



Virtual Network Management

Group 2 - UnnA
January 7, 2015

OUTLINE

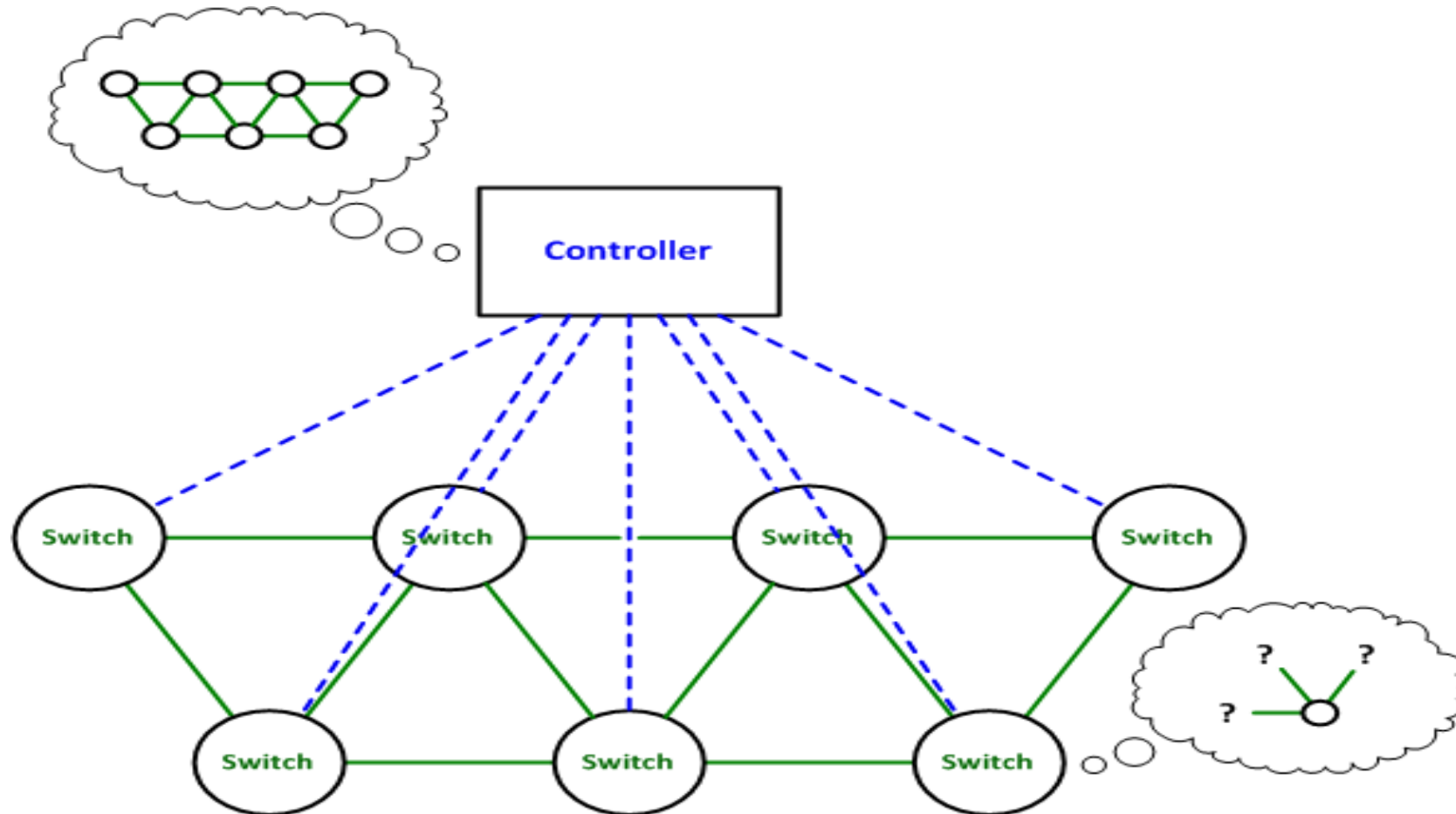
- § Introduction
- § SDN and NFV overview
- § V-NM
- § Scenarios
- § Progress
- § Learning Outcomes



SDN (Software Defined Networks)

§ What is SDN ?

