



OpenShift Container Storage

Past, present, and future

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May 8, 2019

Presentation Outline

Key market trends & storage biz focus

OCS overview & use-cases

OCP 4 Direction

OCS 4 Past, Present & Future

Focus Areas

Migration

KEY MARKET TRENDS



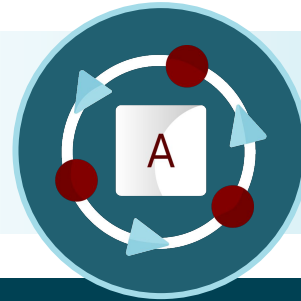
NON TRADITIONAL STORAGE BUYERS

Developers, Cloud Admins, and DevOps are decision makers



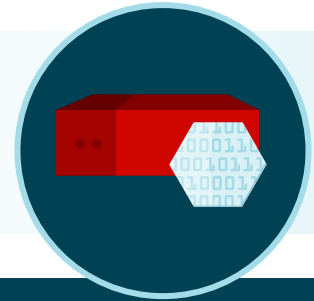
CLOUD NATIVE IS THE NEW NORMAL

Driven by the rise of Kubernetes for infrastructure orchestration



MODERN, STORAGE INTENSIVE APPLICATIONS

AI, ML and emerging workloads need scalable object storage



HYPERCONVERGENCE

Customers value simplicity and completeness of infrastructure

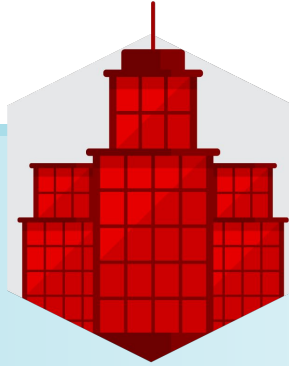
STORAGE FOR THE OPEN HYBRID CLOUD



OPENSIFT CONTAINER STORAGE

COMPLETE DATA PORTABILITY

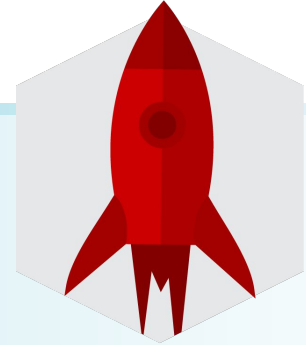
For OpenShift Across the
Hybrid Cloud



HYBRID CLOUD OBJECT STORAGE

MOST SCALABLE DATA PLATFORM

For Data Analytics, AI/ML, and
emerging workloads



HYPERCONVERGENCE

ELASTIC INFRA ACROSS THE DATA CENTER AND EDGE

Built to enable flexibility, scale, and
ease of use

FIND US AT RED HAT SUMMIT

redhat.com/storage

@redhatstorage

redhatstorage.red
hat.com

- At the Storage lockers
- At the Red Hat booth
- At one of Storage dedicated sessions (red.ht/storageatsummit)
- At the Community Happy Hour (Tues 6:30, Harpoon Brewery)
- At the Hybrid Cloud Party (Wed, 7:30, “Committee” restaurant)



Red Hat OpenShift Container Storage

red.ht/videos-RHOCS



Red Hat data analytics infrastructure solution

red.ht/videos-RHDAIS



Red Hat Hyperconverged Infrastructure

red.ht/videos-RHHI

OCS Overview & Use Cases

What is it?

Add-On for OpenShift for running stateful apps

Highly scalable, production-grade persistent storage

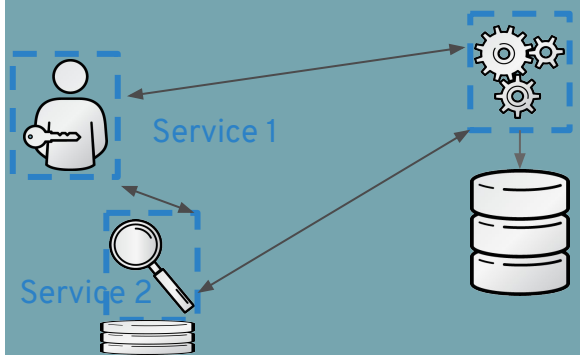
- For stateful applications running in Red Hat® OpenShift
- Optimized for Red Hat OpenShift Cluster services
- Developed, released and deployed in synch with Red Hat OpenShift
- Supported via a single contract with Red Hat OpenShift in all environments/infra

Why do you need it?

