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Deploying and Operating Your OpenStack Cloud

with OSA – Hands-On Lab Tokyo Summit

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- Over 17 years of IT experience
- New Yorker (soon to be a Texan)
- Cloud Advocate (hybrid is my favorite)
- Knowledge sharer
- OpenStack believer
- DJ (literally…no lie)
- Always about living life now!

Ground Rules

- **Not going to ask you to turn off mobile phones but, if it rings its mine :D**
- **Ask questions *(requirement)***
- **Take any side conversations outside *(mainly because I like hearing myself talk only)***
- This workshop is hands on, please group yourself into groups no larger than 2-3. Please take turns doing stuff!
- Materials for the workshop are available here (case matters):

https://goo.gl/yzzA0O

Before we get started…

- **Each group will be given a StudentID and instructions to connect to the deployment and OpenStack servers**
- **OpenStack will be deployed as an All-In-One**
- **We will be working with the command line using basic Linux commands and Ansible**
- **The Ansible playbook roles will utilize the OpenStackClient (OSC)**

DEPLOYING OSA (formerly known as OSAD)

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Lab Overview – Part 1

- **Prep the Ansible playbooks to install OSA on your OpenStack server**
- **Prep the OpenStack server for the OSA install**
- **Kick off the OSA install**
- **While the install runs go into a deep dive on OSA (aka OSA 101)**

Lab – Part 1

Please go to the URL below in your browser (case matters):

https://goo.gl/4vSdqA

Next connect to the Lab environment,
connection details are on the handout

GO!!!

Part 1 of the Lab will take 30-40 minutes

OSA 101

DEEP DIVE INTO OSA

Features and Benefits

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OSA 101

OpenStack Community Adoption

https://github.com/openstack/openstack-ansible

- In November 2014 the community voted to accept the OSAD playbooks as a Stackforge repository, making them the basis of Ansible support for OpenStack going forward
- At the past Summit in Vancouver, the community committed to continue to improve the OpenStack install process with OSAD
- Around fall of this year the OSAD repository was officially moved under the main OpenStack repository and renamed OSA

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OSA 101

Features and Benefits

- Ansible
- Linux Containers (LXC)
- Linux Bridge agent
- Full Neutron deployment
- Includes all PROD ready OpenStack services
- Can be used to deploy an AIO or fully distributed multi-node HA layout

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OSA 101

Under the Covers

High-level prerequisites:

Ubuntu 14.04 (Trusty)
SSH Client
NTP Client
Python 2.7 or later

Use of Linux networking features:
Bridges and Namespaces

- Container management: br-mgmt *(Mandatory)*
- OpenStack Networking tunnel/overlay: br-vxlan *(Mandatory)*
- OpenStack Networking provider: br-vlan *(Mandatory)*
- Storage: br-storage *(Optional)*

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OSA 101

Under the Covers (cont.)

To deploy OSA, it was broken down into the following main playbooks:

- setup-hosts.yml
- haproxy-install.yml
- setup-infrastructure.yml
- setup-openstack.yml

OR

- setup-everything.yml

https://github.com/openstack/openstack-ansible/tree/11.2.3/playbooks

https://github.com/openstack/openstack-ansible/tree/11.2.3/playbooks

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OSA 101

Under the Covers (cont.)

All the playbooks are dependent on the following configuration files:

- openstack_environment.yml
- openstack_user_config.yml
- user_secrets.yml
- user_variables.yml

https://github.com/openstack/openstack-ansible/tree/11.2.3/etc/openstack_deploy
https://github.com/openstack/openstack-ansible/tree/11.2.3/etc/openstack_deploy

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OPERATING OSA (formerly known as OSAD)

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OPERATING OSA 101

DEEP DIVE INTO OPERATING OPENSTACK WITH ANSIBLE

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OPERATING OSA 101

Why Ansible with OpenStack?

- Only SSH and Python required on the target device, no clients/agents; can manage an environment of any size or type
- Existing Ansible modules for overall Linux management and OpenStack; working with OpenStack is like working with a complicated Linux kernel
- Playbooks can be written against API's or Python CLI's (OSC)
- Designing roles with unique variable values is as easy as writing a email

