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OpenShift

Backup and Disaster Recovery

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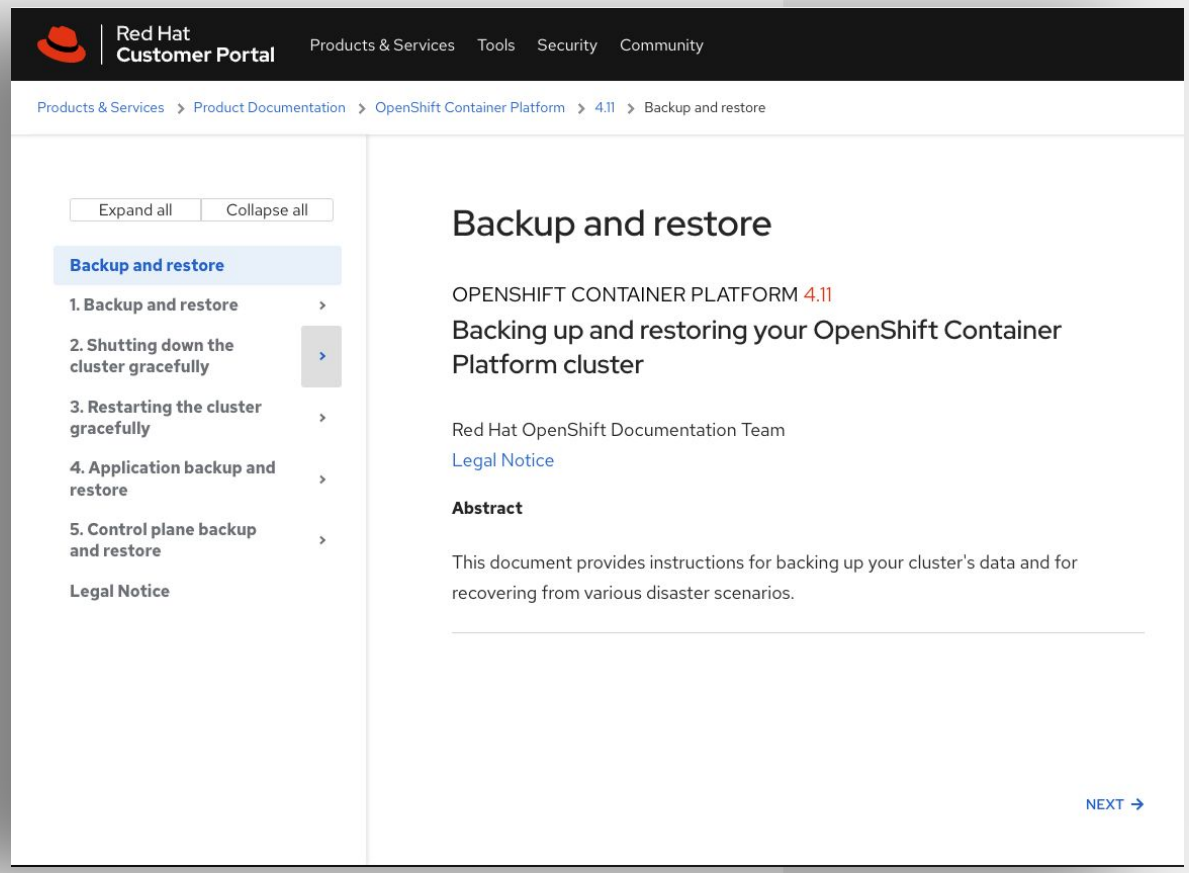
BACKUP an OPENSHIFT Cluster



