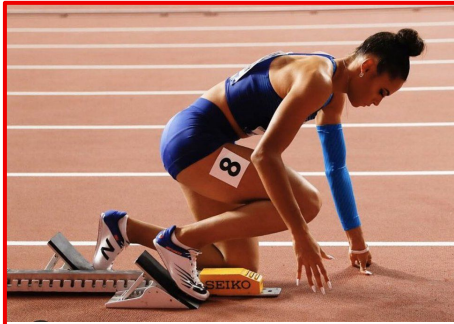


# Red Hat OpenShift Data Foundation

**We start at 11:15 PM Cest**

# Unlock the value of data



**DATA AT REST**

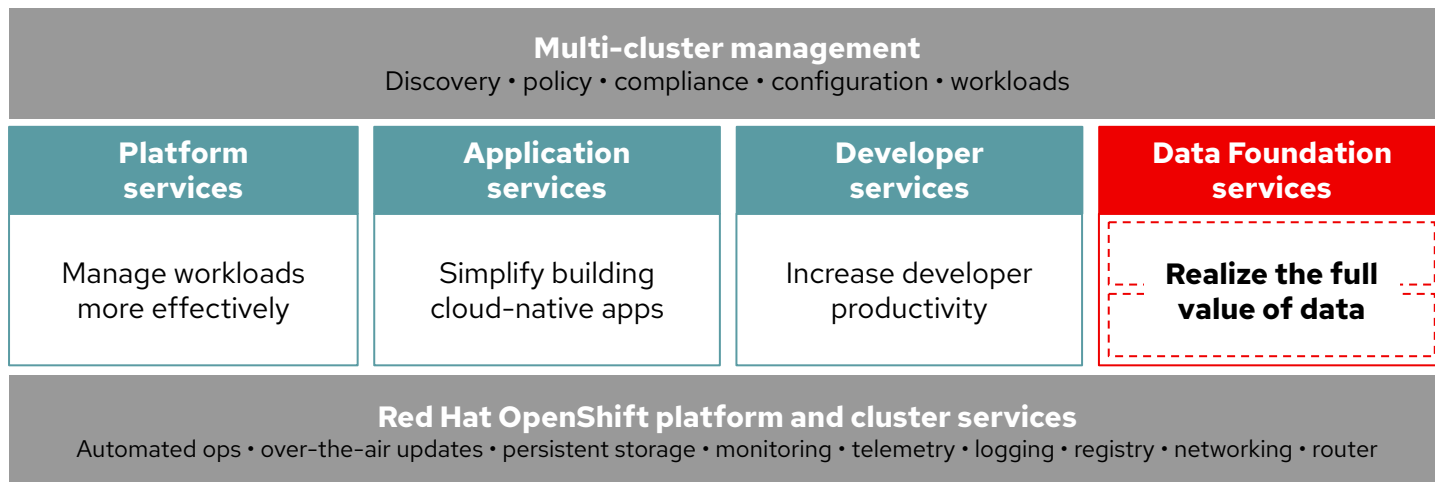


**DATA IN MOTION**



**DATA IN ACTION**

# How Red Hat Data Foundation services fit



Physical



Virtual machines

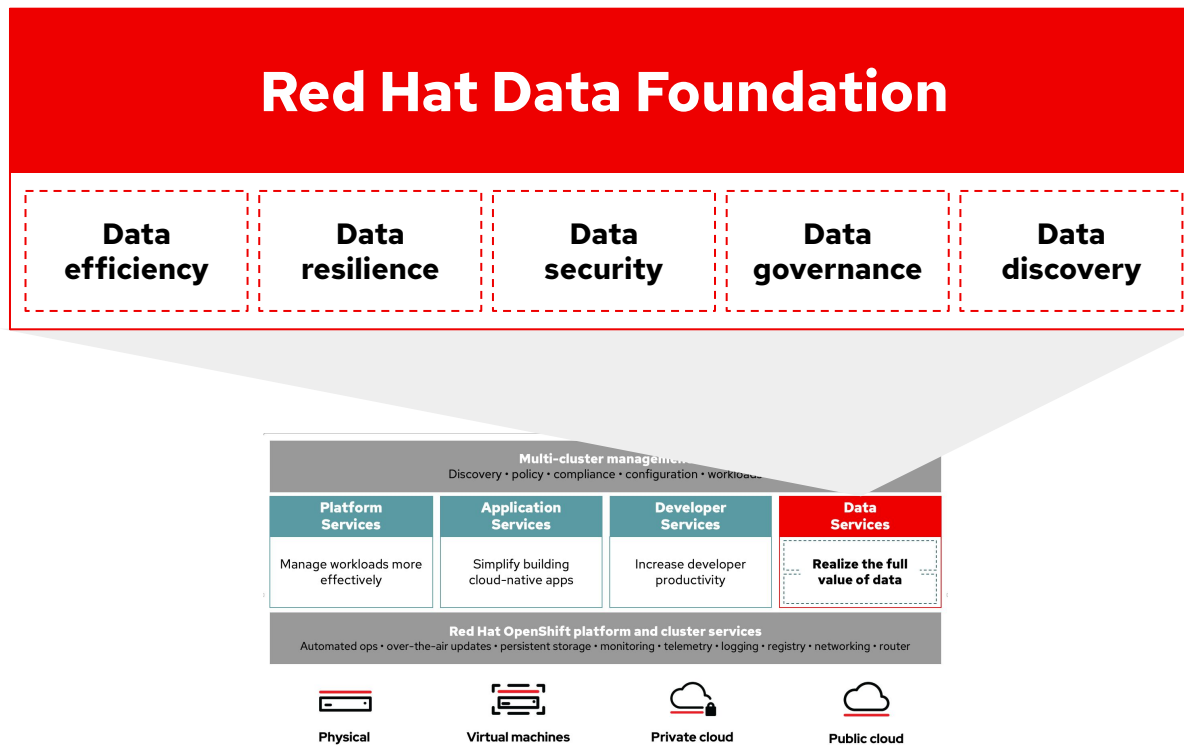


Private cloud



Public cloud

# The Red Hat Data Foundation opportunity



# 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



**Simplified**  
access

