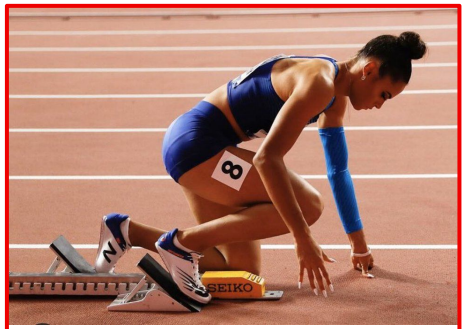
Red Hat
Data Services

Red Hat OpenShift Data Foundation 4.x

Red Hat
Data Services

Unlock the value of data



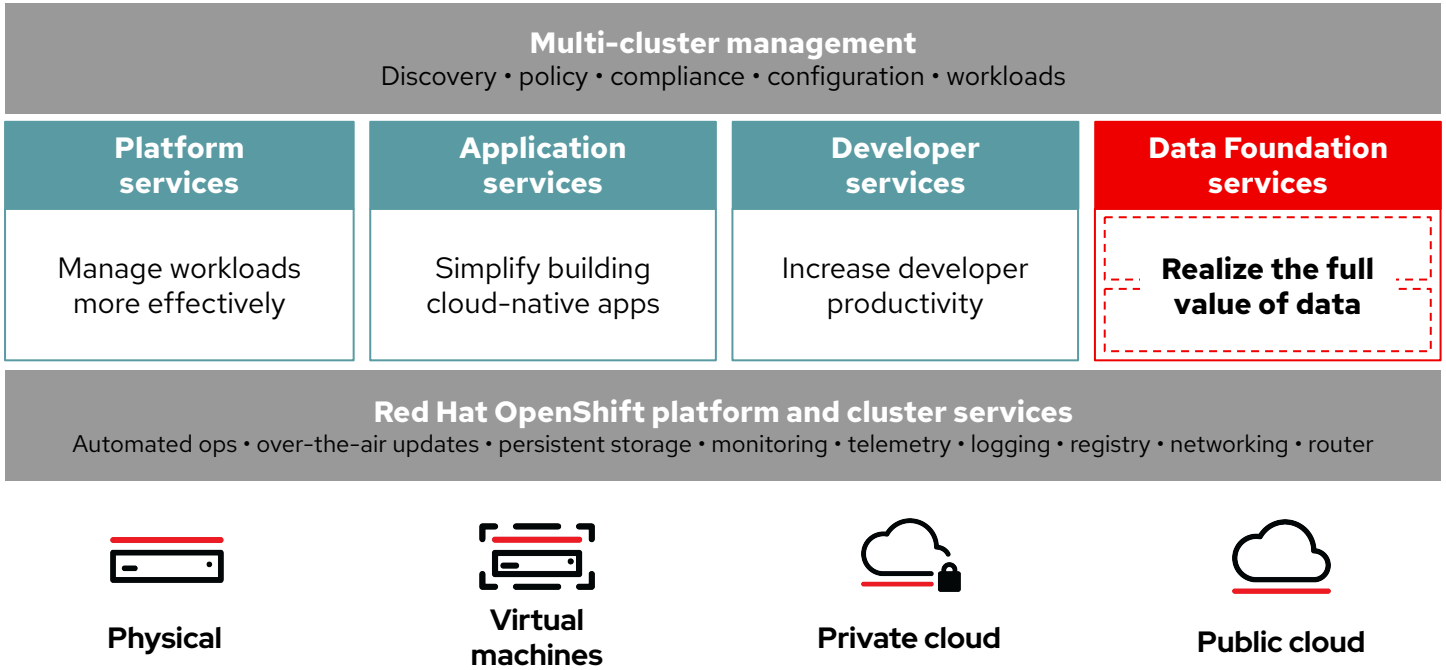
DATA AT REST

DATA IN MOTION

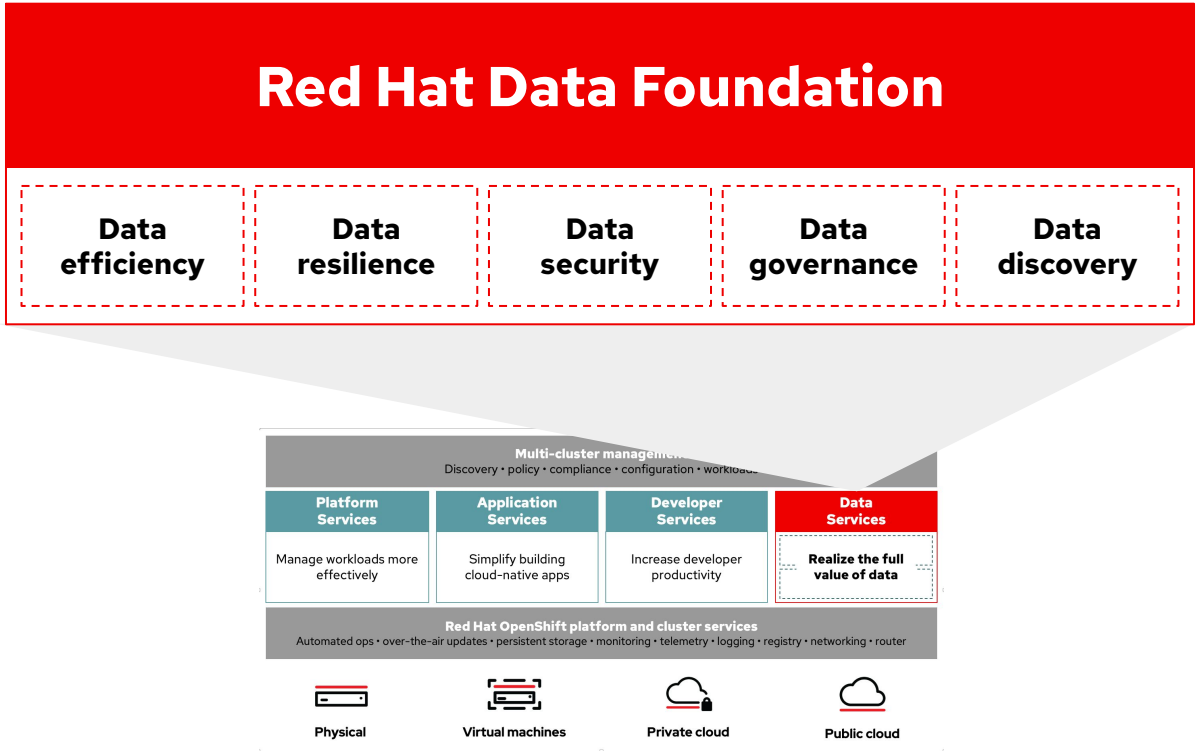
DATA IN ACTION

Red Hat
Data Services

How Red Hat Data Foundation services fit



The Red Hat Data Foundation opportunity



Red Hat Data Services

Red Hat Data Foundation in a nutshell

Data efficiency

- Erasure coding
- Compression
- Performance

Data resilience

- Snapshots
- Clones
- Backup
- Recovery
- Business continuity
- Disaster recovery

