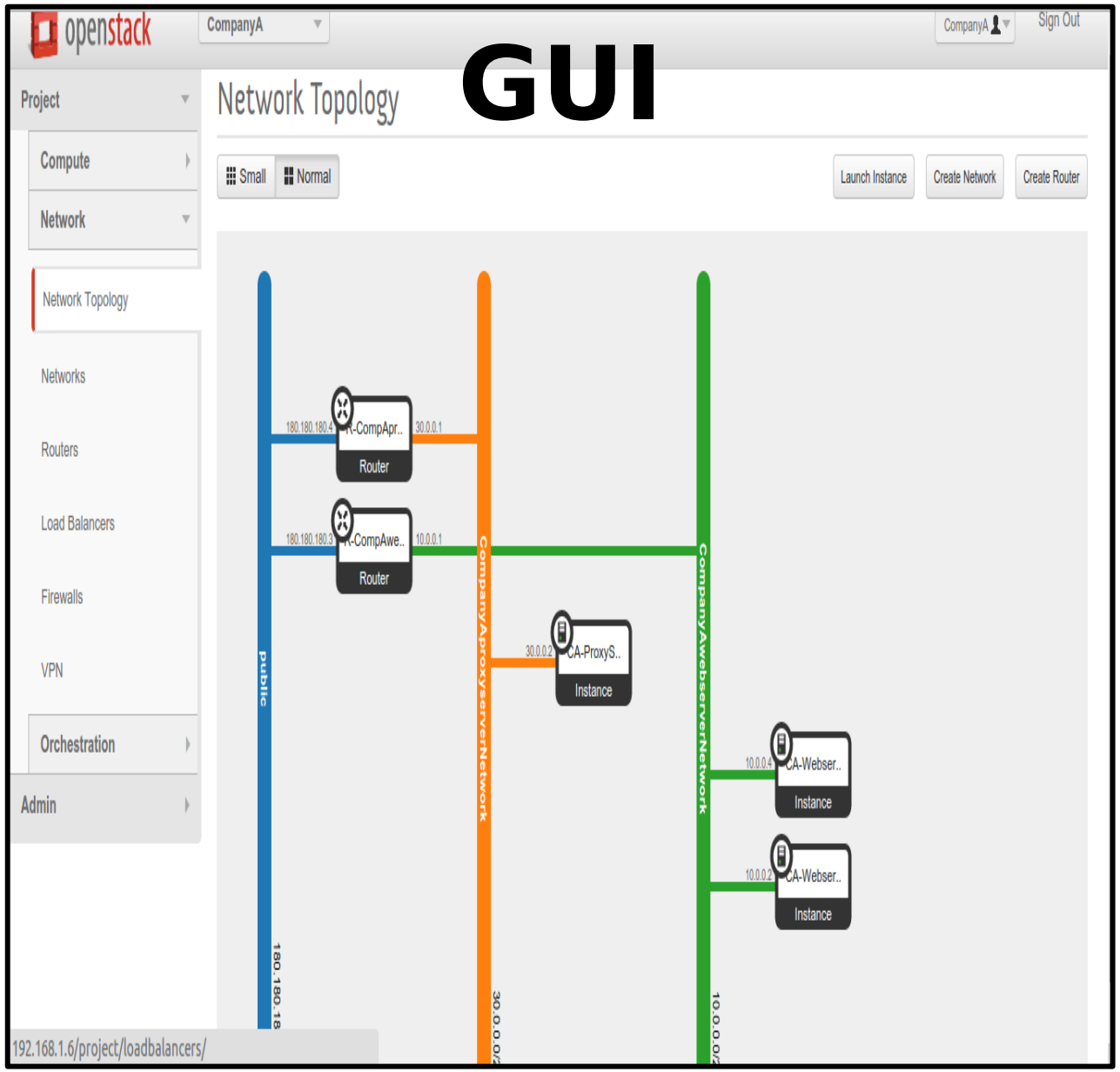
- SDN
  - NOX
  - POX
  - Beacon
  - Floodlight
  - OpenDaylight

