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SAN FRANCISCO  
STATE UNIVERSITY



# What is Cloud Computing?

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- ❑ X as a Service (XaaS)
- ❑ Public
- ❑ Private
- ❑ Hybrid



**Dropbox**



**amazon**  
web services™



Google Drive



**Public Cloud**

# Our Project

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- ❑ Show Benefits with POC System
  - ❑ Phase 2 of the SFSU Openstack Project
  - ❑ Install Openstack Folsom
  - ❑ Across Multiple Machines
  - ❑ Successfully Create Instance
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# Challenges We Faced

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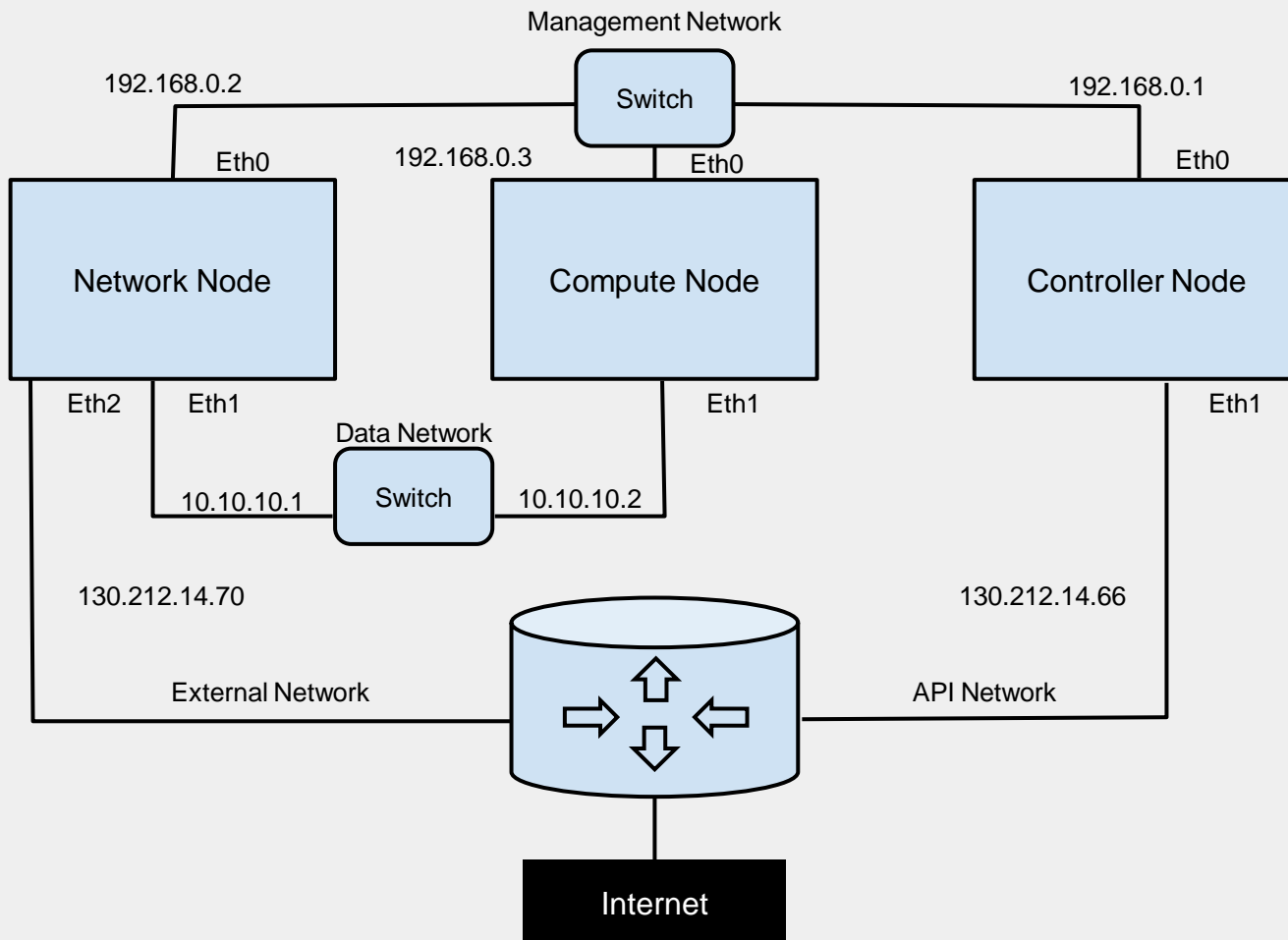
- ❑ Novices to Linux and the CLI
  - ❑ Limited resources and time
    - ❑ "Hand-me-down" servers
    - ❑ Difficulty securing server space
    - ❑ Handful of hours a week
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# Our Approach