Data security

- At rest encryption
- In flight encryption
- Key management

Data governance

- WORM
- Auditing
- Compliance
- SEC & FINRA
- GDPR

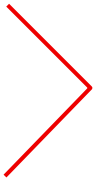
Data discovery

- Cataloging
- Tagging
- Search

Data Foundation: a change of mindset

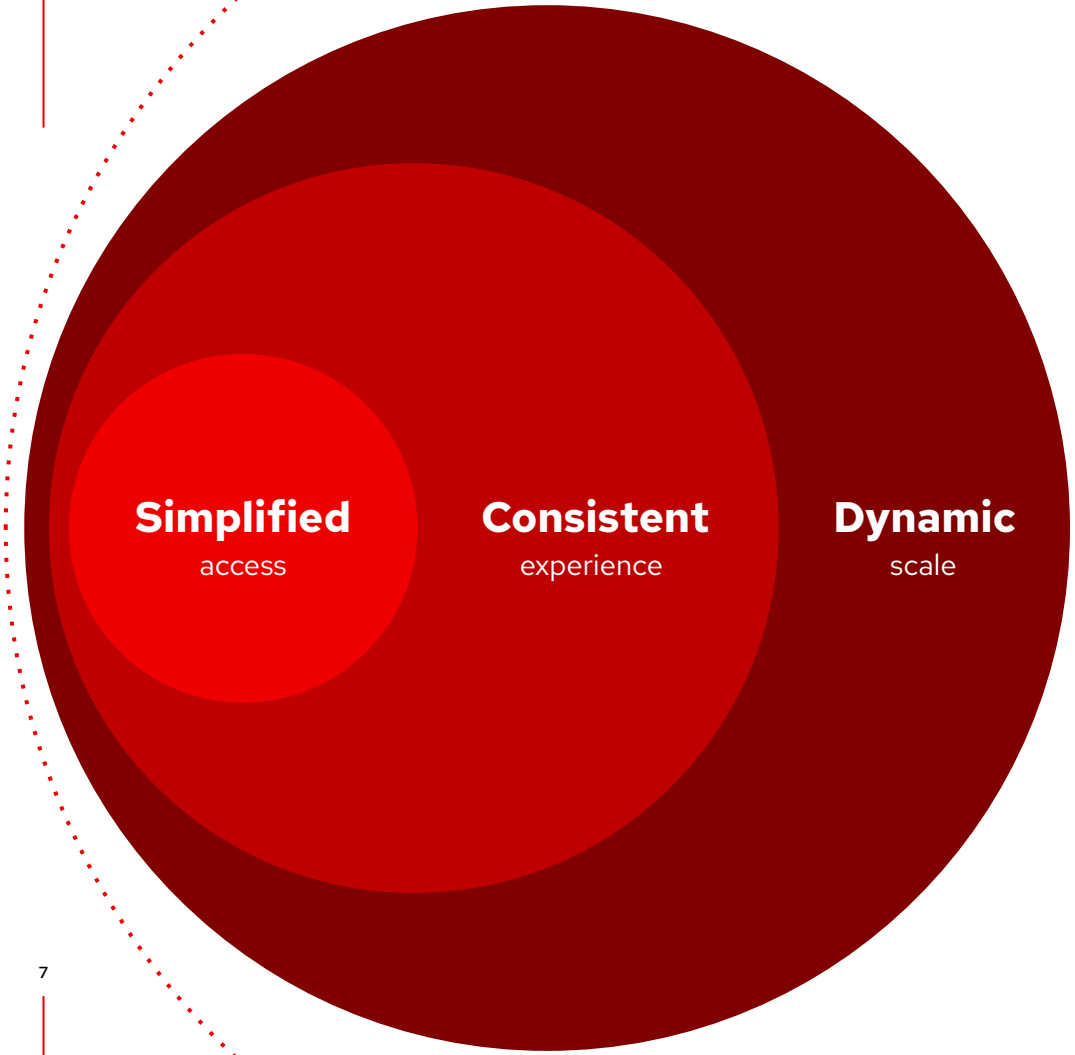
Traditional, static approach

- Focus on improving efficiency
- Infrastructure-up view
- Poor performance at scale
- Disconnected
- Manual, monolithic and rigid



Dynamic, data foundation approach

- Focus on innovation
- Application-oriented view
- Highly scalable
- Always-on
- Automated, on-demand, and flexible



Red Hat Data Services mission:

To make data accessible to applications across the hybrid cloud, unlocking its power in new and impactful ways

Delivering on the Red Hat OpenShift promise:

Innovation without limitation

Red Hat Data Services

Data is the most significant asset in today's businesses—give it data foundation

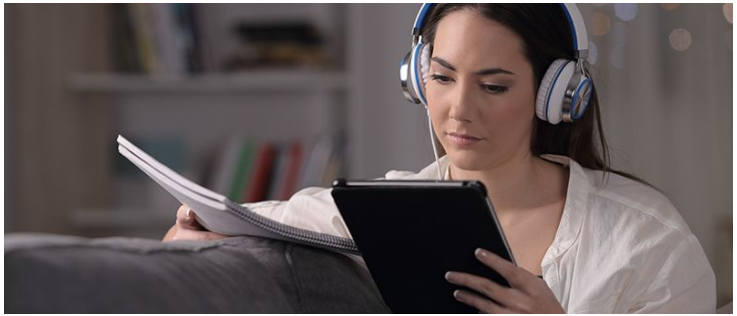
- Data foundation focuses on infrastructure and application needs so they can run and interact with ease and efficiency
- Provides a foundational data layer for applications to function and interact with data in a simplified, consistent and scalable manner
- Red Hat Ceph Storage is a foundational component to drive data services

