Migrating from OpenShift 3 to 4

Adrian Kosmaczewski – Developer Relations
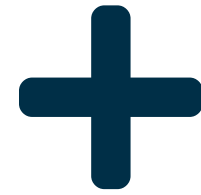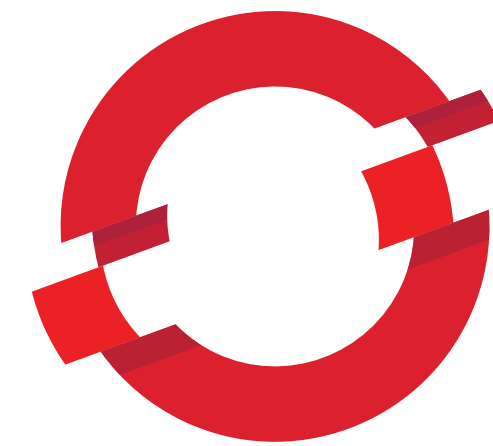
- Migrating clusters from OpenShift 3 to 4

- Common *gotchas*

- More information

Why Migrating to OpenShift 4?

- OpenShift 3.11 end of full support $\Rightarrow$ June 2021

- New features!

  - Watch out for architectural changes!

New Features in OpenShift 4

- Simpler installation process

- Immutable infrastructure

    - RHCOS for control planes

- Operators

- Serverless

- Service Mesh

- Easier management

How to Migrate?

1. Start & configure new OpenShift 4 cluster

2. Create a migration plan

3. Execute said migration plan

4. Point DNS to new cluster

5. Profit! $£¥€¢

Thanks for Attending!

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Sorry! Not done yet

Creating a Migration Plan 1/3

- Storage

  ▪ Gluster Storage in 3.11 → RH Ceph Storage in 4

  ▪ GlusterFS no longer supported

  ▪ Standalone CephFS no longer supported

  ▪ Standalone Ceph RBD no longer supported

Creating a Migration Plan 2/3

- Networking

  - Isolation mode: `ovs-subnet` → NetworkPolicy

  - NetworkPolicy similar to OpenShift 3's `ovs-multitenant`

Creating a Migration Plan 2/3

- Logging

- Security

- Monitoring

Migration Plan Prerequisites

- Podman

- Source cluster must be 3.7, 3.9, 3.10 or 3.11

- `cluster-admin` privileges on all clusters

- Unrestricted network access to replication repository

- Migration controller has access to all other clusters

- Health check!

Helper Tools by Red Hat 1/2

- Cluster Application Migration operator (CAM)

- Control Plane Migration Assistance Tool (CPMA)

- Migration Toolkit for Containers operator (MTC)