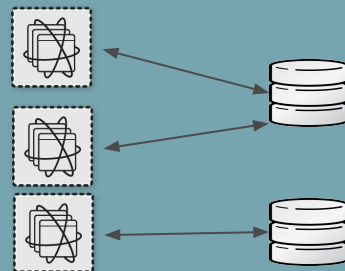
OCP Infrastructure



OCP Application



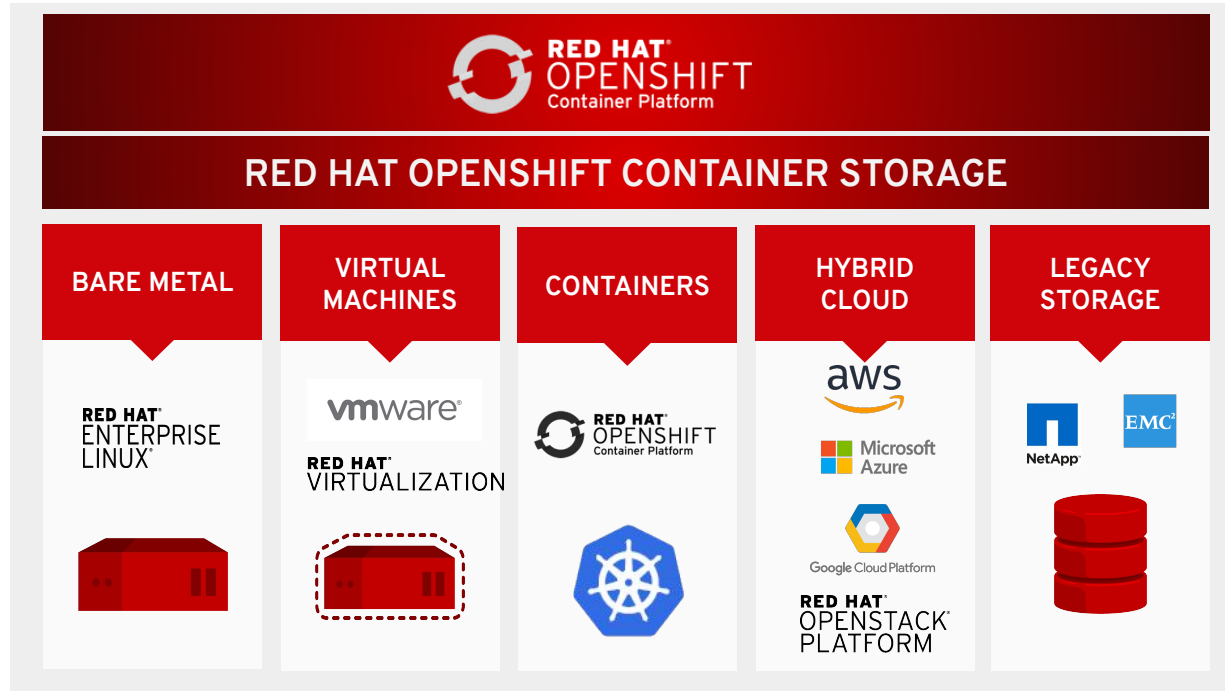
Local/Ephemeral Storage



Red Hat OpenShift Container Storage Focus
RWX/RWO backed by File, Block, S3

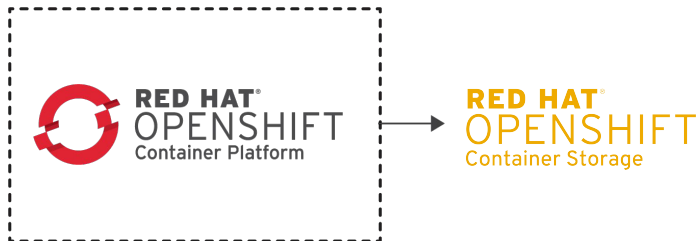
EXPLOIT THE FULL POWER OF OPENSIFT

consistent storage consumption, management, and operations



ANY CLOUD. ANY APP. NO LOCK IN.

TWO FLAVORS OF CONTAINER STORAGE



OPENS SHIFT CONTAINER STORAGE INDEPENDENT MODE

Use existing investment in traditional storage,
managed by storage admin – attach to standalone storage



OPENS SHIFT CONTAINER STORAGE CONVERGED MODE

Highly scalable, enterprise-grade storage,
fully integrated into OpenShift Container Platform

CONTAINER PLATFORM - COMPLETE FROM Red Hat



UNIFIED CLUSTER | COMPLETE PLATFORM UNIFIED | INTEGRATED & TESTED
SINGLE VENDOR | SINGLE POINT OF SUPPORT

OpenShift 4



Trusted enterprise Kubernetes

- Trusted Host, Content, Platform
- Full Stack Automated Install
- Over the Air Updates & Day 2 Mgt

A cloud-like experience, everywhere

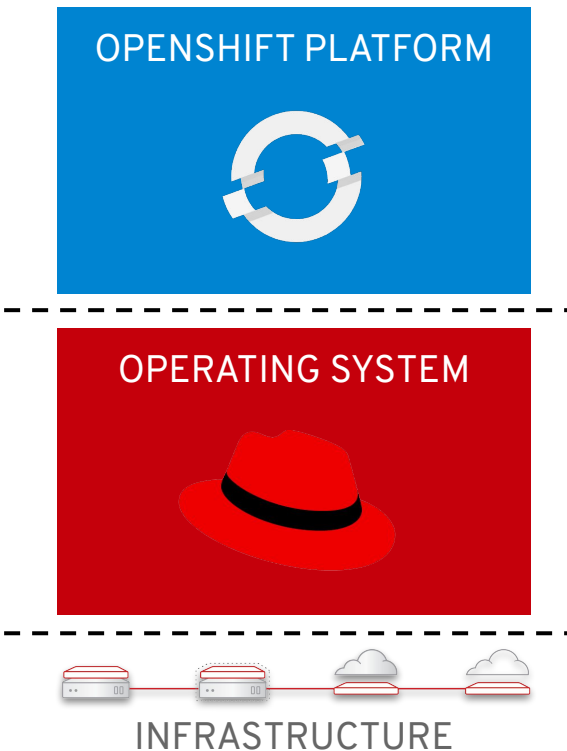
- Hybrid, Multi-Cluster Management
- Operator Framework
- Operator Hub & Certified ISVs

Empowering developers to innovate

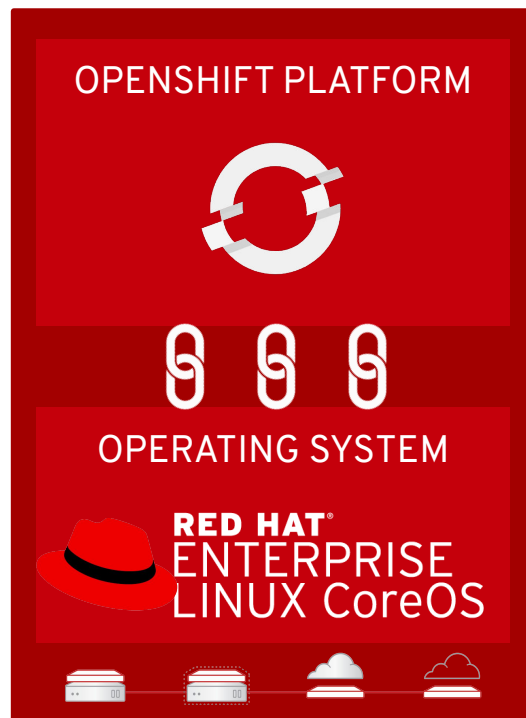
- OpenShift Service Mesh (Istio)
- OpenShift Serverless (Knative)
- CodeReady Workspaces (Che)

FULL STACK AUTOMATED INSTALL

OPENSIFT 3



OPENSIFT 4



OCS Past & Present

We have been rewarded!