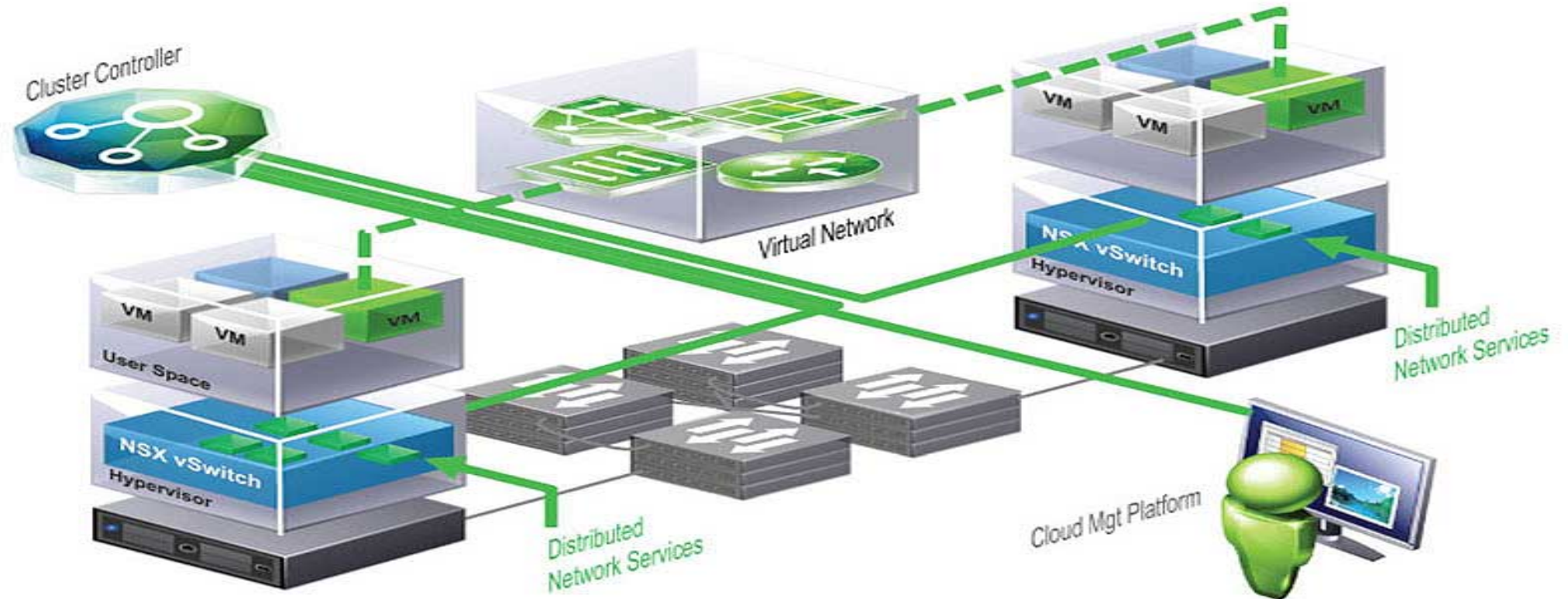
§ How is SDN different from traditional networks?



NFV (Network Function Virtualization)

§ What is NFV?

Programmatically Provisioned



Softwares for SDN and NFV

• SDN

- NOX
- POX
- Beacon
- Floodlight
- OpenDaylight



• NFV

- Eucalyptus
- CloudStack
- Joyent
- OpenStack



ODL GUI

OpenDaylight GUI Screenshot

Nodes Learned

Node Name	Node ID	Ports
Click to update	OF 00:00:00:00:00:00:02	6
Click to update	OF 00:00:00:00:00:00:03	4
Click to update	OF 00:00:06:2f:4a:78:64:4f	7
Click to update	OF 00:00:00:00:00:00:01	6
Click to update	OF 00:00:00:00:00:00:04	5

