# OpenStack Demo

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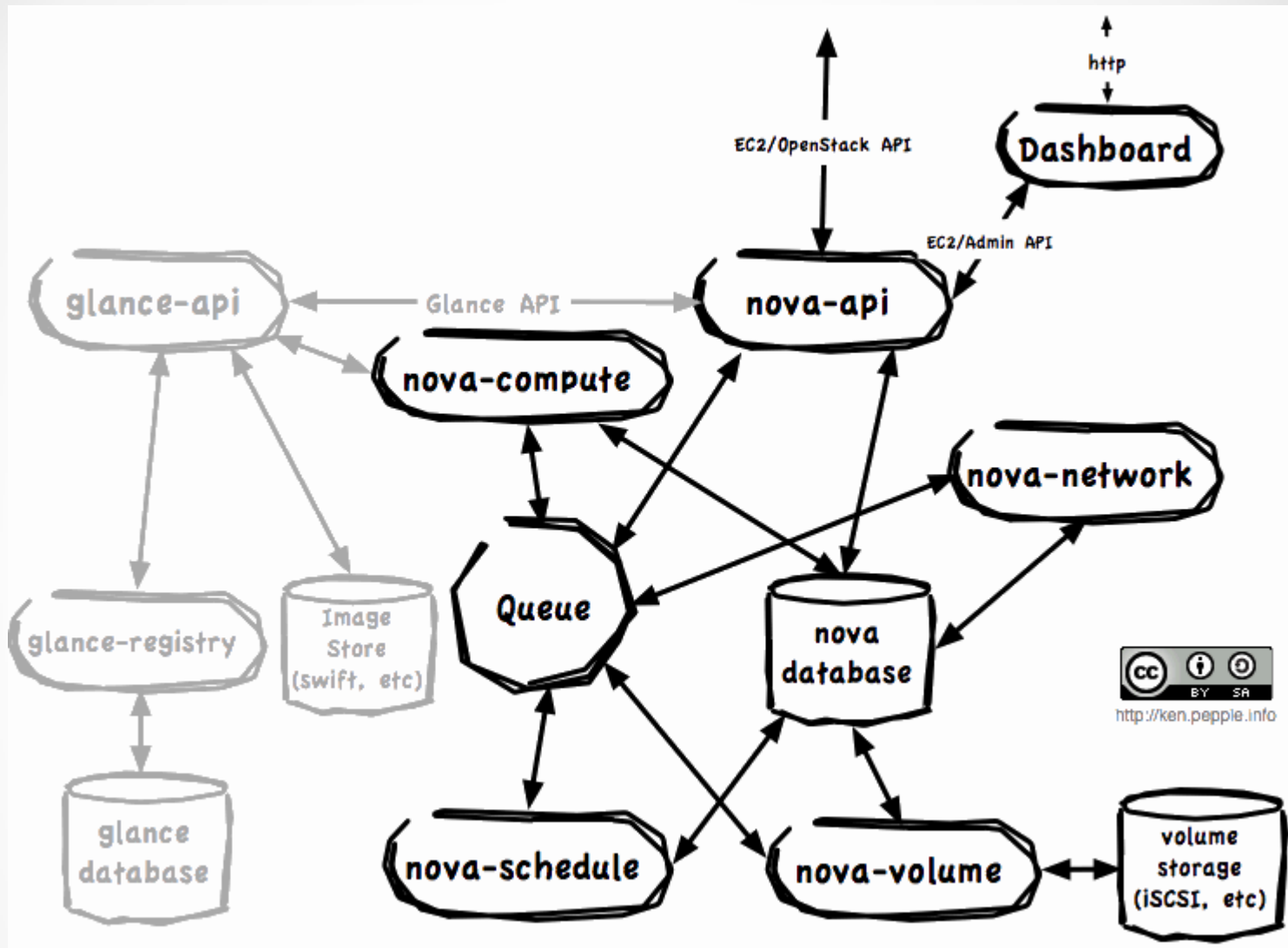# OpenStack

http://www.openstack.org/

OpenStack is an open source platform for building massively scalable cloud operating systems and can be used to power both public and private.  It was based on Nebula project of NASA and Cloud File products from RackSpace. Now it is managed by The OpenStack Foundation.

http://www.openstack.org/foundation/

http://www.openstack.org/foundation/companies/

# OpenStack Components

- Compute (Nova)
  - It manages all virtual machines and it also contain nova-api
- Object Store (Glance)
  - : Provides a catalogue and repository for virtual disk image
- Object Store ( Swift)
  - Provide object storage
- Dashboard (Horizon)
  - Provides a web interface to all OpenStack Services
- Identity ( Keystone )
  - Provides authentication and authorization for all OpenStack service
- Network ( Quantum)
  - Previously known as nova-network, provides  network connectivity as a service
- Block Storage (Cinder)
  - Previously known as nova-volume.  Provides persistent block storage to guest VMs.

http://docs.openstack.org/diablo/openstack-object-storage/admin/content/openstack-nova-logical-architecture.html

# Our Setup

- It is a pilot project funded by Oxford Supercomputing Centre

- We are using old Dell 2950 and Dell 1950 Machine

- Running Essex version of OpenStack. Current version is Folsom released few weeks back.

