

RHACM 2.5

Selected Topics

- PolicySets
- Backup and Restore
- Submariner

PolicySets



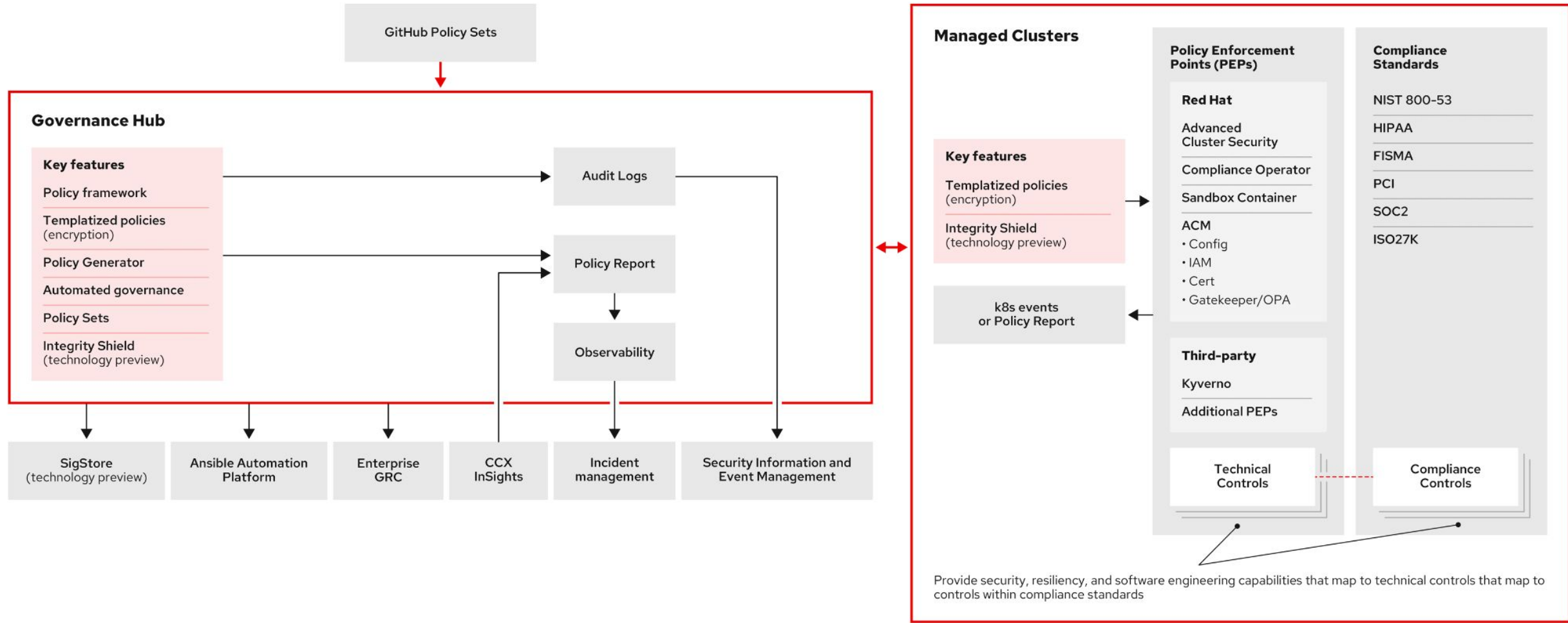
Red Hat
Portfolio Field
Enablement

Key features/Business Value

What are PolicySets

- A PolicySet is a collection of policies that can be placed together instead of having to manage their placement individually. The intent of a particular PolicySet can be specified in the description field and the status of the PolicySet reflects the status of the policies that it contains
- Can be fully used with Gitops and helps to better Group Policies in UI
- Aligns with Concept of PolicyEnforcement Points

