

Ubuntu in the Cloud

Ubucon at SCaLE11x, February 22nd 2013

presented by Elizabeth Krumbach

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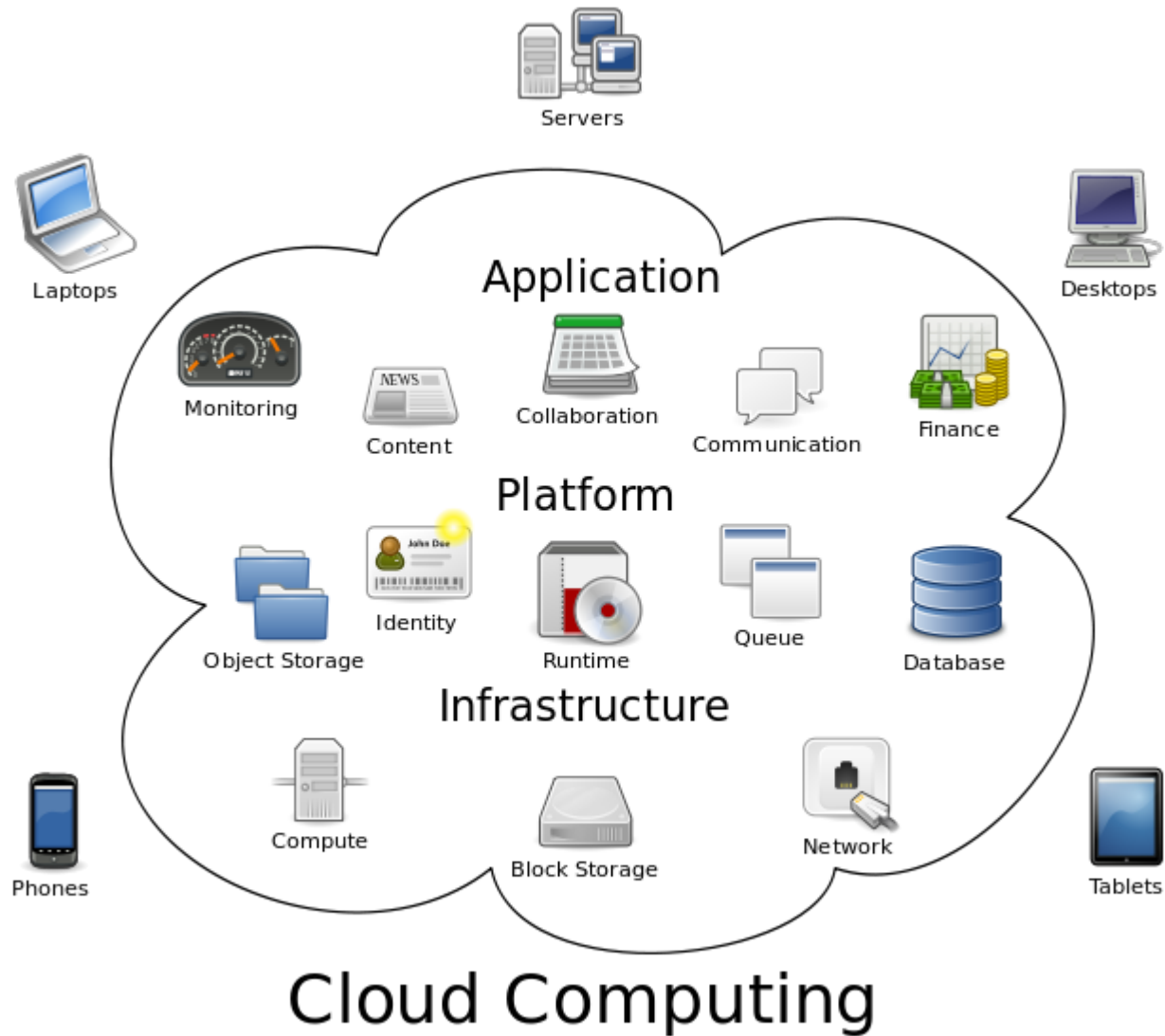
@pleia2

Elizabeth Krumbach

- Member of the Ubuntu Community Council
- Automation and Tools Engineer at Hewlett-Packard
- Member of the Partimus.org Board of Directors

Overview

- Stuff as a Service: SaaS, PaaS & IaaS
- Deploying Ubuntu in the cloud
- Running your own Ubuntu-based cloud



