DEPLOY CEPH RADOS GATEWAY AS A REPLACEMENT FOR OPENSTACK SWIFT

Hands On Lab - L103175

Gregory Charot - Senior Field Product Manager -Red Hat OpenStack (France)
Sébastien Han - Principal Software Engineer, Storage Architect (France)
Cyril Lopez - Senior Cloud Consultant (France)

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WHY USE CEPH RADOS GATEWAY?

CEPH RADOS GATEWAY

- Ceph is the **predominant block storage** solution for OpenStack already

- Unified storage entity to deploy/manage/upgrade (one learning curve)

- Ceph Rados Gateway supports **both** OpenStack Swift and Amazon S3 API

- Better Amazon S3 API support (than OpenStack Swift)

- **Multi-site** capabilities (regions and zones synchronisation)

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LAB OBJECTIVES

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LAB OBJECTIVES

1. Deploy Red Hat OpenStack Platform 10 with **a dedicated RGW node**

2. Play with **OpenStack Swift and Amazon APIs** via Ceph Rados Gateway

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WHAT YOU NEED TO KNOW

LAB WORKFLOW

1. **PREPARATION**
- Use composable roles to create a RGW role
- Customise your RGW role
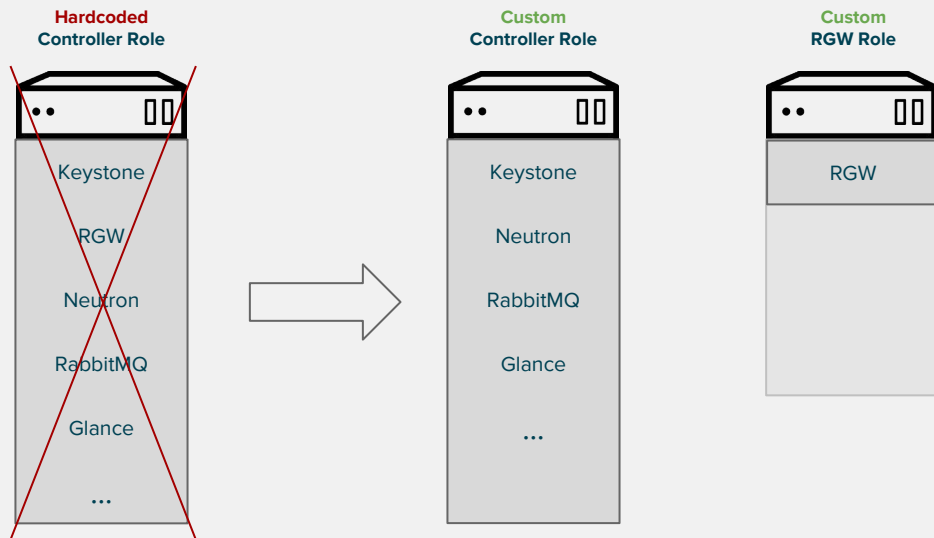- Enable RGW and disable Swift

2. **Deployment**
- Deploy your environment
- Verify your deployment

3. **Leverage Ceph RGW**
- Create a test environment
- Play with OpenStack Swift and Amazon APIs

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COMPOSABLE ROLES

**Hardcoded
Controller Role**

Keystone

RGW

Neutron

RabbitMQ

Glance

...

**Custom
Controller Role**

Keystone

Neutron

RabbitMQ

Glance

...

**Custom
RGW Role**

RGW

- A role is a **set of services**
- Composable roles allow operators to **dispatch services across a set of nodes.**
- RH OSP includes default roles
  - Controllers (All control services)
  - Computes (KVM, nova-compute, etc)
  - Ceph Storage (Ceph)
  - Etc
- In this lab we will :
  - Remove RGW from the controller role
  - Create a dedicated RGW role

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COMPOSABLE ROLES (contd)

File : /usr/share/openstack-tripleo-heat-templates/roles_data.yaml

```
- name: Controller
  ServicesDefault:
    - OS::TripleO::Services::CinderApi
    - OS::TripleO::Services::SwiftProxy
    - OS::TripleO::Services::HAproxy
    - OS::TripleO::Services::RabbitMQ
    - OS::TripleO::Services::CephRgw          # Remove

(...)
```

```
- name: Compute
  ServicesDefault:
    - OS::TripleO::Services::CephClient
    - OS::TripleO::Services::CephExternal
    - OS::TripleO::Services::NovaLibvirt
    - OS::TripleO::Services::NovaCompute
(...)
```

```
- name: RadosGW
  ServicesDefault:
    - OS::TripleO::Services::CephRgw
    - OS::TripleO::Services::CephClient

(...)
```

⬅ NEW !

```
- name: CephStorage
  ServicesDefault:
    - OS::TripleO::Services::CephOSD

(...)
```

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ENABLING CEPH RADOS GATEWAY

By default Swift is used as Object Storage & **Ceph RGW is disabled.**

```
resource_registry:
  OS::TripleO::Services::CephRgw: OS::Heat::None
```