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- ❑ Ubuntu Server 12.04 LTS x86-64
  - ❑ Started with DevStack
  - ❑ OpenStack Folsom install guide
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# Architecture



# Installation

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- ❑ Controller Node
    - ❑ Databases, Message Queue, Dashboard
  - ❑ Network Node
    - ❑ Virtual Bridging and Routing
  - ❑ Compute Node
    - ❑ Processing, memory, network, and storage
-

# OpenStack components

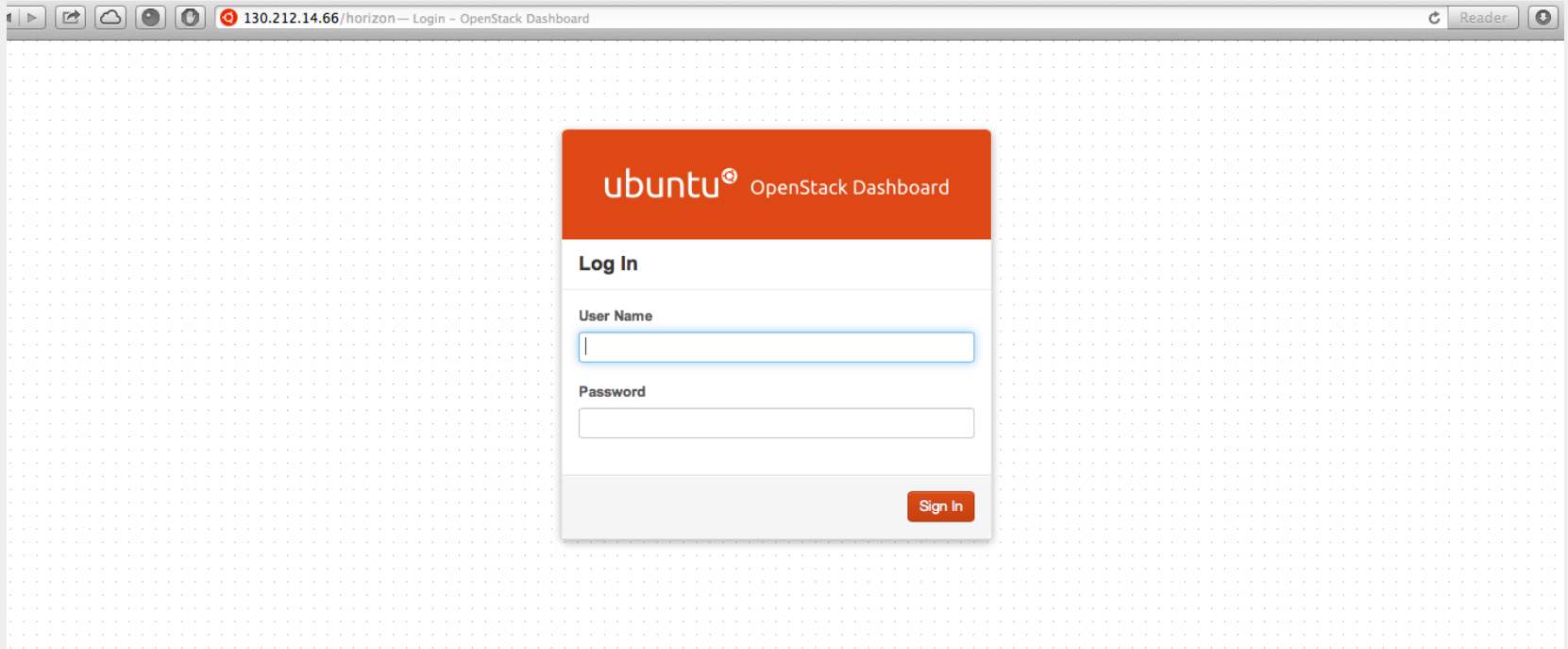
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- ✓ Compute (Nova)
  - ✓ Networking (Neutron, née Quantum)
  - ❑ Object Storage (Swift, or 3rd party Ceph)
  - ❑ Block Storage (Cinder, or 3rd party Ceph)
  - ✓ Dashboard (Horizon)
  - ✓ Identity (Keystone)
  - ✓ VM Images (Glance)
  - ❑ Future components
    - ❑ Metering (Ceilometer)
    - ❑ Orchestration (Heat)
    - ❑ Hadoop/Analytics-aaS (Savanna)
    - ❑ DBaaS (Trove)
    - ❑ PaaS-like features
    - ❑ Bare Metal (Ironic)
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# Logging In