What Data Foundation means for developers/data scientists

Traditional, static approach

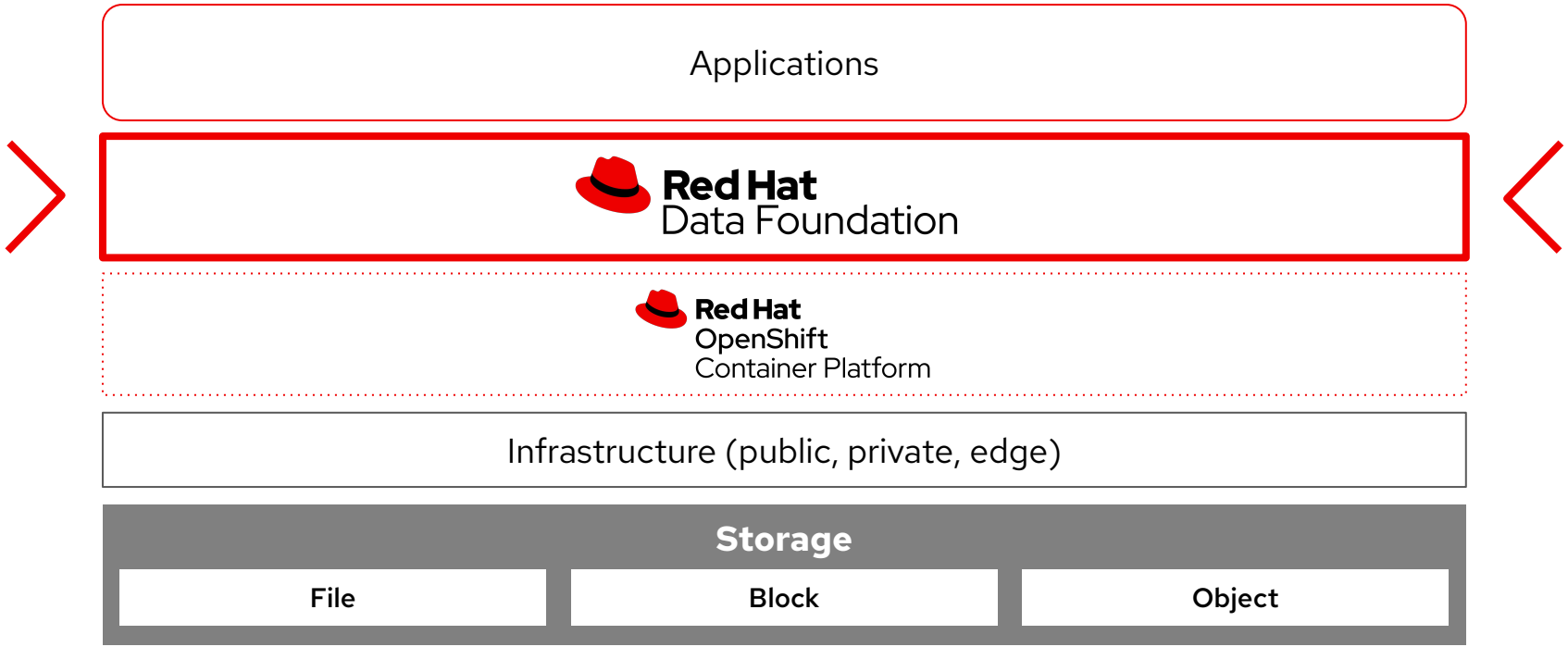
- Must visit the library, again and again
- Strictly limited usage, with limited content on offer
- Can only check out a few items at a time

Data foundation approach

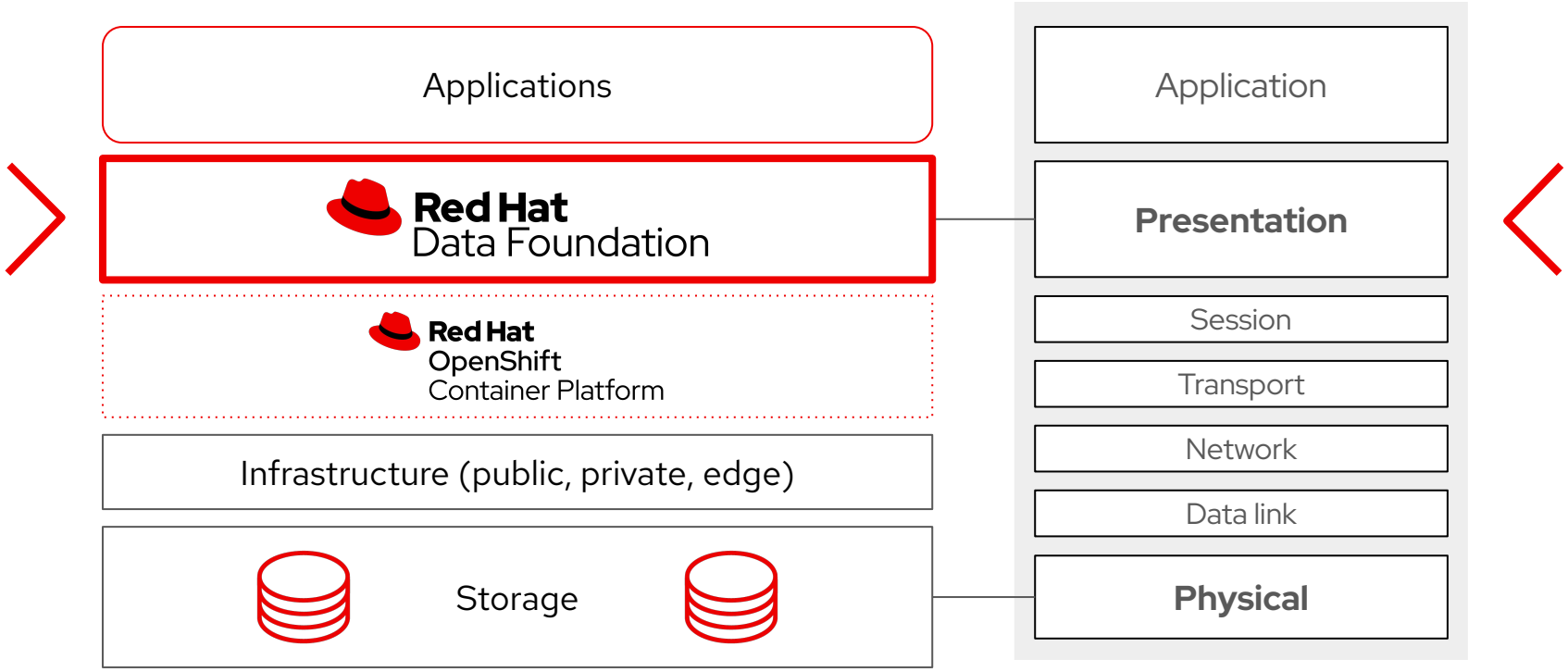


- Access to data from anywhere, indefinitely
- Simultaneous access to a wide range of content, and almost unlimited usage
- Self-service—no need for manual supervision

