

CSCI4180 Tutorial

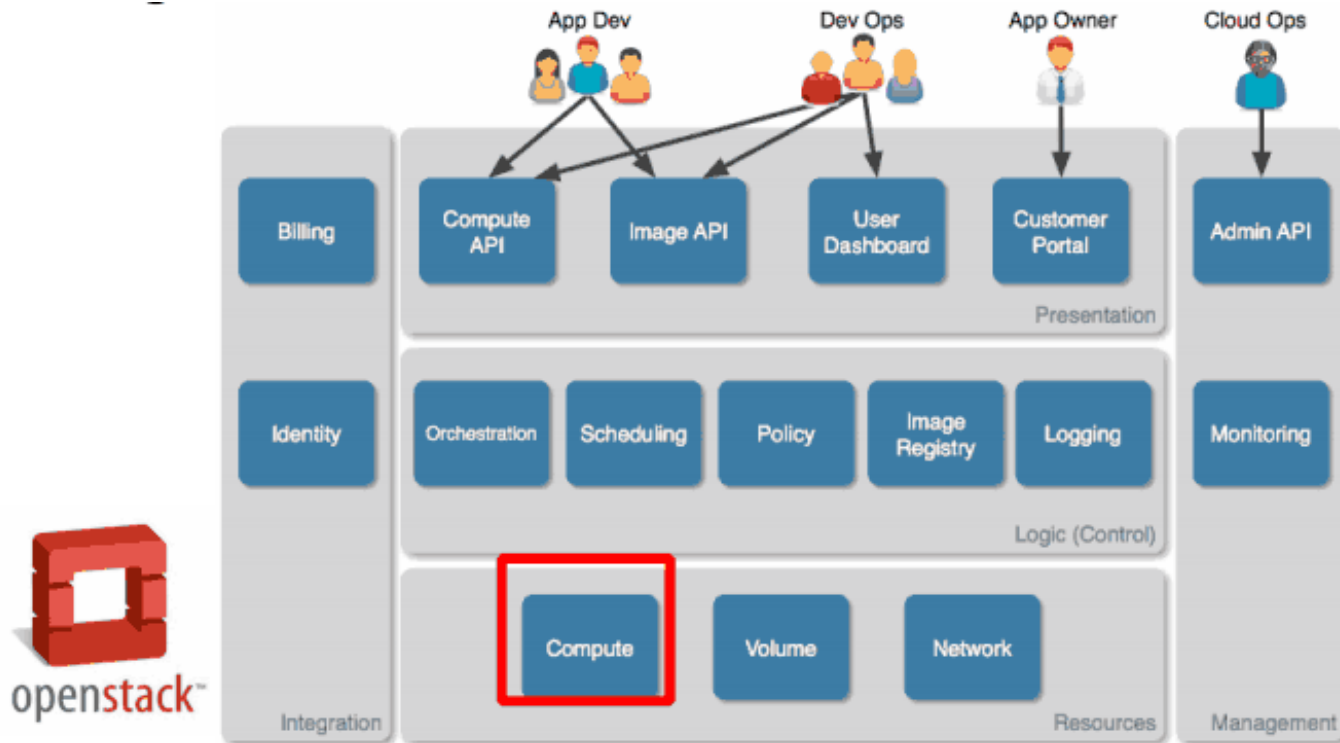
Introduction to Cloud Platform 1

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Overview of the platform

- We have a cloud platform (built on OpenStack) for this course



- Ref: <http://ken.pepple.info/openstack/2012/09/25/openstack-folsom-architecture/>

Overview of the platform

- Nodes
 - 1 control node (2x Xeon, 32GB RAM)
 - 20 compute nodes (Core i5, 8GB RAM)
- Resource Quota (VM part) per group
 - 4vCPU, 4GB RAM, 120GB HDD
- VM OS (currently)
 - Ubuntu Server 12.04 (i386, amd64)
 - Ubuntu Server 11.10 (i386)
- Management Panel (to access the cloud)
 - OpenStack Dashboard Panel

Demo

- Access Dashboard
 - <http://137.189.89.214/dashboard>
 - (in CSE network)

The default password is randomly generated, and sent to each group.



