Running Teuthology in Your Environment (OpenStack Edition)

Step-by-step onboarding guide – Ceph QA

Execution Workflow

- Teuthology runs on a dedicated control VM
- Supervisors are provisioned dynamically on OpenStack
- Tests are executed exactly like Sepia suites.
- Results are archived and visible via Pulpito

Note: All suites supported except some known cases [Powercycle, Seastore]

Infrastructure Prerequisites

1. Access to a functional **OpenStack project** with credentials
   - Keystone(Auth), cinder(Volumes), neutron(Networking), nova(Compute)
2. At least one **control node (VM)** for Teuthology services
3. Properly configured networks, security groups, and floating IPs
4. SSH keypair created and uploaded to OpenStack
5. For a basic suite - 24 vCPU / 48 GB RAM / 240 GB disk
6. Powercycle/Seastore based tests unsupported

Teuthology Control Node

Pre-requisite:

- Provision an Ubuntu 22.04 VM (~4 vCPUs, 8GB RAM, 50GB disk)

Prepare:

- Clone teuthology
- ./bootstrap install
- Activate virtualenv/bin/install

Configure OpenStack Access

- Add your credentials in ~/.config/openstack/clouds.yaml

```
# This is a clouds.yaml file, which can be used by OpenStack tools as a source
# of configuration on how to connect to a cloud. If this is your only cloud,
# just put this file in ~/.config/openstack/clouds.yaml and tools like
# python-openstackclient will just work with no further config. (You will need
# to add your password to the auth section)
# If you have more than one cloud account, add the cloud entry to the clouds
# section of your existing file and you can refer to them by name with
# OS_CLOUD=openstack or --os-cloud=openstack
clouds:
  openstack:
    auth:
      auth_url: http://<url>:13000
      application_credential_id: <application_cred_id>
      application_credential_secret: <application_cred_secret>
    region_name: <region_name>
    interface: "public"
    identity_api_version: <api_version>
    auth_type: <auth_type>
```

- Test CLI access - openstack server list
- CVM config - ~/.teuthology.yaml

Launching a Suite

- Below workflow is used to execute suites today in Openstack
- teuthology-openstack --key-name cephkey --key-filename ~/.ssh/cephkey --suite dummy --verbose —setup
- Mkdir dispatcher-log & archive dir on the infra VM
- teuthology-dispatcher --tube openstack --log-dir ~/dispatcher-logs —verbose
- teuthology-suite --suite smoke --machine-type openstack --ceph tentacle --ceph-repo https://github.com/ceph/ceph --limit 1 --job-threshold 5

Teuthology Configuration

Update ~/.teuthology.yaml

Ref - .teuthology.yaml

```
use_shaman: true
archive_upload_key: teuthology/openstack/archive-key
archive: /home/ubuntu/archive
archive_base: /home/ubuntu/archive
lock_server: http://localhost:8080/
results_server: http://localhost:8080/
gitbuilder_host: gitbuilder.ceph.com
check_package_signatures: false
ceph_git_url: https://github.com/ceph/ceph
queue_port: 11300
suite_verify_ceph_hash: false
queue_host: localhost
lab_domain: <domain_name>
max_job_time: 32400 # 9 hours
teuthology_path: .
teuthology_branch:main
teuthology_git_url: https://github.com/ceph/teuthology
canonical_tags: true
ssh_key: /home/ubuntu/cephkey
key_filename: /home/ubuntu/cephkey
ceph_cm_ansible_git_url: https://github.com/ceph/ceph-cm-ansible.git
vars:
  ansible_ssh_private_key_file: /home/ubuntu/ceph_id_rsa
openstack:
  key_filename: /home/ubuntu/cephkey
  clone: git clone http://github.com/ceph/teuthology
  user-data: teuthology/openstack/openstack-{os_type}-{os_version}-user-data.txt
  ip: <host_ip>
  nameserver: <host_ip>
  keypair: cephkey
  selfname: teuthology
  server_name: teuth-teuthology
  server_group: teuth-teuthology
  worker_group: teuth-teuthology-worker
  package_repo: teuth-teuthology-repo
  machine:
    disk: 80 # GB
    ram: 16384 # MB
    cpus: 8
  volumes:
    count: 3
    size: 30 # GB
  flavor: ci.standard.xl
  subnet: <subnet>
  network: <network_name>
  teardown: true
```

Monitoring & Results

- Check dispatcher-logs/log for any provisioning related issues
- Check ~/archive logs for run specific issues
- —verbose for more clarity into runs
- Access **Pulpito UI** for run status and results

Current Progress & Forward Outlook

- Expansion of Teuthology test coverage on OpenStack through increased job execution
- Ongoing improvements in test stability and reproducibility
- MaaS-based execution models proposed to enable support for multiple infrastructure backends
- OpenShift-based execution explored at a proof-of-concept level
- Initial exploration of local and lab-based testing workflows to improve developer enablement
- Evaluation of PR-triggered and distributed CI workflows for broader community use

Thank you!