

Virtual Cluster over OpenNebula (Progress Report)

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26/07/2011

Agenda

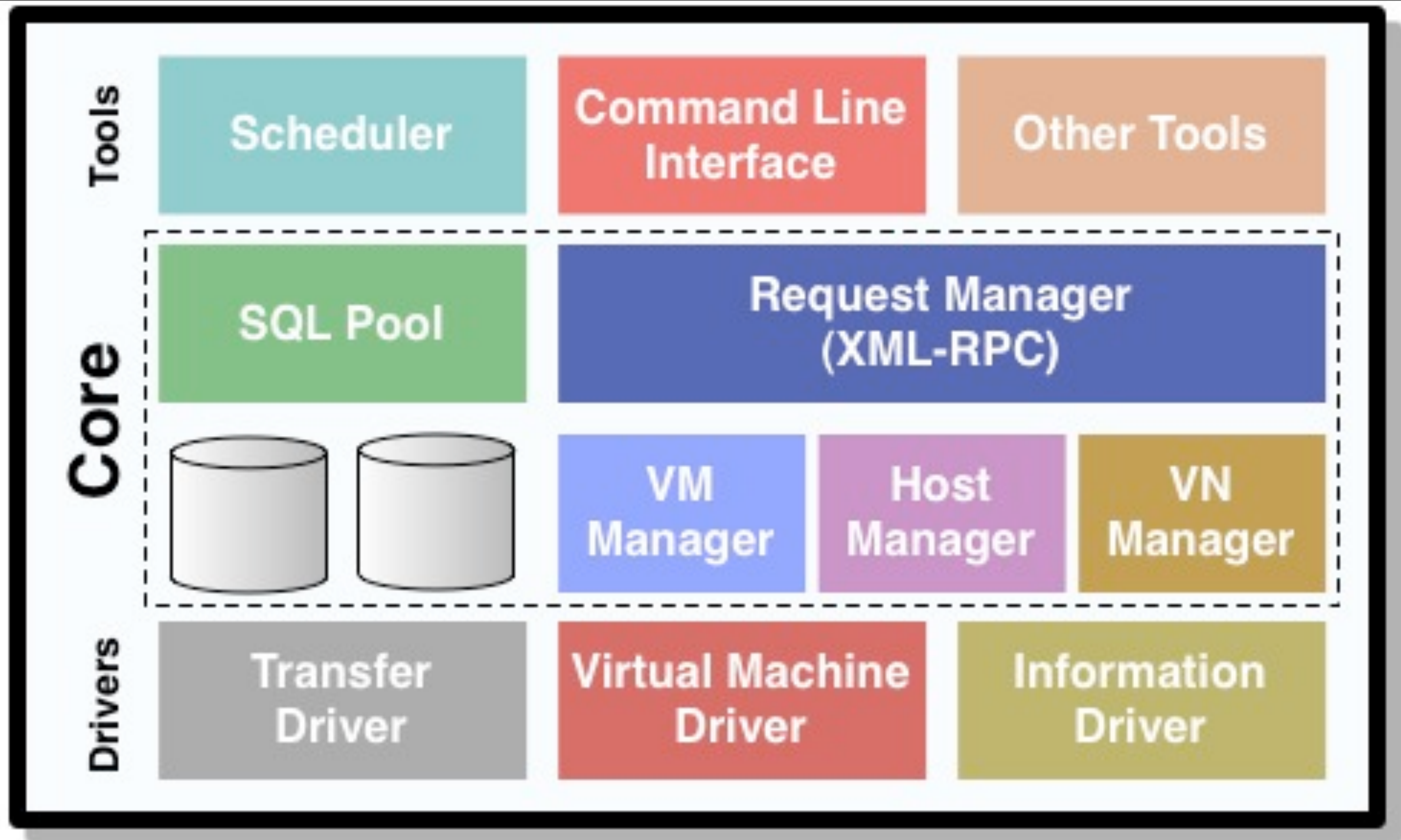
1. OpenNebula Installation