PolicySets in context of RHACM-Governance



Backup-Restore



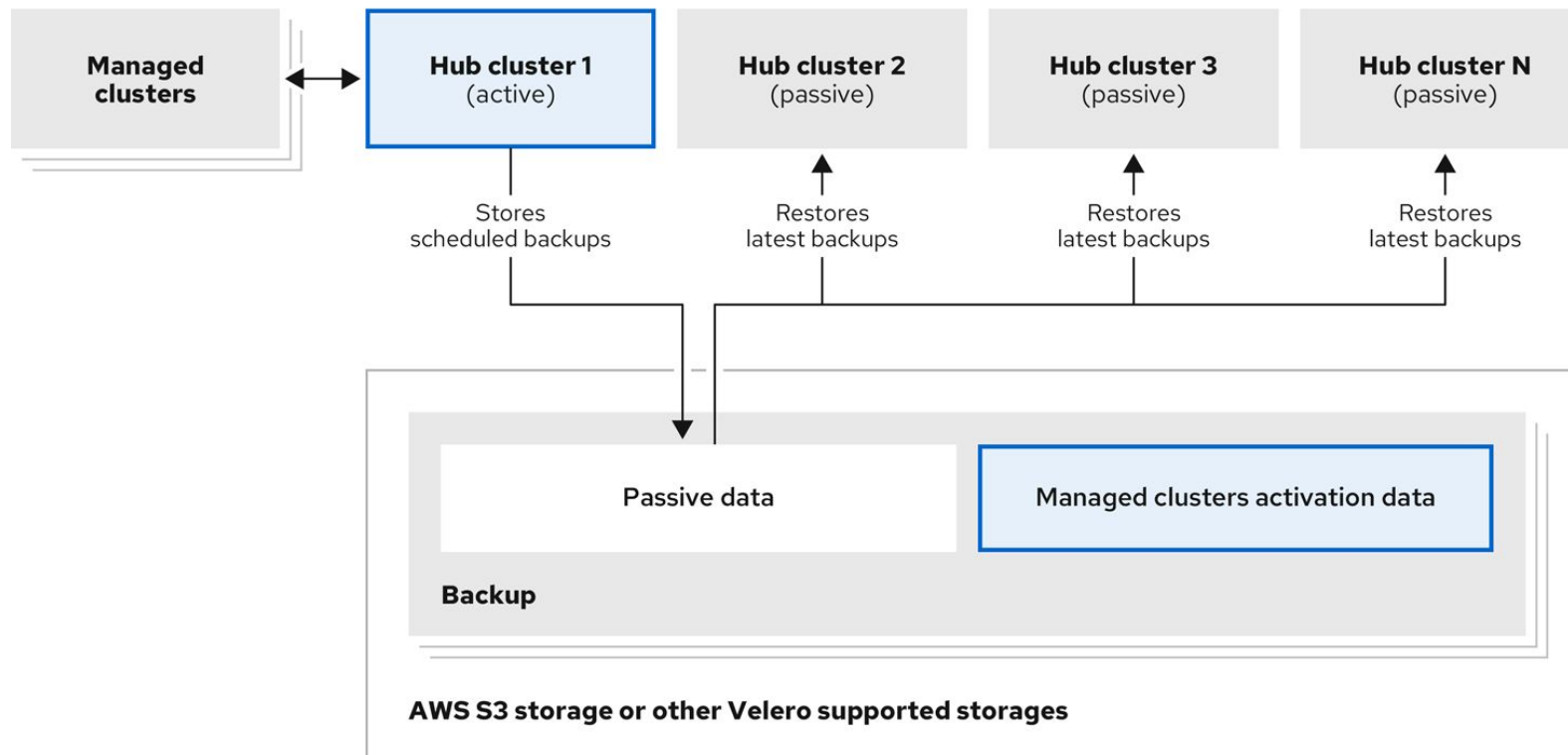
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Key features/Business Value

- This component reached GA in RHACM 2.5
- Documentation (official doc and blog coming soon!)
 - https://github.com/stolostron/rhacm-docs/blob/2.5_stage/clusters/backup_and_restore.adoc
 - <https://github.com/open-cluster-management/cluster-backup-operator#cluster-backup-operator>
- Backup and Restore component available with Red Hat Advanced Cluster Management provides a disaster recovery solution for recovering the hub cluster in the case the hub goes down.
- The Backup and Restore component installs a Policy which automatically reports when the backup solution is not functioning as expected even if the main hub is active and managing the clusters. This avoids the situation when backup data may not be available when the disaster hits and the main hub becomes unavailable.