- NFV
  - Eucalyptus
  - CloudStack
  - Joyent
  - OpenStack

ODL GUI



OPENSTACK GUI



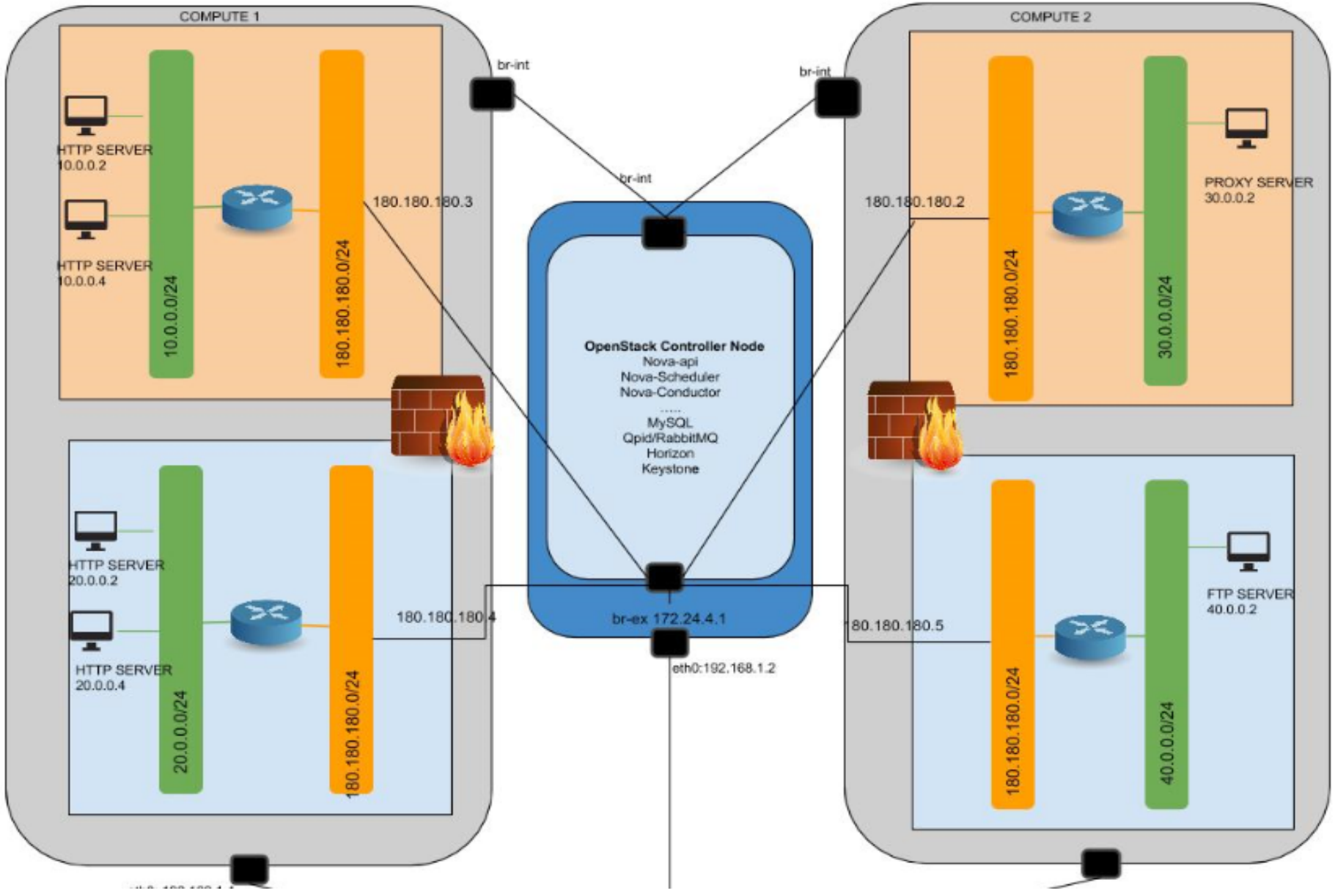
Do SDN and NFV has to coexist always?

No

- So what is the use of integrating and using SDN and NFV together
- Does any such integration exist?
  - Yes