Source: http://en.wikipedia.org/wiki/File:Cloud_computing.svg

SaaS: Software as a Service

- GMail
- Salesforce*
- Mint

PaaS: Platform as a Service

- Google App Engine
- CloudFoundry.com

IaaS: Infrastructure as a Service

■ Virtual Private Server (VPS)

- Linode
- Windows Azure*

■ Dynamically Scalable Cloud Servers

- Amazon EC2
- HP Cloud
- Rackspace Cloud*

Deploying Ubuntu in the cloud

What Canonical has to say (1)



The public cloud loves Ubuntu

Ubuntu is ubiquitous in the public cloud, both as underlying infrastructure and as a guest operating system available on Amazon Web Services, Rackspace Cloud, HP Public Cloud and Windows Azure among others. With unique cost-saving technologies, scalable business models and a range of support services to choose from, Ubuntu provides everything you need to take advantage of the boost in productivity the cloud can deliver.

We've been working with public cloud providers for several years now, creating tools such as cloud-init, to ease the process of bringing up new instances on a public cloud. In this case, the tool proved so successful that it was later adopted by other Linux distributions and by Amazon itself.

Source: <http://www.ubuntu.com/cloud/public-cloud>

What Canonical has to say (2)

The most welcome guest in the cloud

With Ubuntu Cloud Guest, you can install Ubuntu Server instances on any of the leading public clouds. Ubuntu is now the most heavily used guest OS on both Amazon AWS and Rackspace, with Official Ubuntu Cloud Guests now on offer from the following providers:

✓ Amazon Web Services (EC2)

✓ Rackspace Cloud

✓ HP Cloud

✓ Windows Azure

Source: <http://www.ubuntu.com/cloud/public-cloud>

Linode

Deploy a Linux Distribution

Distribution Ubuntu 10.04 LTS See also: [Deploying using StackScripts](#)

Deployment Disk Size

Swap Disk

Root Password

- Gentoo
- Gentoo 64bit
- openSUSE 12.1
- openSUSE 12.1 64bit
- Slackware 13.37
- Slackware 13.37 64bit
- Ubuntu 10.04 LTS**
- Ubuntu 10.04 LTS 64bit
- Ubuntu 11.10
- Ubuntu 11.10 64bit
- Ubuntu 12.04 LTS
- Ubuntu 12.04 LTS 64bit
- Ubuntu 12.10
- Ubuntu 12.10 64bit

Older Distributions

- Arch Linux 2012.07
- Arch Linux 2012.07 64bit
- CentOS 5.6
- CentOS 5.6 64bit
- Debian 5.0

Windows Azure

CREATE VIRTUAL MACHINE x











Virtual machine operating system selection

ALL


PLATFORM IMAGES

MY IMAGES

MY DISKS


| Icon | Operating System |
|---|--|
|  | Microsoft BizTalkServer 2013 Beta |
|  | Microsoft SQL Server 2012 Evaluatio... |
|  | Windows Server 2008 R2 SP1 |
|  | Windows Server 2008 R2 SP1, Octo... |
|  | Windows Server 2012, January 2013 |
|  | Windows Server 2012, October 2012 |
|  | OpenLogic CentOS 6.3 |
|  | SUSE Linux Enterprise Server 11 SP2 |
|  | Ubuntu Server 12.04.1 LTS |
|  | Ubuntu Server 12.10 |

Microsoft BizTalkServ...

 Microsoft BizTalk Server

Microsoft BizTalk Server 2013 Beta (64-bit) on Windows Server 2012. This image contains the Beta version of BizTalk Server 2013. Some BizTalk Server components like accelerators require additional setup before use. Medium is the recommended size for this image.

| | |
|------------------|--------------------------|
| PUBLISHER | Microsoft BizTalk Server |
| OS FAMILY | Windows |



Amazon EC2

Request Instances Wizard Cancel

CHOOSE AN AMI | INSTANCE DETAILS | CREATE KEY PAIR | CONFIGURE FIREWALL | REVIEW

Choose an Amazon Machine Image (AMI) from one of the tabbed lists below by clicking its **Select** button.