400+ customers and counting



Technologies

Services & support

Success stories

About Red Hat

PRESS RELEASE

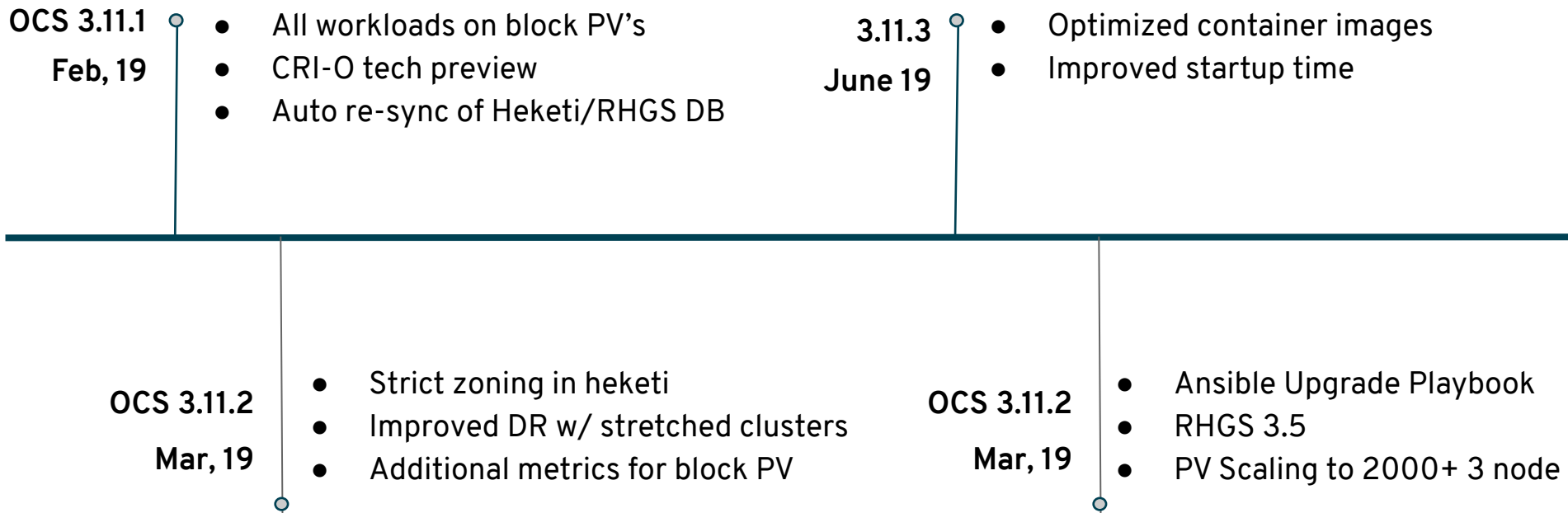
Growing Number of Organizations Around the World Choose Red Hat Container-Native Storage with Red Hat OpenShift Container Platform

Container Storage Success

THE ROAD TO 400+ OCS/CNS CUSTOMERS



OCS 3.11.z Roadmap



OCS Future

LEGAL DISCLAIMER


















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OCS 4 Technology Stack



PROVIDER ROADMAP FOR OCS 4

	Installer Provisioned Infrastructure (IPI)	User Provisioned Infrastructure (UPI)
 OPENSIFT™ by Red Hat® 4.1		
 OPENSIFT™ by Red Hat® 4.2		  RED HAT® OPENSIFT™ Container Storage
 OPENSIFT™ by Red Hat® 4.3*	   Baremetal  IBM Cloud	 Baremetal   RED HAT® OPENSIFT™ Container Storage

RHOCS 4.x Roadmap

Aug /
Sep 19

- OCS 4.2 GA - Converged Mode
- Operator driven OLM/ALM install, upgrade
- PV's backed by RWX, RWO, S3 for apps
- AWS, VMWare, & Bare Metal
- Multi Cloud Data Portability/Hybrid Cloud with S3
- OCP + OCS monitoring and management

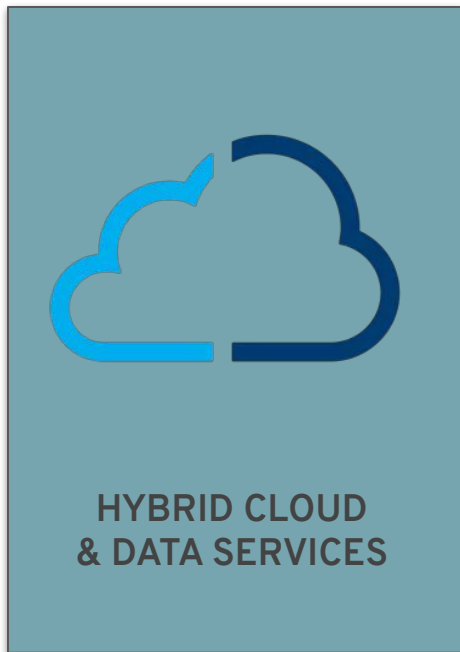
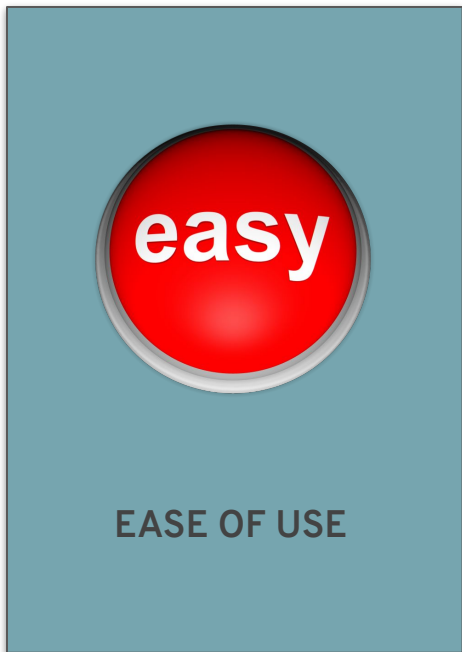
June /
July 19