The screenshot shows the login interface of the Ubuntu OpenStack Dashboard. It features an orange header with the 'ubuntu' logo and 'OpenStack Dashboard' text. Below the header is a 'Log In' section with two input fields: 'User Name' containing 'csci4180-20' and 'Password' represented by dots. A 'Sign In' button is located at the bottom right of the form.

ubuntu[®] OpenStack Dashboard

Log In

User Name
csci4180-20

Password
••••••••

Sign In

Demo

- Start a VM
 - Login ⇒ Images & Snapshots ⇒ (Select an image)
 - Launch ⇒ fill in parameters ⇒ Launch Instance

The screenshot shows the OpenStack dashboard interface. On the left sidebar, the 'Project' dropdown is set to 'csci4180-20'. Under the 'Manage Compute' section, the 'Images & Snapshots' link is highlighted with a red box. The main content area displays a table of available images:

	Image	Status	Architecture	AMI	Launch
<input type="checkbox"/>	Ubuntu Server 12.04 (i386)	Active	Yes	AMI	Launch
<input type="checkbox"/>	Hadoop Lab AMI	Active	Yes	AMI	Launch
<input type="checkbox"/>	Ubuntu Server 11.10 (i386)	Active	Yes	AMI	Launch

The 'Launch' button for the 'Hadoop Lab AMI' is highlighted with a red box. Below the table, the 'Launch Instance' dialog is visible, showing the following configuration:

- Flavor: m1.tiny (1VCPU / 0GB Disk / 512MB Ram)
- Keypair: No keypairs available.
- Instance Count: 1
- Security Groups: default

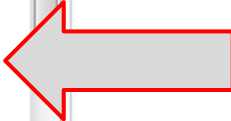
The 'Launch Instance' button at the bottom right of the dialog is highlighted with a red box.

Demo

- Start a VM
 - Login ⇒ Images & Snapshots ⇒ (Select an image)
Launch ⇒ fill in parameters ⇒ Launch Instance

User Data

```
#!/bin/bash
echo '-----'
if [ "`cat /etc/shadow | grep root | cut -d: -f2`" == '!' ]; then
password=`dd if=/dev/urandom bs=1 count=320 2>
/dev/null | tr -dc a-z2-9 | head -c8`
echo "root:$password"|chpasswd
sed -i 's/PasswordAuthentication
no/PasswordAuthentication yes/g' /etc/ssh
/sshd_config
/etc/init.d/ssh restart > /dev/null
```



- Copy and paste this script to "User Data"
- Only in this way, you can view your login name and password to this VM later in the log

```
#!/bin/bash
echo '-----'
if [ "`cat /etc/shadow | grep root | cut -d: -f2`" == '!' ]; then
password=`dd if=/dev/urandom bs=1
count=320 2> /dev/null | tr -dc a-z2-9 |
head -c8`
echo "root:$password"|chpasswd
sed -i 's/PasswordAuthentication
no/PasswordAuthentication yes/g'
/etc/ssh/sshd_config
/etc/init.d/ssh restart > /dev/null
echo "Your root account is ready."
echo "Username: root"
echo "Password: $password"
echo ''
echo 'Please keep it well/change it, or
you will risk losing your assignment
work!'
echo '-----'
fi
```

Demo

- Get VM login password
 - Login \Rightarrow Instances & Volumes \Rightarrow (select an instance) View Log

Instances & Volumes

Success: Instance "csci4180-30-1" launched.

Instances

Launch Instance

Terminate Instances

<input type="checkbox"/>	Instance Name	IP Address	Size	Status	Task	Power State	Actions
<input type="checkbox"/>	csci4180-30-1	10.10.11.2	512MB RAM 1 VCPU 0 Disk	Active	None	Running	<div>Edit Instance</div> <div>VNC Console</div> <div>View Log</div> <div>Snapshot</div> <div>Pause Instance</div> <div>Suspend Instance</div> <div>Reboot Instance</div> <div>Terminate Instance</div>

Displaying 1 item

Volumes

<input type="checkbox"/>	Name	Description	Size	Status	Attachments	Actions
No items to display.						