**Consistent**  
experience

**Dynamic**  
scale

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

# 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



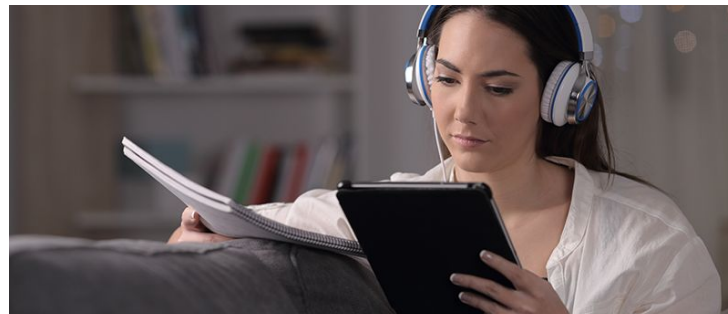
# What Data Foundation means for developers/data scientists

## Traditional, static approach



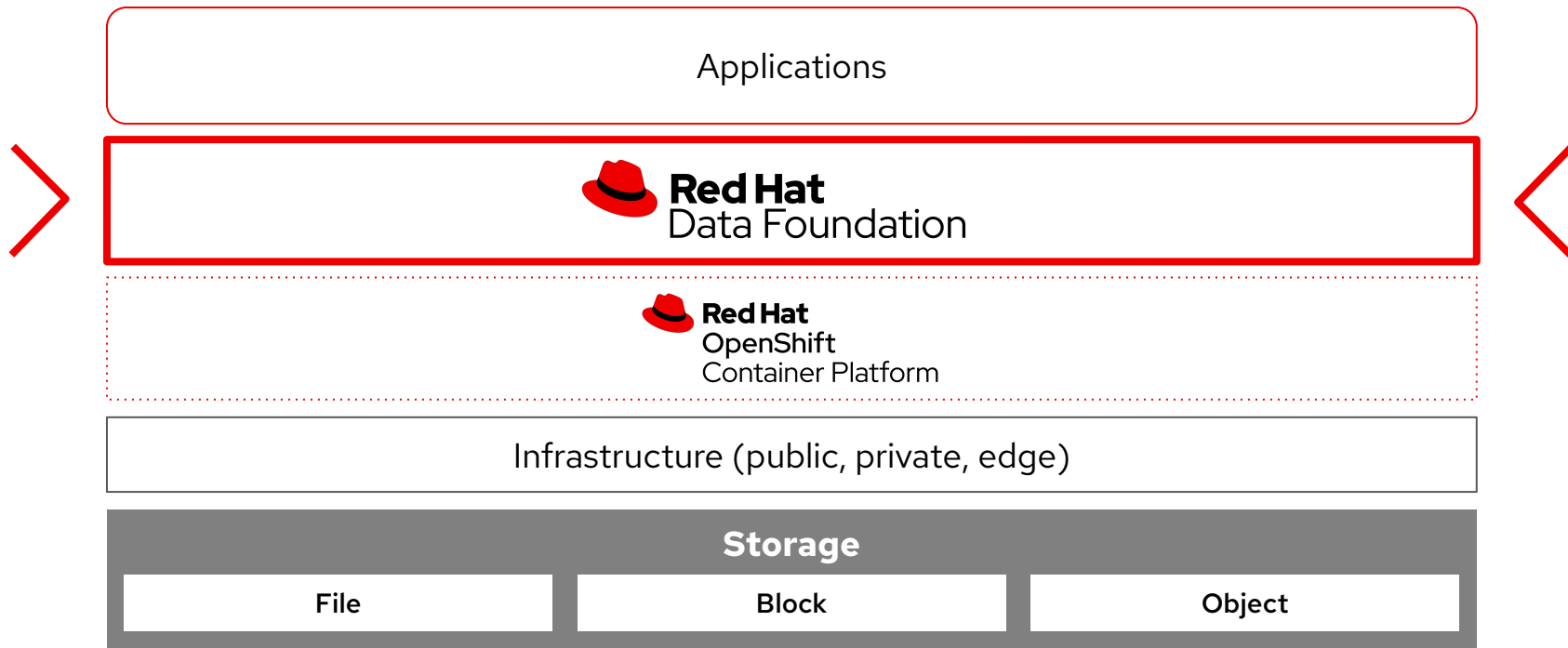
- Must visit the library, again and again
- Strictly limited usage, with limited content on offer
- Can only check out a few items at a time