So what is V-NM

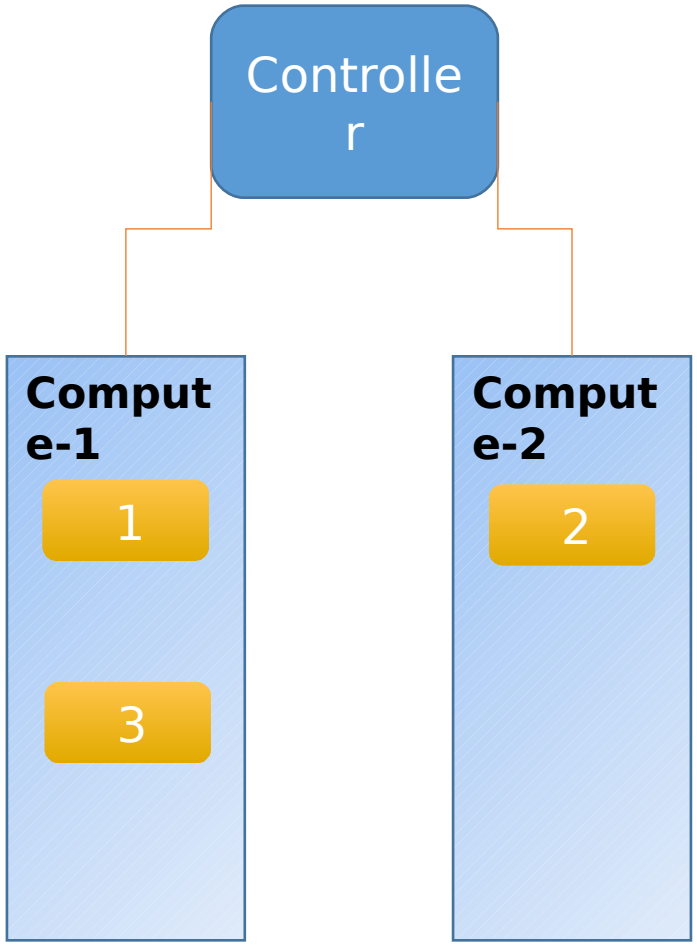
Project Architecture

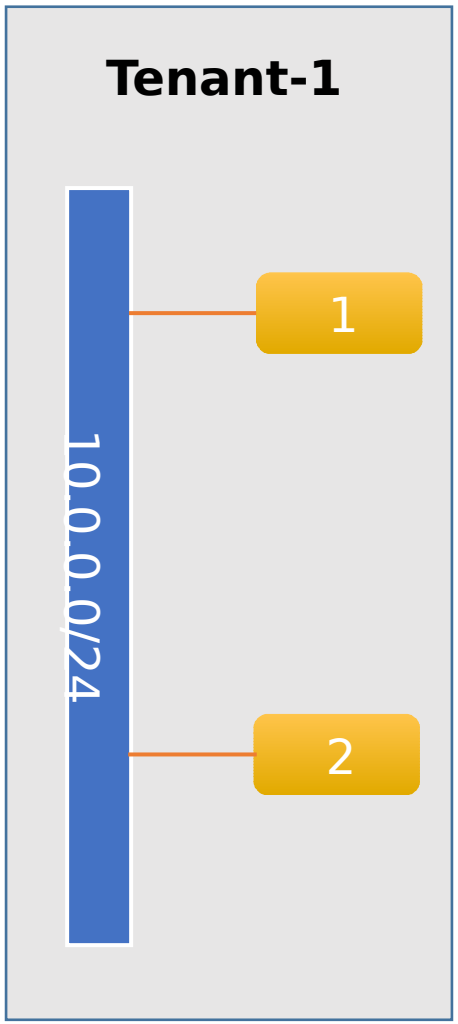


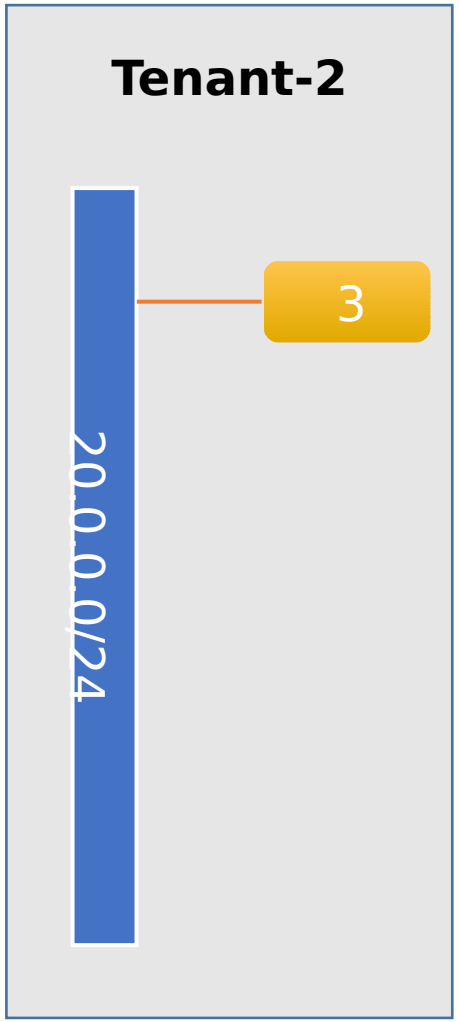
More technical info

- Why we need compute nodes?
- What are tenants?