2. Progress

3. Issues & Problems

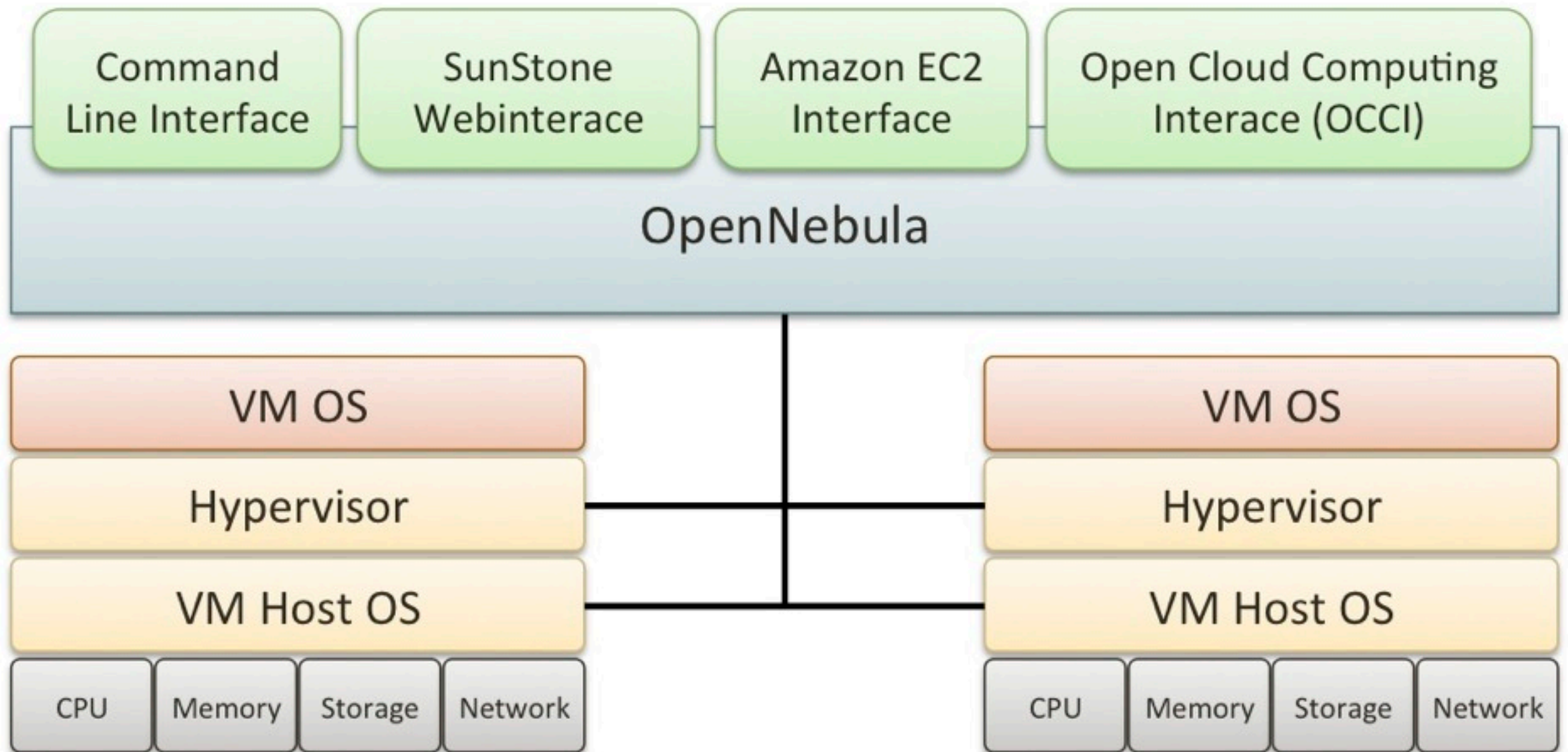


1. OpenNebula Installation



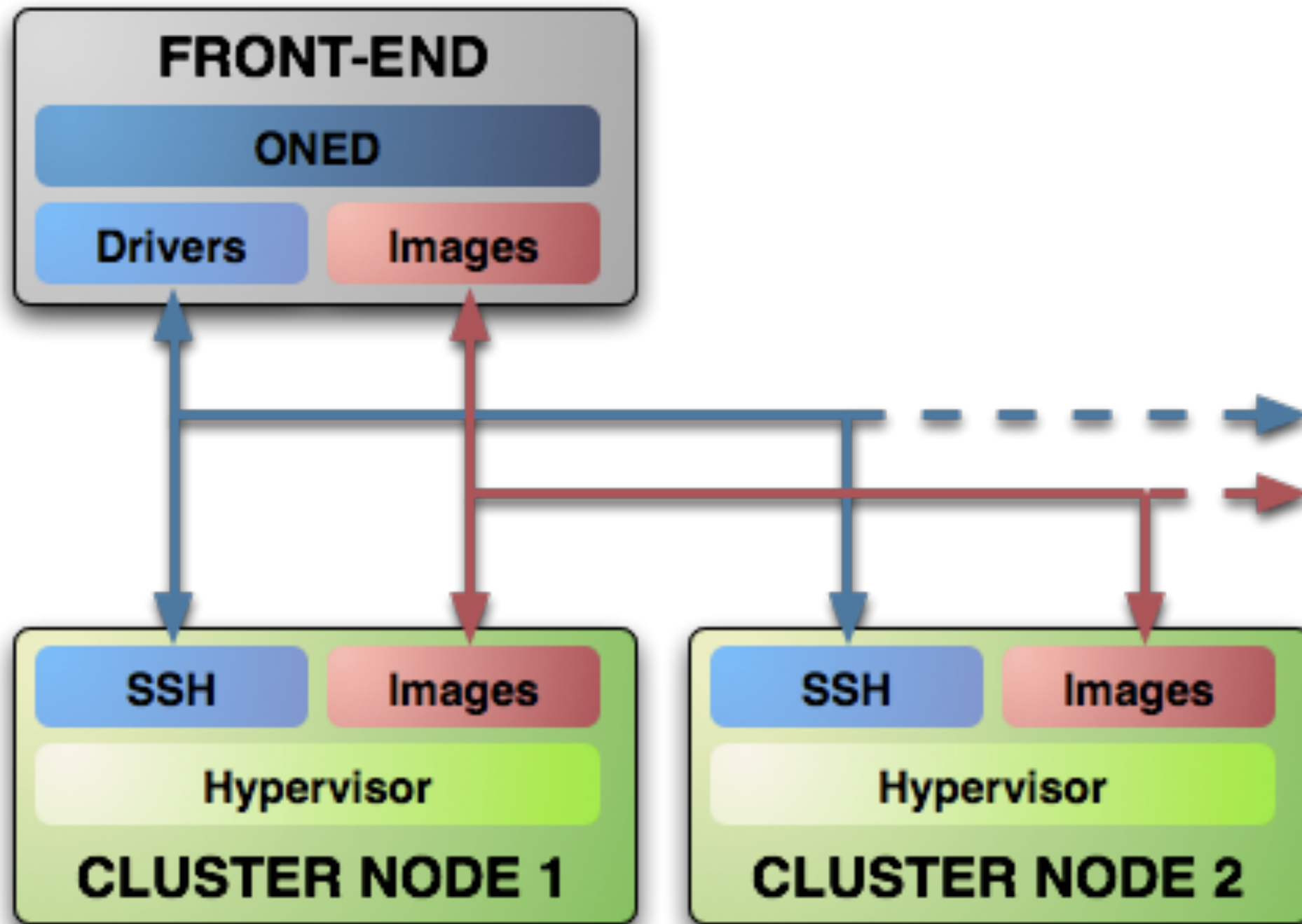
Architecture (1/3)