- OCS 4.2 Beta

Dec /
Jan 20

- OCS 4.3 - Independent Mode
- Google, Azure, IBM Cloud
- Bare Metal
- Data Portability/Hybrid Cloud

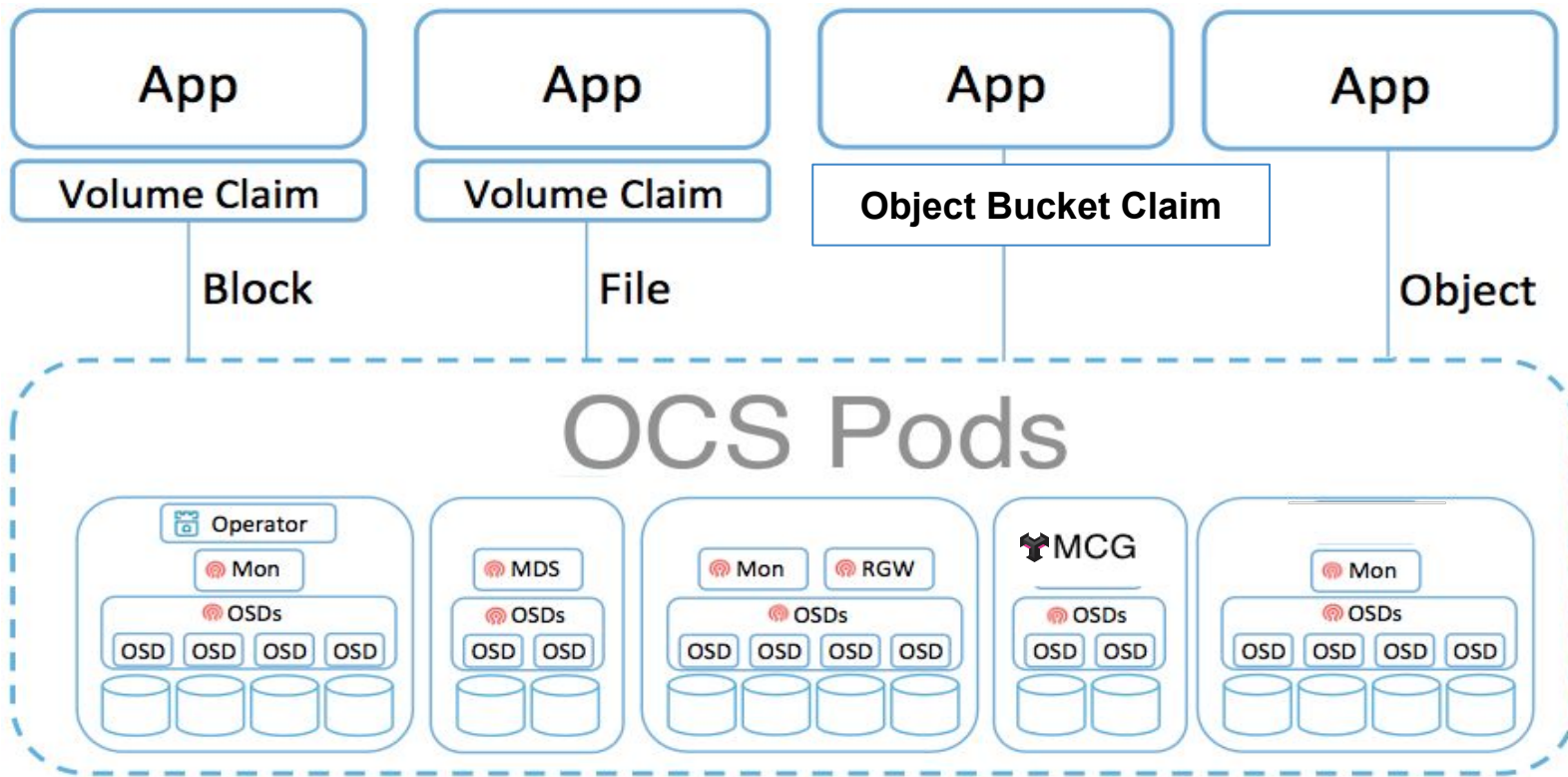
OCS 4.X - Focus Areas



Ease of Use Hybrid Cloud Kubernetes Storage

OCS 4.x Operator Install, Upgrade, Expansion

OCS Operator based on Rook.io with Operator Lifecycle Manager (OLM)



OCS 4.x Operator Driven Install from OLM

The screenshot displays the OpenShift OperatorHub interface. On the left is a dark sidebar with navigation links: Home, Catalog (selected), Developer Catalog, Installed Operators, OperatorHub, Operator Management, Workloads, Networking, Storage, Builds, Monitoring, Compute, and Administration. The main area shows the 'OperatorHub' page for the 'default' project. It includes a search bar and filters for 'All Items' (25 items), 'Database', 'Integration & Delivery', 'Logging & Tracing', 'Monitoring', 'Networking', 'OpenShift Optional', 'Streaming & Messaging', and 'Other'. A 'Filter by keyword...' input is present. Below the filters, operators are listed in a grid. The 'OpenShift Container Storage Operator' is highlighted with a red circle and the text 'OCS Operator' overlaid. Other operators visible include AMQ Streams, Automation Broker Operator, CockroachDB, Couchbase Operator, Descheduler, and Dynatrace OneAgent.

Project: default ▾

OperatorHub

Discover Operators from the Kubernetes community and Red Hat partners, curated by Red Hat. Operators can be installed on your clusters to provide optional add-ons and shared services to your developers. Once installed, the capabilities provided by the Operator appear in the [Developer Catalog](#), providing a self-service experience.