## Data foundation approach

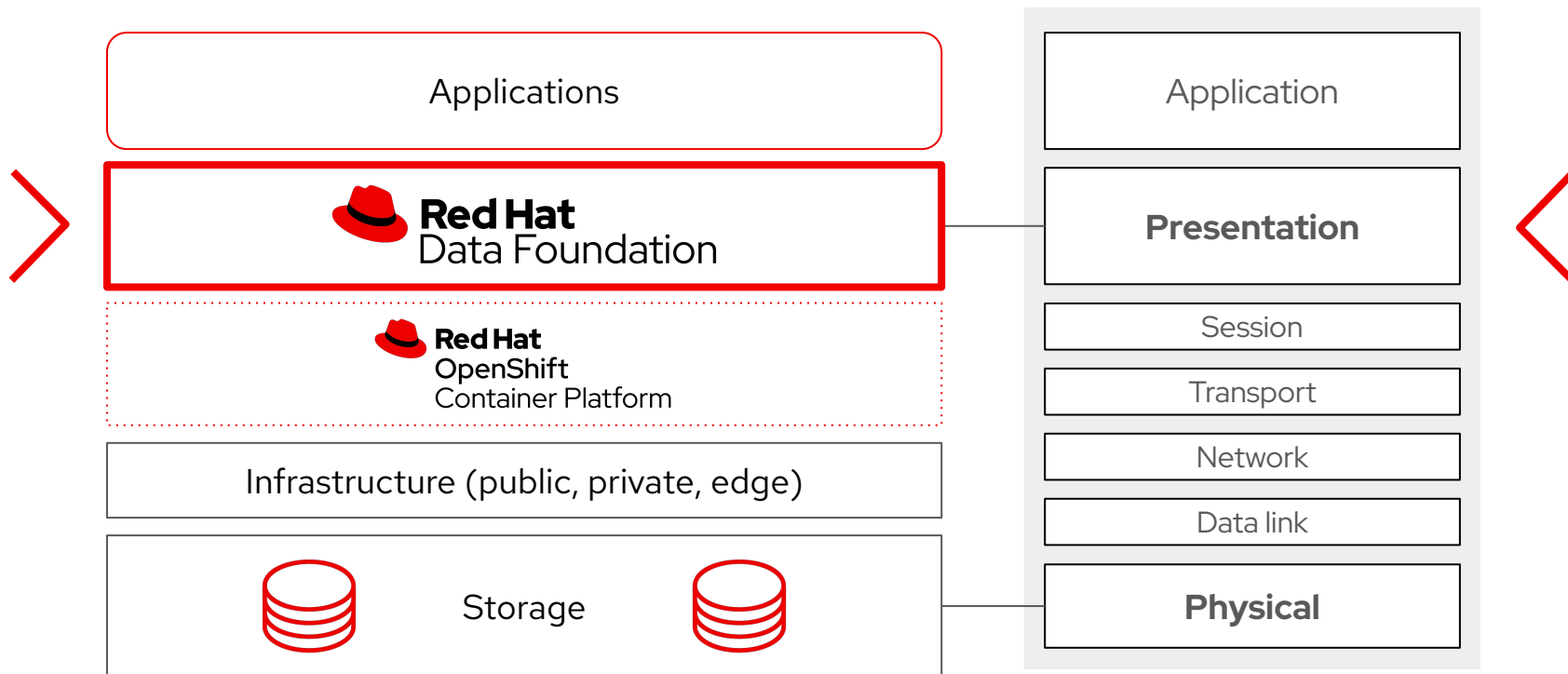


- Access to data from anywhere, indefinitely
- Simultaneous access to a wide range of content, and almost unlimited usage
- Self-service—no need for manual supervision

# The Red Hat Data Foundation stack



# The Red Hat Data Foundation stack



# The Red Hat Data Foundation stack



Applications

Kubernetes ReadWriteOnce (RWO) and ReadWriteMany (RWX) storage classes  
Kubernetes object storage service  
Multicloud object gateway

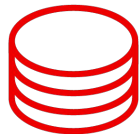
**Red Hat**  
OpenShift  
Container Platform

AWS/Azure/GCP

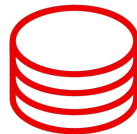
VMware

Bare metal

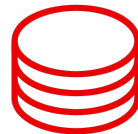
**Storage**



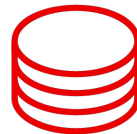
Instance  
store volume



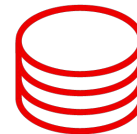
Cloud storage



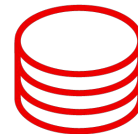
SAN



vSAN



Local drives



# Data foundation workloads

## Workload specialized data foundation

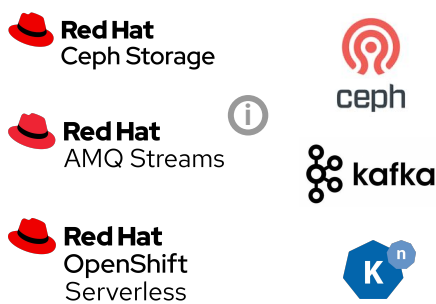
### For data at rest

#### Databases, warehouses and lakes



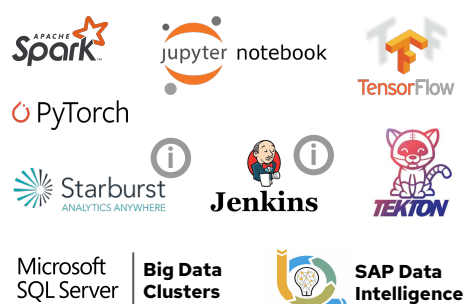
### For data in motion

#### Streaming and messaging



### For data in action

#### Data analytics, intelligence, AI/ML



## Cloud-native infrastructure data foundation

### For any stateful app



# 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





### Tech Preview

Provides early access to upcoming product innovations, enabling customers to test functionality and provide feedback during the development process.