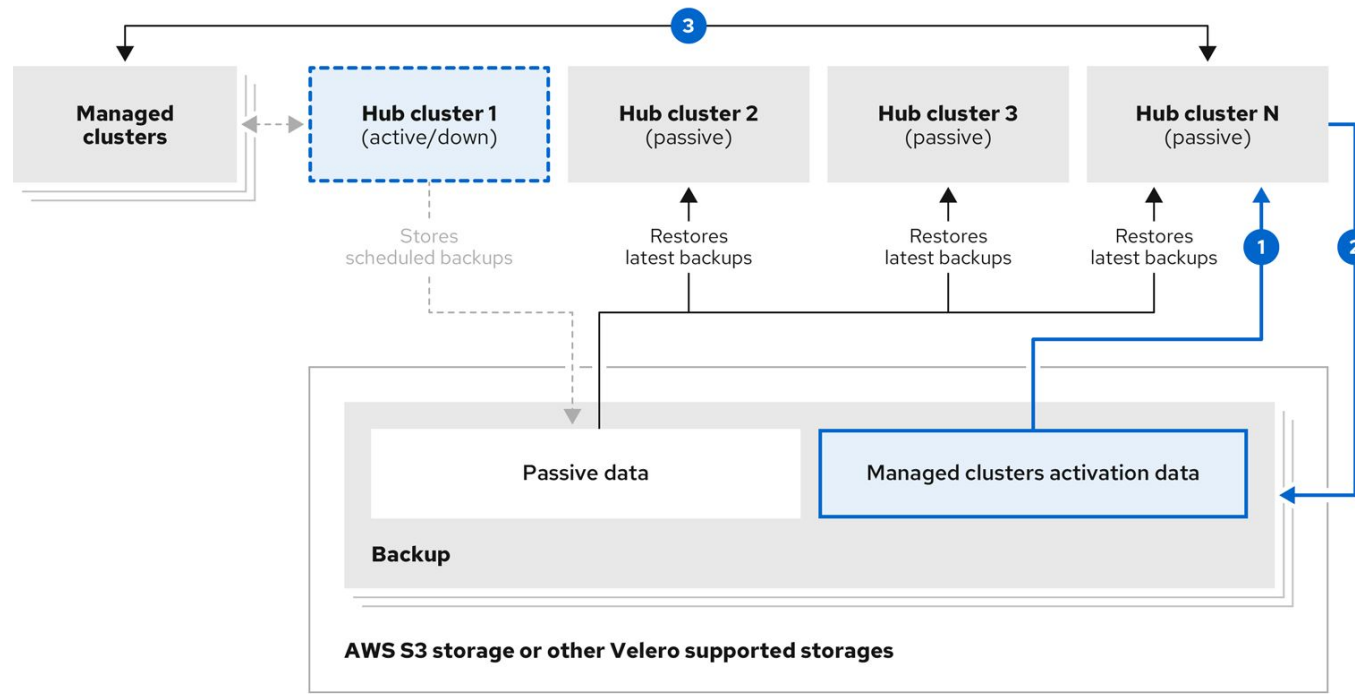
Active Passive Hub Design – new in 2.5

- ▶ The active hub manages the remote clusters and backs up hub data at regular intervals.
- ▶ The passive hubs restore this data, except for the managed clusters activation data, which would move the managed clusters to the passive hub. The passive hubs can restore the passive data continuously, or as a one time operation.



Hub Disaster Recovery Design – new in 2.5

- ▶ When the primary hub goes down, one of the passive hubs is chosen by the admin to take over the managed clusters. In the image below, the admin decides to use Hub N as the new primary hub.
- ▶ Hub N restores the Managed Cluster activation data. At this point, the managed clusters connect with Hub N.
- ▶ The admin starts a backup on the new primary Hub N by creating a BackupSchedule resource.



Submariner



Red Hat
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Enablement

Robust. Proven. Award winning.