Helper Tools by Red Hat 2/2

Control Plane Migration Assistance → Control Plane Configuration

Cluster Application Migration → Application Workloads
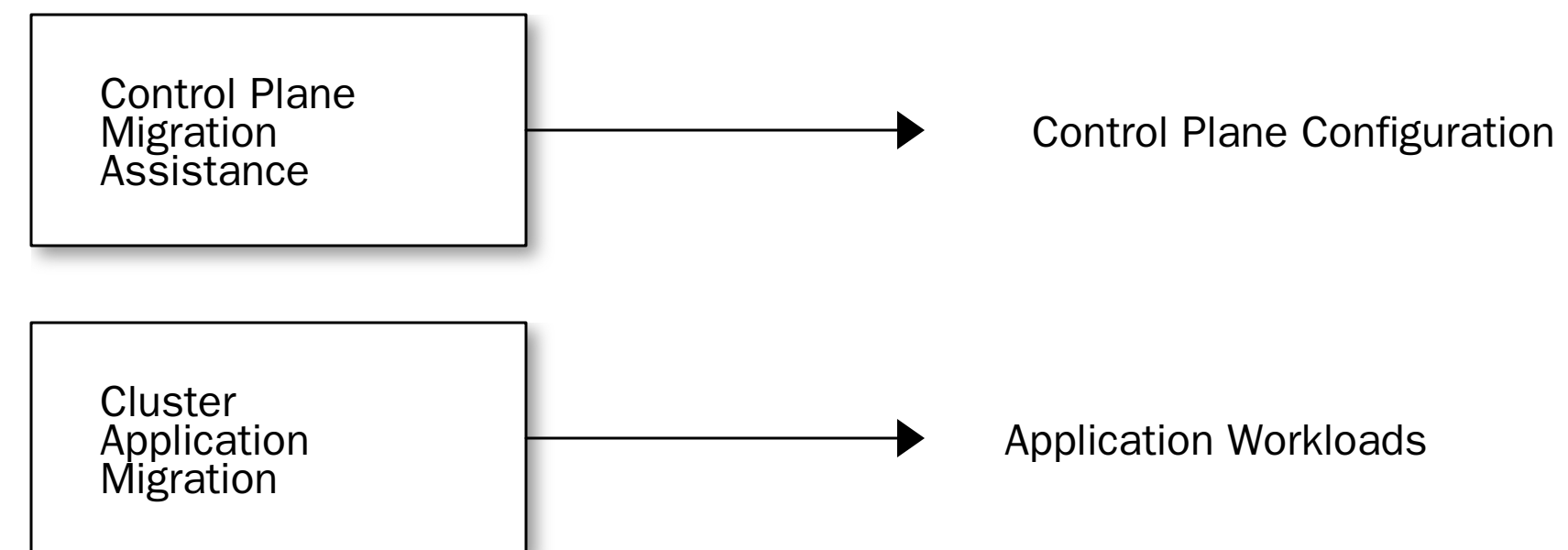
Helper Tools by Third Parties

- K8up operator

- Appranix SRA operator

- Portworx PX-Backup

- pvc-migrate

- imagestream-migrate
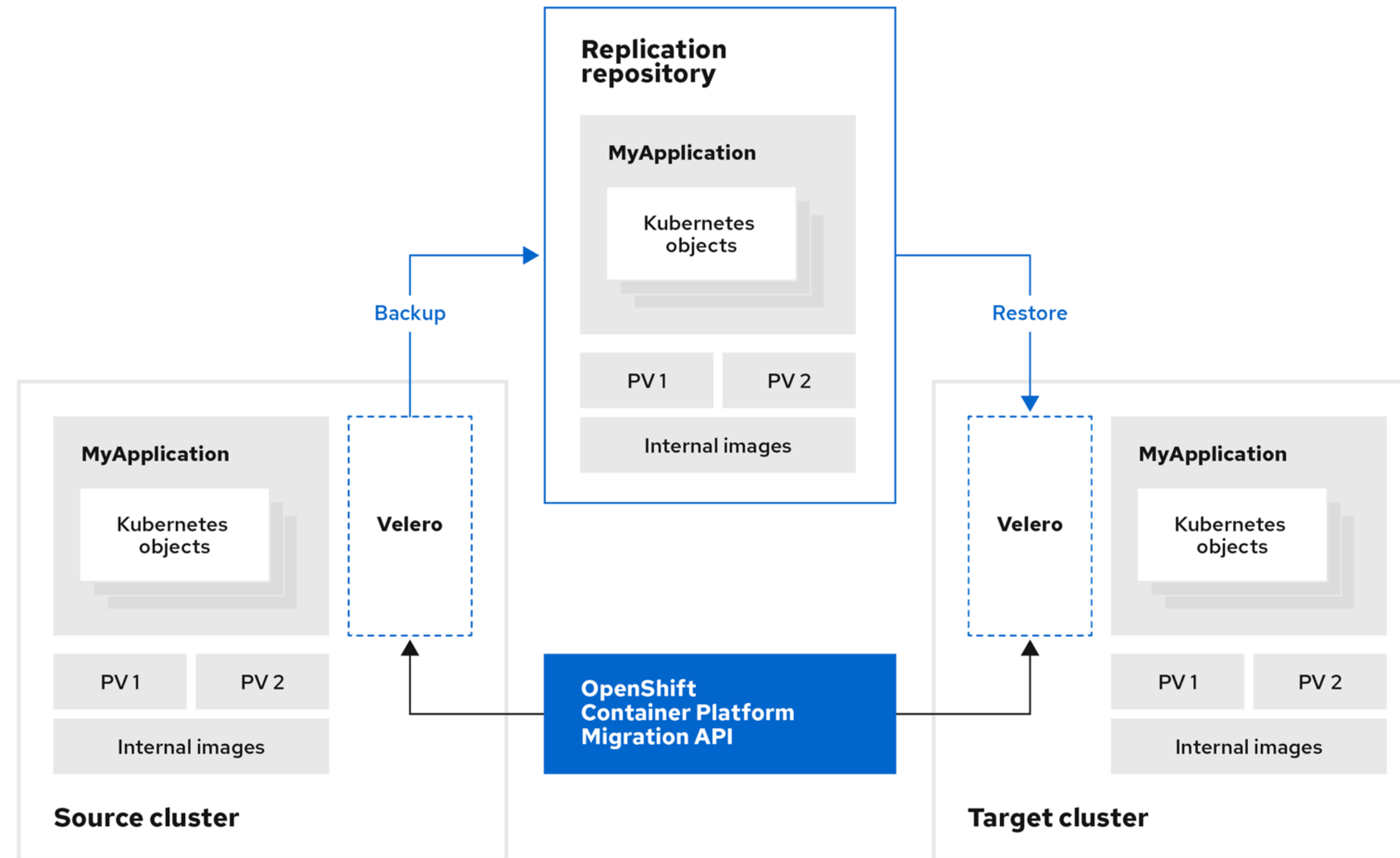
Source: docs.openshift.com