These features are not fully supported under Red Hat Subscription Level Agreements, may not be functionally complete, and are not intended for production use.

As Red Hat considers making future iterations of Technology Preview features generally available, we will attempt to resolve any issues that customers experience when using these features.



### Dev Preview

Development Preview releases are meant for customers who are willing to evaluate new products or releases of products in an early stage of product development.

It's a vehicle for developers that provides early access to new unreleased features.

These features are not supported under Red Hat Subscription Level Agreements, may not be functionally complete, and are not intended for production use.

Dev preview features are also not documented in the official release documentation.



# What's new?

Red Hat OpenShift Data Foundation 4.8

**FUNCTIONALITY**



**SECURITY**



**PERFORMANCE**



**EFFICIENCY**



## What's new?

Red Hat OpenShift Data Foundation 4.8



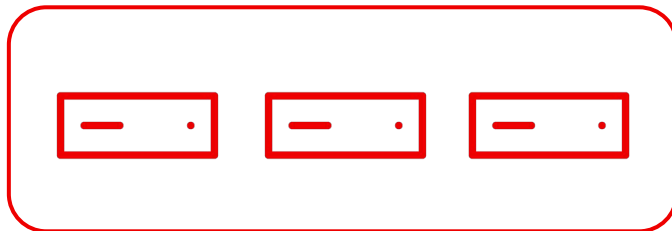
# FUNCTIONALITY

---

## 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



# What's new?

Red Hat OpenShift Data Foundation 4.8

**Tech Preview**

## FUNCTIONALITY

**Tech Preview**

(last minute change)



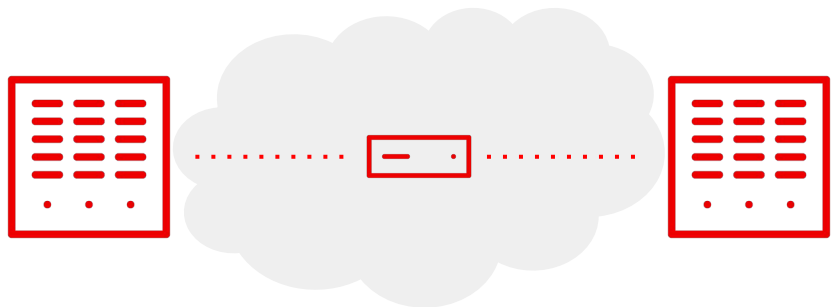
### Metro DR-stretch cluster

Stretched cluster with arbiter

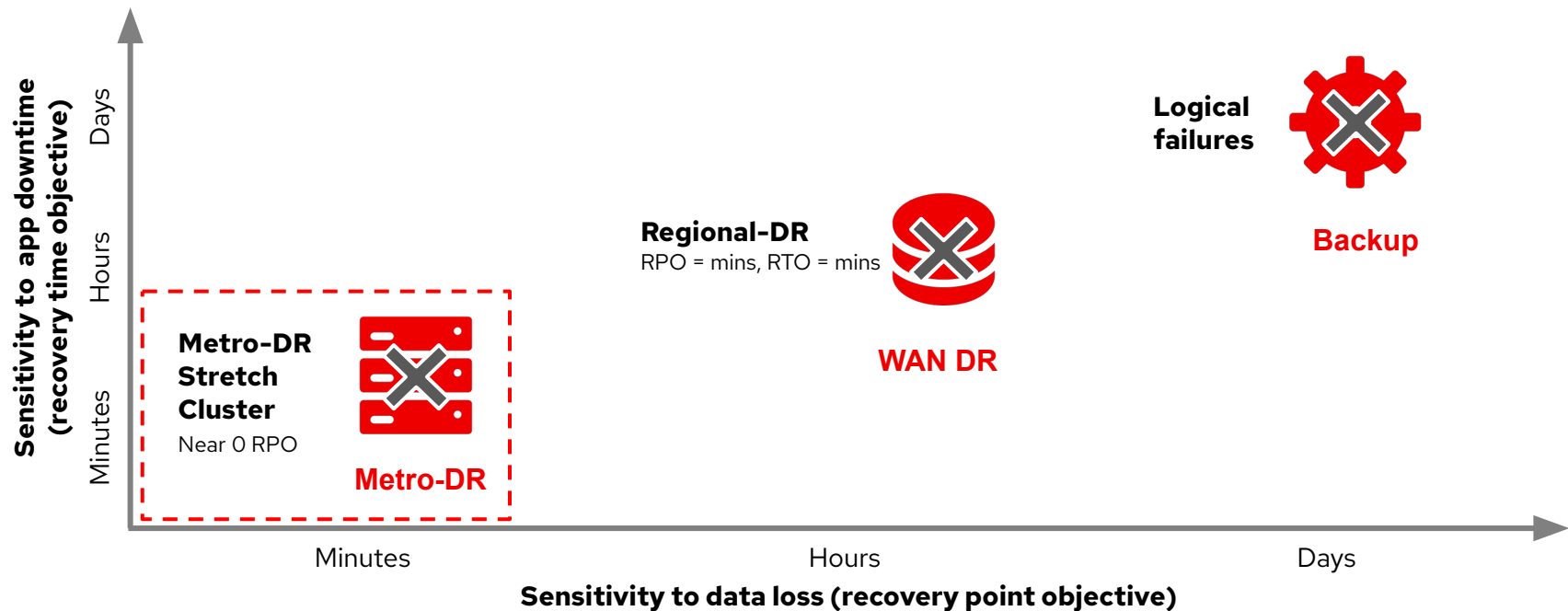
No data-loss recovery when only two data centers can be used. An arbiter will be used to get a valid quorum between the two data centers.

