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CEPH DAYS Berlin

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Speed up your deployments using the Ansible Cephadm collection

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AGENDA - Day 1 (1/2)

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9am	Welcome, Check-in, Coffee
10am	Welcome Session (Joachim Kraftmayer & Desy Management)
10.15am	Morning Keynote: Cephfs Home @ DESY (Ingo Ebel)
10.50am	Buzzword Bingo: Digital Sovereignty (Markus Wendland & Heiko Krämer)
11.25am	SURFin' the Ceph wave (Jean-Marie de Boer)
11.35am	*Coffee Break & Networking*
12.15pm	It's all about the latency, not the bandwidth! (Wido den Hollander)
12.50pm	Running a small Openstack Cluster with a full NVMe Ceph Cluster (Kevin Honka)
1.20pm	*Lunch Break & Networking*

AGENDA - Day 1 (2/2)

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2.5pm	Principles for Storage Management (Benedikt Bürk)
3.25pm	Beyond Backup: S3 Data Management with Ceph RGW Tiering, and Chorus (Sirisha Guduru & Artem Torubarov)
5.55pm	*Coffee Break & Networking*
4.35pm	How RGW Stores S3 Objects in Rados (Tobias Brunnwieser)
5.10pm	A generic Ceph sizer for the community optimizing workloads, layouts, and server configs (Matthias Münch)
5.25pm	AI, ML, and the Ceph Advantage: Scalable Storage for Smarter Workflows (Kenneth Tan)
6pm	*Network Reception in Ground Floor with Food Truck & Drinks*

AGENDA - Day 2

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9.30am	*Welcome & Good Morning Coffee*
10am	**Keynote**: Focus on Object Storage in Transition (Joachim Kraftmayer)
10.35am	Scale Multiple Ceph-clusters Horizontally (Ansgar Jazdzewski)
11.20am	*Coffee Break & Networking*
11.10am	Ceph Rados Gateway as an Interface to Tape Storage (Stuart Hardy & Zaid Bester)
11.45am	The Need for Speed: Accelerating OpenStack with NVMe-oF & Ceph (Kritik Sachdeva)
12.20pm	Speed up your deployments using the Ansible Cephadm collection (Piotr Parczewski)
1.05pm	*Lunch Break & Networking*
2.15pm	Faster CephFS Mirroring with Bounded-Frontier Concurrency (Md Mahamudur Rahaman Sajib)
2.30pm	Ceph-CSI Support for AES-GCM: Challenges and Opportunities (David Mohren)
3pm	*Podium Discussion with Speakers, Wrap Up & Summarize*

Why bother with Ansible?

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- The best answer: easy integration with existing or legacy systems
- Version controlled configuration (who's bumped the PG count on my pool again?!)
- Adds hosts, OSDs and other services, creates pools, CRUSH rules & keys all in one go
- Repeatable deployments (e.g. dev/test, just as good for production)

Basic information

- Created out of a need for operational excellence - ‘templated’ deployments with less manual steps
- Python modules (adjusted) coming from Ceph-Ansible project
- Available on the Ansible Galaxy
- Tested using multinode Zuul CI (similar to OpenStack / OpenDev projects)

Requirements

- Ansible (of course!) and the collection installed on the ‘control host’
- A user with passwordless sudo and SSH access on to-be cluster nodes
- Container engine installed
- Access to a container image registry - public or private
- Some blank disks for OSD (could be virtual)

Example use

$ ansible-playbook -i inventory -e @variables.yml deploy-ceph.yml

deploy-ceph.yml

```
---
- name: Deploy Ceph using Cephadm
  any_errors_fatal: true
  gather_facts: true
  hosts: ceph
  tasks:
    - name: Apply Cephadm role
      ansible.builtin.import_role
        name: stackhpc.cephadm.cephadm
```

variables.yml

```
---
cephadm_public_network: 10.0.3.64/26
cephadm_public_interface: ens3

cephadm_ssh_user: ubuntu
cephadm_bootstrap: true

cephadm_osd_spec:
  service_type: osd
  service_id: demo_osd_spec
  placement:
    host_pattern: "*"
  data_devices:
    all: true
```

Benefits

- All nodes added to the cluster at once using a templated YAML spec
- IP addresses determined automatically (for public, cluster and admin networks)
- A precise control over service placement - inventory groups mapped as host labels, which are targeted by orchestrator specs

```
[osds]
ceph-1
ceph-2
ceph-3

[rgws]
ceph-2
ceph-3
```

```
HOST    ADDR         LABELS                  STATUS
ceph-1  10.0.3.93    _admin,mon,mgr,osd
ceph-2  10.0.3.97    _admin,mon,mgr,osd,rgw
ceph-3  10.0.3.116   _admin,mon,mgr,osd,rgw
3 hosts in cluster
```

Demo time!

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Bootstrapping a tiny 3-node cluster with 2x20GB virtual disks each in less than 5 minutes.

```
real    4m55.145s
user    0m39.046s
sys     0m12.606s
```

Thank you!