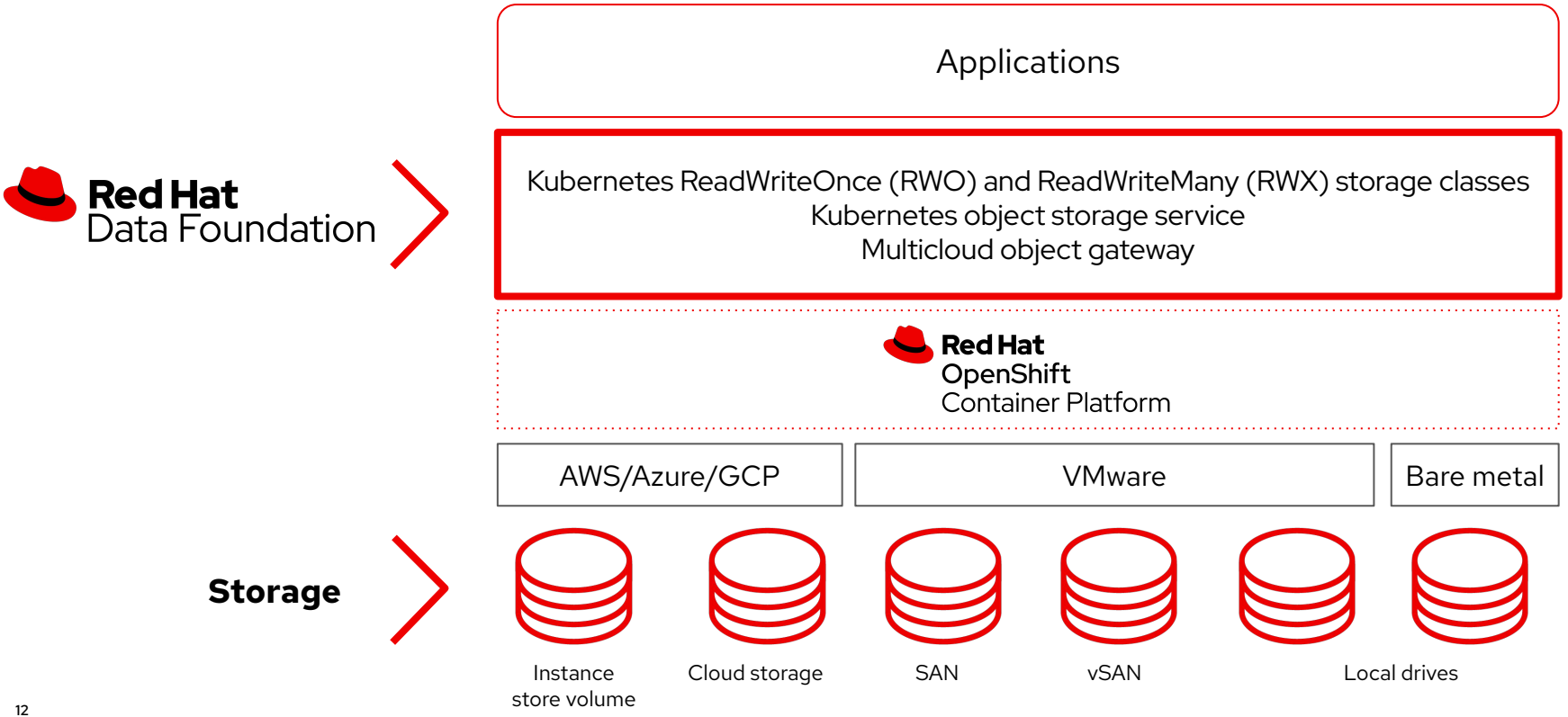
The Red Hat Data Foundation stack



The Red Hat Data Foundation stack



The Red Hat Data Foundation stack



Data foundation workloads

Workload specialized data foundation

For data at rest

Databases, warehouses and lakes

- Microsoft SQL Server
- crunchy data
- mongoDB.
- Red Hat Ceph Storage
- MySQL
- IBM Db2 Warehouse

For data in motion

Streaming and messaging

- Red Hat Ceph Storage
- ceph
- Red Hat AMQ Streams
- kafka
- Red Hat OpenShift Serverless
- K

For data in action

Data analytics, intelligence, AI/ML

- Apache Spark
- jupyter notebook
- TensorFlow
- PyTorch
- Starburst Analytics Anywhere
- Jenkins
- TEKTON
- Microsoft SQL Server Big Data Clusters
- SAP Data Intelligence

Cloud-native infrastructure data foundation

For any stateful app

Infrastructure services

- Red Hat Quay
- Prometheus
- elasticsearch
- fluentd
- kibana

What's new?