- It has been successfully used by SeIUCCR workshop by NGS

- People involved
  - o  Matteo Turilli
  - o  Andrew Richards
  - o  Kashif Mohammd

# OpenStack Interfaces

- Dashboard

- Nova-api client
  - python-novaclient

- Amazon EC2 client
  - euca2ools

# EC2 interface

- Euca-describe-image

- euca-run-instances -t custom_medium ami-00000009 --kernel aki-00000008 --ramdisk ari-0000000a -k cloud_key_12sep

# Images

- Official pre built images are available from ubuntu, fedora and many other sources
- Creating bootable image with multiple partition
  - Easy, require just little bit of configuration
  - But disks are not resizable
- Creating images with separate kernel and initrd
  - More complicated
  - Nova can resize disk as per requirement
  - Can be booted with different kernel and initrd

# nova-manage instance_type list

m1.medium: Memory: 4096MB, VCPUS: 2, Root: 10GB, Ephemeral: 40Gb, FlavorID: 3, Swap: 0MB, RXTX Factor: 1.0

m1.small: Memory: 2048MB, VCPUS: 1, Root: 10GB, Ephemeral: 20Gb, FlavorID: 2, Swap: 0MB, RXTX Factor: 1.0

m1.large: Memory: 8192MB, VCPUS: 4, Root: 10GB, Ephemeral: 80Gb, FlavorID: 4, Swap: 0MB, RXTX Factor: 1.0

m1.tiny: Memory: 512MB, VCPUS: 1, Root: 0GB, Ephemeral: 0Gb, FlavorID: 1, Swap: 0MB, RXTX Factor: 1.0

m1.xlarge: Memory: 16384MB, VCPUS: 8, Root: 10GB, Ephemeral: 160Gb, FlavorID: 5, Swap: 0MB, RXTX Factor: 1.0

custom_medium: Memory: 2048MB, VCPUS: 2, Root: 10GB, Ephemeral: 30Gb, FlavorID: 7, Swap: 512MB, RXTX Factor: 1.0

```
nova get-vnc-console HSdemo5 novnc
+-------+-------------------------------------------------------------------------------+
|  Type |                              Url                                  |
+-------+-------------------------------------------------------------------------------+
| novnc | http://129.67.195.30:6080/vnc_auto.html?token=2d4176ac-0496-47ad-8ea1-
          6d5261658ddb |
+-------+-------------------------------------------------------------------------------+


nova secgroup-list-rules default
+-------------+-----------+---------+-----------+--------------+
| IP Protocol | From Port | To Port |  IP Range | Source Group |
+-------------+-----------+---------+-----------+--------------+
| icmp        | -1        | -1      | 0.0.0.0/0 |              |
| tcp         | 22        | 22      | 0.0.0.0/0 |              |
+-------------+-----------+---------+-----------+--------------+
```

Nova help

- HepSysMan

Edit    View    History    Bookmarks    Tools    Help

stance Overview — OpenStack Dashboard    +

cloud.oerc.ox.ac.uk/nova/          Google

ost Visited    Getting Started

# ubuntu® OpenStack Dashboard

Logged in as: HepSysMan-demo        Settings        Sign Out

ject

# Overview

PROJECT
Hepsysman

nage Compute

Overview

Instances & Volumes

Images & Snapshots

Access & Security

## Select a month to query its usage:

October ▼    2012 ▼    Submit

**Active Instances: -  Active Memory: -  This Month's VCPU-Hours:** 0.00 **This Month's GB-Hours:** 0.00

## Usage Summary

Download CSV Summary

| Instance Name | VCPUs | Disk | RAM | Uptime |
|---|---|---|---|---|
| No items to display. | | | | |

Displaying 0 items

HepSysMan                                                                    12

cloud.oerc.ox.ac.uk/nova/images_and_snapshots/

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ubuntu® OpenStack Dashboard

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Project

PROJECT
Hepsysman

Manage Compute

Overview

Instances & Volumes

Images & Snapshots

Access & Security

Images

Images

Image Na

sl6.3

Ubuntu 12.

Ubuntu 11.

Displaying 3 items

Instance

Image Na

Displaying 0 items

Volume S

Name

Displaying 0 items

Delete Images

Actions

Launch

Launch

Launch

Actions

Actions

**Launch Instances**                                                    ✕

**Server Name**

hsdemo1

**User Data**

**Flavor**

m1.small (1VCPU / 10GB Disk / 2048MB Ram )  ▼

**Keypair**

HSdemo  ▼

**Instance Count**

1

**Security Groups**

☑ default

**Description:**
Specify the details for launching an instance. The chart below shows the resources used by this project in relation to the project's quotas.

**Project Quotas**

**Instance Count** (0)                    10 Available

**VCPUs** (0)                              20 Available

**Disk** (0 GB)                     1000 GB Available

**Memory** (0 MB)               51200 MB Available

Cancel    Launch Instance

HepSysMan

Start | 2 Microsoft Of... | 8 putty | Instance Detail ... | Managing Volum... | Images & Sna... | openstack_dem... | openstack_clust... | Presentation2 | 17:06

14

File   Edit   View   History   Bookmarks   Tools   Help

User Settings – OpenStack Dashboard                    +

cloud.oerc.ox.ac.uk/settings/

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## ubuntu® OpenStack Dashboard

Logged in as: HepSysMan-demo          Settings          Sign Out

Project

**User Settings**

OpenStack Credentials

EC2 Credentials

# Dashboard Settings

## Select Language

### Dashboard User Interface Language

**Language Settings**

English (en)

### Description:

From here you can modify different settings for your dashboard.

Select Language