Preview

Core Kubernetes & Rook concepts
Rook architecture
Rook code tree
Development flows
Development environment
Workflows from other developers
Q&A and feedback panel w/ more devs
Kubernetes concepts

- Manifests
- Pods
- ConfigMaps & Secrets
- Pod Controllers
  - Deployments
  - Jobs
  - DaemonSets
- Custom Resource Definitions (CRDs)
Rook-Ceph concepts

Operator

Rook

Rook-Ceph

Ceph orchestrator mgr module

Rook orchestrator plugin
Rook-Ceph architecture
Rook-Ceph architecture

Operator

mon.a

mgr.a
Rook-Ceph architecture

Operator

mon.a

mgr.a

toolbox
Ceph mgr orchestrator module

hosts
- ceph orchestrator host ls
- ceph orchestrator host add <host>

mons
- ceph orchestrator mon update <num> [host, host:network...]

OSDs
- ceph orchestrator device ls
- ceph orchestrator osd create <host>:<drive>
- ceph orchestrator osd create -i <path-to-drive-group.json>

mds/rgw/nfs
- ceph orchestrator {mds,rgw} add <name>
- ceph orchestrator nfs add <name> <pool> [--namespace=<namespace>]

http://docs.ceph.com/docs/master/mgr/orchestrator_cli/
Rook-Ceph architecture (cont’d)

Operator

mon.a

mon.b

mgr.a

mon.c
Rook-Ceph architecture (cont’d)
Rook-Ceph architecture (cont’d)
Rook-Ceph architecture (cont’d)
Rook-Ceph architecture (cont’d)
Rook-Ceph architecture (cont’d)
Rook-Ceph architecture (cont’d)
Rook-Ceph architecture
Rook-Ceph code tree

cluster/examples/kubernetes/ceph/

cmd/

pkg/

  api/ceph.rook.io/

  daemon/ceph

  operator/ceph

tests/
Rook-Ceph community

Ceph community calendar

Bi-weekly Rook community meeting

Weekly Ceph Orchestration team weekly meeting

Daily-ish Rook-Ceph Container huddle

https://slack.rook.io #ceph-dev

https://github.com/rook/rook
Overall development flow

Set up virtual cluster

Install kubernetes

Rook flow

Ceph flow

Upgrade flow (not covered)
Rook workflow

make IMAGES="ceph" build

Push container image to nodes (as rook/ceph:master)
  docker save → scp → docker load

Install Rook

Test manually or run integration tests
  _output/tests/.../integration -test.run <regexp>

Iterate
  Replace or reinstall
Ceph workflow

make build

Build containers
   From scratch or use “injection”

Push container images (as ceph/ceph:latest)

Install Rook and Ceph cluster manifest

Iterate
   Easiest to reinstall Rook
Practical development

https://github.com/BlaineEXE/dev-rook-ceph

Makefiles and libvirt

make quickstart in ~6 minutes

Security policies enabled

Tunable
  Node count
  Kubernetes version
dev-rook-ceph

Rook targets

set config
build+push
install / uninstall / reinstall
replace / rebuild / reconfig
dev / debug

Ceph targets

don’t yet exist
Development on Ceph

Sebastian Wagner - maintainer for Ceph orchestrator module

Custom environment scripts related to Rook orchestrator tests
https://github.com/sebastian-philipp/test-rook-orchestrator

Binary “injection” via Kubejacker
https://github.com/ceph/ceph/
src/script/kubejacker/

https://kubic.opensuse.org/
Development on Mac

Travis Nielsen - lead maintainer on Rook

Minikube - `rook/tests/scripts/minikube.sh`
- Add disk to VirtualBox
- Save & restore snapshots

Default manifest files
  - e.g., `rook/cluster/examples/kubernetes/.../ceph/cluster-test.yaml`

VSCode + Go extension
- Easy, visual unit test debugging

https://kubernetes.io/docs/tasks/tools/install-minikube/
Q & A

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