End-to-end automation with Red Hat Ansible Automation Platform integration



Multicluster lifecycle management



Policy driven governance, risk, and compliance



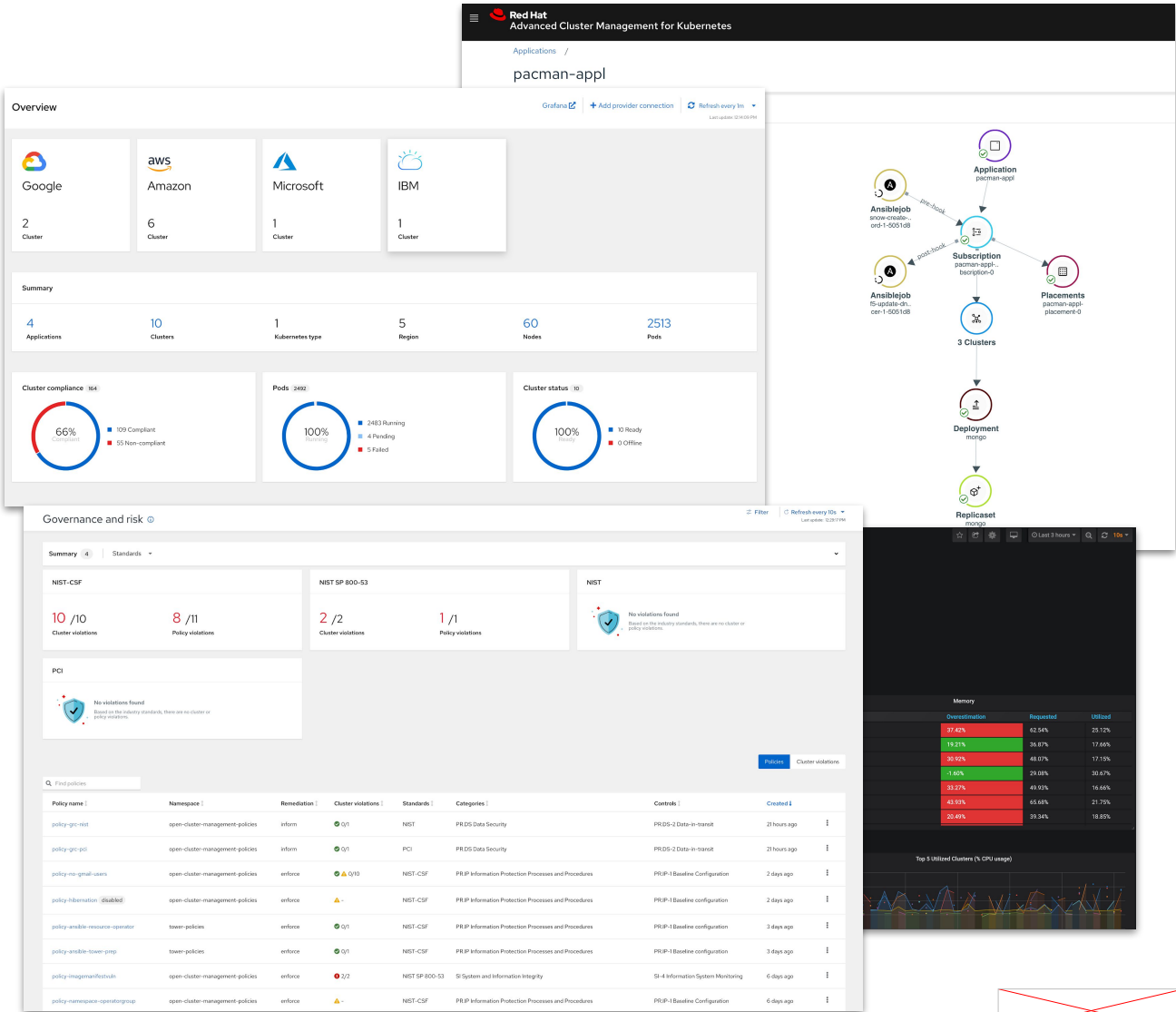
Advanced application lifecycle management