Internal



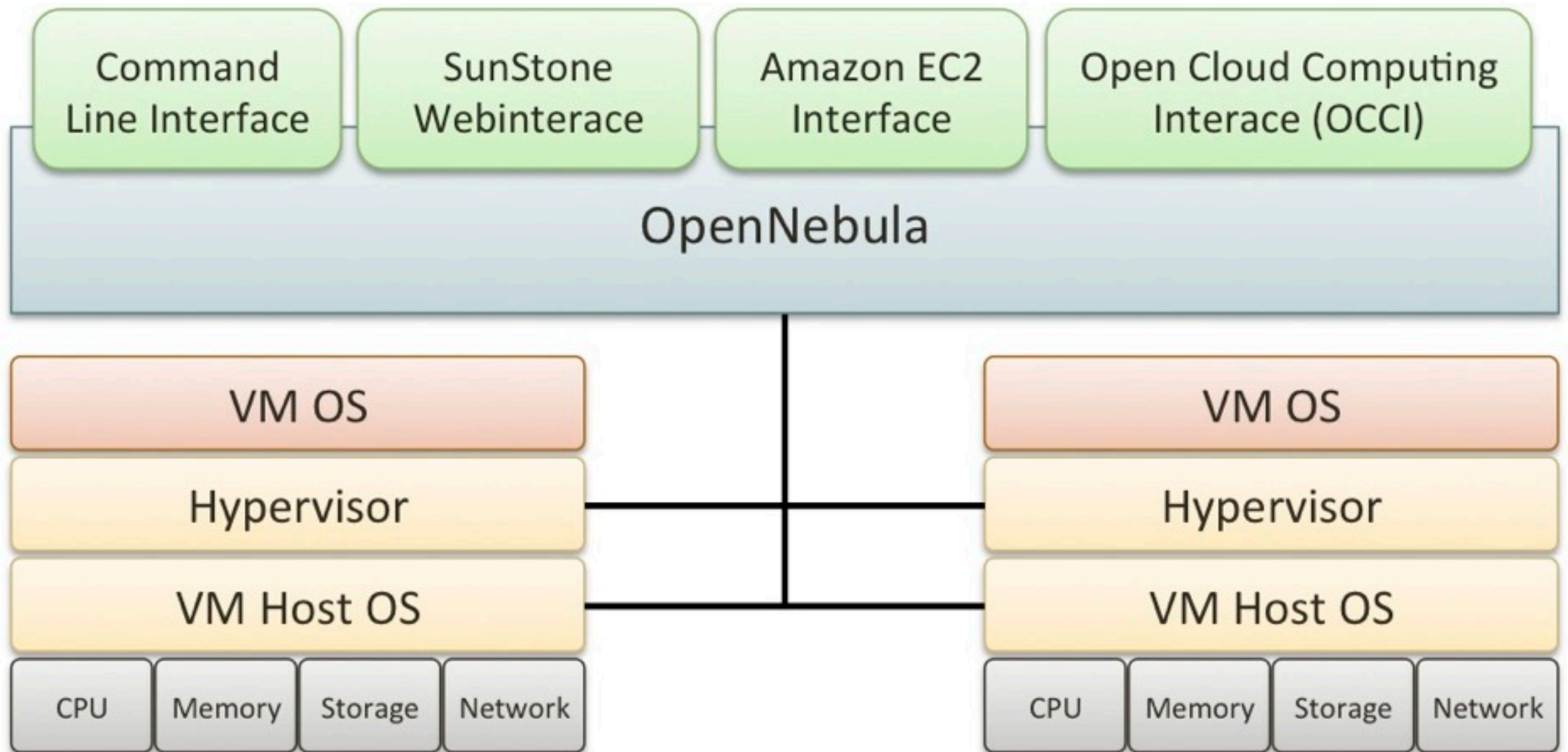
Architecture (2/3)