To enable Ceph RGW just include the right template :
/usr/share/openstack-tripleo-heat-templates/environments/ceph-radosgw.yaml

```
resource_registry:
  OS::TripleO::Services::CephRgw: ../puppet/services/ceph-rgw.yaml
  OS::TripleO::Services::SwiftProxy: OS::Heat::None
  OS::TripleO::Services::SwiftStorage: OS::Heat::None
  OS::TripleO::Services::SwiftRingBuilder: OS::Heat::None
```
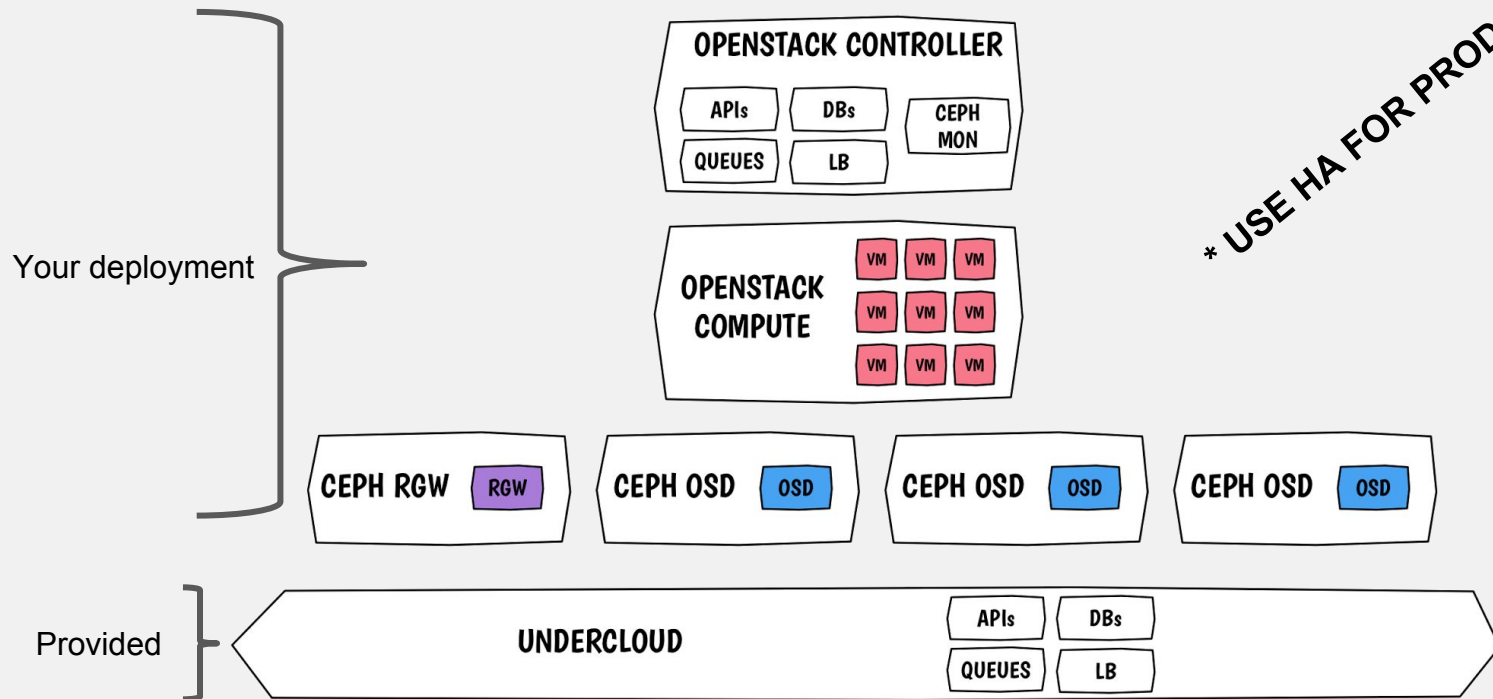
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IS THAT ALL?

Almost!

Some others adjustments are required - you'll discover them in our lab guide!

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LAB ARCHITECTURE

LAB DESIGN

Environment is fully virtualised and consists of 7VM

* USE HA FOR PRODUCTION *

Your deployment

OPENSTACK CONTROLLER

APIs   DBs   CEPH MON

QUEUES   LB

OPENSTACK COMPUTE

VM VM VM
VM VM VM
VM VM VM

CEPH RGW   RGW

CEPH OSD   OSD

CEPH OSD   OSD

CEPH OSD   OSD

Provided

UNDERCLOUD

APIs   DBs

QUEUES   LB

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LAB DESIGN IN-DEPTH

What we provide :

- A fully configured undercloud
- A working set of templates
  - Ceph enabled (Nova, Glance, Cinder)
  - Network isolation (802.1q)
  - 1 Controller, 1 Compute, 3 Ceph OSD node

What you will do
  - Modify the templates
  - Deploy the environment with a dedicated RGW node
  - Play with OpenStack Swift and Amazon APIs via RGW

LAST MINUTE UPDATES

- Use the GUI instead of "virsh" commands
    - Boot the undercloud by clicking on Manage VMs

- Full templates set available
    - Only if you don't feel comfortable with CLI
    - /usr/local/src/templates/

THANK YOU

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Backups slides

INTRODUCTION

LAB WORKFLOW

Things you are about to learn

During this lab you will:

- Deploy Ceph Rados Gateway as a replacement for OpenStack Swift
- Understand how the services are configured
- Play with OpenStack Swift and Amazon APIs

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RHOSP

Red Hat OpenStack Platform

Build a private or public Infrastructure-as-a-Service (IaaS) cloud on top of Red Hat Enterprise Linux:

- Highly scalable, fault-tolerant platform for the development of cloud-enabled workloads
- Fully distributed object storage
- Persistent block-level storage
- Virtual machine provisioning engine and image storage
- Authentication and authorization mechanisms
- Integrated networking
- Web browser-based interface accessible to users and administrators

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RHCS

Red Hat Ceph Storage

Open Source Software Defined Storage solution:

- Unified storage: object, block, filesystem
- Design for scale to petabytes
- Unique placement algorithm: CRUSH