CAM Demo

Cluster Application Migration
demo

0:00 / 3:16

www.youtube.com/watch?v=WfukMDIWTXA

Migration Strategies

- Per application

- "Big Bang"

  - Migrate all apps

  - Point DNS to new OpenShift 4 cluster

Gotchas 1/2

- Storage classes

  - Gluster $\Rightarrow$ RH Ceph

- Operators

  - Pervasive usage

  - Maybe start using OpenShift 4 operators instead?

Gotchas 2/2

- `DeploymentConfig` ⇒ `Deployment`

  - Only use `DeploymentConfig` if you need Automatic rollbacks, Triggers, Lifecycle hooks, Custom strategies

- Downtime

  - Load balancer between both clusters as mitigation

- DNS considerations

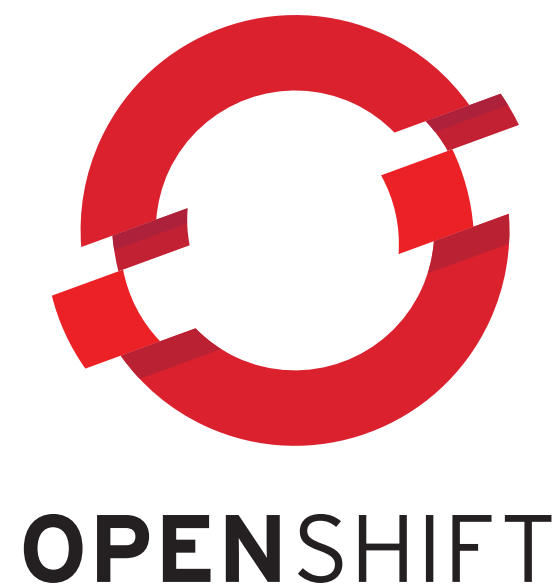- Fine tuning and testing!

More Information 1/2

Red Hat

- OpenShift 3.x life cycle policies

- Migration home page

- About migrating OpenShift 3 to 4

    ▪ Planning

    ▪ Performing

- **Best practices guide**

More Information 2/2

Third-party tools

- K8up backup operator

- Blog post about Appranix

- Blog post about PX-Backup to migrate

- pvc-migrate

- imagestream-migrate

Thanks!

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