External



Architecture (3/3)

Installation



Architecture

External

My Installation (1/2)

Rocks Cluster

Public Network

Frontend

OpenNebula

NFS Server

Xen

Private Network

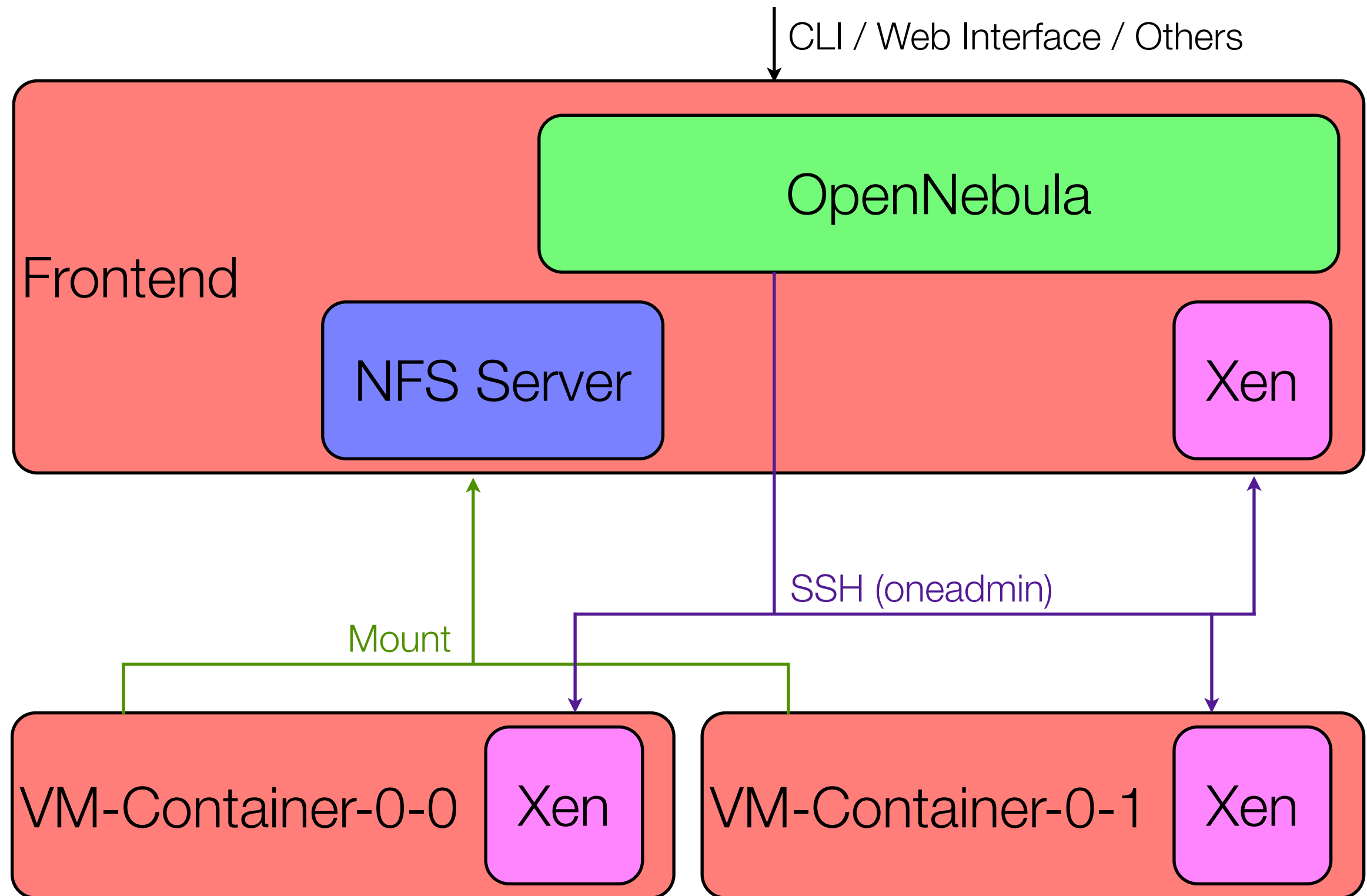
VM-Container-0-0

Xen

VM-Container-0-1

Xen

My Installation (2/2)



```
oneadmin@kyubei:~ — ssh — 80x24
ssh oneadmin@133.1.134.178
Last login: Mon Jul 11 09:17:25 on console
dhcp198:~ knightbaron$ ssh oneadmin@133.1.134.178
Last login: Fri Jul  8 15:46:00 2011 from dhcp198.ais.cmc.osaka-u.ac.jp
Rocks 5.4 (Maverick)
Profile built 07:23 17-Jun-2011

Kickstarted 16:44 17-Jun-2011
[oneadmin@kyubei ~]$ onevm list
  ID   USER   NAME  STAT  CPU   MEM      HOSTNAME    TIME
  ---  ---
  40 oneadmin ttylinux runn   1   71.9M      kyubei 03 00:01:17
[oneadmin@kyubei ~]$ onevnet list
  ID  USER   NAME      TYPE  BRIDGE  P  #LEASES
  ---  ---
   3 oneadmin Public      Ranged xenbr. Y      1
[oneadmin@kyubei ~]$ onehost list
  ID  NAME      CLUSTER  RVM   TCPU   FCPU   ACPU   TMEM   FMEM  STAT
  ---  ---
   8 kyubei      default   1    400    397    390    2G    174M  on
   9 vm-container-0-0 default   0    200    200    200    8G    383M  on