Quick Start | My AMIs | Community AMIs | AWS Marketplace

- Amazon Linux AMI 2012.09**
The Amazon Linux AMI 2012.09 is an EBS-backed, PV-GRUB image. It includes Linux 3.2, AWS tools, and repository access to multiple versions of MySQL, PostgreSQL, Python, Ruby, and Tomcat.
Root Device Size: 8 GB
 64 bit 32 bit
★ Select
- Red Hat Enterprise Linux 6.3**
Red Hat Enterprise Linux version 6.3, EBS-boot.
Root Device Size: 7 GB
 64 bit 32 bit
Select
- SUSE Linux Enterprise Server 11**
SUSE Linux Enterprise Server 11 Service Pack 2 basic install, EBS boot with Amazon EC2 AMI Tools preinstalled; Apache 2.2, MySQL 5.0, PHP 5.3, and Ruby 1.8.7 available
Root Device Size: 10 GB
 64 bit 32 bit
Select
- Ubuntu Server 12.04.1 LTS**
Ubuntu Server 12.04.1 LTS with support available from Canonical (<http://www.ubuntu.com/cloud/services>).
Root Device Size: 8 GB
 64 bit 32 bit
★ Select
- Ubuntu Server 11.10**
Ubuntu Server version 11.10, with support available from Canonical (<http://www.ubuntu.com/cloud/services>).
★ Select

★ Free tier eligible if used with a micro instance. See [AWS free tier](#) for complete details and terms.

Amazon EC2 AMI Locator

Find the official Ubuntu EC2 images via

<http://cloud-images.ubuntu.com/locator/ec2/>

HP Cloud

The screenshot shows the HP Cloud console interface. At the top left is the HP Cloud logo. The top right navigation bar includes links for Dashboard, Documentation, Support, API Keys, Account, and Chat Now. The main content area is a scrollable list of operating system flavors, categorized into 'HP Provided Public' and 'Partner Provided'. The 'HP Provided Public' section lists various Linux distributions like CentOS, Debian, Fedora, and Ubuntu with their respective IDs and bitness. The 'Partner Provided' section lists specialized images from ActiveState, BitNami, and EnterpriseDB. Below the list, there are two dropdown menus: 'Flavor' and 'Key Pair'. The 'Flavor' dropdown is currently set to 'standard.xsmall - 1 vCPU / 1 GB RAM / 30 GB HD'.

HP Provided Public

- CentOS 5.8 Server 64-bit 20120828 (b) (54021)
- CentOS 6.3 Server 64-bit 20130116 (b) (78265)
- Debian Squeeze 6.0.3 Server 64-bit 20120123 (1361)
- Fedora 16 Server 64-bit 20120518 (16291)
- Ubuntu Lucid 10.04 LTS Server 64-bit 20111212 (1236)**
- Ubuntu Maverick 10.10 Server 64-bit 20111212 (1238)
- Ubuntu Natty 11.04 Server 64-bit 20111212 (1240)
- Ubuntu Oneiric 11.10 Server 64-bit 20120311 (b) (5579)
- Ubuntu Precise 12.04 LTS Server 64-bit (Rescue Image) 20130114 (b) (78497)
- Ubuntu Precise 12.04 LTS Server 64-bit 20121026 (b) (75845)
- Ubuntu Quantal 12.10 Server 64-bit 20121017 (b) (75839)

Partner Provided

- ActiveState Stackato v2.6.7 - Partner Image (78267)
- BitNami DevPack 1.3-0-linux-ubuntu-12.04 64-bit - Partner Image (75893)
- BitNami Drupal 7.17-0-hp-linux-ubuntu-12.04 64-bit - Partner Image (75895)
- BitNami WebPack 1.4-0-linux-ubuntu-12.04 64-bit - Partner Image (75897)
- EnterpriseDB PPAS 9.1.2 - Partner Image (9953)
- EnterpriseDB PSQL 9.1.3 - Partner Image (9995)
- RightImage CentOS 6.3 x64 v5.8.8.5 - Partner Image (78351)

Ubuntu Lucid 10.04 LTS Server 64-bit 20111212 (1236)