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The image shows a web browser window with the address bar displaying "130.212.14.66/horizon — Login - OpenStack Dashboard". The page features a light gray dotted background. In the center, there is a white login box with an orange header bar. The header bar contains the text "ubuntu<sup>®</sup> OpenStack Dashboard". Below the header, the text "Log In" is displayed. The login form includes two input fields: "User Name" and "Password". A "Sign In" button is located at the bottom right of the login box.

130.212.14.66/horizon — Login - OpenStack Dashboard

Reader

ubuntu<sup>®</sup> OpenStack Dashboard

Log In

User Name

Password

Sign In

# Creating an Instance

130.212.14.66/horizon/nova/instances/ — Instances - OpenStack Dashboard

OpenStack Presentation - Google Drive

Instances - OpenStack Dashboard

ubuntu® OpenStack Dashboard

Logged in as: demo Settings Help Sign Out

## Instances

Project

CURRENT PROJECT demo

Manage Compute

Overview

Instances

Volumes

Images & Snapshots

Access & Security

Networks

Object Store

Containers

Launch Instance Terminate Instances

<input type="checkbox"/>	Instance Name	IP Address	Size	Keypair	Status	Task	Power State	Actions
<input type="checkbox"/>	testwin31	10.5.5.4	m1.tiny   512MB RAM   1 VCPU   0 Disk	ubuntu	Active	None	Running	Create Snapshot
<input type="checkbox"/>	test123	10.5.5.3	m1.tiny   512MB RAM   1 VCPU   0 Disk	ubuntu	Active	None	Running	Create Snapshot

Displaying 2 items

# Problems Encountered

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- ❑ Install guide could be clearer
    - ❑ Installed as user with sudo
    - ❑ Caused ENV issues
    - ❑ Re-installed as root with sudo su -
  - ❑ Could not spin up instances
    - ❑ Hardware doesn't support accelerated virtualization
    - ❑ KVM hypervisor -> QEMU
  - ❑ Associate floating public IP address w/ VMs
    - ❑ Dashboard VNC console only
    - ❑ Can't remote login to VMs from outside
    - ❑ Fixed in future releases
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# Future Scope

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- ❑ Additional Compute Nodes
  - ❑ Recent release of OpenStack (eg Havana)
  - ❑ MAAS and Juju
  - ❑ Multi-host architecture
  - ❑ New hardware
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# Wrap-Up

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- ❑ Successfully Created POC System
  - ❑ Model for future IT infrastructure
  - ❑ Benefits School and Students
  - ❑ Time for Pictures!
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Nova - Compute