This concept enables for near-zero recovery point objective (RPO).

Recovery times vary, based on the volume type.



# Metro-DR stretch cluster solution



# What's new?

Red Hat OpenShift Data Foundation 4.8

Dev Preview

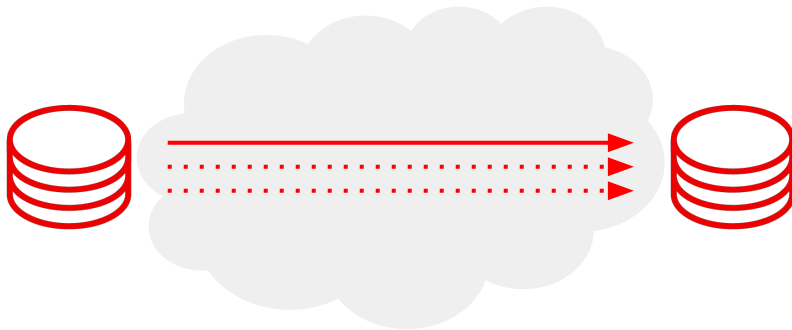
## FUNCTIONALITY

Capability for use with higher latency connections like WAN

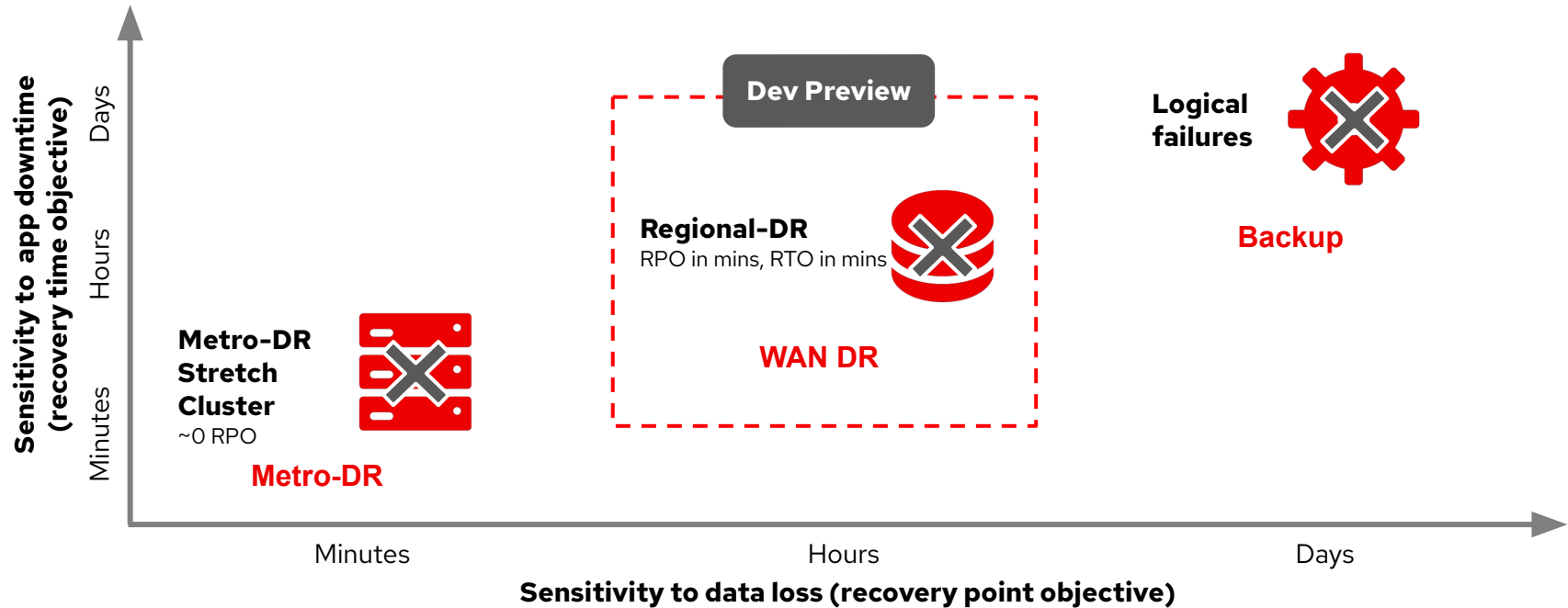
### Regional DR

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.