1-5 of 7 items

Static Route Configuration

Name	Static Route	Next Hop Address
0 items		

Subnet Gateway Configuration

Name	Gateway IP Address/Mask	Ports
default (cannot be modified)	0.0.0.0	

1-1 of 1 item

OPENSTACK GUI

OpenStack GUI Screenshot

Network Topology

Project: CompanyA

Launch Instance Create Network Create Router

Network Topology

Public 180.180.180.18

CompanyA Proxy Server Network 30.0.0.2

CompanyA Web Server Network 10.0.0.2

Router 180.180.180.4 30.0.0.1

Router 180.180.180.3 10.0.0.1

CA-ProxyS... Instance 30.0.0.2

CA-Webser... Instance 10.0.0.4

CA-Webser... Instance 10.0.0.2

192.168.1.6/project/loadbalancers/

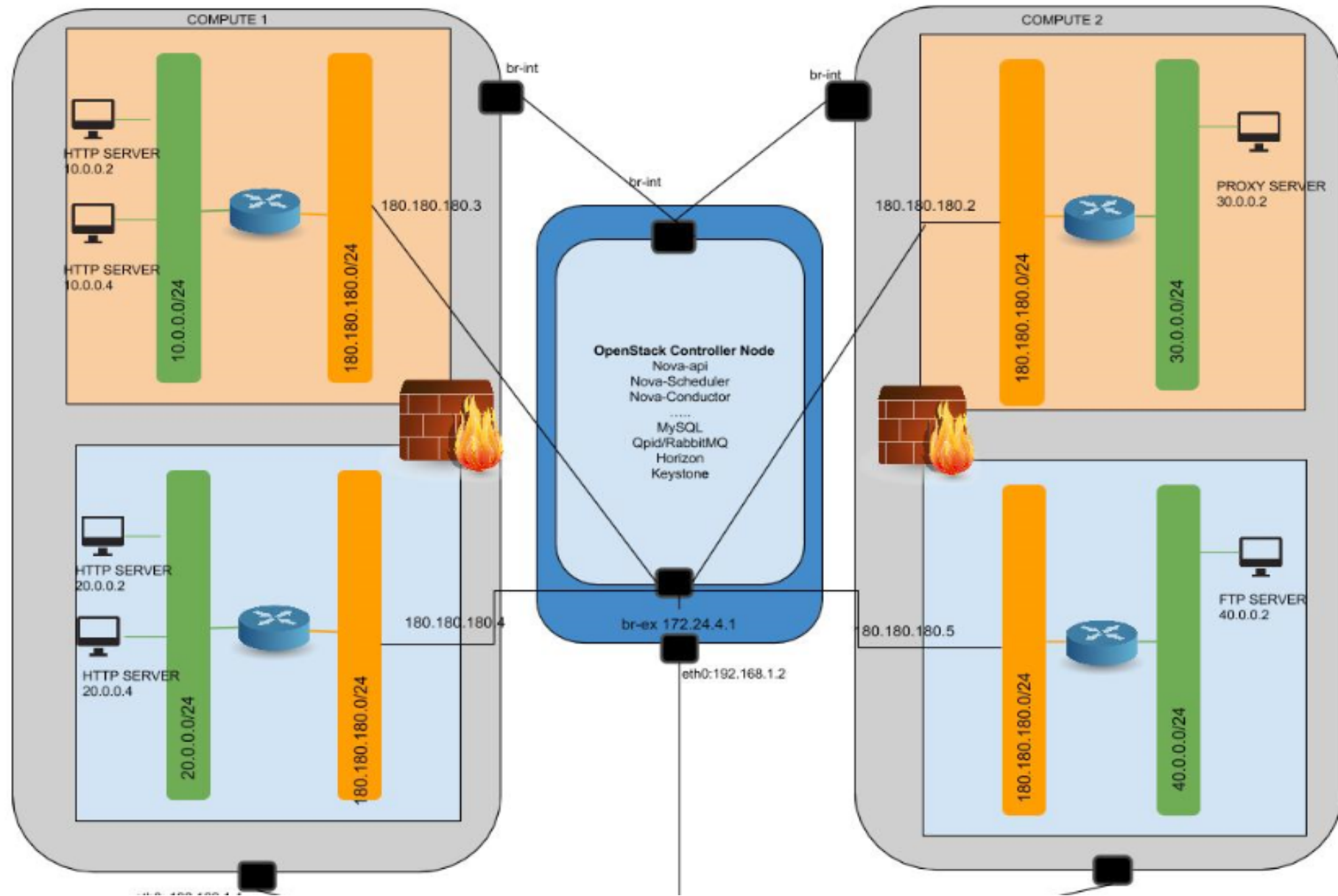
Do SDN and NFV has to coexist always?

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

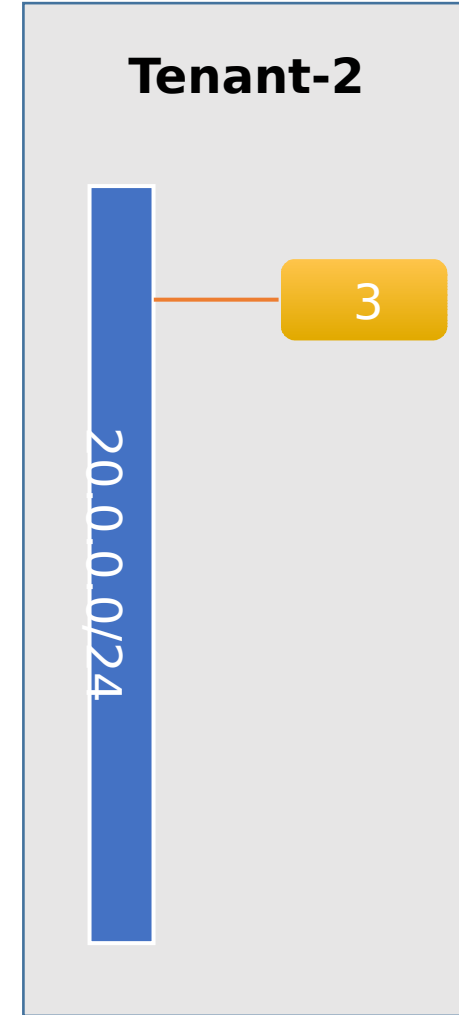
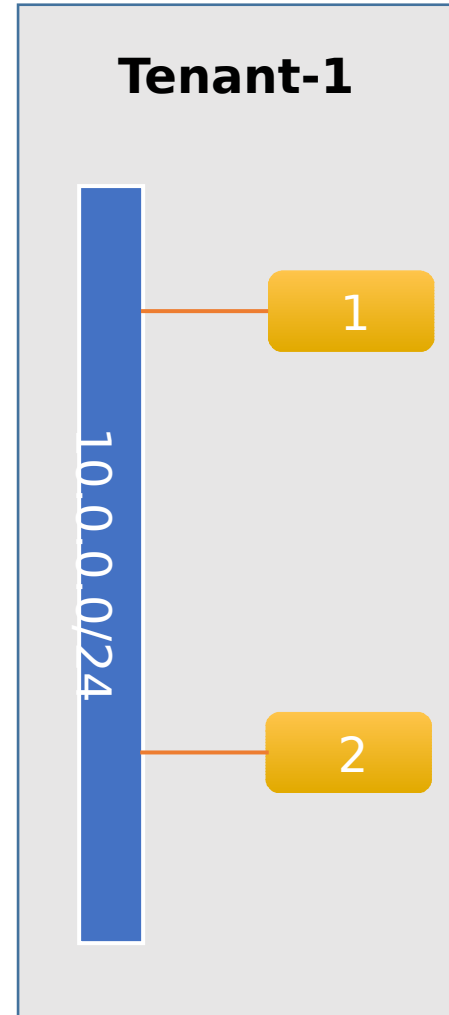
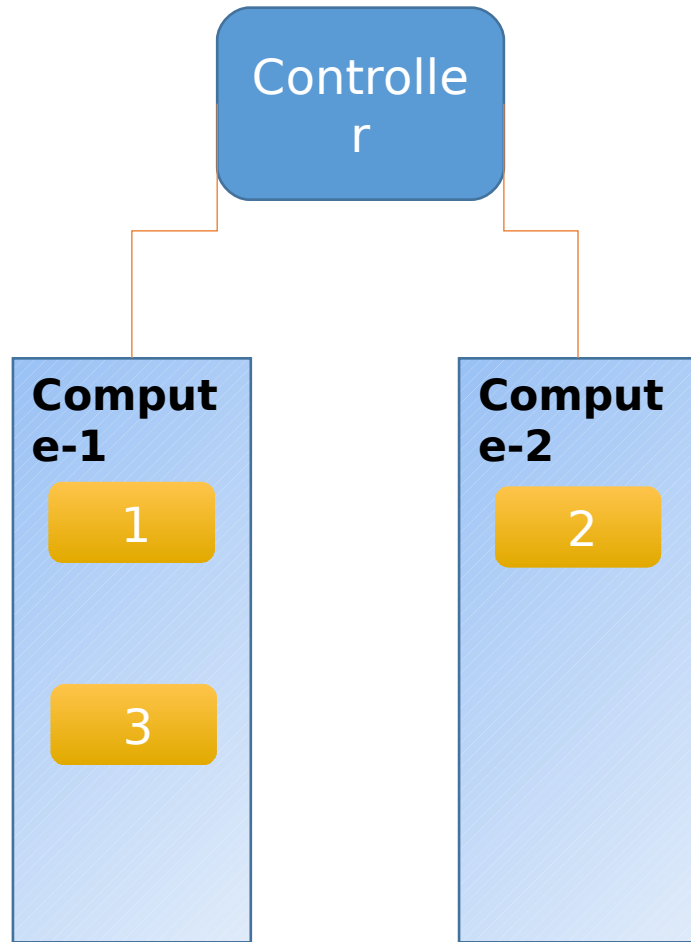
Project Architecture