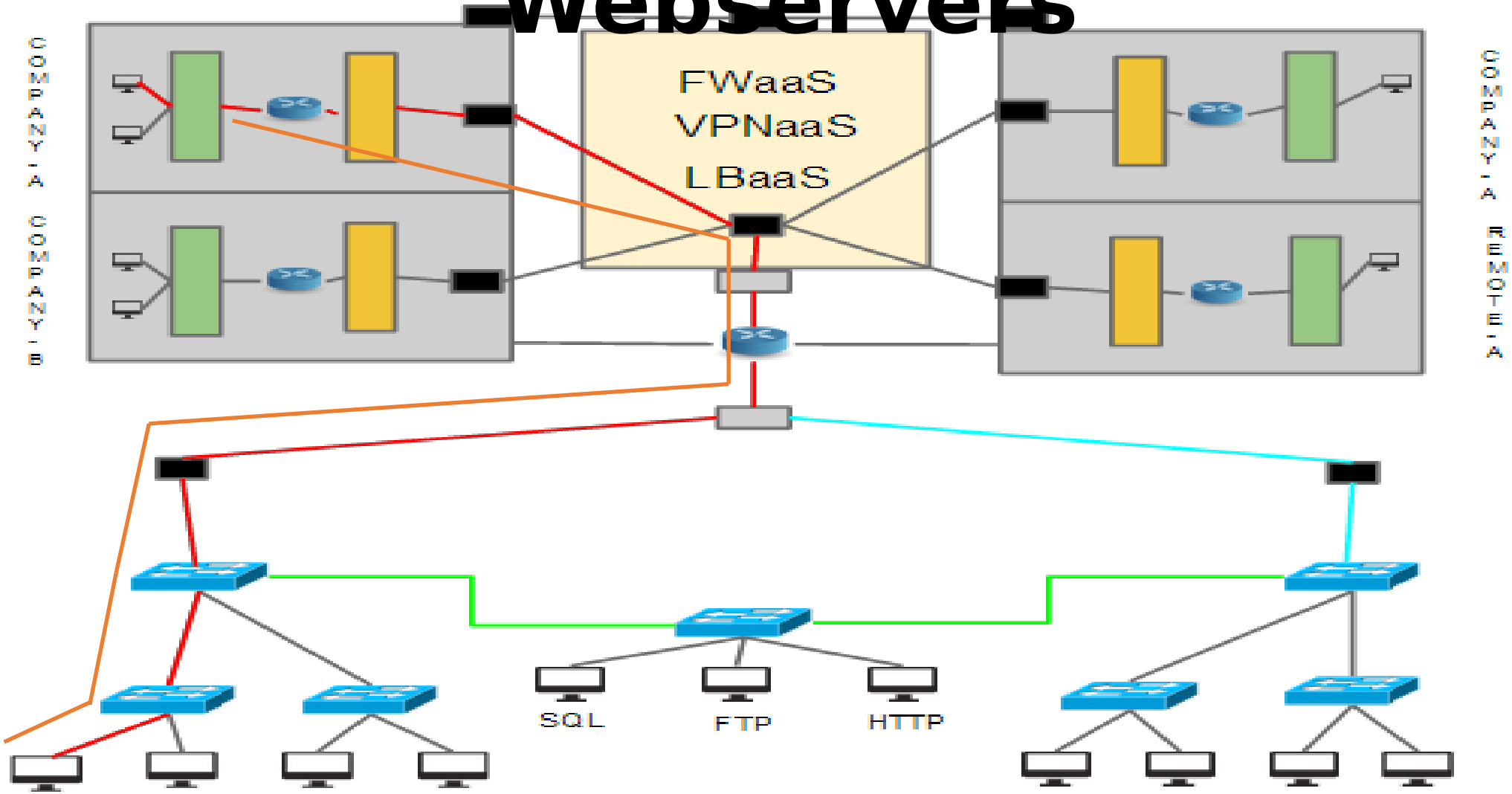
Computes and Tenants



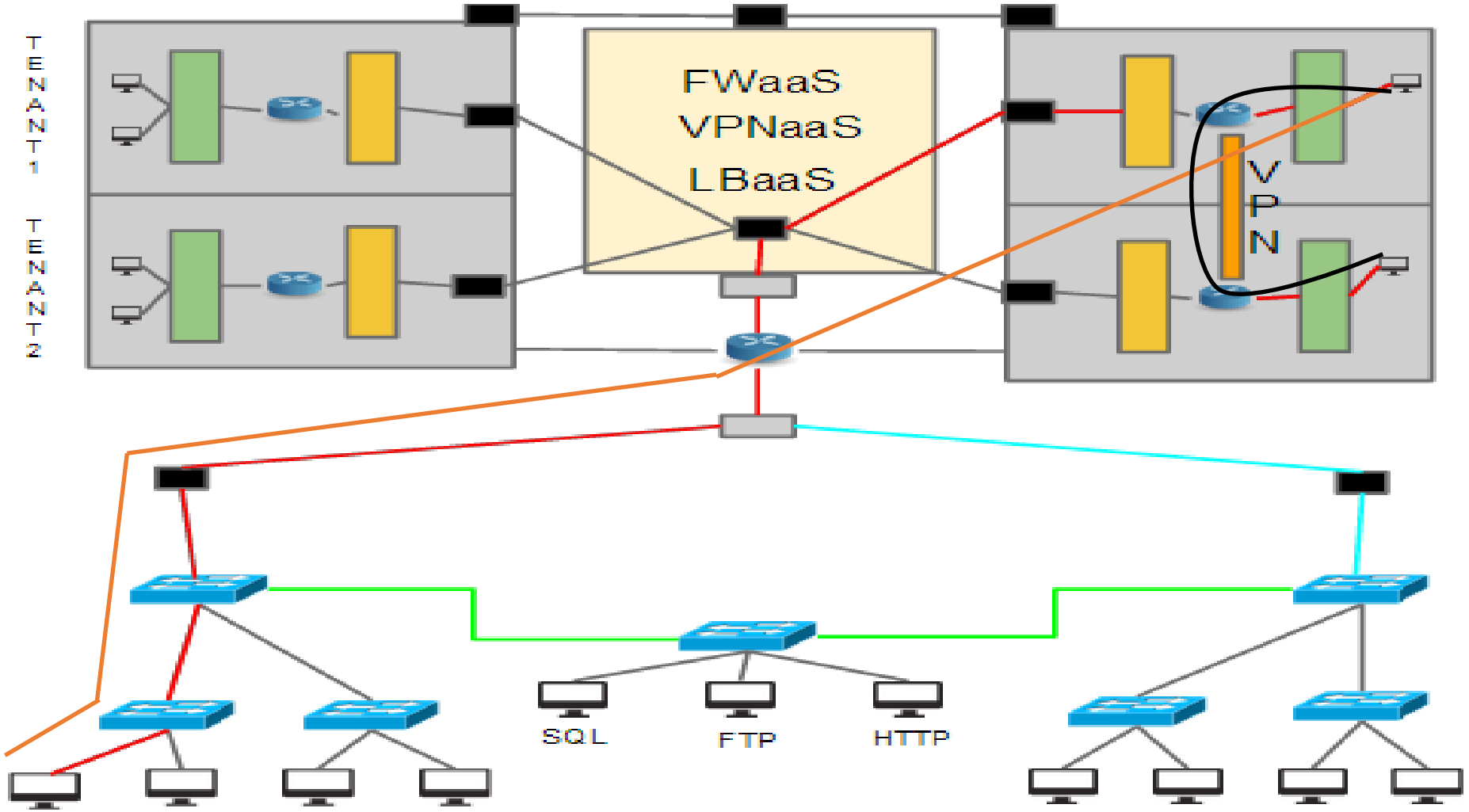