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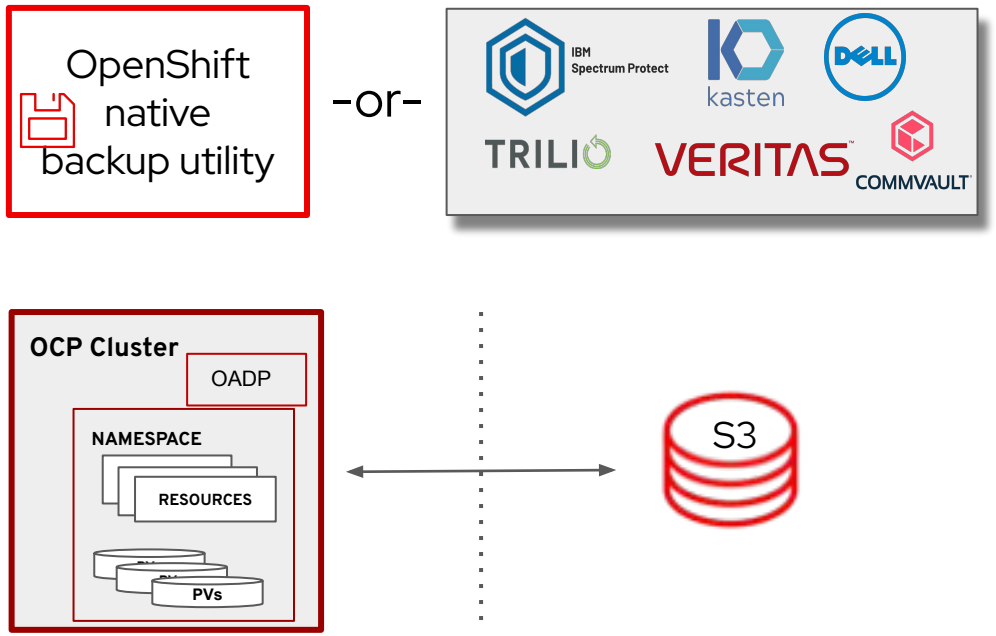
Backup Solutions for Red Hat OpenShift

Business Continuity

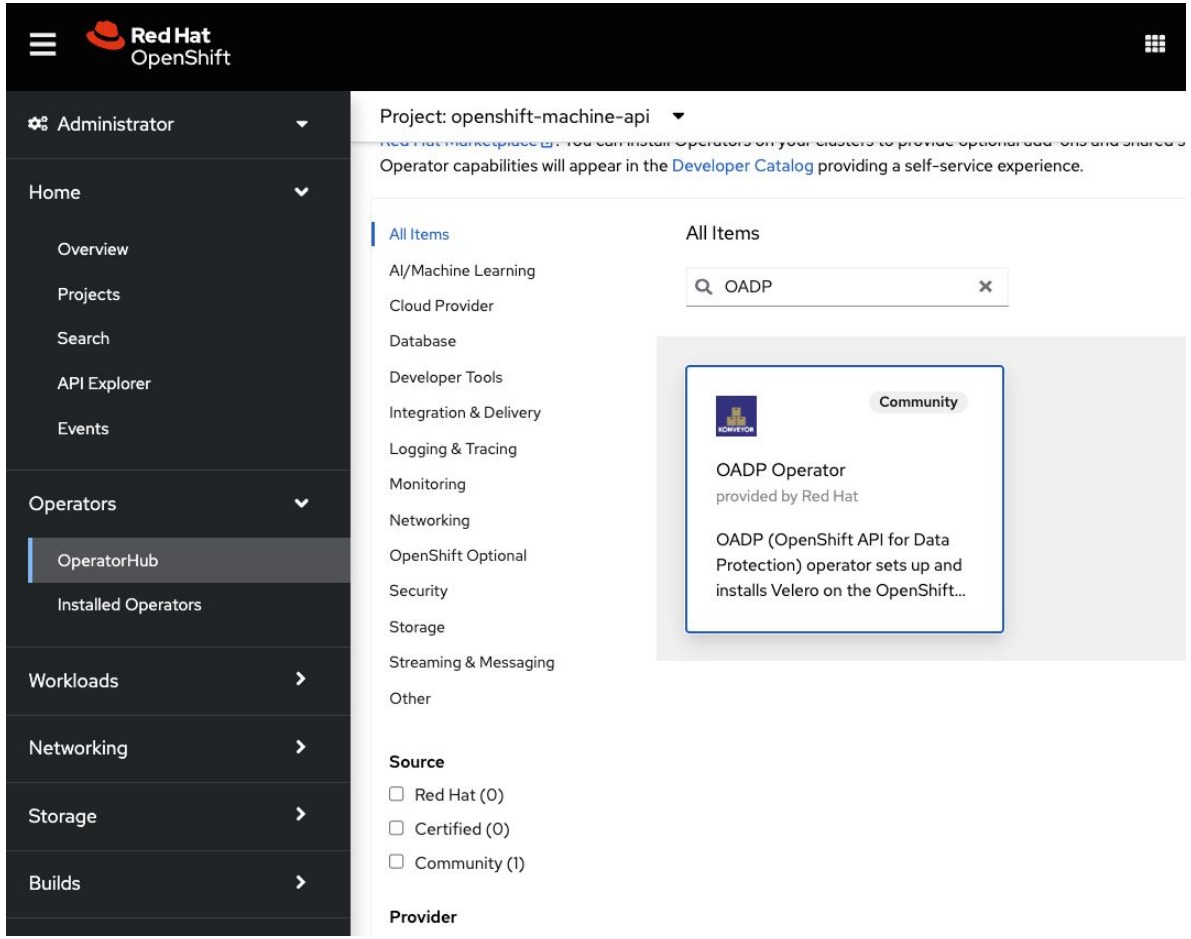
OpenShift OADP 1.1 - Native backup utility with 4.12