Displaying 0 items

Demo

- Get VM login password
 - Login ⇒ Instances & Volumes ⇒ (select an instance) View Log

Instance Detail: csci4180-30-1

Overview

Log

VNC

Instance Console Log

Wellcome to Hadoop world!

Your account for hadoop is ready.

Username: hadoop

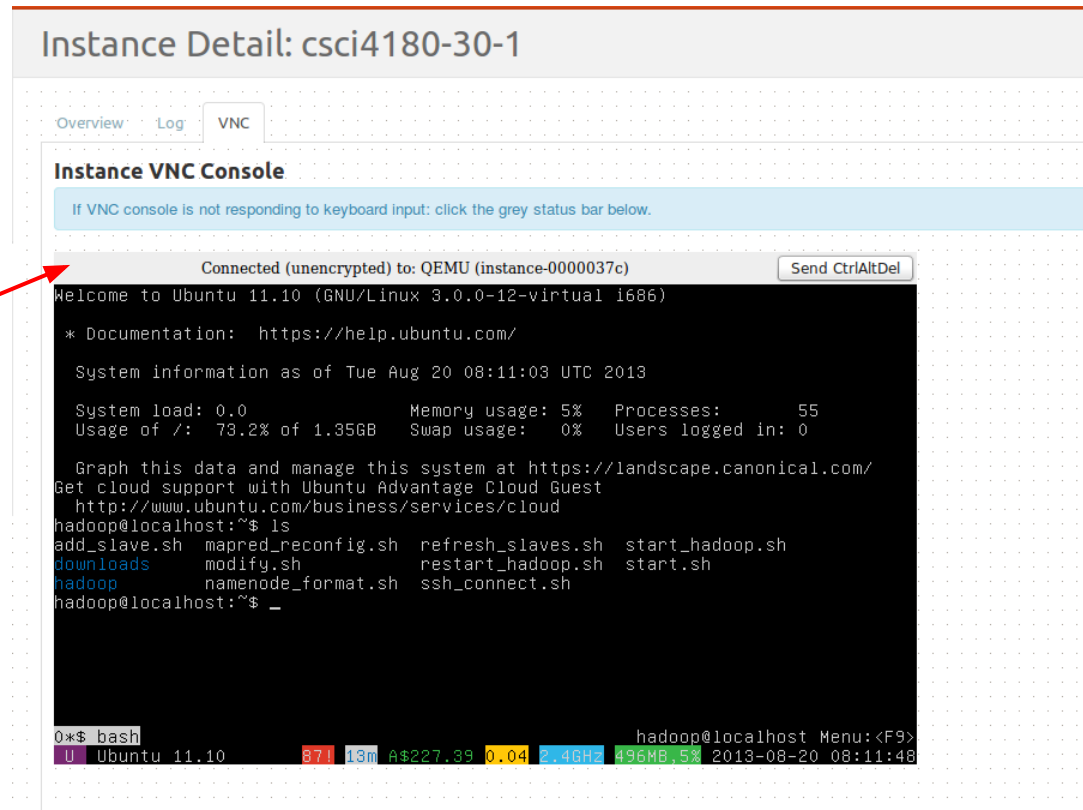
Password: k-omte7k

Please keep it well/change it, or you will risk losing your assignment work!

Demo

- Access VM
 - Login ⇒ Instances & Volumes ⇒ (select an instance) VNC console ⇒ login with account from Log

Click here if you are not able to type anything to VM console



Demo

- Remote access from public network to your instance
 - “ssh <instance_username>@137.189.89.214 -p 122XX”, where XX is the last part of instance IP
 - ABC@10.10.11.5 \Rightarrow ssh ABC@137.189.89.214 -p 12205
 - Or using Putty (<http://goo.gl/XbTF>)

Misc

- To copy file between your computer and the VM, SCP command may be helpful
 - ✓ `scp -P 122xx <your_file> <vm_username>@137.189.89.214:~/`
 - ✓ Filezilla (<http://filezilla-project.org/>)
- You can install other software by `apt-get install` on your VM
- You can only access SSH service (port 22) from lab network
- Use SSH port forwarding if any other port mapping is needed
- Remember Internet access requires Proxy setting
 - ✓ `export http_proxy=http://proxy.cse.cuhk.edu.hk:8000`

Email me if any problem related to cloud platform