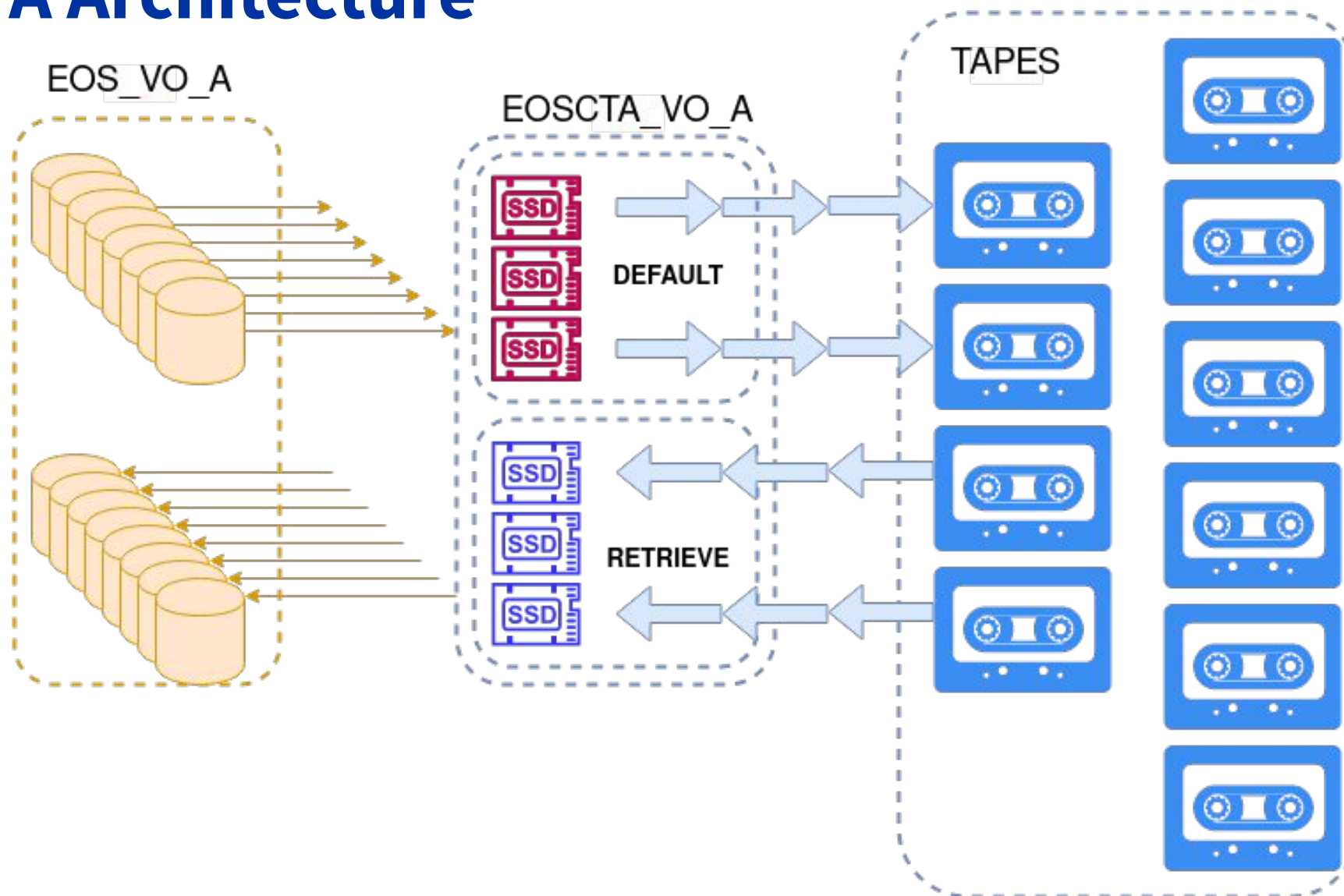


CTA CI: Running a standalone CTA instance with latest kubernetes

Julien Leduc

26/04/23 - EOS workshop

EOS+CTA Architecture



CTA + EOS developments

- Tightly coupled software => **tightly coupled developments**
 - Extensive and systematic testing is paramount to limit regressions
- Complex situation for integration tests
 - **2 distinct software projects**
 - several external dependencies per test instance
 - 1 database, 1 virtual tape library, 1 objectore