- **Application level (Namespace), consistent backups with OADP**
- CLI based **scheduling and management** of backups
- **Built-in data mover** enables CSI-based storage snapshots to be backed up to a remote S3 compatible object store.
  - **Plugable DataMover** support is Tech Preview (ie. VolSync)
- **Supports** all **OpenShift storage provisioners** that also support **CSI Snapshots**

Product Manager: Jeff Brent

OADP Operator



OpenShift API for Data Protection (OADP) supports the following features:

Backup

You can back up all resources in your cluster or you can filter the resources by type, namespace, or label.

OADP backs up Kubernetes objects and internal images by saving them as an archive file on object storage. Restore

You can restore resources and PVs from a backup. You can restore all objects in a backup or filter the restored objects by namespace, PV, or label.

Schedule

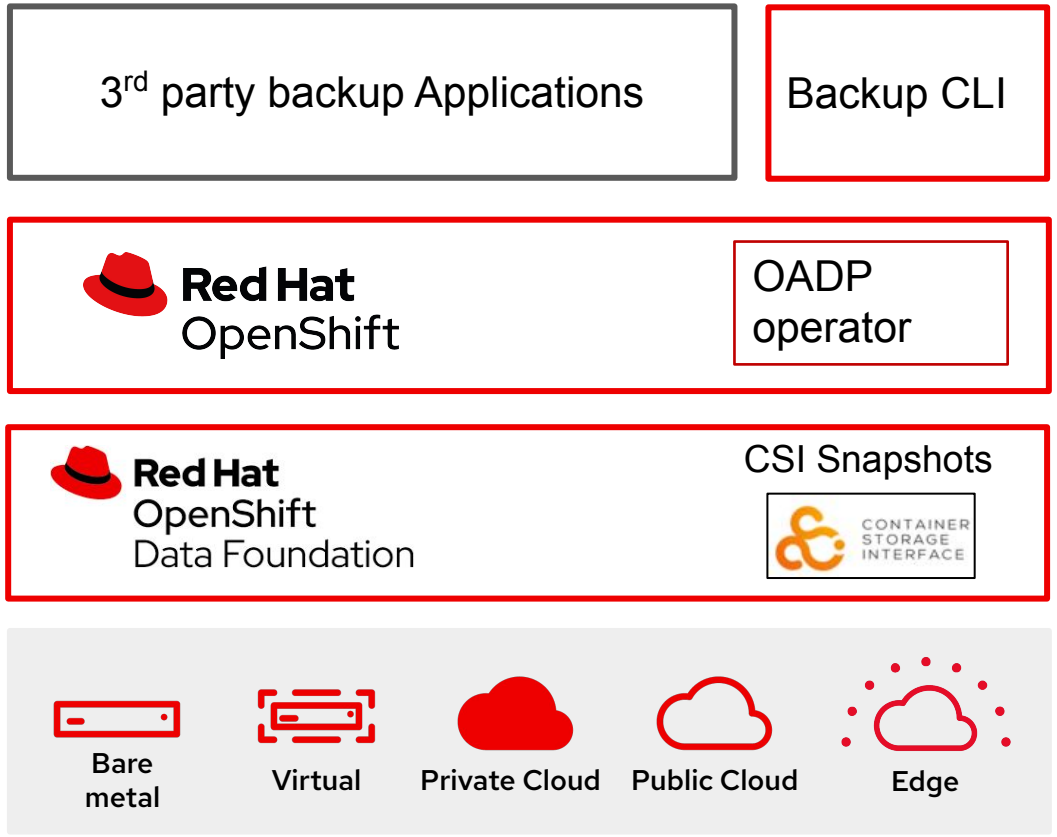
You can schedule backups at specified intervals.

