

Introduction to OpenStack

SANOG 28
4 August 2016

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- 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/>

3 Parts of this Tutorial

- Introduction to some OpenStack deployments
- Demonstration
- Building your own cloud

OpenStack can build clouds that:

Offer compute power

Handle storage (object, block)

Orchestrate bare metal systems

...

And more each release

Private Compute Cloud with Nova



Public Compute Cloud with Ceilometer

Block Storage Cloud with Cinder

Object Storage Cloud with Swift



Bare metal “Cloud” with Ironic

Containers in the Cloud with Magnum



Database Cloud with Trove

Cloud, with SDN!

with Neutron



Cloud, with DNS!

with Designate

More OpenStack Services

Project Navigator:

<https://www.openstack.org/software/project-navigator/>

OpenStack Project Teams:

<http://governance.openstack.org/reference/projects/>

Vendor Support and Hybrid Clouds

30 minute Demonstration with DevStack

Follow along and try at home/office at:

<http://princessleia.com/presentations/sanog28.txt>

Using Ubuntu 14.04 on a Virtual Machine with:
64-bit x86 CPU, 4G of RAM, 25G of hard drive
space, 2 vCPUs

Prerequisites for Building a Cloud

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	📄

Owner: Elizabeth K. Joseph

Reviewers: Alex Schultz, Emilien Macchi, Jenkins, Fuel CI, Ivan Berezovskiy, Maksym Yatsenko, Matt Fischer

Project: openstack/puppet-nova

Branch: master

Topic: mitaka/nova-api-db

Updated: 2 months ago

Cherry Pick | Revert

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?

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