All Items 25 items

Database

Integration & Delivery

Logging & Tracing

Monitoring

Networking

OpenShift Optional

Streaming & Messaging

Other

Filter by keyword...

INSTALL STATE

☐ Installed (0)

☐ Not Installed (25)

PROVIDER TYPE

☐ Red Hat (1)

☐ Certified (2)

☐ Community (22)

PROVIDER

☐ Red Hat (13)

☐ CNCF (2)

☐ Couchbase (1)

AMQ Streams
provided by Red Hat, Inc.
Red Hat AMQ Streams is a massively scalable, distributed, and high performance data stream...

Automation Broker Operator
provided by Red Hat, Inc.
Automation Broker is an implementation of the Open Service Broker API manag...

OCS Operator
OpenShift Container Storage Operator
provided by Red Hat
OCS runs as a cloud-native service for optimal integration with applications in need of storage, and handles the scen...

OpenShift Container Storage Independent Mode
provided by Red Hat
OCS runs as a cloud-native service for optimal integration with applications in need of storage, and handles the scen...

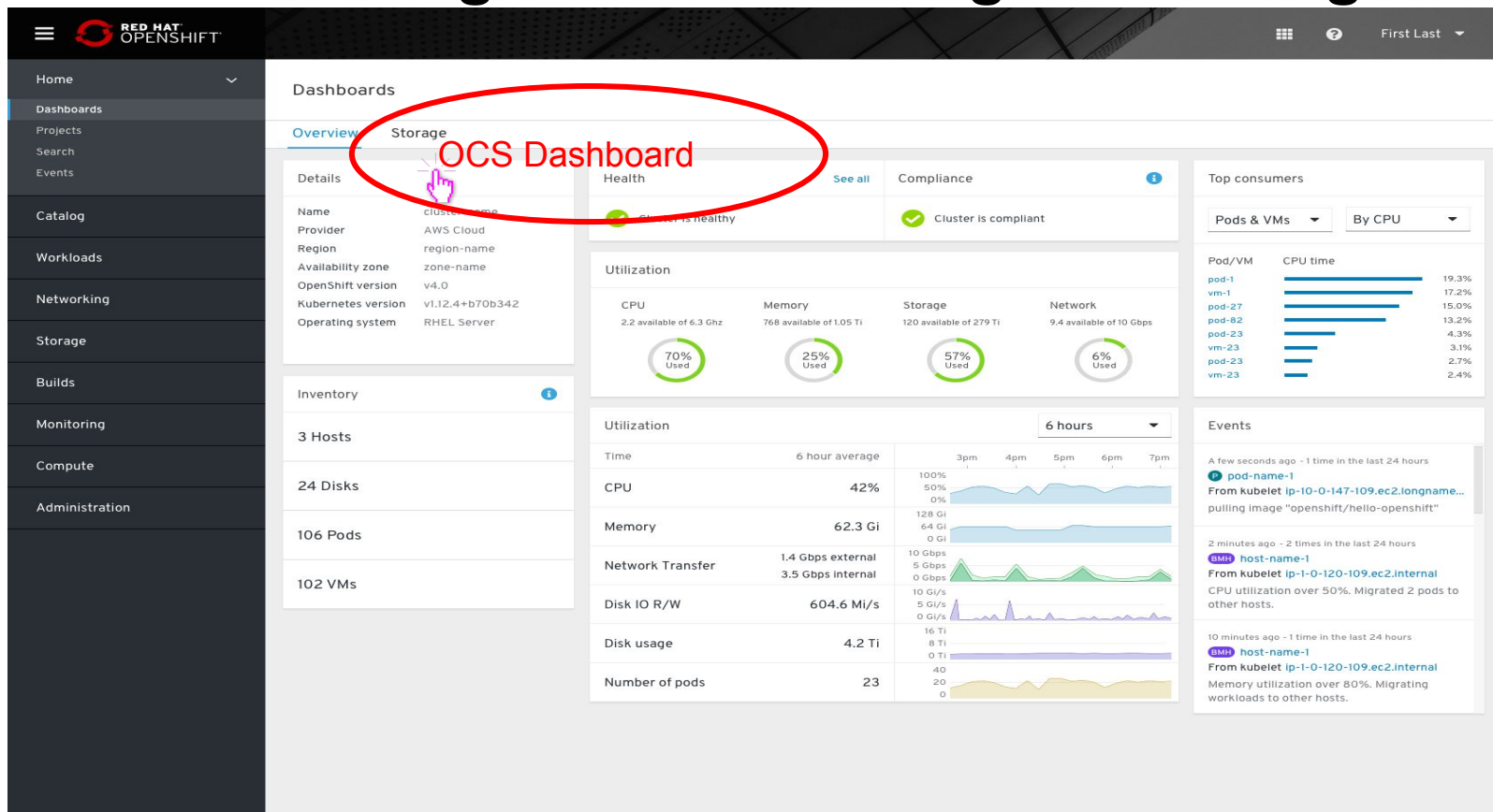
CockroachDB
provided by Helm Community
CockroachDB Operator based on the CockroachDB helm chart

Couchbase Operator
provided by Couchbase
The Couchbase Autonomous Operator allows users to easily deploy, manage, and maintain Couchbase