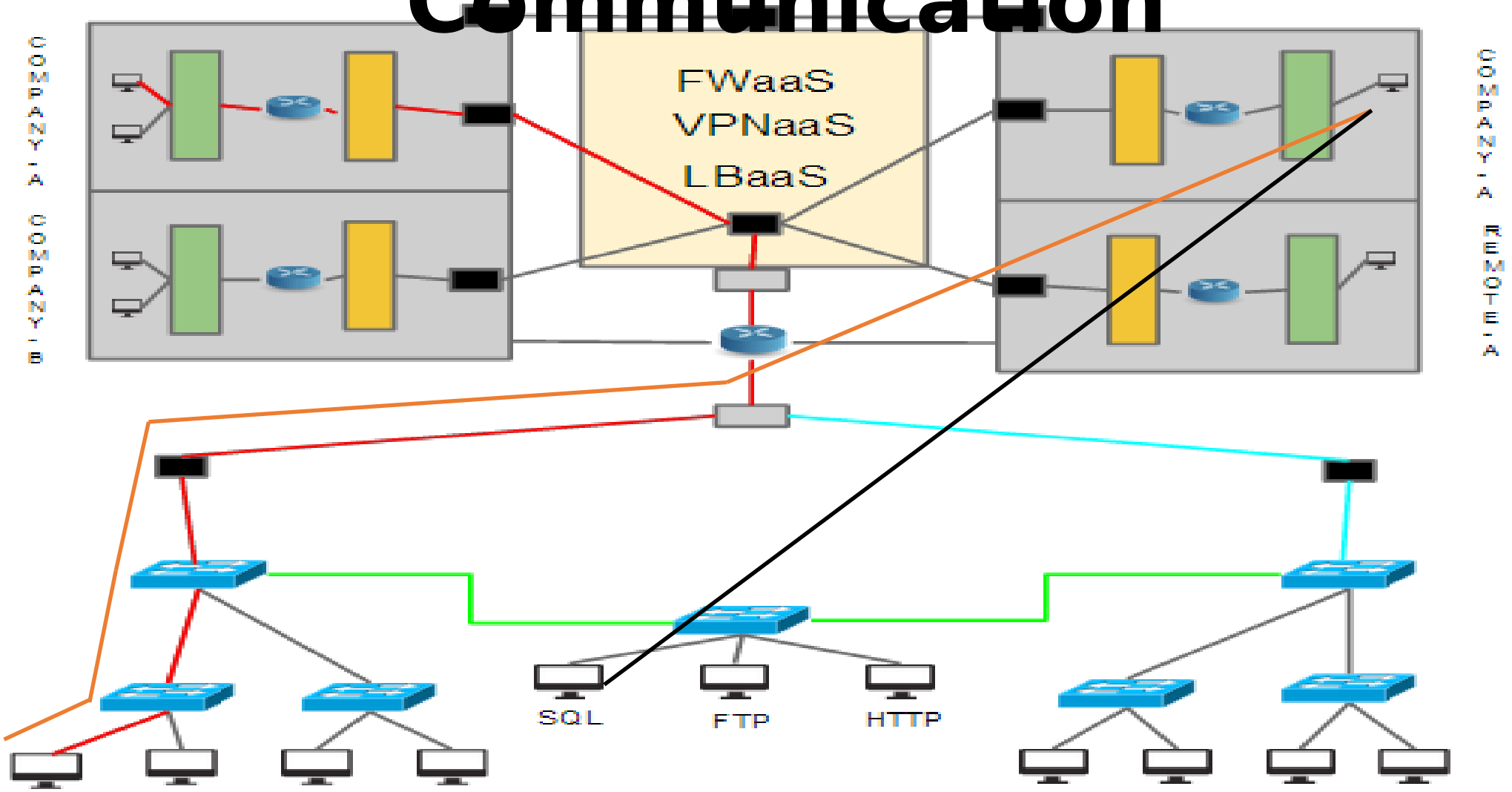
Scenario 1 - Load Balancing of Webservers