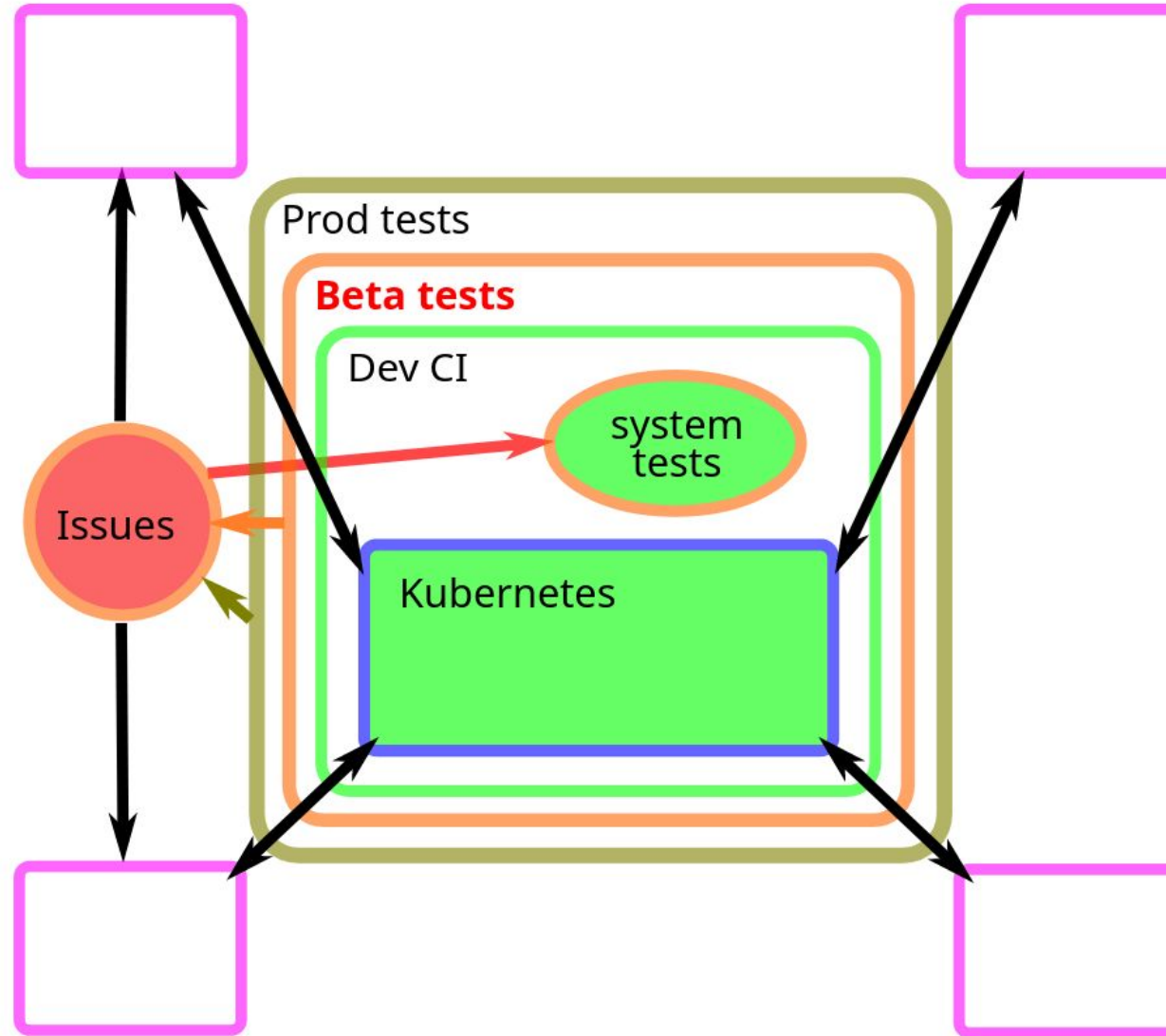
Implemented in CERN Gitlab instance

build:srpm	build:rpm	analysis:check	analysis:report	build:dockerimage	test
✓ cta_srpm_xrootd4	✓ cta_rpm_xrootd4	✓ cppcheck	✓ cppcheck_report	✓ ctageneric_docker	✓ archiverretrieve
					⚙ archiverretrieve-eos5
					⚙ cta_valgrind
					✓ dbunittests-oracle
					✓ dbunittests_postgresql
					⚙ external-tape-formats
					⚙ liquibase-update
					✓ repack
					⚙ repack-eos5