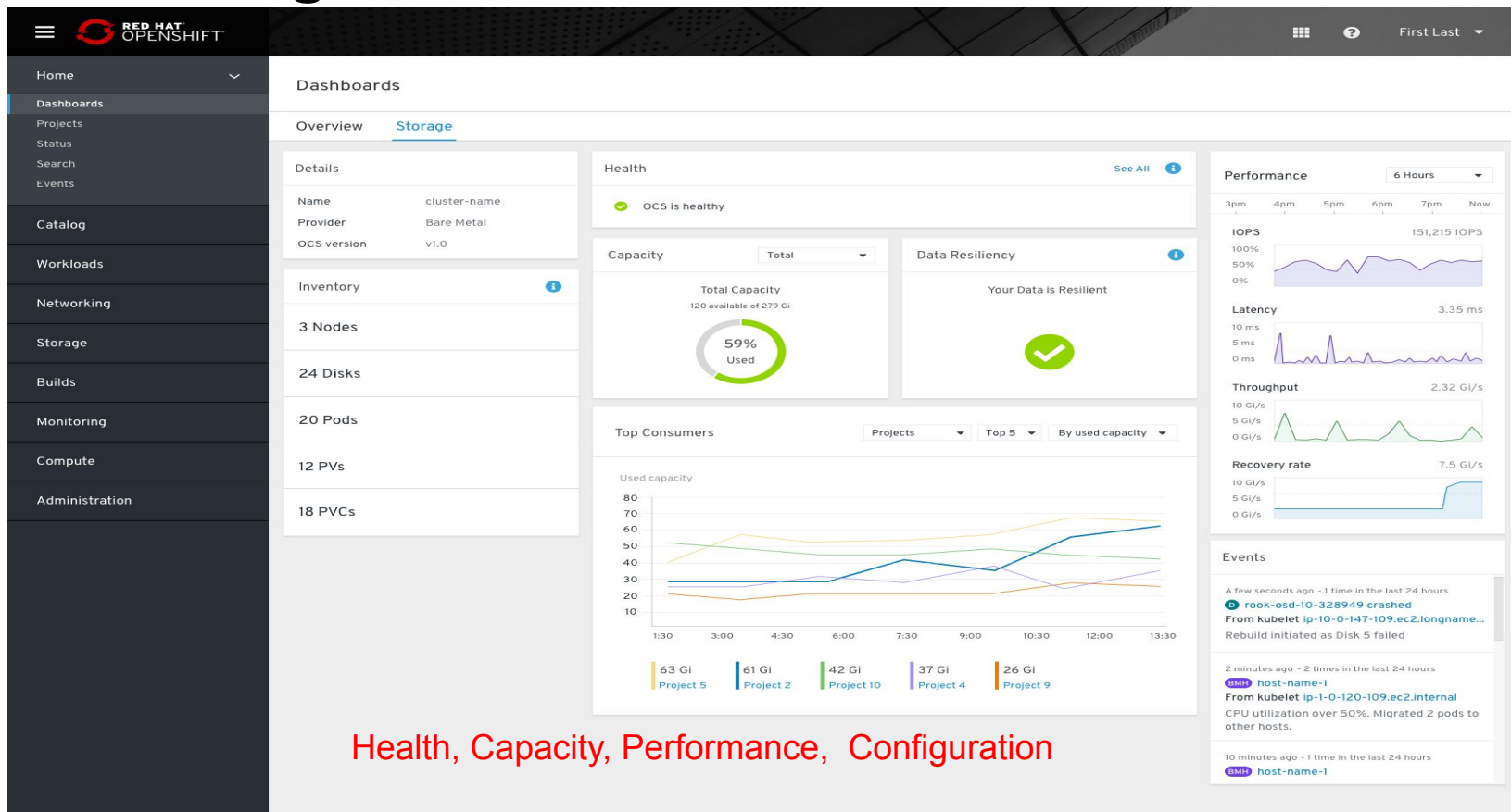
Descheduler
provided by Red Hat
An operator to run the OpenShift descheduler, a scheduler to move running Pods according to policies

Dynatrace OneAgent
provided by Dynatrace LLC
Install full-stack monitoring of OpenShift clusters with the Dynatrace OneAgent.