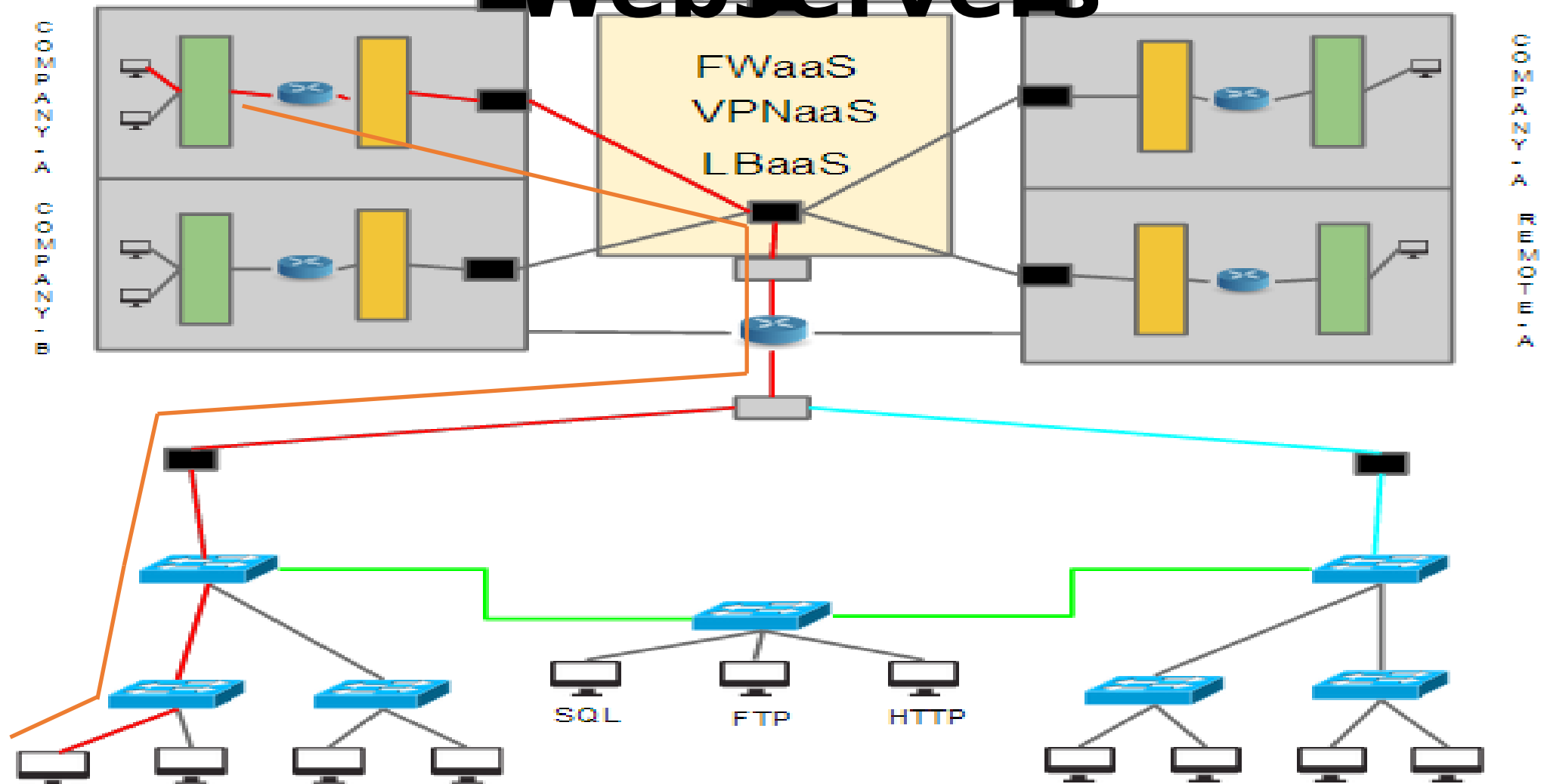
More technical info

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