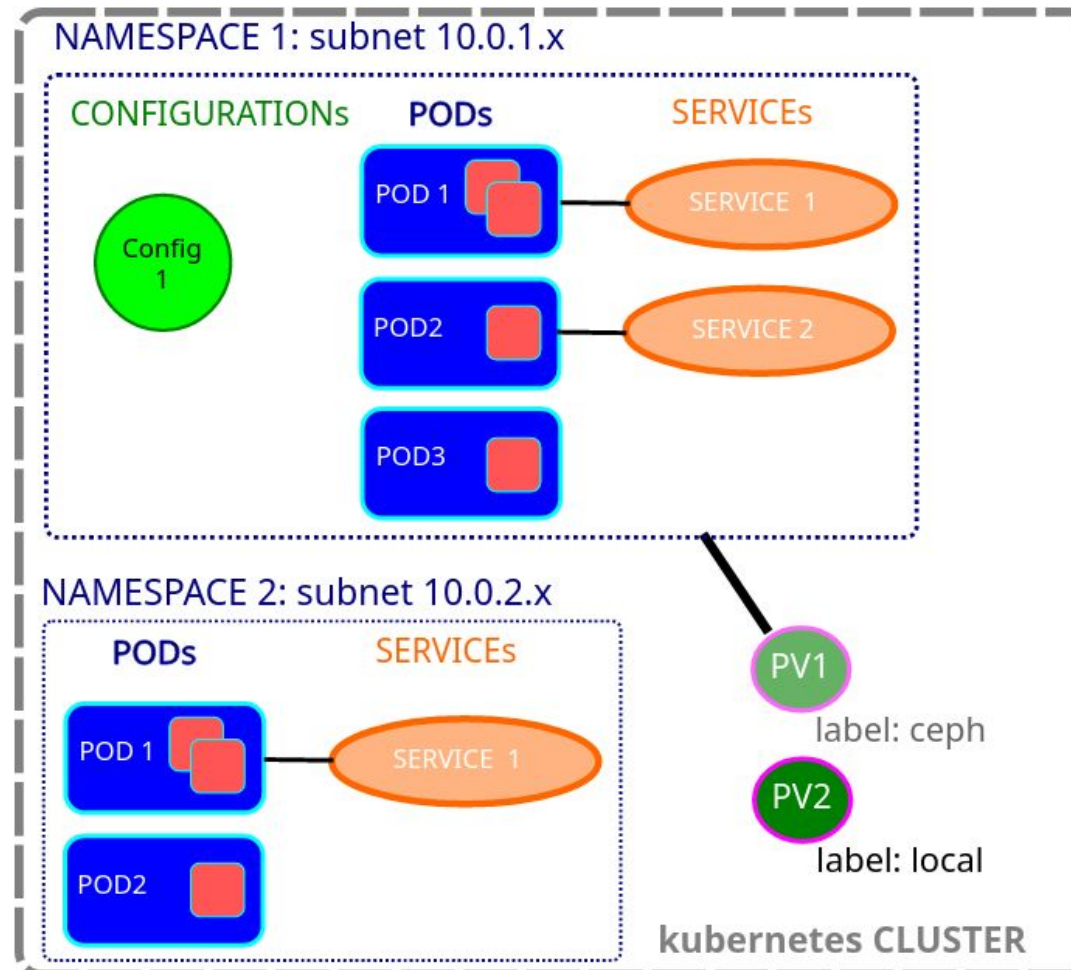
- Build software: CTA RPMs available as **artifacts**
- Build and publish a **generic Docker image** in gitlab registry
 - Contains **all built CTA RPMs for instantiation** in pipeline
- Run **system tests** in custom kubernetes cluster

