Introduction to OpenStack

SANOG 28 4 August 2016

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- Joined the OpenStack Infrastructure Team in 2013, core and root member
- Author of <u>Common OpenStack Deployments</u>, 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 vendorspecific!

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

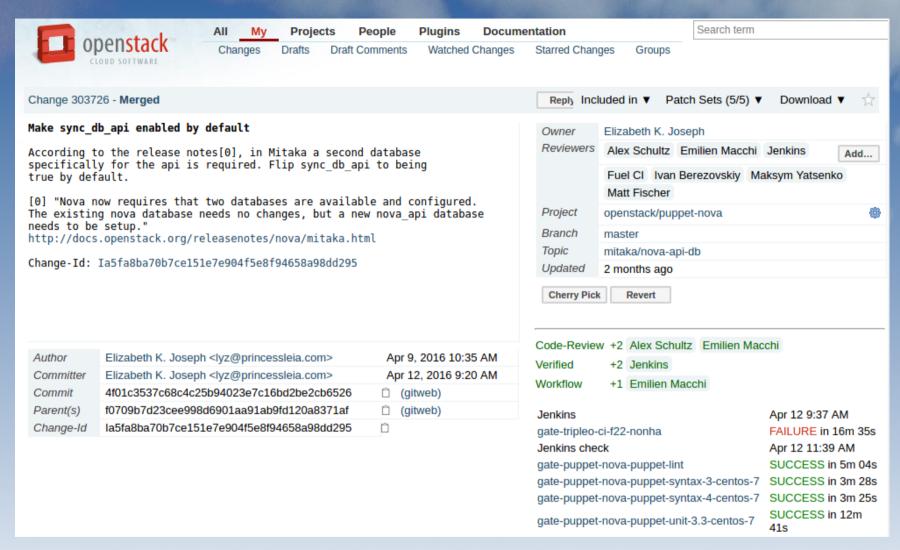
Backups, Recovery

- 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



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

Questions?

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