  10 vm-container-0-1 default   0    200    200    200    8G    383M  on
[oneadmin@kyubei ~]$
```

Command-line Interface

OpenNebula Sunstone

Documentation | Support | Community

Welcome oneadmin | Sign Out

Dashboard

Hosts & Clusters

Virtual Machines

Virtual Networks

Images

Users

+ New

Enable

Disable

+ New Cluster

Delete cluster

Previous action

Delete host

Show 10 entries

Search:

<input type="checkbox"/> All	ID	Name	Cluster	Running VMs	CPU Use	Memory use	Status
<input type="checkbox"/>	30	p1	default	0	<div>62%</div>	<div>31%</div>	MONITORED
<input type="checkbox"/>	32	p3	default	3	<div>73%</div>	<div>85%</div>	MONITORED
<input type="checkbox"/>	33	hostA	default	0	<div>31%</div>	<div>0%</div>	MONITORED
<input type="checkbox"/>	34	hostB	default	0	<div>25%</div>	<div>85%</div>	MONITORED
<input type="checkbox"/>	35	hostC	default	0	<div>16%</div>	<div>54%</div>	MONITORED

Host information

Host template

Host information - hostE

ID:	37
State:	MONITORED
Cluster:	default
IM MAD:	im_dummy
VM MAD:	vmm_dummy
TM MAD:	tm_dummy

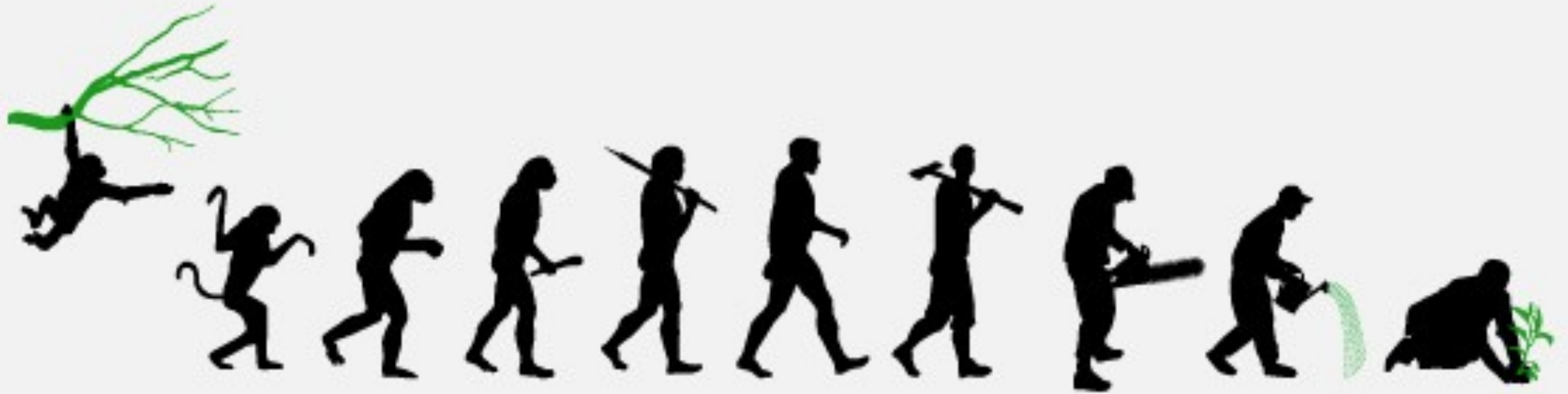
Host shares

Max Mem:	16G
Used Mem (real):	0K
Used Mem (allocated):	0K
Used CPU (real):	0
Used CPU(allocated):	0
Running VMs:	0

