Ceph Orchestrator
Bridging the Gap Between Ceph and Deployment

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The Vision

Provide a bridge between administrators, Ceph and external deployment systems

Ceph Dashboard can access data provided by different deployment tools

Possibility to make Ceph infrastructure aware

Unified installation experience across different deployment tools.
What is the Ceph Orchestrator?

New modules in the MGR daemon

Connection to external deployment tools
• Rook, ceph-ansible or DeepSea
• Direct SSH

Connection to the Ceph Dashboard

Extension to the ceph CLI
What is the Orchestrator?

- Ceph Dashboard
- Ceph CLI
- Orchestrator Interface
- Rook
- Ansible
- DeepSea
- SSH
Current Dashboard Integration

Automatically detecting

• ceph-iscsi URL
• nfs-ganesha RADOS object
Using the Orchestrator

1) **Deploy Ceph cluster**
   - minimal 1 MON + 1 MGR

2) **Activate the orchestrator:**
   - ceph mgr module enable <module>
   - ceph orchestrator set backend <module>

3) **Individual orchestrator configuration**
   - Salt REST API, SSH hosts, ...
Using the Orchestrator (2)

**ceph orchestrator status**
- Shows the current orchestrator mode and high-level status.

**ceph orchestrator device ls**
- Prints a list of discovered devices

**ceph orchestrator service ls**
- Prints a list of known services to the orchestrator
Using the Orchestrator (3)

ceph orchestrator mon update ...
• Instructs the orchestrator to create new MONs

ceph orchestrator osd create ...
• Instructs the orchestrator to create a new OSD on a given device

ceph orchestrator rgw add ...
• Instructs the orchestrator to create a new RGW daemon
Rook Orchestrator
What is Rook?

Storage Operator for Kubernetes

Extends Kubernetes with custom types and controllers

Automates deployment, bootstrapping, configuration, provisioning, scaling, upgrading, monitoring, and resource management

Hosted by the Cloud-Native Computing Foundation (CNCF)
apiVersion: ceph.rook.io/v1
kind: CephCluster
metadata:
  name: rook-ceph
spec:
  cephVersion:
    image: ceph/ceph:v14
  mon:
    count: 3
  network:
    hostNetwork: false
  storage:
    useAllNodes: true
Rook Orchestrator module

Glue between Ceph and Rook

Writes Kubernetes CRDs

Implements the Ceph orchestration Interface

ceph orchestrator mon update
Rook Orchestrator Demo
SSH Orchestrator
SSH Orchestrator

Direct SSH deployment

Establishing direct SSH connection to each host

Possible ceph-deploy replacement

Will deploy containers
Ansible Orchestrator module

Glue between ceph-ansible and Ceph

Uses
• ansible-runner-service
• Ansible playbooks

Work in progress
DeepSea Orchestrator module

DeepSea is a collection of Salt state files, runners and modules for deploying and managing Ceph.

Glue between Ceph and Salt

• Salt REST API
• Server-Side Events

Can query the state of the cluster
# Current Status

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Future

Add missing features in the orchestrator modules

Enabling the identification and fault LEDs of specified disks

Enhanced Ceph Dashboard integration

Right now, focus on day 2 operations

SSH orchestrator, a bootstrapping tool
Join us in IRC: #ceph-orchestrators on OFTC
Questions?
Thank you!