Cinder - Storage Block

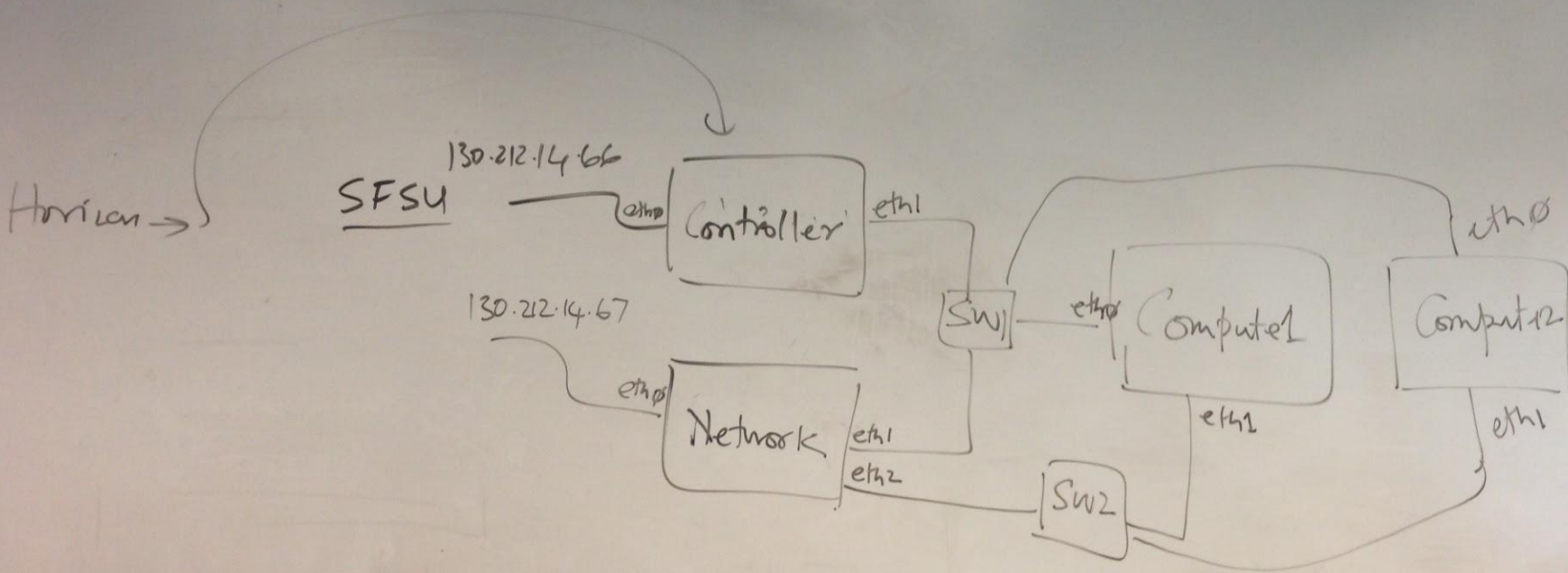
Glance - Image

Keystone - Identity

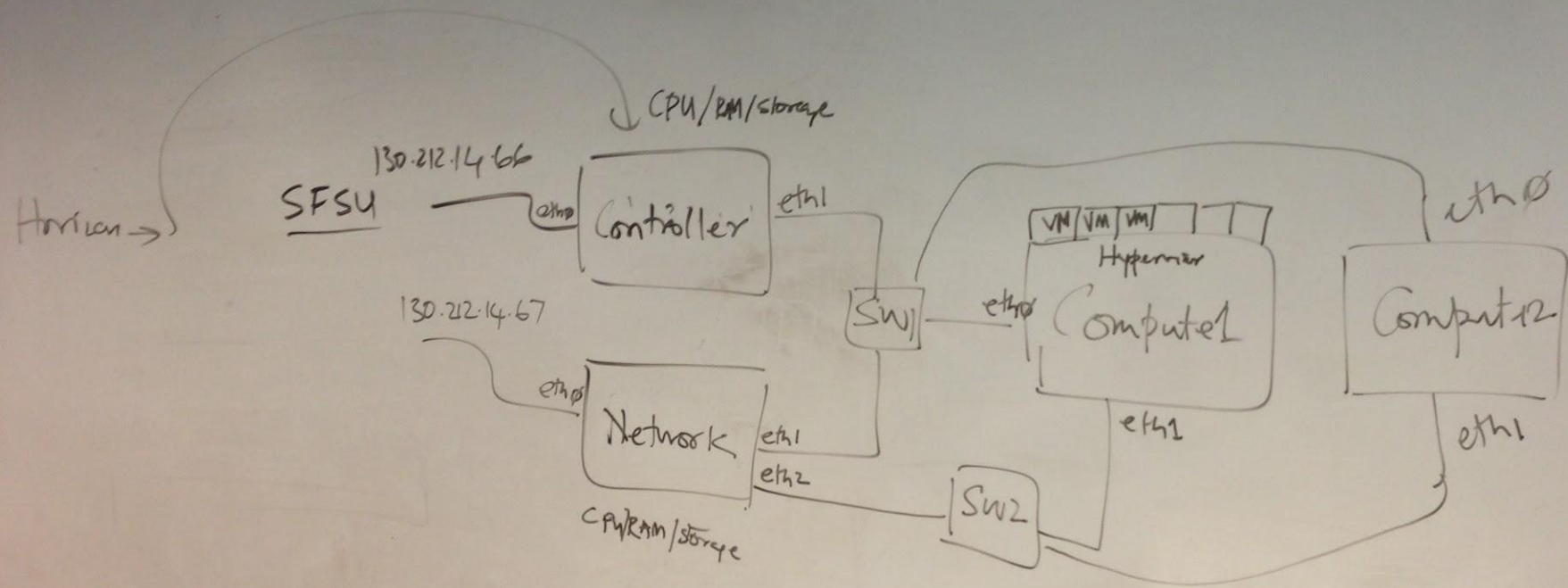
Horizon - Dashboard

Swift - Object Storage

Quantum - N/AAS









16 Apr - Ubuntu OS } stable.  
- switches.

23 Apr - Install Nova, Quantum... + 3 Nov. ← campus/other.  
← invite campus + Stefano

30 Apr - Functional OpenStack.

7 May Presentation.



Welcome to the Business Computer Lab (BCL)



For the comfort of all guests:

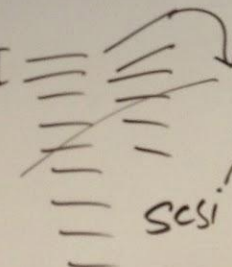
- Please no food or beverages
- Please turn cell phones to silent mode
- Please no loud conversations
- Please no smoking

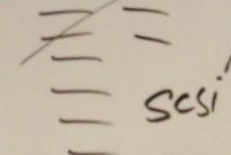
Thank you,  
Business Computing Staff

**College of Business**

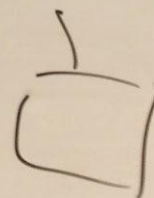
PCI

Sdb1 boot

SCSI  Sda - 11/12

?  Sdb  
Sdc  
Sdd

LG  
PV  
Sdc1  
///  
SDC





[Part 1] Refer to URL

devstack ↑ experiment / curiosity

Multiple machines.

