

# Introduction to OpenStack

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Elizabeth K. Joseph  
@pleia2

# Elizabeth K. Joseph

- Senior Automation & Tools Engineer at HPE
- Joined the OpenStack Infrastructure Team in 2013, core and root member
- Author of Common OpenStack Deployments, published by Prentice Hall, September 2016

# OpenStack

- Founded in 2010
- Open Source cloud, written in Python
- Vast marketplace of supportive companies in the ecosystem:  
<https://www.openstack.org/marketplace/>

# OpenStack Deployments

- Familiar with various types of production OpenStack clouds
- OpenStack Infrastructure infra-cloud project
- Distilled and presented OpenStack basics using Puppet

OpenStack can build clouds that:

Offer compute power

Handle storage (object, block)

Orchestrate bare metal systems

...

And more each release

# Who and how

The following are examples of what kind of organizations are using different types of OpenStack deployments and how they're using them

# Who and how

## Private Compute Cloud

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# Who and how

## Public Compute Cloud

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# Who and how

## Block Storage Cloud

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# Who and how

## Object Storage Cloud

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# Who and how

## Bare metal “Cloud”

# Who and how

## OpenStack with Containers

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# Vendor Support and Hybrid Clouds

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# 30 minute Demonstration with DevStack

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# Prerequisites for Building a Cloud

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# Configuration Management

Installing OpenStack was hard.

But today you don't need get bogged down with basic configuration, you can leverage existing configuration management tooling!

And it's no longer proprietary and vendor-specific!

# The Usual Suspects

- Puppet: puppet-nova
- Chef: cookbook-openstack-compute
- Ansible: openstack-ansible-os\_nova
- Juju: charm-nova-compute

And more available at

<https://git.openstack.org/cgit/openstack>

I'll be honest.

Installing OpenStack is still kind of hard.

# Team Expertise

- Strong Linux Systems Engineers
- Network Engineers
- Strong relationship with data center technicians
- Python Developers to assist with patches and relationship with upstream

# What should your cloud to do?

Just like any other cloud or virtualization environment, determine what you need and have preliminary plans for how you'll scale over time.

- Compute power?
- Block storage?
- Object storage?
- Do you need speed? Reliability?

# Networking

- Network planning is essential, and difficult to change later
- OpenStack networking with Neutron is very flexible
- Local and public address planning and allocation

# Backups, Recovery

- Backup strategy
  - What to back up
  - Location of back ups (on/off-site)
- Fail-over
  - “Regions” across racks? Data centers?
  - Automatic/manual

# Doing more with Open Source

Sure, you could build customizations internally, but...

- The OpenStack project runs an open source infrastructure with a CI system and a large community for development of common solutions
- Developer's Guide:  
<http://docs.openstack.org/infra/manual/developers.html>

**Change 303726 - Merged**

**Make sync\_db\_api enabled by default**

According to the release notes[0], in Mitaka a second database specifically for the api is required. Flip sync\_db\_api to being true by default.

[0] "Nova now requires that two databases are available and configured. The existing nova database needs no changes, but a new nova\_api database needs to be setup."  
<http://docs.openstack.org/releasenotes/nova/mitaka.html>

Change-Id: Ia5fa8ba70b7ce151e7e904f5e8f94658a98dd295

Author	Elizabeth K. Joseph <lyz@princessleia.com>	Apr 9, 2016 10:35 AM
Committer	Elizabeth K. Joseph <lyz@princessleia.com>	Apr 12, 2016 9:20 AM
Commit	4f01c3537c68c4c25b94023e7c16bd2be2cb6526	📄 (gitweb)
Parent(s)	f0709b7d23cee998d6901aa91ab9fd120a8371af	📄 (gitweb)
Change-Id	Ia5fa8ba70b7ce151e7e904f5e8f94658a98dd295	📄

Code-Review +2 Alex Schultz Emilien Macchi  
 Verified +2 Jenkins  
 Workflow +1 Emilien Macchi

Jenkins	Apr 12 9:37 AM
gate-tripleo-ci-f22-nonha	FAILURE in 16m 35s
Jenkins check	Apr 12 11:39 AM
gate-puppet-nova-puppet-lint	SUCCESS in 5m 04s
gate-puppet-nova-puppet-syntax-3-centos-7	SUCCESS in 3m 28s
gate-puppet-nova-puppet-syntax-4-centos-7	SUCCESS in 3m 25s
gate-puppet-nova-puppet-unit-3.3-centos-7	SUCCESS in 12m 41s

# OpenStack Project Code Review and Continuous Integration, ref: <https://review.openstack.org/#/c/303726/>

Questions?

[lyz@princessleia.com](mailto:lyz@princessleia.com)