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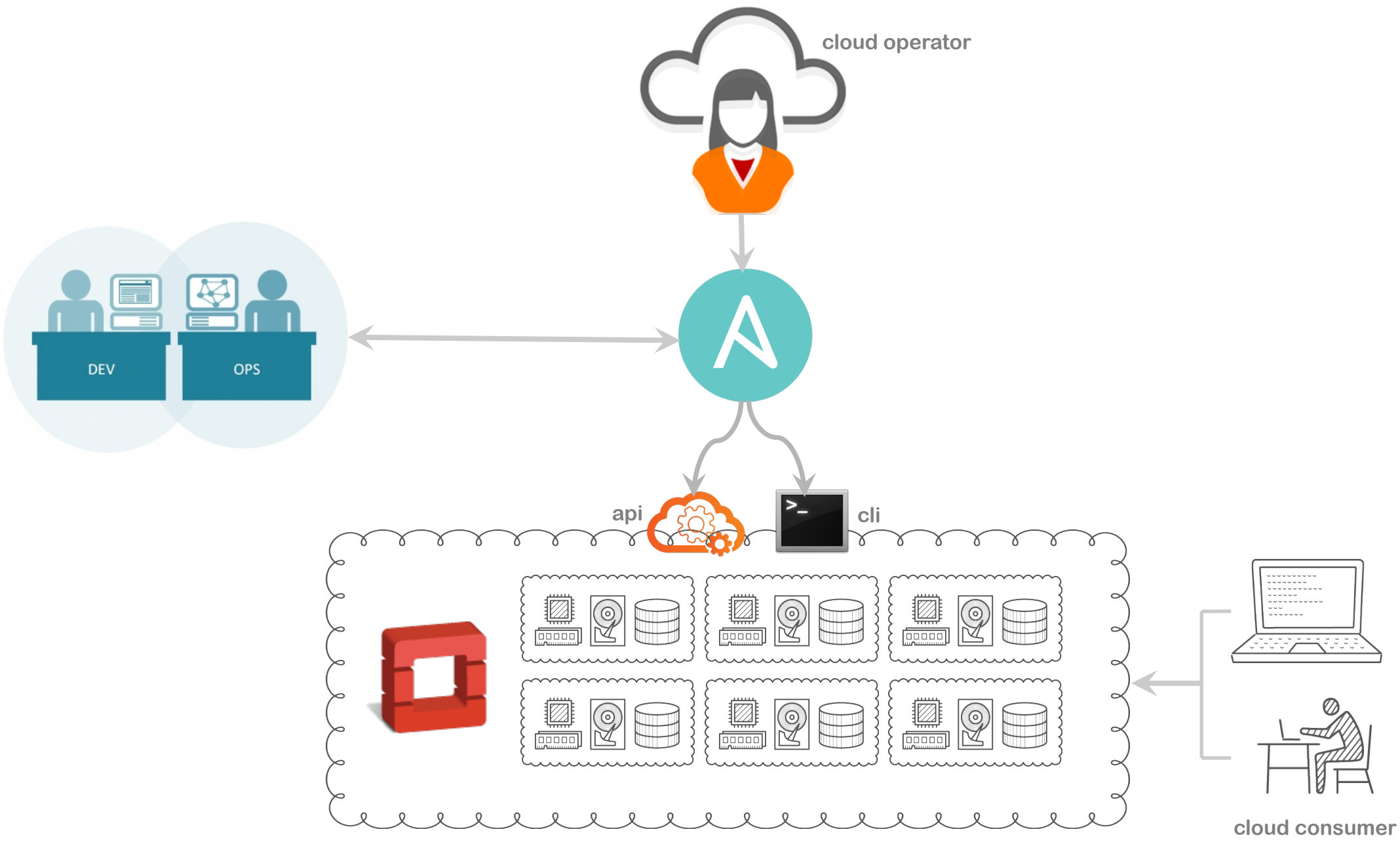
cloud operator
DEV
OPS
api
cli
cloud consumer

Lab Overview – Part 2

- **Run thru a few Cloud Operator scenarios**
- **Execute playbooks that will demonstrate how you can automate those tasks using Ansible**
- **Conclude the lab by reviewing some OSA tips and tricks**

Let’s talk about a few possible scenarios

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OpenStack Scenario #1

Administration Scenario:

- Marketing department just purchased a un-branded responsive website template for a special campaign ***(without telling internal IT…ssssh)***
- They also hired 10 website developer contractors to add branding and additional functionality
- Each developer needs their own testing computing resources and **of course they need it by tomorrow!**

10 tenants/projects and 10 users with proper roles

OpenStack Scenario #2

Administration Scenario:

- So those contractors the Marketing department hired has basically turned your cloud into a community public cloud
- Resource usage keeps spiking thru the roof and you decided to restrict each developer's tenant further by applying stricter quotas

3 developer's need 30vCPU and 30 instances and the rest only need 20vCPU and 20 instances

OpenStack Scenario #3

Administration Scenario:

- Some time has passed and the Marketing department decided to fire all those contractors ***(go figure :D)***
- But before destroying their environments, they asked that you make a backup of all the instances in one of the tenants

Snapshot all instances from one tenant/project and destroy all users/tenants

Lab – Part 2

Please go to the URL below in your browser (case matters):

https://goo.gl/IJEi1b

“

GO!!!

Part 2 of the Lab will take ~20 minutes

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Tips and Tricks

- **Deploy using ‘Tags’ version on GitHub repo**
- **Check GitHub repo for new versions and variables being introduced**
- **Triple check your network setup**
- **Re-deployment steps** *(aka the clean-up process)*
- **Galera health check playbook**
- **Running playbooks with ‘-l’**

Reference Materials

OSA Installation Guide:
http://docs.openstack.org/developer/openstack-ansible/install-guide/index.html

Rackspace Private Cloud Installation Instructions using OSA:
http://www.rackspace.com/knowledge_center/article/rackspace-private-cloud-documentation

Quick-Start AIO Install:
http://docs.openstack.org/developer/openstack-ansible/developer-docs/quickstart-aio.html

OSA news & updates:
http://docs.openstack.org/developer/openstack-ansible

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Thank you

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