Flavor

standard.xsmall - 1 vCPU / 1 GB RAM / 30 GB HD

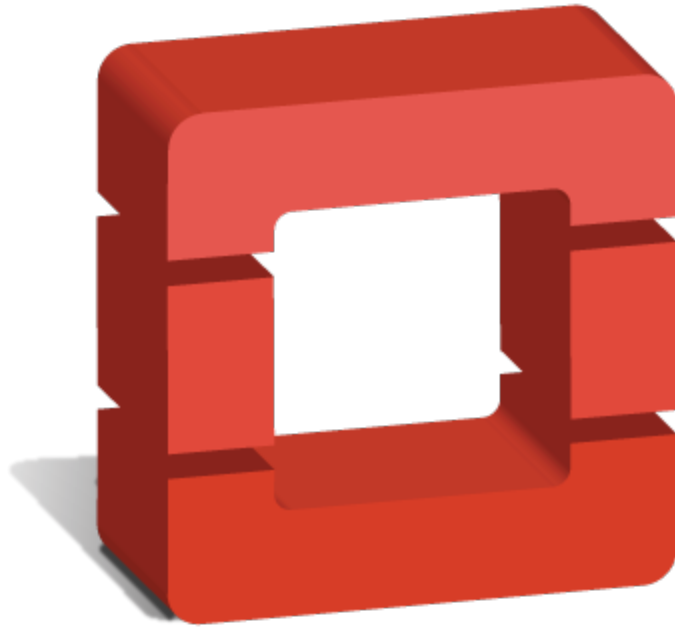
Key Pair

Rackspace Cloud

The screenshot displays the Rackspace Cloud management console. At the top, the Rackspace logo is on the left, and contact information (1-877-934-0407 (US) and Live Chat) is on the right. Below the logo, a navigation bar includes 'Servers', 'Load Balancers', 'Files', 'DNS', 'Databases', and 'Backup'. Underneath, a sub-navigation bar shows 'Cloud Servers', 'Saved Images', 'Block Storage', and 'Storage Snapshots'. The 'Saved Images' section is active, showing a list of operating system images. Each image entry includes a radio button, an icon, and the name of the OS. The list includes FreeBSD 9, Gentoo 12.3, openSUSE 12.1, Red Hat Enterprise Linux 5.5 (marked with a green dollar sign), Red Hat Enterprise Linux 6.1 (marked with a green dollar sign), Ubuntu 10.04 LTS (Lucid Lynx), Ubuntu 11.04 (Natty Narwhal), Ubuntu 11.10 (Oneiric Ocelot), Ubuntu 12.04 LTS (Precise Pangolin), and Ubuntu 12.10 (Quantal Quetzal).

| <input type="radio"/> | Name ▲ |
|-----------------------|-------------------------------------|
| <input type="radio"/> | FreeBSD 9 |
| <input type="radio"/> | Gentoo 12.3 |
| <input type="radio"/> | openSUSE 12.1 |
| <input type="radio"/> | Red Hat Enterprise Linux 5.5 \$ |
| <input type="radio"/> | Red Hat Enterprise Linux 6.1 \$ |
| <input type="radio"/> | Ubuntu 10.04 LTS (Lucid Lynx) |
| <input type="radio"/> | Ubuntu 11.04 (Natty Narwhal) |
| <input type="radio"/> | Ubuntu 11.10 (Oneiric Ocelot) |
| <input type="radio"/> | Ubuntu 12.04 LTS (Precise Pangolin) |
| <input type="radio"/> | Ubuntu 12.10 (Quantal Quetzal) |

Running your own Ubuntu-based cloud



openstack™

CLOUD SOFTWARE

The OpenStack Foundation is supported by...