Data resilience with Red Hat OpenShift Data Foundation 4.8

FUNCTIONALITY

Greater control and manageability with about 10 new functional features

SECURITY

Enhanced protection with data encryption for RBD and additional protection with snapshotting and cloning

PERFORMANCE

Improved segregation of storage and network resources. Faster upgrade by component rescheduling improvement

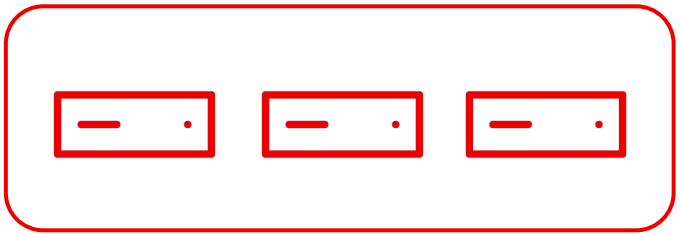
EFFICIENCY

Extended flexibility by component selectability and new caching capabilities

FUNCTIONALITY

Compact mode
with Red Hat OpenShift Data Foundation

Run Red Hat OpenShift including OpenShift Data Foundation deployed on three nodes in production, without distinct compute or worker nodes and inclusive storage

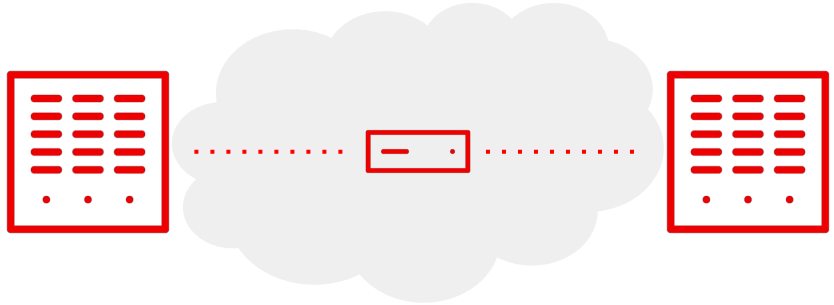


FUNCTIONALITY

Metro DR-stretch cluster

Stretched cluster with arbiter

No data-loss recovery when only two data centers can be used. An arbiter will be used to get a valid quorum between the two data centers.
This concept enables for near-zero recovery point objective (RPO).
Recovery times vary, based on the volume type.



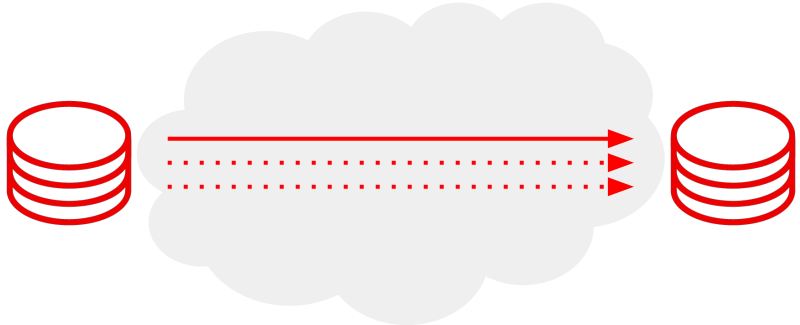
FUNCTIONALITY

Regional DR

Multi cluster persistent block volume async replication

Disaster recovery for persistent **block** volumes, using differential data for data transfer and time efficiency. Recovery point objective (RPO) and recovery time objective (RTO) times are in mins.

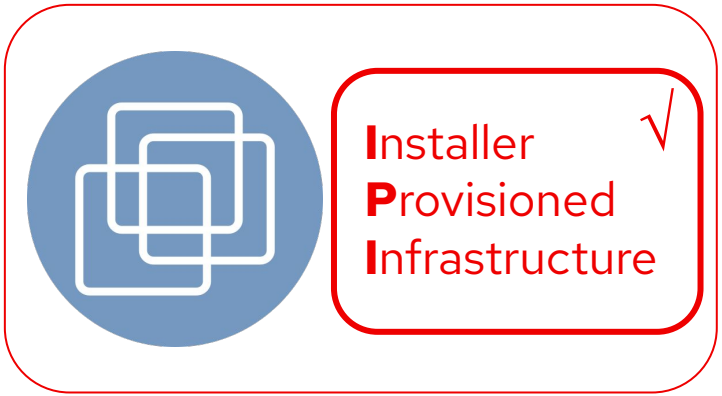
Capability for use with higher latency connections like WAN



FUNCTIONALITY

VMware
Installer provisioned infrastructure

OpenShift Container Storage can now be installed and managed using VMware vSphere on installer-provisioned infrastructure.