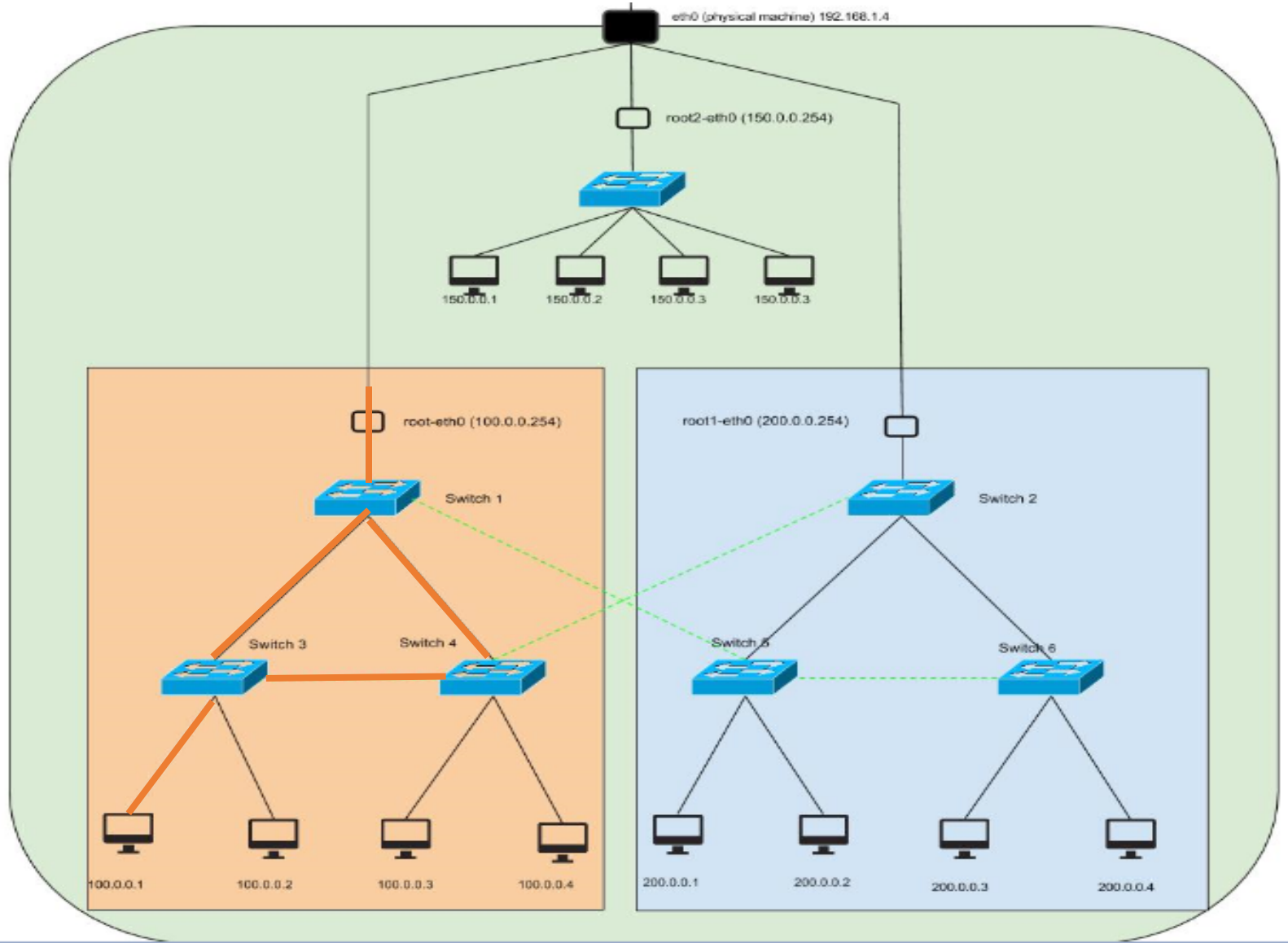
Scenario 2 – File Server using VPN