# Regional-DR stretch cluster solution



# What's new?

Red Hat OpenShift Data Foundation 4.8

Dev Preview

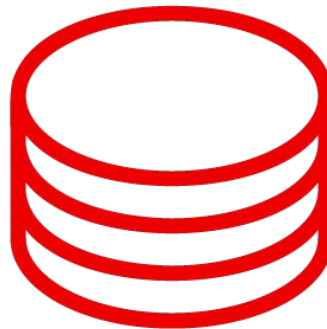
## FUNCTIONALITY



### **RADOS Block Device thick provisioning**

Support for RBD thick provisioning

Thick provisioning with new storage class capability  
Adding the ability to provision RBD PVC with thick provisioning.



# What's new?

Red Hat OpenShift Data Foundation 4.8

Dev Preview

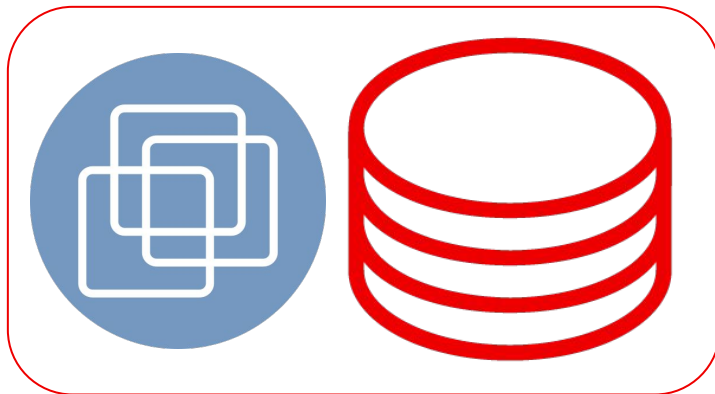
## FUNCTIONALITY



### 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.





# What's new?

Red Hat OpenShift Data Foundation 4.8



## 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

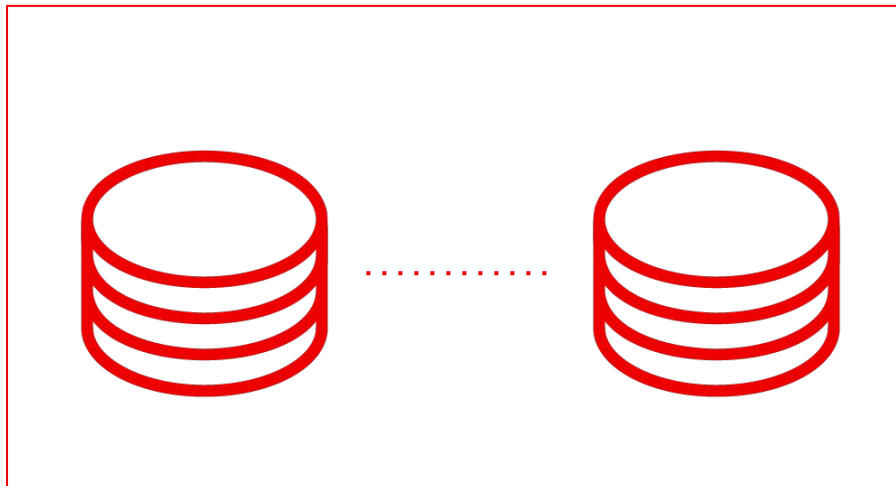
## FUNCTIONALITY

- CephFS
- RADOS block device



## Replica-2

Two fold replication for the entire cluster



# What's new?

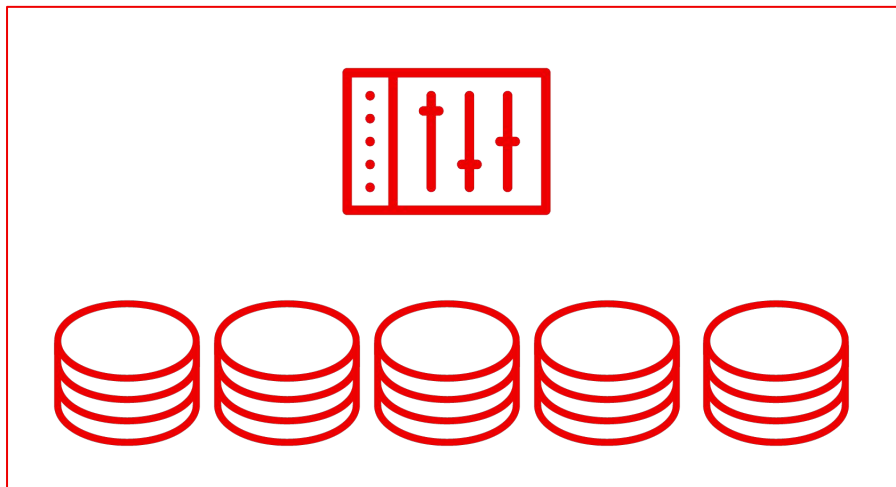
Red Hat OpenShift Data Foundation 4.8



## FUNCTIONALITY

### Pools management

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



# What's new?

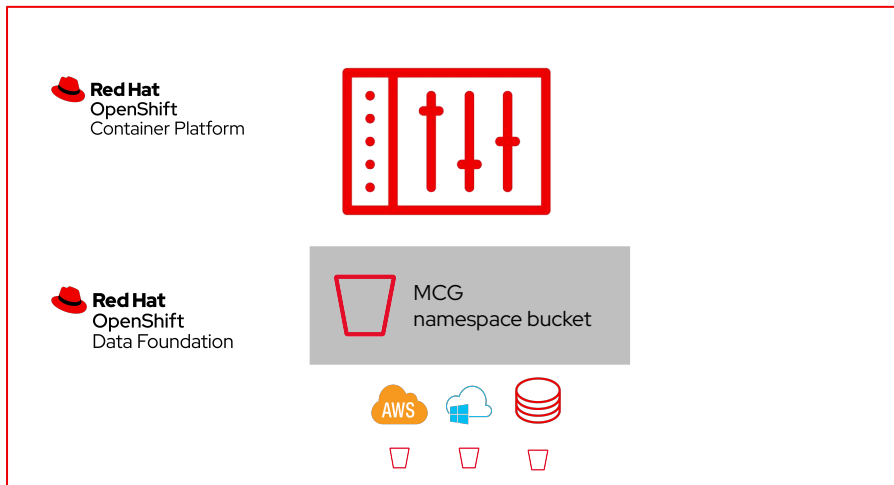
Red Hat OpenShift Data Foundation 4.8



## FUNCTIONALITY

### Multicloud Object Gateway

UI option for MCG Namespace bucket class and backing store

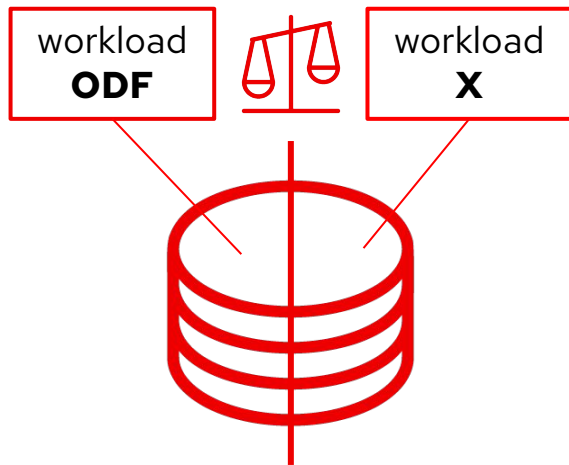


# What's new?

Red Hat OpenShift Data Foundation 4.8

Tech Preview

## FUNCTIONALITY



### Object Storage Daemon—weight

Option to change the weight of an OSD