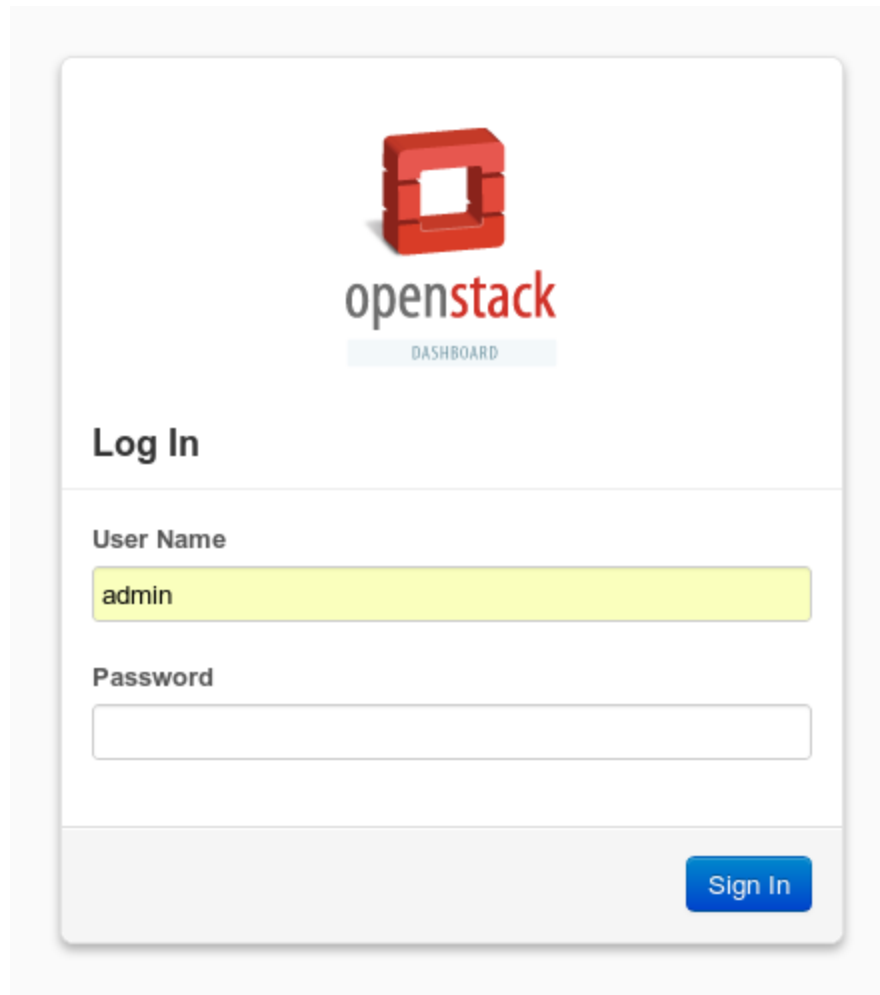
- AT&T
- Canonical
- Cisco
- Dell
- DreamHost
- EMC
- HP
- IBM
- Intel
- Juniper Networks
- PayPal
- Rackspace
- Red Hat, Inc.
- SUSE
- VMware
- Yahoo!
- ...and more at: <http://www.openstack.org/foundation/companies/>

DevStack.org

"A documented shell script to build complete OpenStack development environments."

Quickstart:

- Install Ubuntu 12.04 (Precise)
- `$ git clone git://github.com/openstack-dev/devstack.git`
- `$ cd devstack; ./stack.sh`



The image shows the OpenStack Dashboard login interface. At the top center is the OpenStack logo, a red 3D cube with a square hole in the center, above the text "openstack" in a sans-serif font. Below the logo is a light blue button labeled "DASHBOARD". Underneath is the heading "Log In". The form contains two input fields: "User Name" with the value "admin" and "Password" which is empty. A blue "Sign In" button is located at the bottom right of the form area.

Pro tip: Reboot after installing and lose ability to log in? Run `rejoin-stack.sh`



DASHBOARD

Overview

Logged in as: admin

[Settings](#)

[Sign Out](#)

Select a month to query its usage:

February ▼

2013 ▼

Active Instances: 1 Active RAM: 1GB This Month's VCPU-Hours: 50.86 This Month's GB-Hours: 406.91

Usage Summary

| Project Name | VCPUs | Disk | RAM | VCPU Hours | Disk GB Hours |
|--------------|-------|------|-----|------------|---------------|
| admin | 1 | 8 | 1GB | 50.86 | 406.91 |

Displaying 1 item

Project

Admin

System Panel

Overview

Instances

Volumes

Flavors

Images

Projects

Users

System Info

Images on your cloud

- Comes with CirrOS test image
- Or you can load images in QCOW2 format from <http://uec-images.ubuntu.com/>
 - ie, for a 64-bit image of 12.04 server: <http://uec-images.ubuntu.com/precise/current/precise-server-cloudimg-amd64-disk1.img>

Create An Image



Name

Image Location

Format

Minimum Disk (GB)

Minimum Ram (MB)

Public



Description:

Specify an image to upload to the Image Service.

Currently only images available via an HTTP URL are supported. The image location must be accessible to the Image Service. Compressed image binaries are supported (.zip and .tar.gz.)

Please note: The Image Location field MUST be a valid and direct URL to the image binary. URLs that redirect or serve error pages will result in unusable images.