What's new?

Red Hat OpenShift Data Foundation 4.8

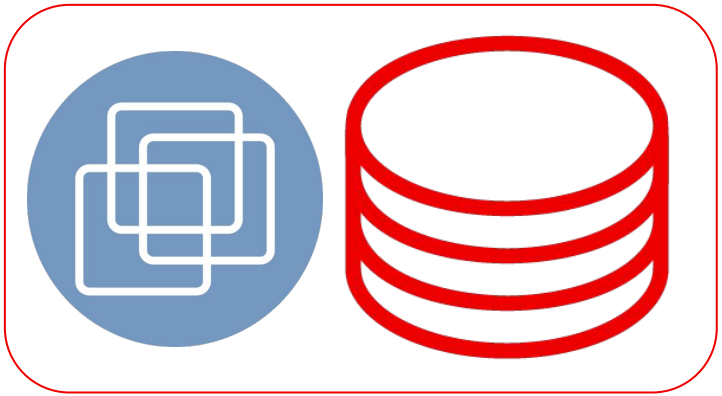
Dev Preview

FUNCTIONALITY

VMware thick provisioning

Support for VMware thick provisioning

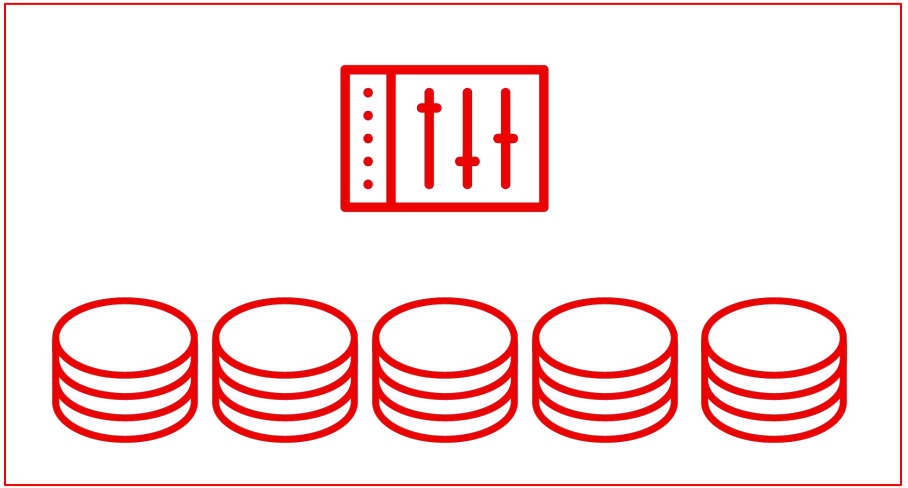
This is about the backend storage for Object Storage Daemons
Thick-provisioned disks are considered the best for performance and security.



FUNCTIONALITY

Pools management

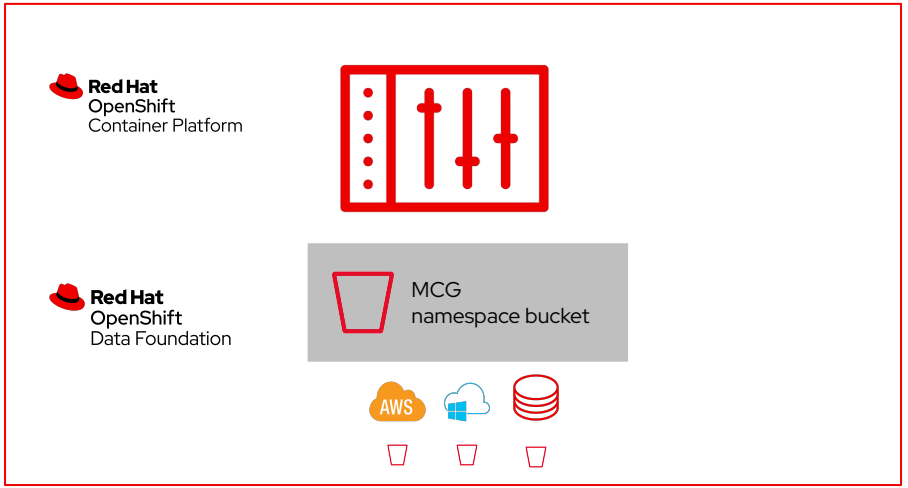
An easy way to manage storage pools including, adding, editing and removal.