*Allows for setting OSD weight, using the Ceph OSD crush reweight option*

Ability to mechanically reduce the number of PGs it will host, avoiding saturation on a device that also serves other workloads



# What's new?

Red Hat OpenShift Data Foundation 4.8

Tech Preview

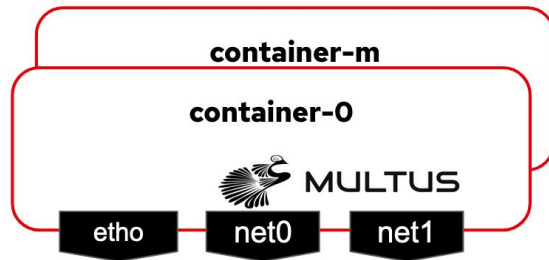
## FUNCTIONALITY



### Multi Network Plugin–Multus

Provides network isolation by enabling data plane and control plane separation

Ability to improve security and performance by isolating networks.





# 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

# What's new?

Red Hat OpenShift Data Foundation 4.8

**FUNCTIONALITY**



**SECURITY**



**PERFORMANCE**



**EFFICIENCY**





# What's new?

Red Hat OpenShift Data Foundation 4.8

Dev Preview

## PERFORMANCE

Enables for both security and resource fencing

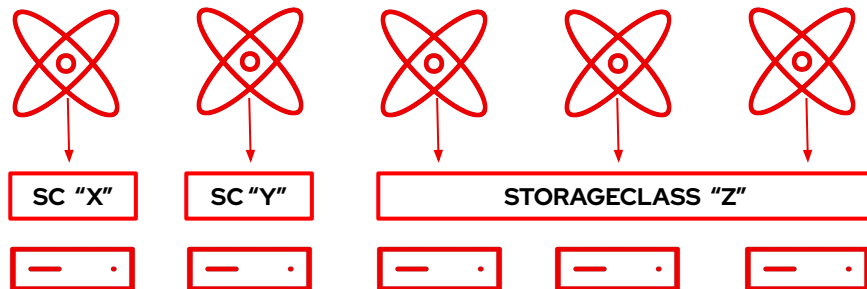
Restricting workload access to specific physical disk device groups



## Data segregation

Data segregation per group of hosts

Provides a way to isolate I/O between workloads using a specific node or nodes group and storageclass per workload



# What's new?

Red Hat OpenShift Data Foundation 4.8

**FUNCTIONALITY**



**SECURITY**



**PERFORMANCE**



**EFFICIENCY**



# What's new?

Red Hat OpenShift Data Foundation 4.8



## SECURITY

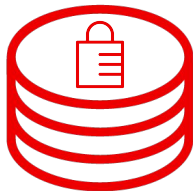
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### OpenShift Data Foundation 4.7