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Web Interface

OpenNebula Sunstone



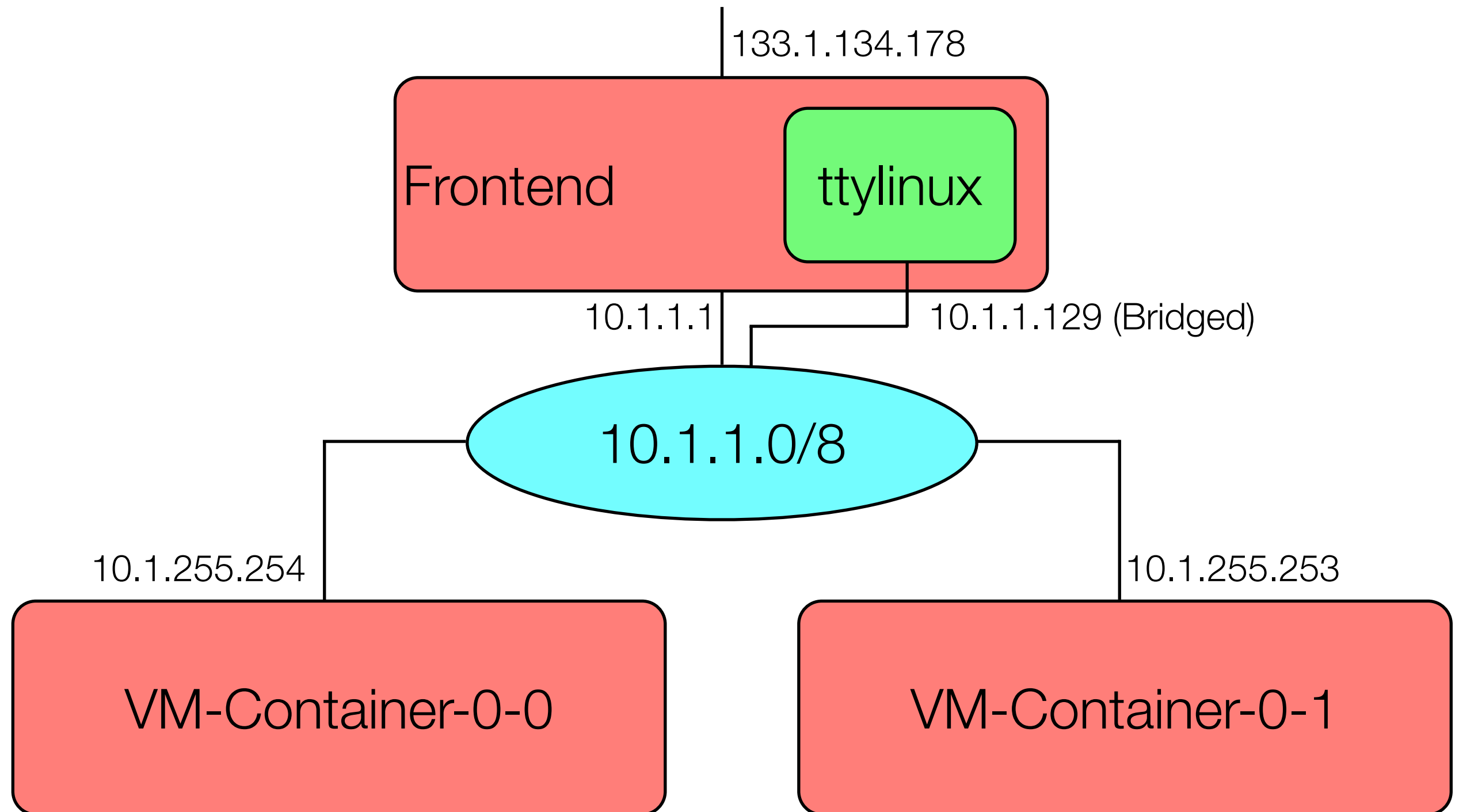
THE MARCH OF PROGRESS

2. Progress

What I have done

- Booted OpenNebula sample image (ttylinux) in *Fully Virtualized* mode with networking
- Researched on how OpenNebula handle Networking and Virtual Network
- Found a way to create OS image for OpenNebula
- Created OpenNebula-compatible CentOS (OS) image
 - Haven't successfully booted it yet so I can't verify the result