CTA CI central role

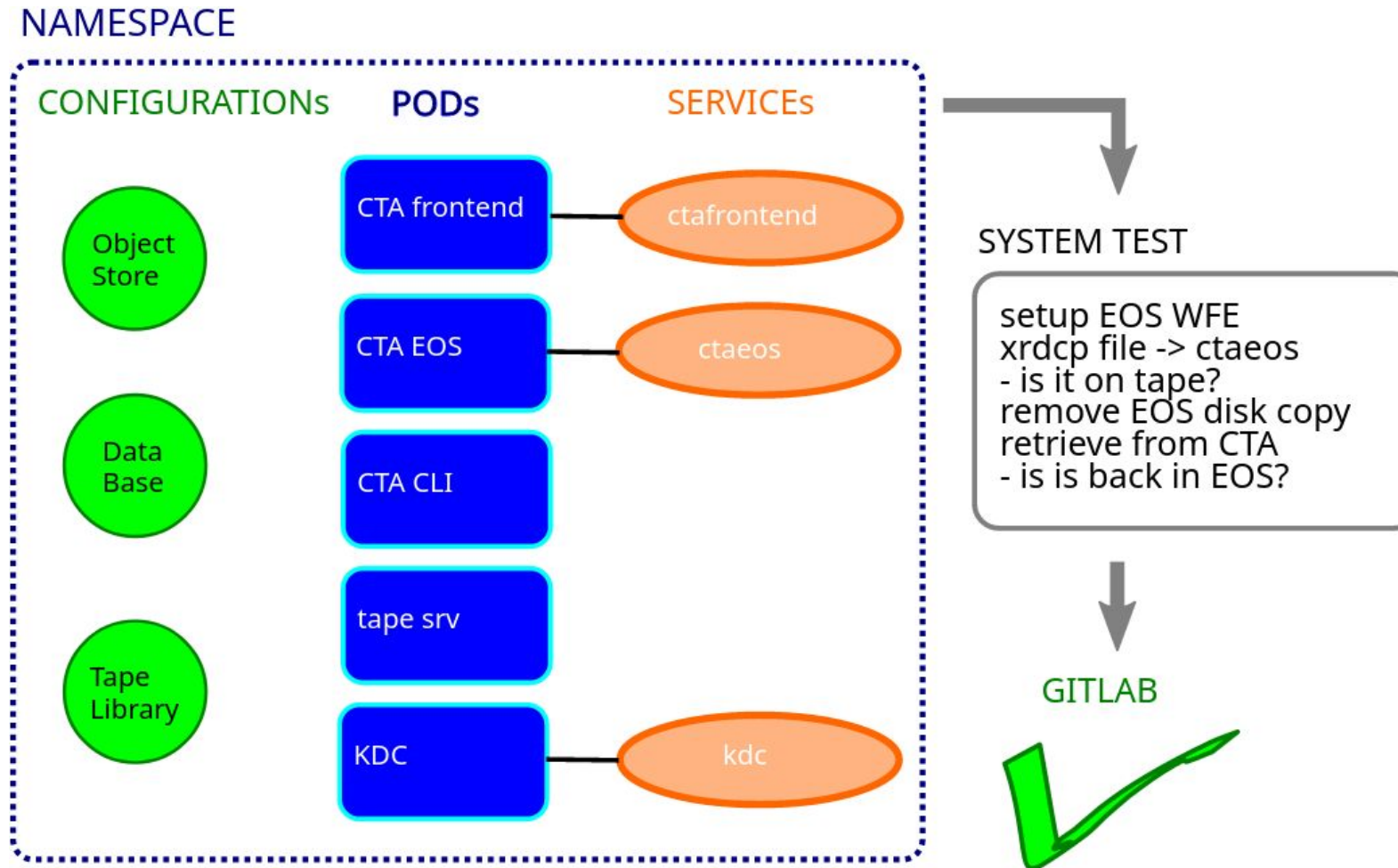
CTA community ?



Kubernetes concepts



Kubernetes namespace



Kubernetes resources

System tests on dedicated single node kubernetes cluster

- One openstack kubernetes cluster per developer on a single VM (≥ 8 cores)
- Kubernetes resources per cluster:
 - 1 Oracle database (+unlimited postgres DB)
 - 1 Ceph objectstore (+ unlimited local fs objectore)
 - 1 Virtual tape library: 2 tape drives, 10 tapes
 - STK config

Hands on setup

- Currently targetting upgrade of runners from
 - old CC7/kubernetes 1.5.2 on docker
 - instantiated with kubeadm + custom scripts / running as root
 - alma9/kubernetes 1.26.3 on cri-o
 - instantiated with minikube / running in podman as standard user in tape group
- More improvements coming for ease of installation
 - outside CERN support

Hands on instructions

- 10 openstack VM available
 - many thanks to Cloud team for quota bump
 - I promised to destroy them quickly after

Hands on instructions



home.cern