Hooks

You can use hooks to run commands in a container on a pod

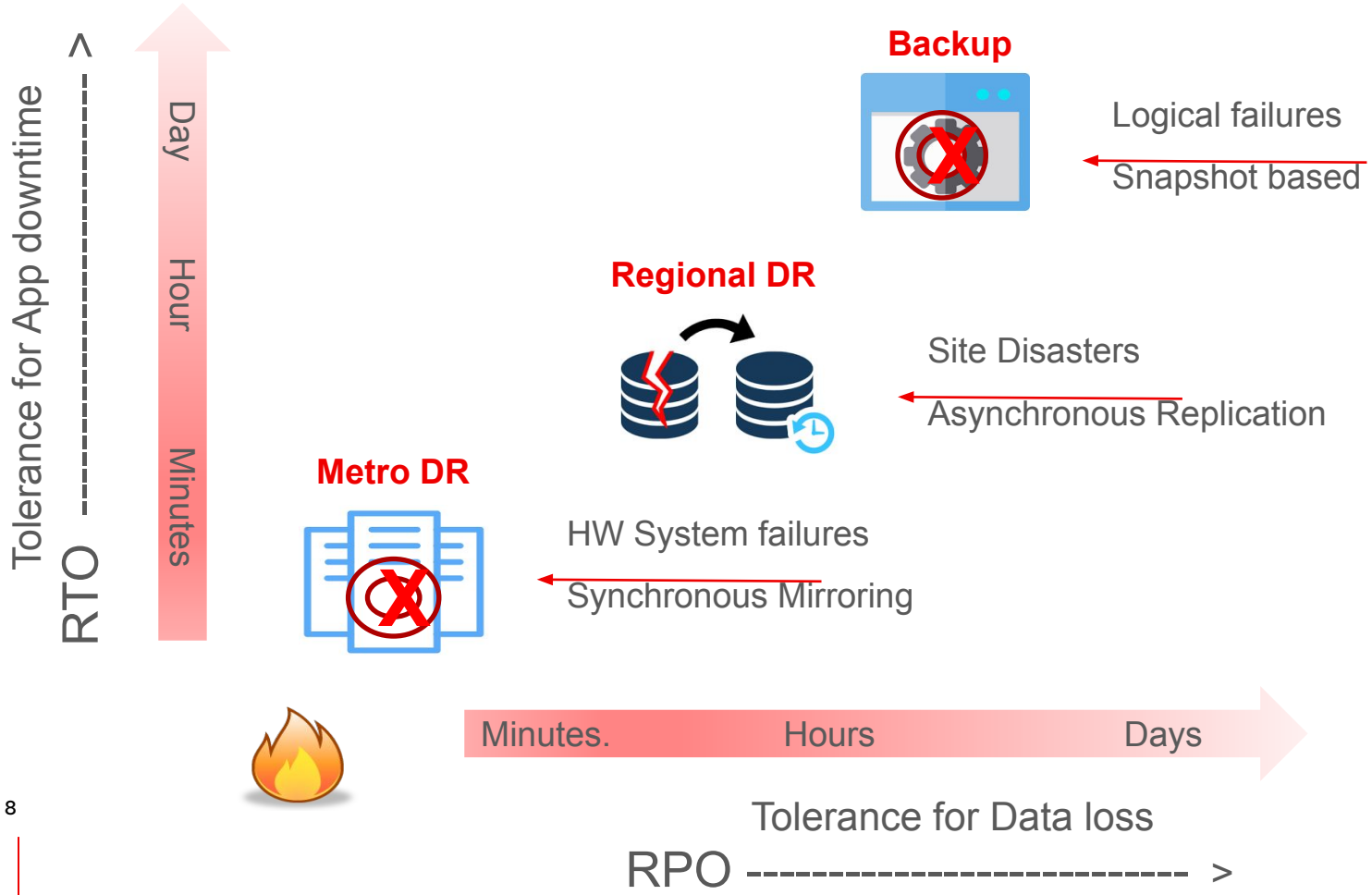
Business Continuity and Disaster recovery

