OpenShift Container Storage
Past, present, and future

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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

- **COMPLETE DATA PORTABILITY**
  For OpenShift Across the Hybrid Cloud

- **MOST SCALABLE DATA PLATFORM**
  For Data Analytics, AI/ML, and emerging workloads

- **ELASTIC INFRA ACROSS THE DATA CENTER AND EDGE**
  Built to enable flexibility, scale, and ease of use
FIND US AT RED HAT SUMMIT

- 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?

Red Hat OpenShift Container Storage Focus
RWX/RWO backed by File, Block, S3
EXPLOIT THE FULL POWER OF OPENSshift
consistent storage consumption, management, and operations
TWO FLAVORS OF CONTAINER STORAGE

**OPENSHIFT CONTAINER STORAGE INDEPENDENT MODE**
Use existing investment in traditional storage, managed by storage admin – attach to standalone storage

**OPENSHIFT 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

OPENSHIFT 3

OPENSHIFT PLATFORM

OPERATING SYSTEM

INFRASTRUCTURE

OPENSHIFT 4

OPENSHIFT PLATFORM

OPERATING SYSTEM

RED HAT ENTERPRISE LINUX CoreOS
We have been rewarded!

400+ customers and counting

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 3.11.1
Feb, 19
- All workloads on block PV’s
- CRI-O tech preview
- Auto re-sync of Heketi/RHGS DB

OCS 3.11.2
Mar, 19
- Strict zoning in heketi
- Improved DR w/ stretched clusters
- Additional metrics for block PV

3.11.3
June 19
- Optimized container images
- Improved startup time

OCS 3.11.2
Mar, 19
- Ansible Upgrade Playbook
- RHGS 3.5
- PV Scaling to 2000+ 3 node
OCS Future
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OCS 4 Technology Stack
# PROVIDER ROADMAP FOR OCS 4

<table>
<thead>
<tr>
<th>Installer Provisioned Infrastructure (IPI)</th>
<th>User Provisioned Infrastructure (UPI)</th>
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<tbody>
<tr>
<td><strong>OPENSHIFT</strong> by Red Hat 4.1</td>
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<tr>
<td><strong>OPENSHIFT</strong> by Red Hat 4.2</td>
<td><strong>RED HAT OPENSHIFT</strong> Container Storage</td>
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<tr>
<td><strong>OPENSHIFT</strong> by Red Hat 4.3*</td>
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<tr>
<td>Baremetal</td>
<td>Baremetal</td>
</tr>
<tr>
<td>IBM Cloud</td>
<td></td>
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</tbody>
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*4.3 planning is still in progress, content still TBD*
RHOCS 4.x Roadmap

August / September 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

December / January 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 & DATA SERVICES
- STORAGE ENHANCEMENTS
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)

App

Volume Claim

Block

App

Volume Claim

File

App

Object Bucket Claim

Object

OCS Pods

Operator

Mon

OSDs

OSD

OSD

OSD

OSD

MDS

OSDs

OSD

OSD

OSD

RGW

Mon

OSDs

OSD

OSD

OSD

MCG

Mon

OSDs

OSD

OSD

OSD

OSD

#redhat #rhsummit
OCS 4.x Operator Driven Install from OLM
OCP + OCS Integrated Monitoring and Management

OCS 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

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)

App

App

App

S3 API

Multi-Cloud Bucket

Multi-Site Bucket

Hybrid Bucket

RED HAT OPENSSHIFT CONTAINER STORAGE

Active - Active Multi Cloud Read /Write
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 OPENSHEET 3 to 4

- 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
<table>
<thead>
<tr>
<th>Name</th>
<th>Migrations</th>
<th>Source</th>
<th>Target</th>
<th>Repository</th>
<th>Persistent Volumes</th>
<th>Last Status</th>
<th>Stage</th>
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<th>More</th>
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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

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