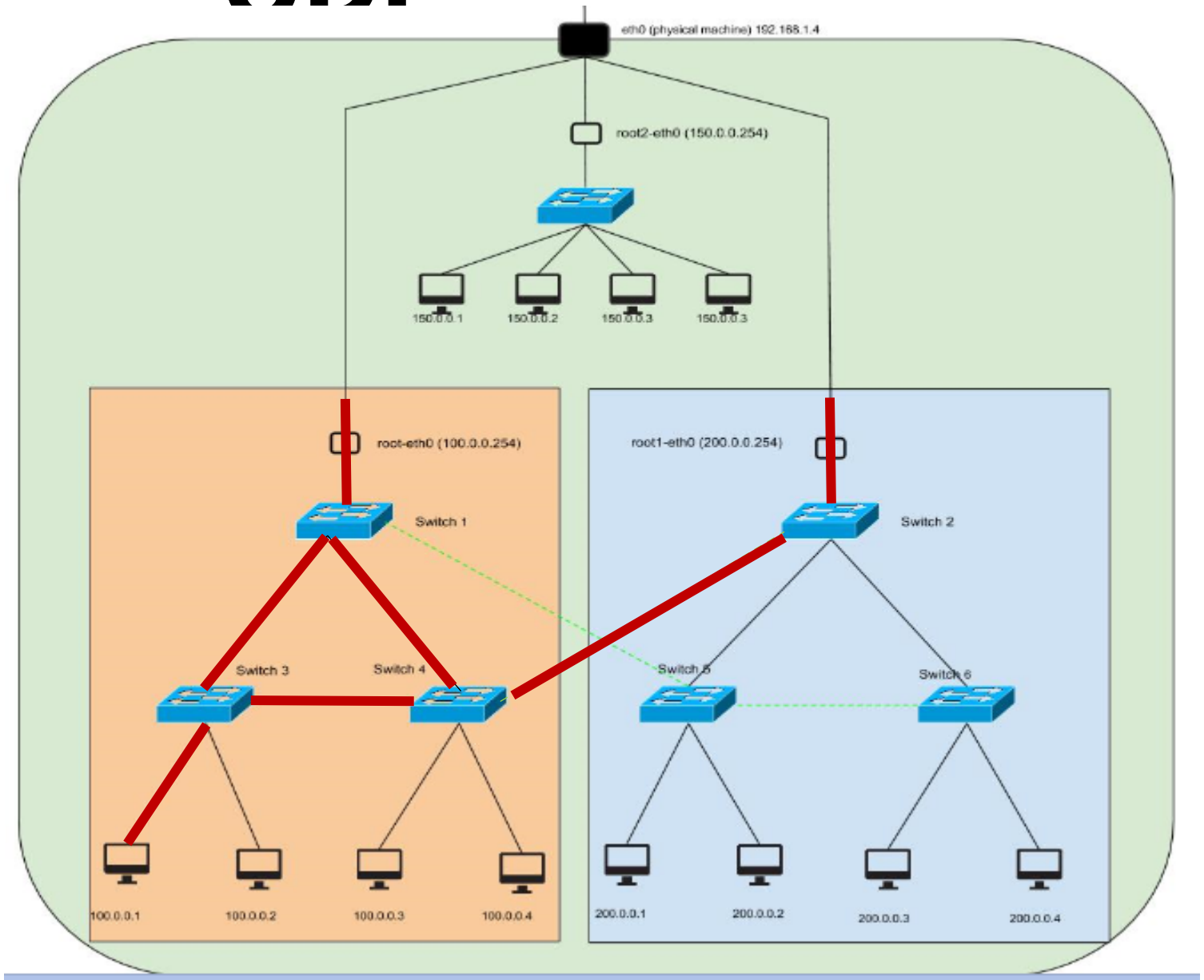
Scenario 3 – Inter-Company Communication