Current Setup

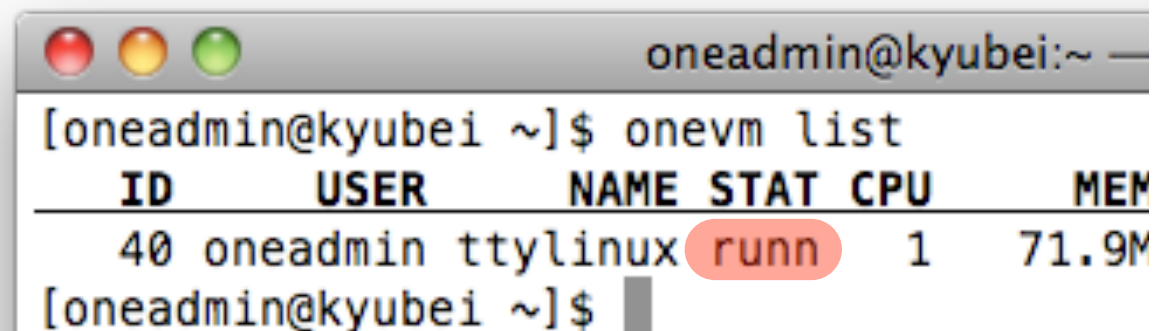


VIRTUAL MACHINE MONITORING

NET_TX : 0
NET_RX : 0
USED MEMORY : 73604
USED CPU : 1

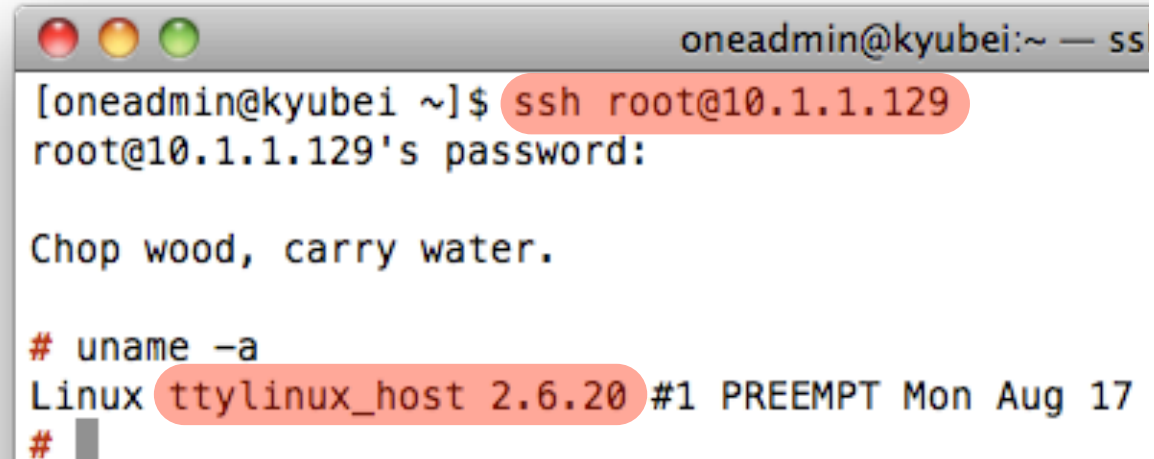
VIRTUAL MACHINE TEMPLATE

CPU=0.1
DISK=[
 CLONE=YES,
 DISK_ID=0,
 IMAGE=ttylinux,
 IMAGE_ID=0,
 READONLY=NO,
 SAVE=NO,
 SOURCE=/share/apps/cloud/one/var//images/8625d
 TARGET=hda,
 TYPE=DISK]
FEATURES=[
 ACPI=no]
GRAPHICS=[
 LISTEN=0.0.0.0,
 PORT=5930,
 TYPE=vnc]
MEMORY=64
NAME=one-40
NIC=[
 BRIDGE=xenbr.eth0,
 IP=10.1.1.129,
 MAC=02:00:0a:01:01:81,
 NETWORK=Public,



Terminal window titled 'oneadmin@kyubei:~'. The command '[oneadmin@kyubei ~]\$ onevm list' has been executed, resulting in a table with columns ID, USER, NAME, STAT, CPU, and MEM. The table shows one entry with ID 40, USER oneadmin, NAME ttylinux, STAT runn, CPU 1, and MEM 71.9M. The STAT column value 'runn' is highlighted in red.

ID	USER	NAME	STAT	CPU	MEM
40	oneadmin	ttylinux	runn	1	71.9M



Terminal window titled 'oneadmin@kyubei:~'. The command '[oneadmin@kyubei ~]\$ ssh root@10.1.1.129' has been executed. The prompt 'root@10.1.1.129's password:' is shown. The user has entered a password, and the prompt 'Chop wood, carry water.' is displayed. The user then enters '# uname -a', and the output 'Linux ttylinux_host 2.6.20 #1 PREEMPT Mon Aug 17' is shown. The IP address '10.1.1.129' and the output 'ttylinux_host 2.6.20' are highlighted in red.