— How many?  
— Network?  
— Storage? ] → How to Follow this

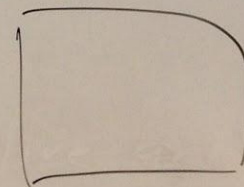
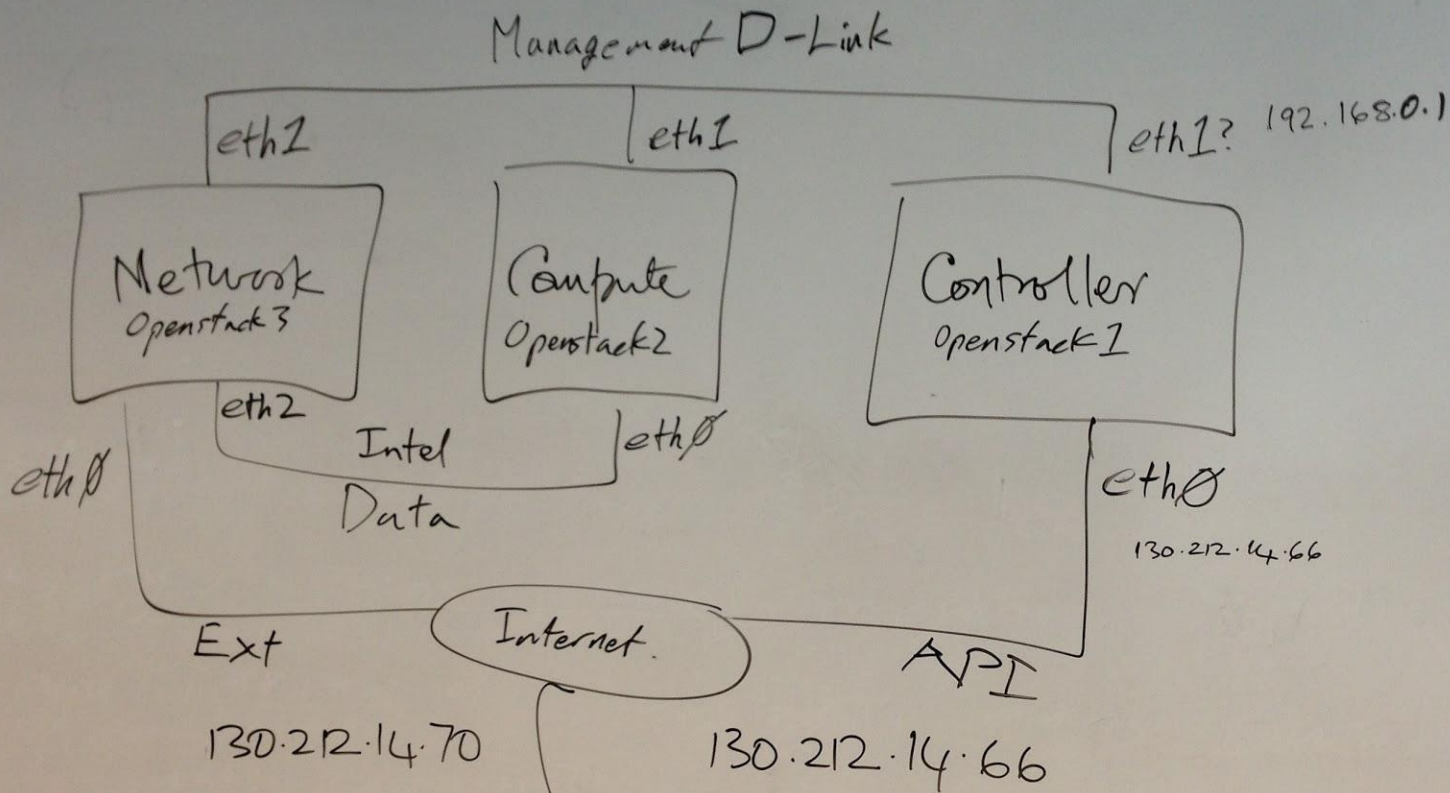
Arch.

3 servers (table)

2 switches

Install Ubuntu Server

Config:  
- - -







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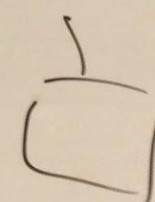
PCI

Sdb1 boot

SCSI → Sda - 11/12

? SCSI → Sdb  
Sdc  
Sdd

LG  
PV  
Sde1  
SDC



### [!!!] Partition disks

Note that all data on the disk you select will be erased, but not before you have confirmed that you really want to make the changes.

Select disk to partition:

SCSI5 (0,0,0) (sdb) - 73.4 GB SEAGATE ST973401LSUN72G

SCSI5 (0,1,0) (sdc) - 73.4 GB SEAGATE ST973401LSUN72G

<Go Back>

# Questions?

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