OCP Application Backup – Key Components



- Third party backup Applications /native CLI
  - Handles Backup policy management, backup scheduling, retention and restore management and data movement
- OADP – OpenShift App Data Protection API
  - Enables namespace or label scoped backups with all ensuing cluster resources and application data (PVs)
  - Ensures OCP version independence and works across storage providers (via plug-ins)
- ODF PV Snapshots via CSI
  - PV/PVC backups of ODF volumes through standard CSI interfaces
  - Can be used with or without OADP

Resiliency Solutions for different service level objectives



- Comprehensive protection solutions against wide spectrum of failures
- Beyond Data Protection --> Full Application protection
- Resiliency built into the platform – Available to all stateful and stateless applications on OpenShift
- OCP + ODF + ACM integrated stack lends towards Automated and Simplified Application granular protection

OCP Integrated, Full Stack DR Protection

Multi-Site Multi Cluster Manager

RHACM

- ODR Hub Operator – Orchestrates & Automates DR operations across clusters

Platform

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- ODR Cluster Operator - Manages and synchronizes cluster meta data and application data

Persistence Layer

Red Hat OpenShift Data Foundation

- Asynchronous replication of Application volumes – or-
- Synchronous Mirroring of Application volumes

- Easy configuration DR across cluster and sites as part of application deployment
- Automated DR Failover and Failback operations reduces RTO
- Manage and Monitor DR across clusters and Apps
- Same consistent DR operations for both Metro-DR and Regional-DR
- Both Application Data and State is protected and used for Application granular protection
- Consistent Data replication or mirroring or both based on infrastructure and desired protection.

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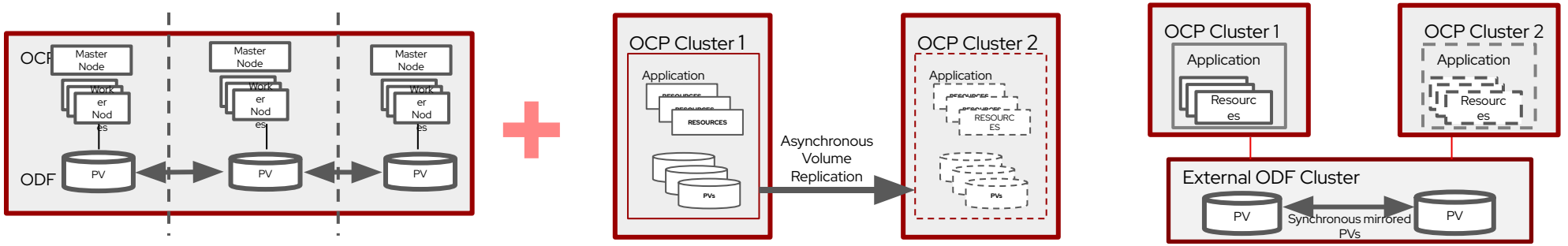
OCP Cluster HA + DR for stateful Applications