FUNCTIONALITY

Multicloud Object Gateway

UI option for MCG Namespace bucket class and backing store



FUNCTIONALITY

Recovery with a few commands

Supportability–recover from a full cluster failure event

Provides a way to recover quickly

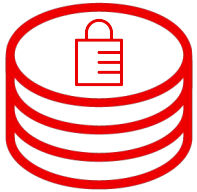
Red Hat provides a job template containing simple instructions to help customers recover quickly

SECURITY

OpenShift Data Foundation 4.7
capability to encrypt PVs

Enhanced Block Device persistent volume encryption

Enhanced RBD PV encryption



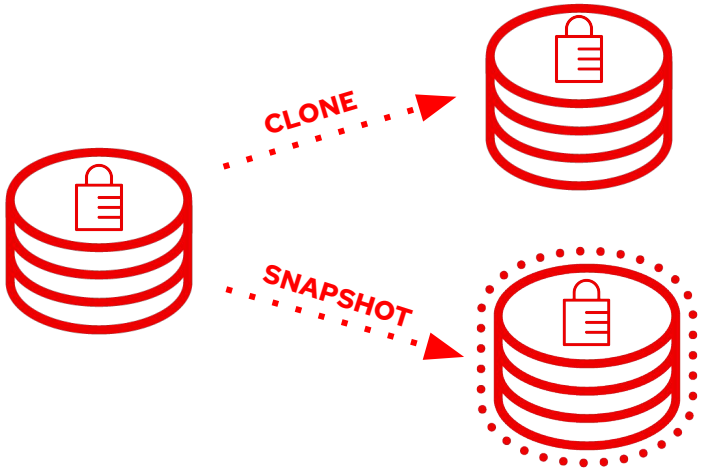
SECURITY

OpenShift Data Foundation 4.7
capability to encrypt PVs

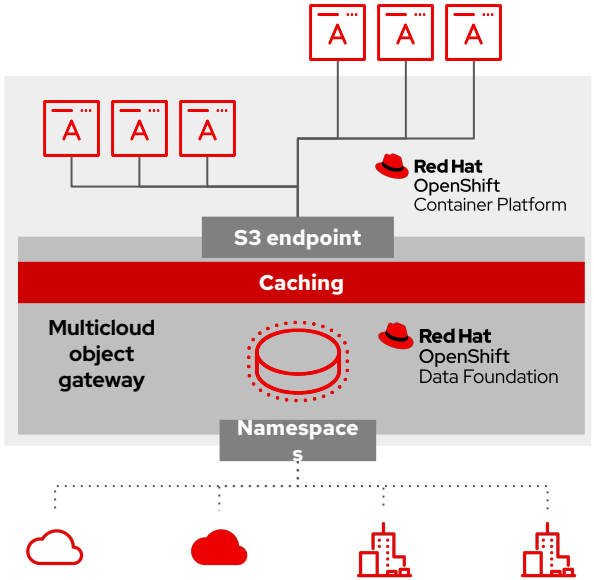
OpenShift Data Foundation 4.8
supports encrypted snapshots and clones

Enhanced Block Device persistent volume encryption

Enhanced RBD PV encryption with the ability to clone the volume and take a snapshot



EFFICIENCY



Multicloud object gateway (MCG)

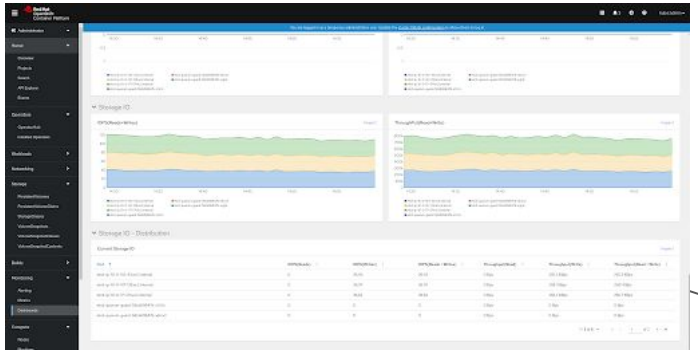
Caching support

A caching object solution for customers where data gravity is required. This is particularly useful for those using artificial intelligence/machine learning (AI/ML) platforms.

What's new?

Red Hat OpenShift Data Foundation 4.8

EFFICIENCY



TOP utility—viewing pods I/O metrics

Ability to drill down when there is a load or overload situation on a system

Pods level performance information helps finding "noisy" applications

What's new?
Red Hat OpenShift Data Foundation 4.8

SUMMARY

General Available √

- Compact Mode (for Edge)
- VMWare IPI provisioning
- Block encryption extended with snap and clone
- Easy pools management
- Multicloud object gateway User Interface option (new) and caching feature (TP in 4.7)
- Supportability—recover from a full cluster failure event
- TOP IO metrics for pods

Tech Preview

- Metro-DR stretch cluster
- Multi Network Plugin (Multus)
- Object Storage Daemon Weight option

Dev Preview

- Block Device thick provisioning
- Regional-DR (for RBD)
- VMware thick storageclass
- Replica-2 for the entire cluster (RBD and CephFS)
- Data segregation
- Flexible component deployment

Thank you

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