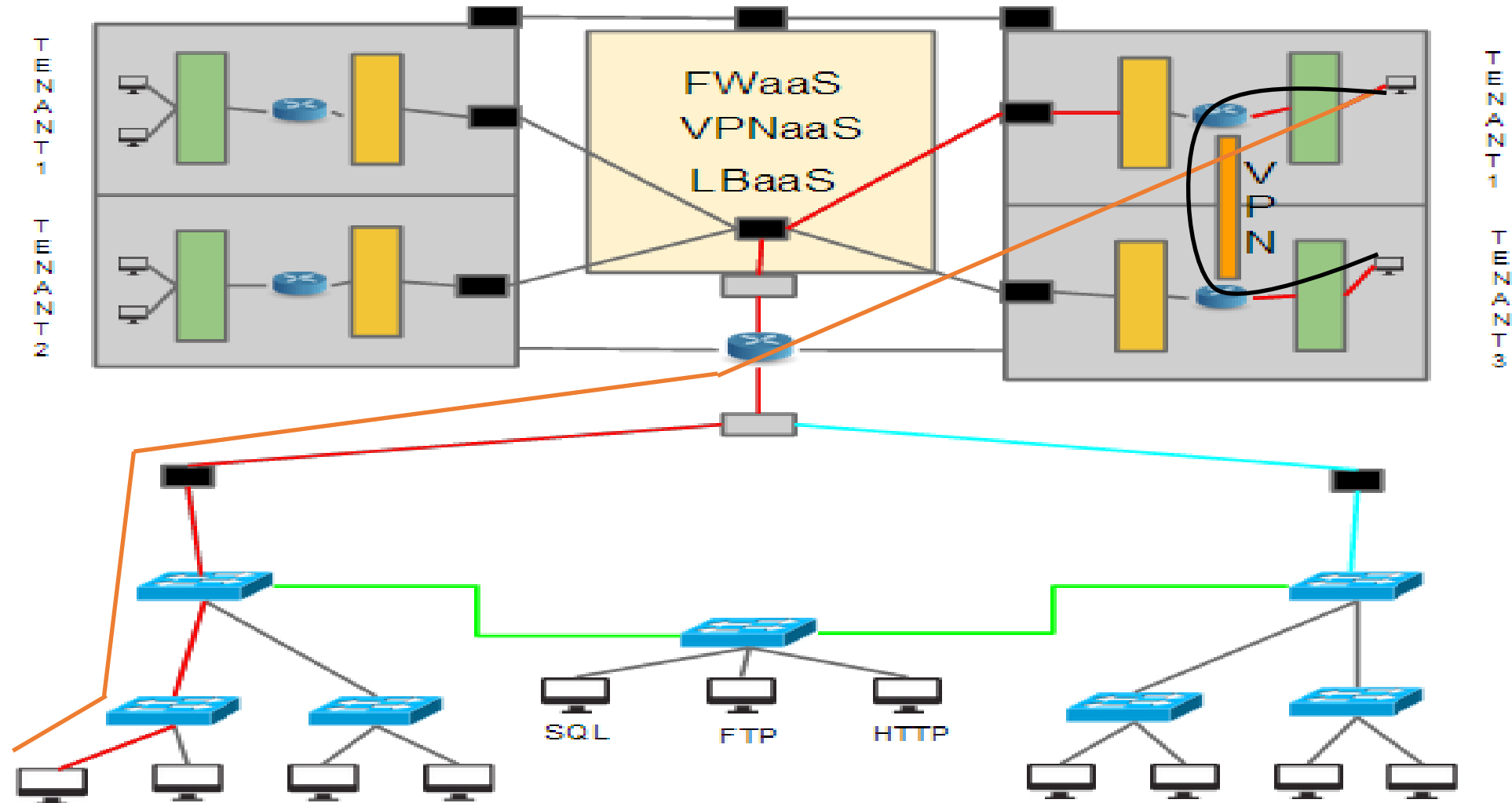
Computes and Tenants



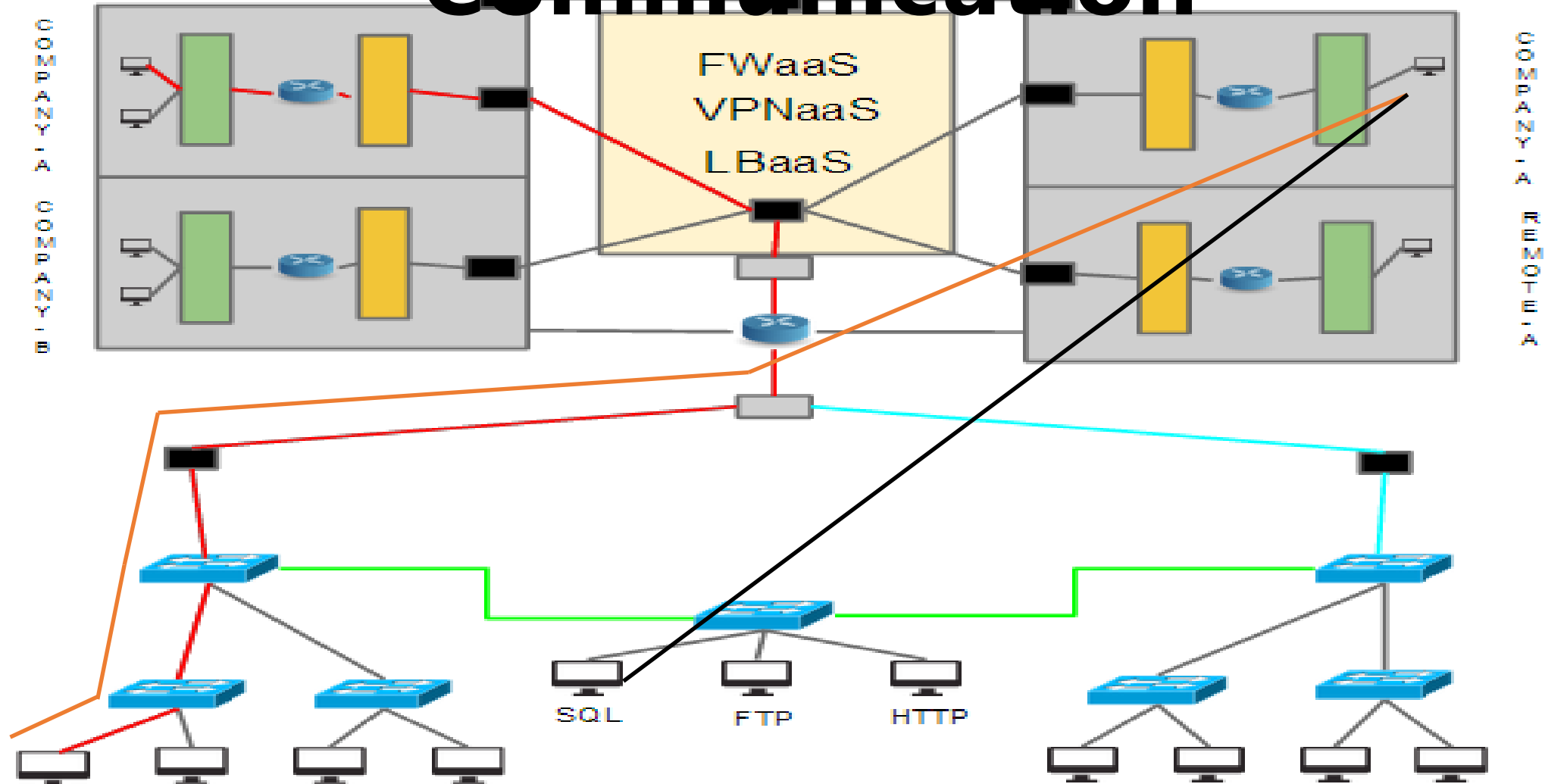
Scenario 1 - Load Balancing of Webservers