	Cluster HA	Regional-DR	Metro-DR
Topology	Single OCP+ODF clusters deployed over multiple AZs in a single region	Multi OCP + ODF clusters spread over multiple regions	Multi OCP clusters + single external ODF stretched cluster deployed over low latency networks
RTO (Downtime)	RTO=0 (Continuous)*	RTO = minutes DR Automation from ACM+ODF reduces RTO	RTO = minutes DR Automation from ACM+ODF reduces RTO
RPO (Data loss exposure)	RPO=0 No Data loss due due to Synchronous mirroring of ODF data	RPO > 0; Usually 5 min or higher Depends upon network bandwidth & change rate	RPO=0 No Data loss due due to Synchronous mirroring of ODF data
Infra Requirements	Multi-AZ supported public clouds (vSphere support in OCP 4.10)	All ODF supported platforms No network latency limits	On-prem only (vSphere, bare metal) <10ms network latency between sites

* Subject to RWO PV limitations

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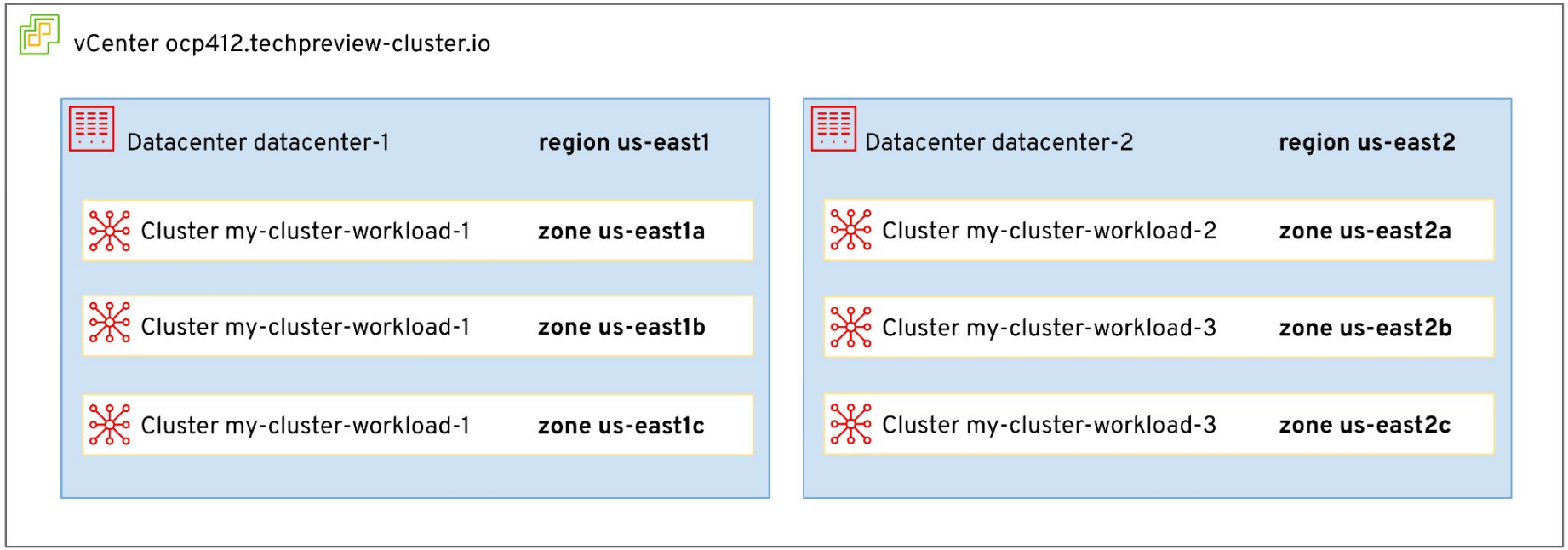
OpenShift in vSphere is Zone Aware

- Create highly-available OpenShift clusters in vSphere with installer provisioned infrastructure (IPI)
- Applies zonal tags (regions and zones) to multiple vCenter datacenters and clusters in a single vCenter
- Excludes User Provisioned infrastructure (UPI) deployments



Technology Preview

Product Manager: Ramon Acedo Rodriguez, Ju Lim

Thank you

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