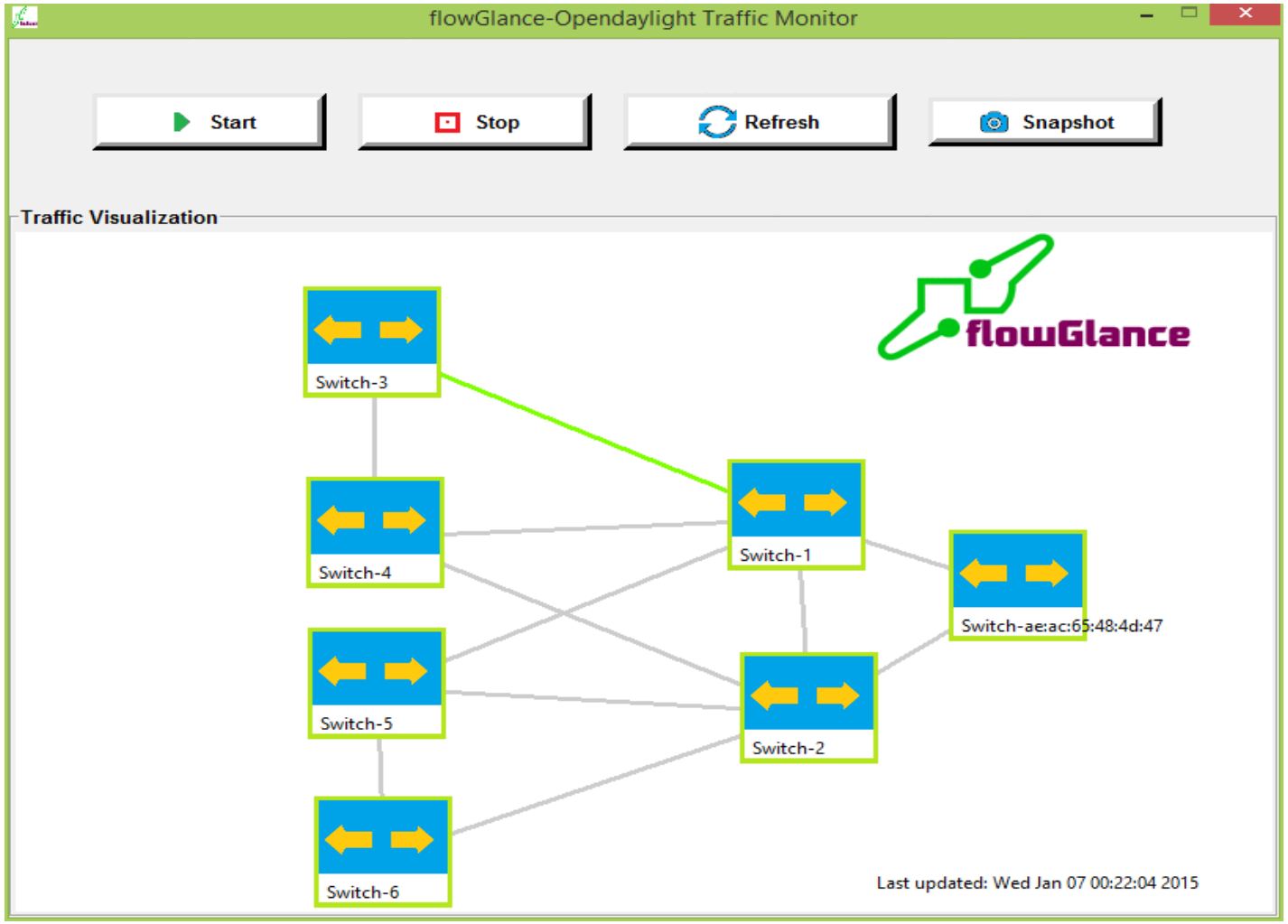
Load Balancing in ODL



Redundancy in ODL



FlowGlance


flowGlance-Opendaylight Traffic Monitor
Start
Stop
Refresh
Snapshot
Traffic Visualization
flowGlance
Switch-3
Switch-4
Switch-5
Switch-6
Switch-1
Switch-2
Switch-ae:ac:65:48:4d:47
Last updated: Wed Jan 07 00:22:04 2015

Progress

Requirements	Completed
Install Mininet, OpenDaylight, OpenStack	✓
Mininet - Code to design the ISP topology with two companies	✓
ODL - Code for installing flows through REST API	✓
ODL – Code for monitoring switches for load balancing and redundancy	✓
OpenStack – Code for WebServers, ProxyServer (FileServer, SQLServer)	✓
OpenStack - Automation script to built the full infrastructure	✓
Scenarios to demonstrate the purpose of the project	✓

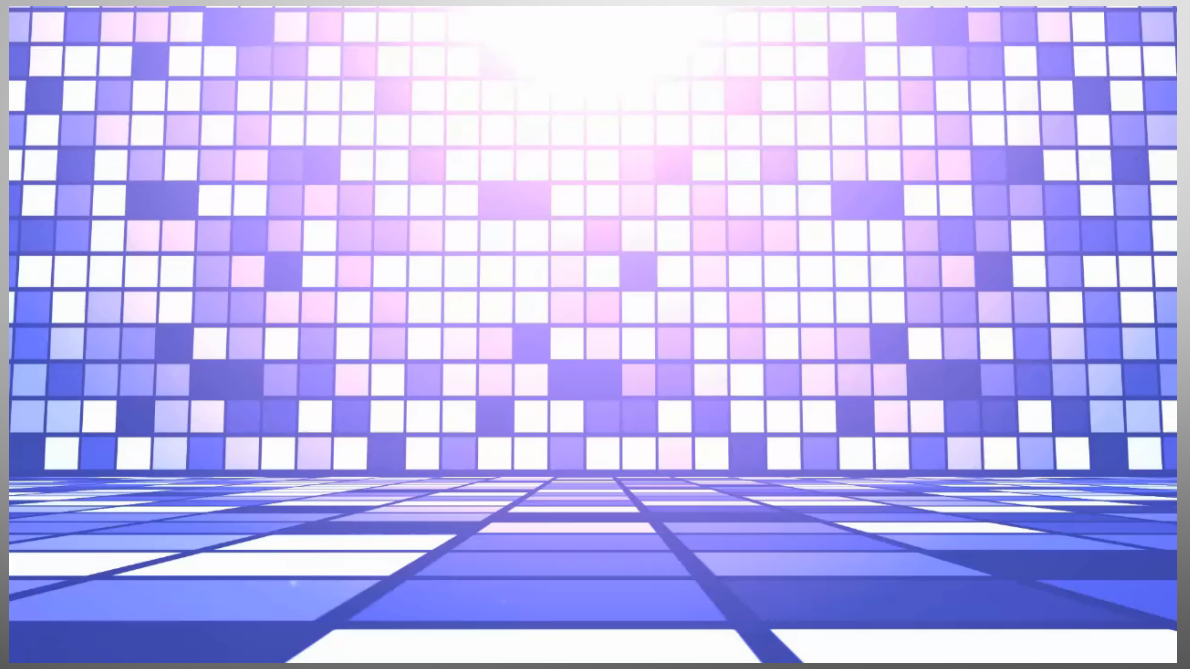
Extra

FlowGlance – For visualizing flows over Mininet	✓
PacketGenerator	✓

Learning Outcomes

- SDN & NFV
- Using platforms like OpenStack, OpenDayLight & Mininet
- Experience of programmable Open source softwares
- Experience with Linux Networking
- Bash & Python programming
- Working as an independent team
- Time management
- Patience

VIDEO




Q&A