Make lots of servers!

...but first set up your ssh keys :)

Launch Instance



Details

Access & Security

Volume Options

Post-Creation

Instance Source

Image

Image

precise-server-cloudimg-amd64

Instance Name

r2d2

Flavor

r2.basic

Instance Count

1

Specify the details for launching an instance.

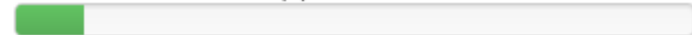
The chart below shows the resources used by this project in relation to the project's quotas.

Flavor Details

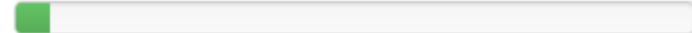
| | |
|----------------|----------|
| Name | r2.basic |
| VCPUs | 1 |
| Root Disk | 8 GB |
| Ephemeral Disk | 0 GB |
| Total Disk | 8 GB |
| RAM | 1,024 MB |

Project Quotas

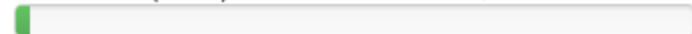
Number of Instances (0) 10 Available



Number of VCPUs (0) 20 Available



Total RAM (0 MB) 51,200 MB Available



Cancel

Launch

Instances

Launch Instance

Terminate Instances

| <input type="checkbox"/> | Instance Name | IP Address | Size | Keypair | Status | Task | Power State | Actions |
|--------------------------|---------------|------------|--|-----------|--------|------|-------------|--|
| <input type="checkbox"/> | r2d2 | 10.0.0.2 | r2.basic 1GB RAM 1 VCPU 8GB Disk | elizabeth | Active | None | Running | <input type="button" value="Create Snapshot"/> <input type="button" value="More ▾"/> |

Displaying 1 item

Since you set up and defined ssh keys, you can now:

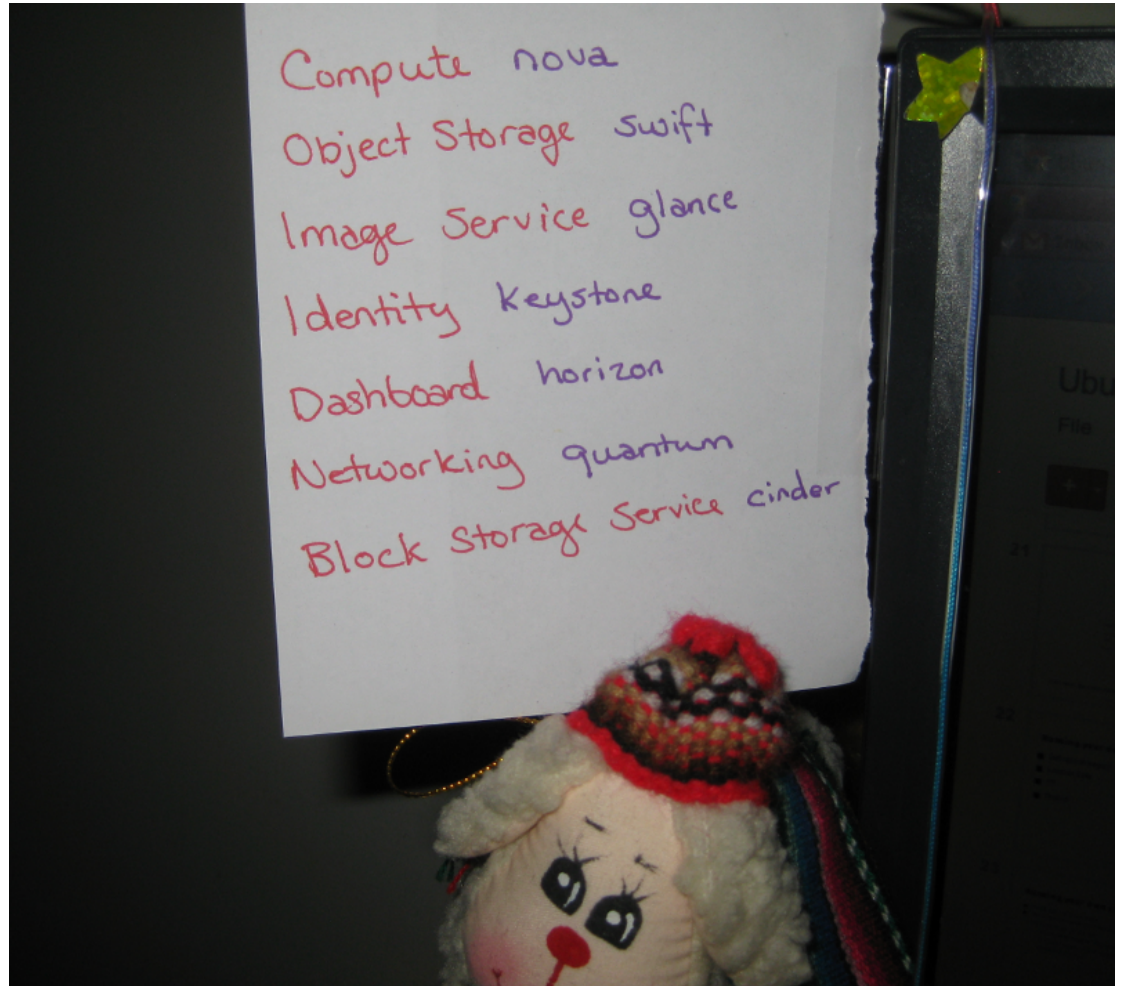
```
$ ssh ubuntu@10.0.0.2
```

Actually running your own cloud

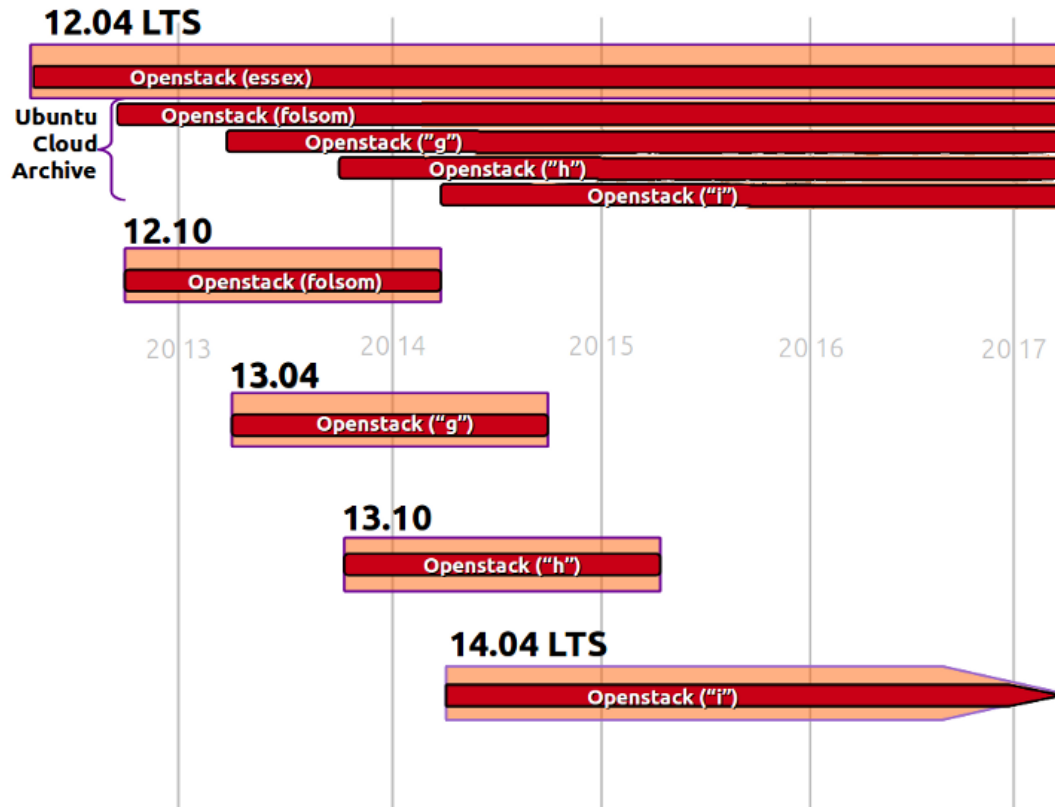
Learn about the pieces
of OpenStack to build
your own!

Start here:

docs.openstack.org



Versions of OpenStack for Ubuntu



<https://wiki.ubuntu.com/ServerTeam/CloudArchive>

Questions?

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