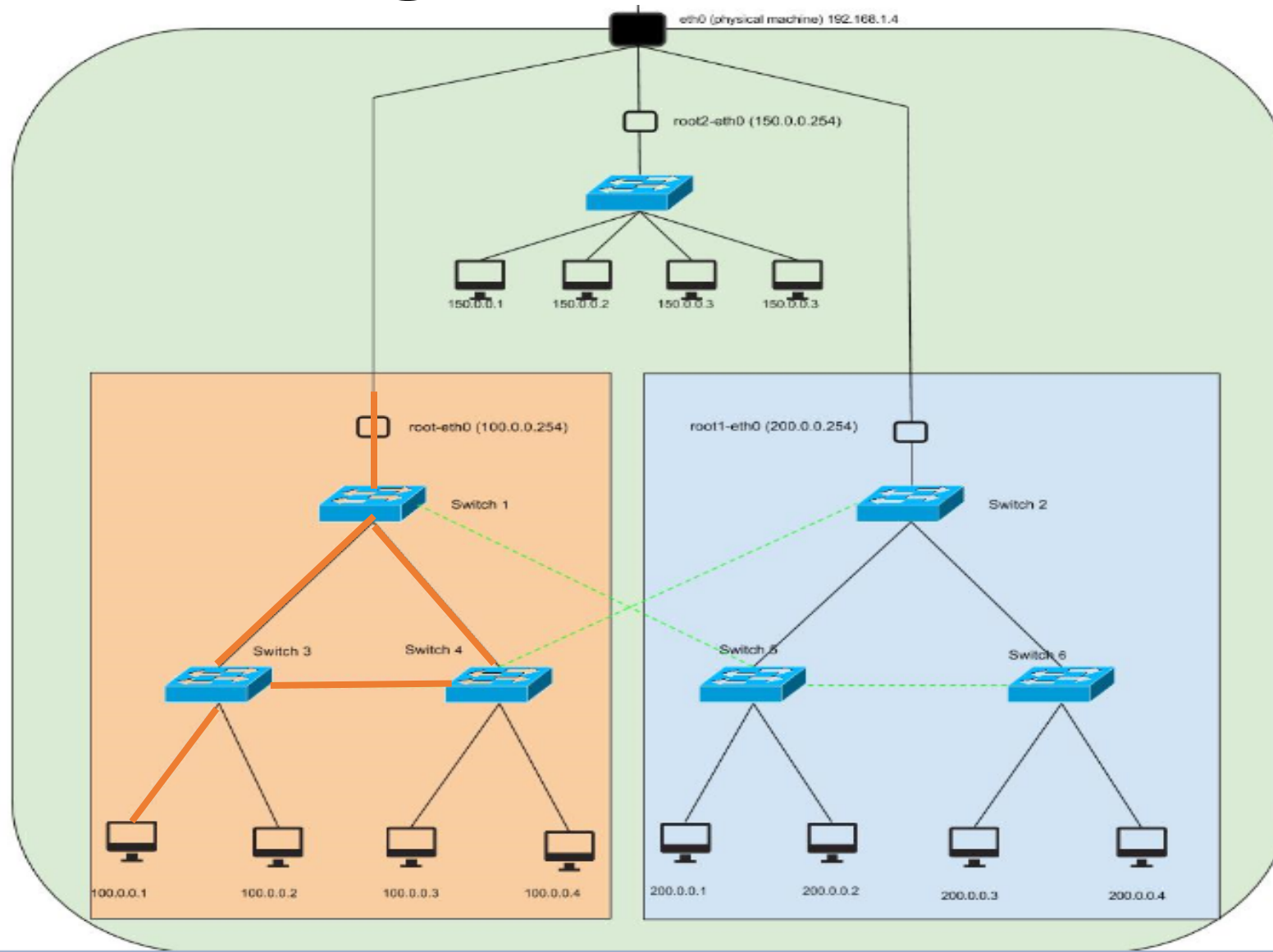
Scenario 2 - File Server using VPN



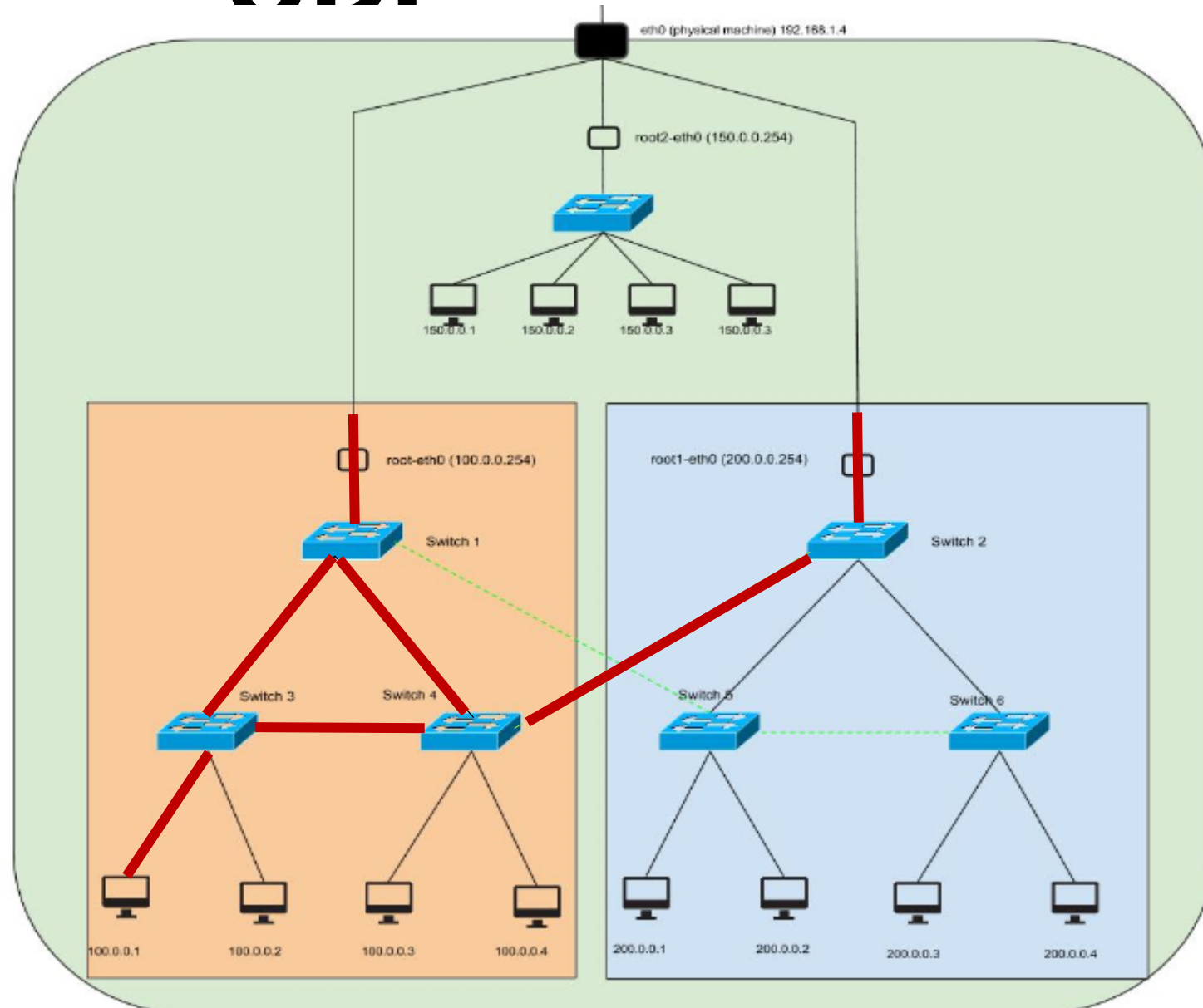
Communication



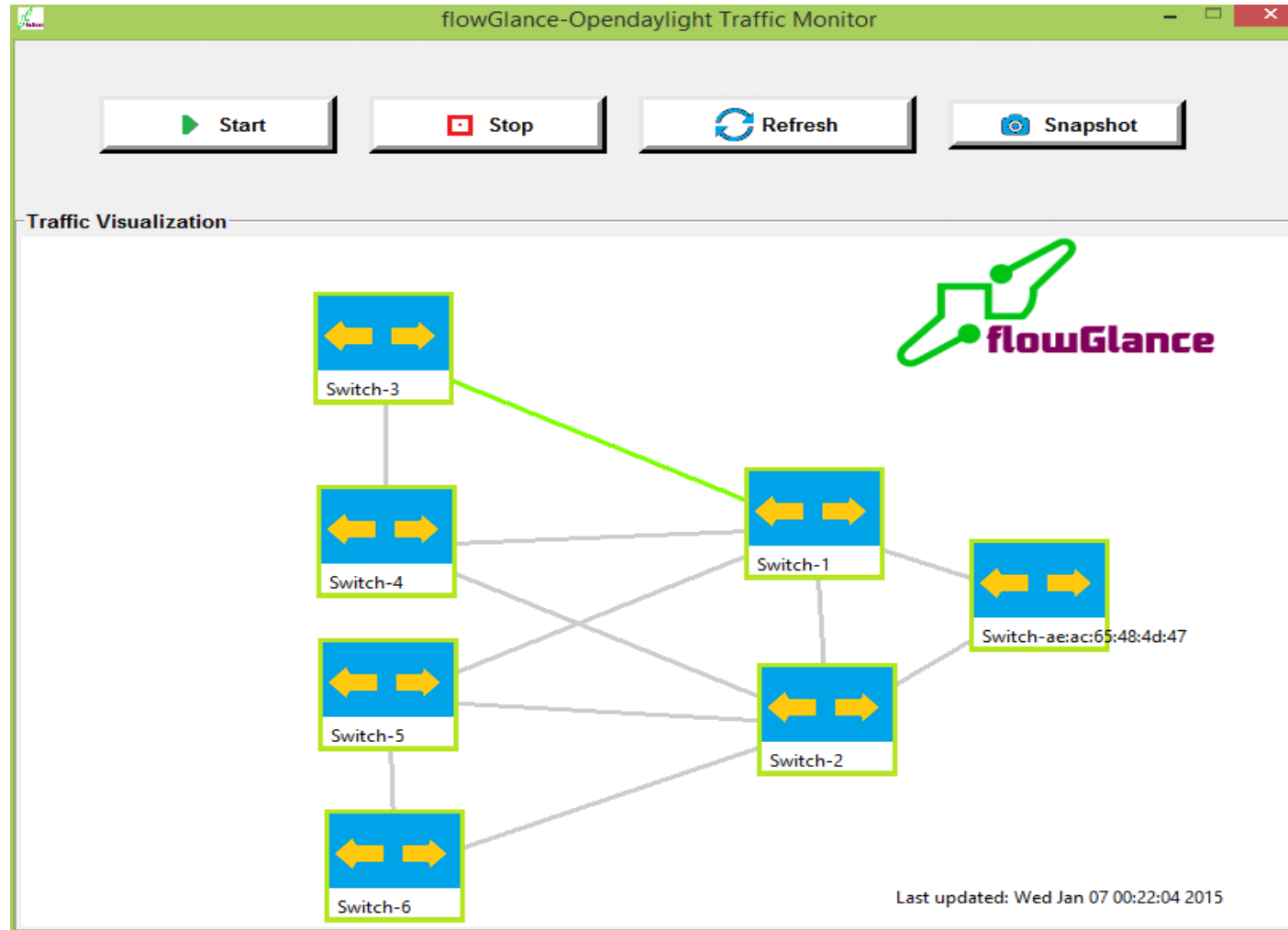
Load Balancing in ODL



Redundancy in ODI



FlowGlance

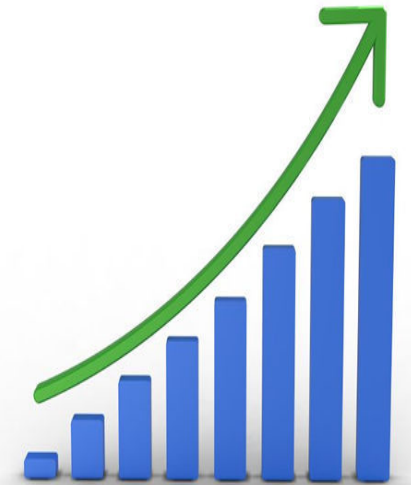


Progress

Requirements

Completed

Install Mininet, OpenDaylight, OpenStack	<input checked="" type="checkbox"/>
Mininet - Code to design the ISP topology with two companies	<input type="checkbox"/>
ODL - Code for installing flows through REST API	<input type="checkbox"/>
ODL - Code for monitoring switches for load balancing and redundancy	<input type="checkbox"/>
OpenStack - Code for WebServers, ProxyServer (FileServer, SQLServer)	<input type="checkbox"/>
Extra - Automation script to build the full infrastructure	<input type="checkbox"/>
FlowGlance - For visualizing flows over Mininet	<input type="checkbox"/>
Scenarios to demonstrate the purpose of the project	<input type="checkbox"/>
PacketGenerator	<input type="checkbox"/>



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