What I have been doing

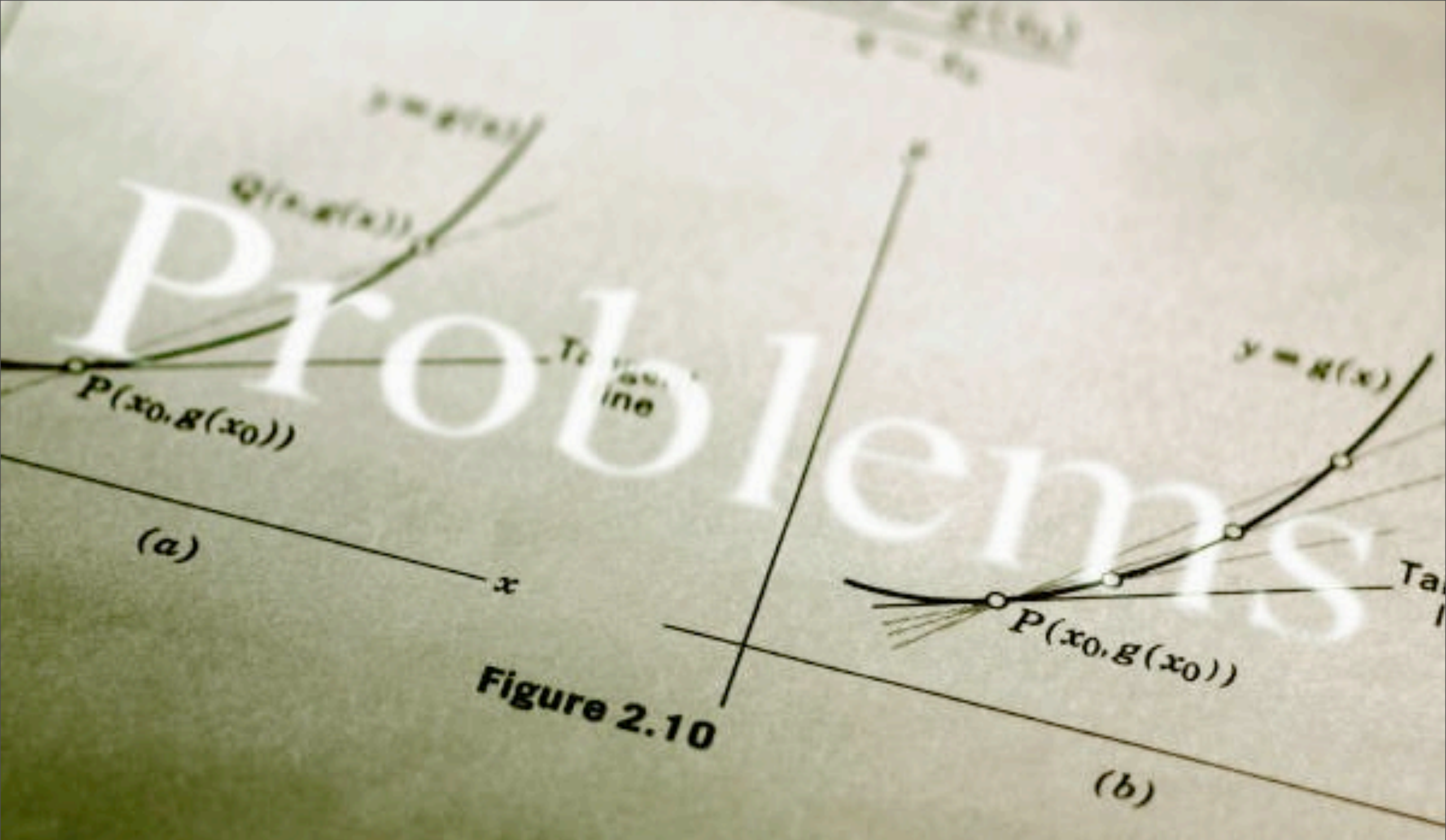
- Try to boot CentOS with OpenNebula
 - Tweaking configurations

What I am going to do

- Connecting multiple VMs together in the same virtual network
 - Start with multiple VMs in the same machine
 - Then in the same cluster
- For cross-site virtual network, I may need to manually set up overlay network

What I am planning to do

- Install Rocks Cluster in *Fully-virtualized* mode



3. Issues & Problems

Problems

- Automatic VNC port generation of OpenNebula doesn't play well with Xen
 - At least, VNC is working so I'll leave it at that for now
- 2 out of 3 machines in my testbed do not support *CPU Virtualization*
 - Can work only in *Para-virtualized* mode
 - I'll use Bevis' machines after he finish with his work
- 1 machine that worked have only 2 GB of RAM
 - Extra RAM given to me by Ichikawa-sensei isn't work :-)

Issues

- Not many documentation on how to use OpenNebula with Xen.
- Not many OpenNebula user to talk to
- Kind of busy with exam an trip preparation
 - All exams will be finished by this Thursday (7/28)
- **Lab trip (8/11 - 8/12) overlap with Comic Market (8/12 - 8/14) :- (**

Conclusion

1.OpenNebula Installation

2.Progress

3.Issues & Problems

Questions?

My Questions

ありがとうございました

References

- <http://opennebula.org/>