capability to encrypt PVs

### Enhanced Block Device persistent volume encryption

Enhanced RBD PV encryption



# What's new?

Red Hat OpenShift Data Foundation 4.8



## SECURITY

### OpenShift Data Foundation 4.7

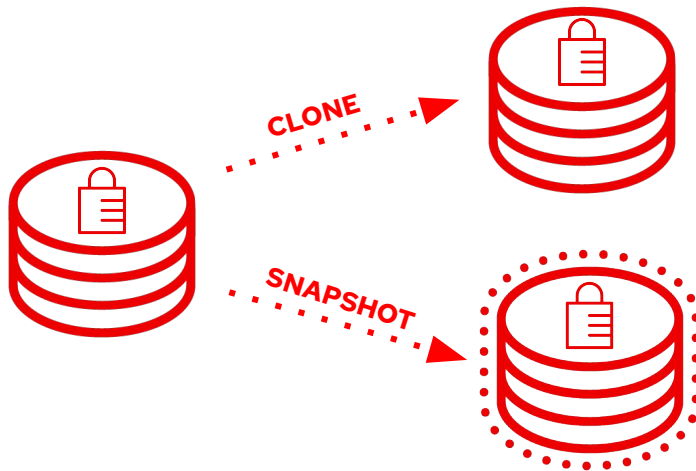
capability to encrypt PVs

### 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



# What's new?

Red Hat OpenShift Data Foundation 4.8

**FUNCTIONALITY**



**SECURITY**



**PERFORMANCE**



**EFFICIENCY**

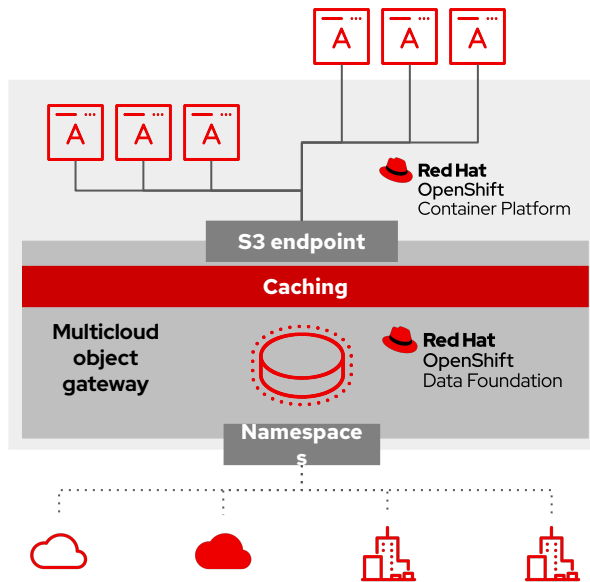


# What's new?

Red Hat OpenShift Data Foundation 4.8



## 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

Dev Preview



## EFFICIENCY

### Flexibility in components deployment

More flexibility in deployment,  
choice for components to become installed.

Lowering resources allocation  
and subscription cost tied to  
required resources

Block only

# What's new?

Red Hat OpenShift Data Foundation 4.8

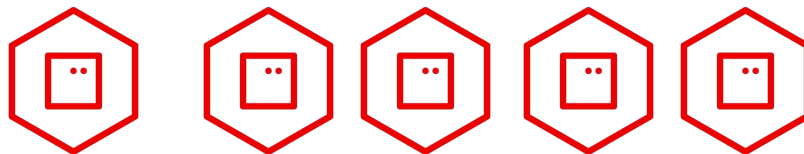
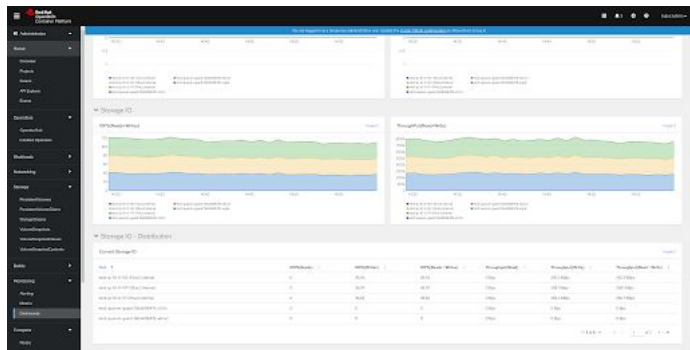


## EFFICIENCY

### 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

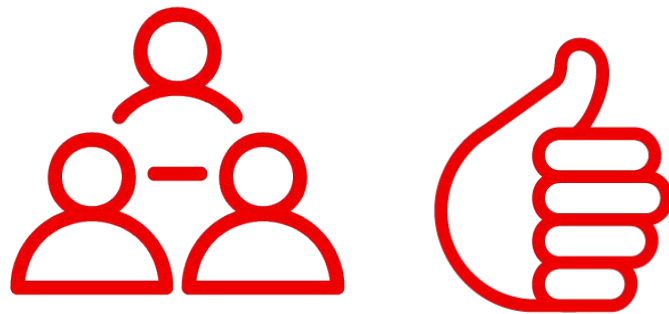


## SPECIAL THANKS

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To

- Product management team
- Engineering team / QA team
- BU slidedeck review team
- Technical marketing team
- Product marketing team
- Technical enablement team
- All contributors who made this happen



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# Recording

Find the recording, slides, and Q&A document uploaded to the **google calendar invite** after the session ends.

All assets will also be available via the [Data Services](#) video channel. [Subscribe now](#) to receive updates on new video enablement.

# Take our poll!

Now LIVE in Primetime.

Open Ended Feedback?  
Share it [here](#).

Polls 13:21

On a scale from 0-10, how likely is it that you would recommend this enablement session to a friend or colleague?

0- Not at all likely

1

2

3

4

5- Undecided

6

7

8

9

10- Extremely Likely

VOTE



336



81



22

Q&A



# Thank you

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