OCP + OCS Integrated Monitoring and Management

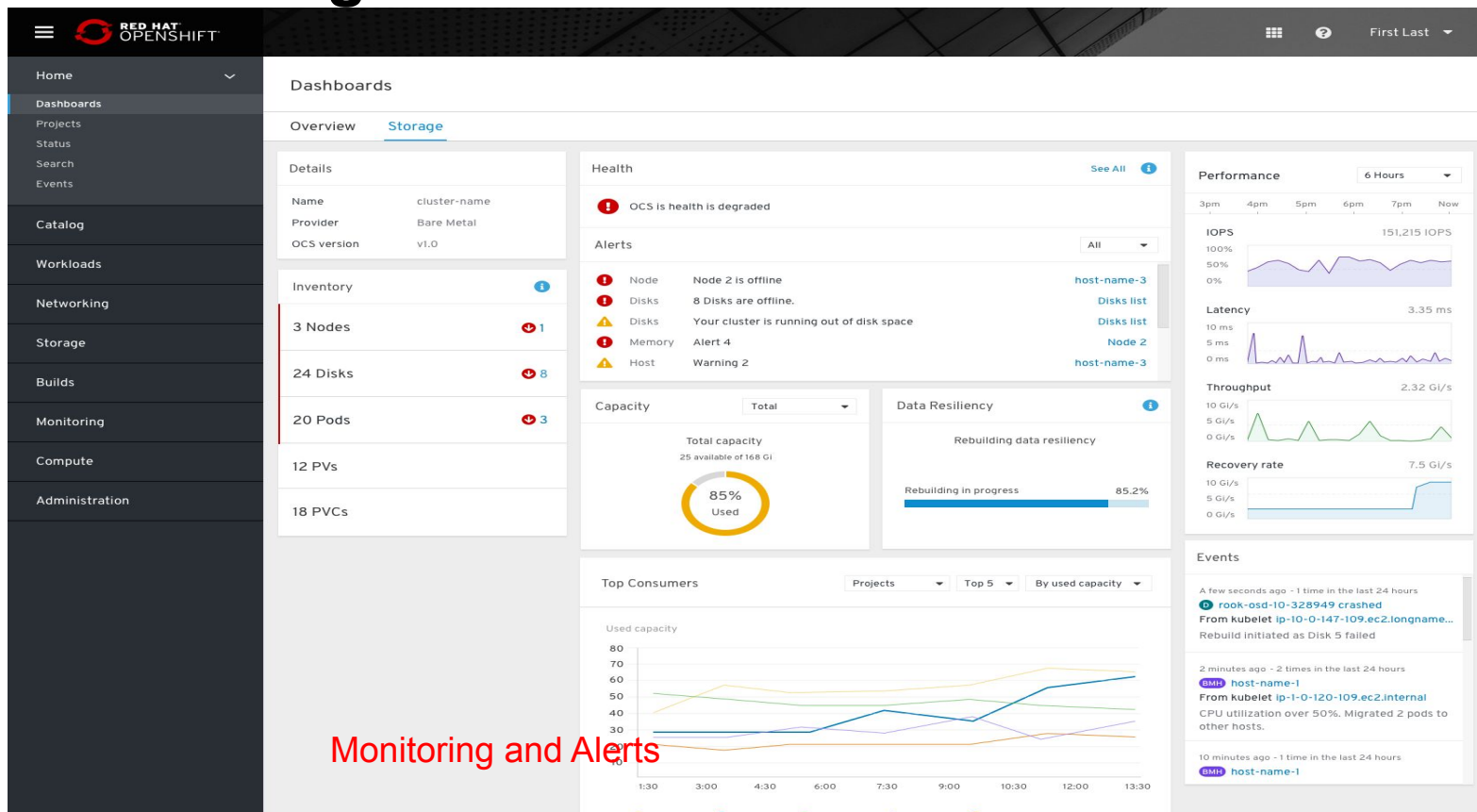


OCS Integrated Dashboard



Health, Capacity, Performance, Configuration

OCS Integrated Dashboard - Alerts



Monitoring and Alerts

Ease of Use Hybrid Cloud Kubernetes Storage

Any Cloud, Any App, One Storage Experience



RED HAT OPENSIFT CONTAINER STORAGE

BARE METAL

RED HAT
ENTERPRISE
LINUX



VIRTUAL

vm



CONTAINERS



OPENSIFT
ENTERPRISE
by Red Hat



PUBLIC CLOUD

AWS, AZURE, GCP

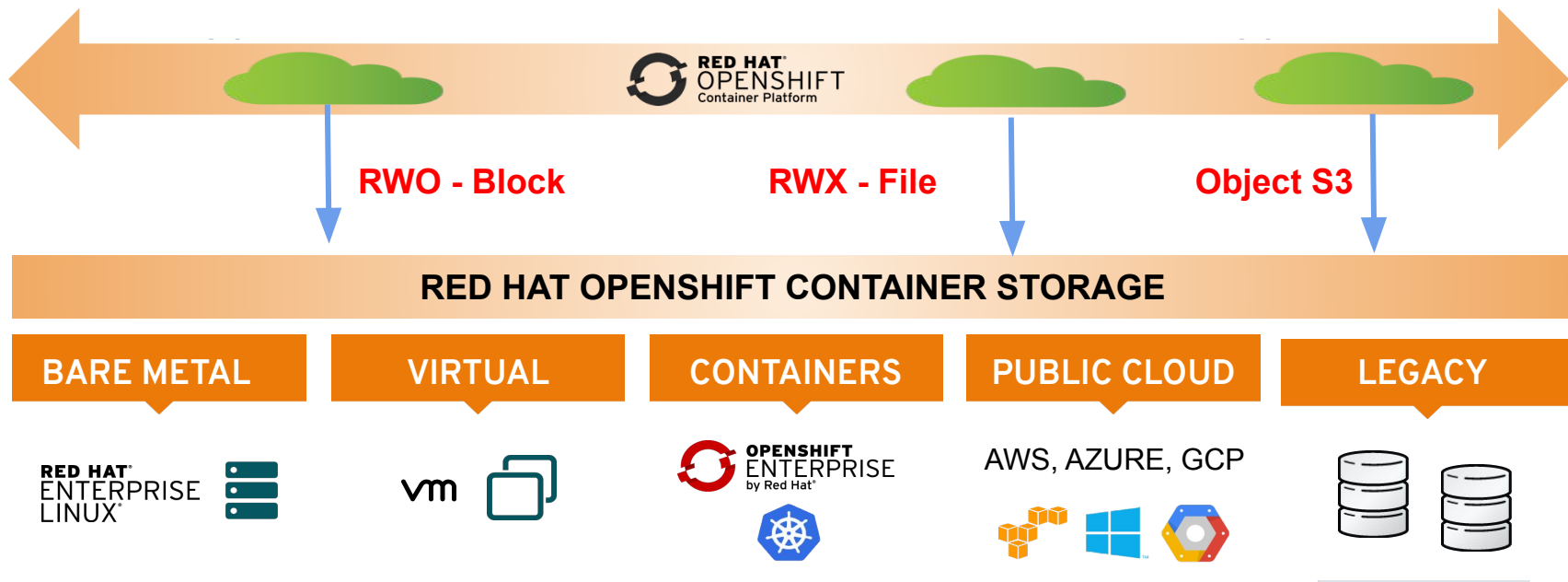


LEGACY



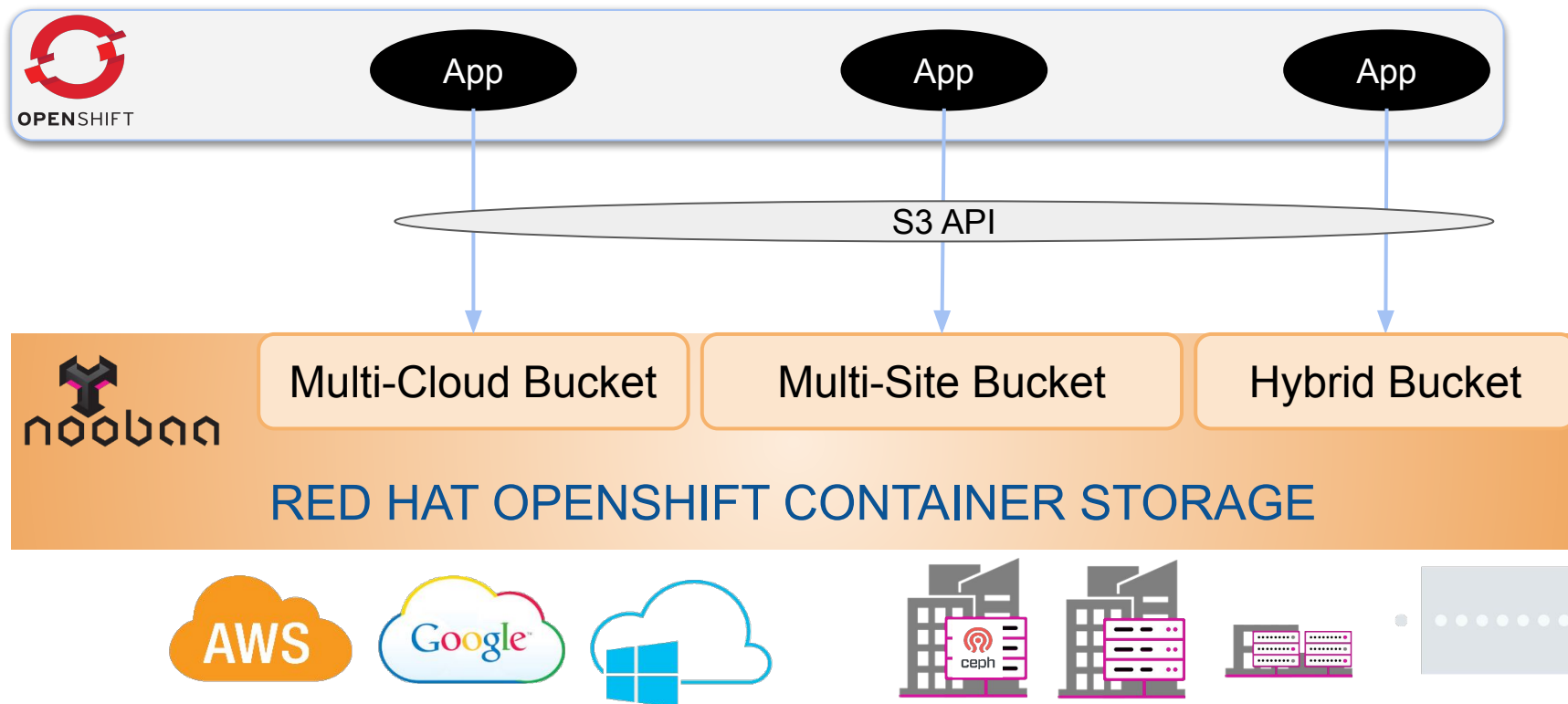
Consistent consumption, management, operations
Future Proof against cloud or infrastructure lock-in

Complete Storage for Container Platform



Provides Storage for All Apps and infrastructure Services
in their native interfaces

Multi-Cloud Object Gateway (NooBaa)



Ease of Use Hybrid Cloud Kubernetes Storage

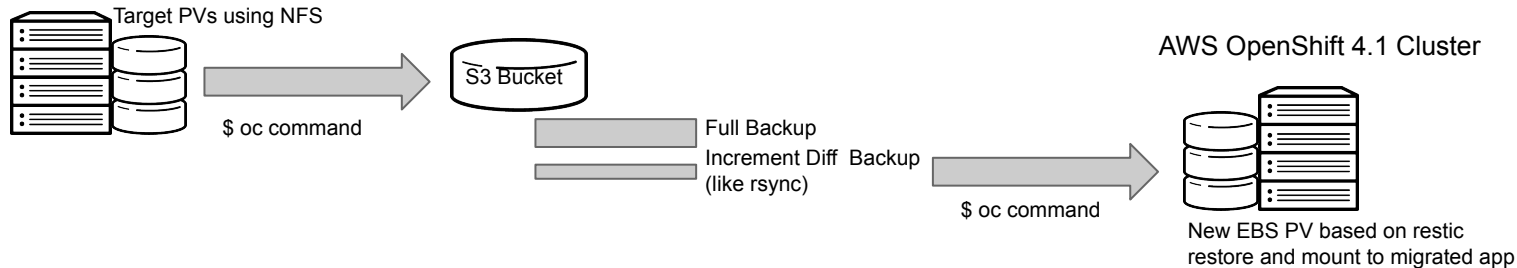
Kubernetes Storage Enhancements

- CSI Compliance 1.0
- Snapshot and Restore at K8s
- Local Persistent Volume
- Raw Block Device
- S3 bucket dynamic provisioning
- Storage for federated OpenShift/Kubernetes

Migration

CLUSTER MIGRATION OPENSIFT 3 to 4

vSphere OpenShift 3.10 Cluster



- Deploy a replication of your applications from one OpenShift cluster to a different OpenShift cluster
- Enable cluster specific configuration from OpenShift 3 to work on a OpenShift 4 cluster
- Documentation on how to handle common network, storage, and machine/node re-use scenarios between OpenShift 3 and OpenShift 4 clusters



Red Hat

OpenShift Container Platform | Cluster Application Migration Tool



Migration Plans

[+ Add plan](#)

Name	Migrations	Source	Target	Repository	Persistent Volumes	Last Status
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OCP3_to_4
Migration



0

OCP 3 source

OCP 4 destination

OCS_S3



2

Not Started

Stage

Migrate



RED HAT
SUMMIT

THANK YOU



[linkedin.com/company/Red-Hat](https://www.linkedin.com/company/Red-Hat)



[youtube.com/user/RedHatVideos](https://www.youtube.com/user/RedHatVideos)



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twitter.com/RedHat



Got OpenShift Container Storage? Help us shape the Red Hat OpenShift storage experience.

Visit the User Experience Design team in the **Feedback Zone**.



Ecosystem Expo
Exhibit Hall A

Activity Title

Get early insights into OCS and influence its direction

Contact Name

Ju Lim, julim@redhat.com



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THANK YOU



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