Multicluster observability for health and optimization



Multicluster networking for interconnecting



Reasons for deploying clusters



Application
availability



Disaster
recovery



Reduced
latency



Edge
deployments



Address industry
standards



CapEx
cost reduction



Geopolitical data
residency guidelines



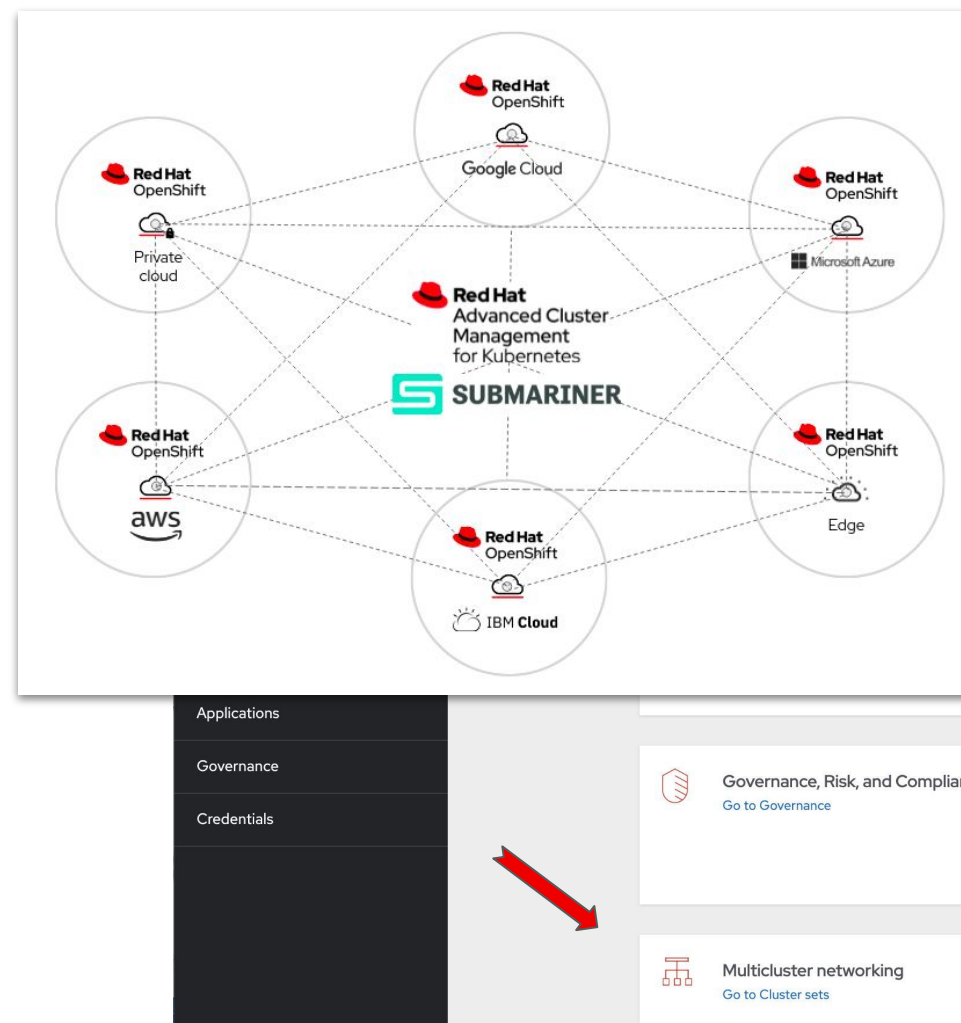
Avoid vendor
lock-in

Multicluster Networking

MCN features overview & look ahead

• Multicluster Networking

- Presenting **Submariner**: an CNCF open source project in the form of an **add-on** for RHACM
- Enable **direct networking** between Pods in different Kubernetes clusters as well as **Service Discovery**, either on-premises or in the cloud
- Leverage **Cluster Sets** - All done via a group of clusters with a high degree of mutual trust that share services
- **Globalnet** - Support for interconnecting clusters with overlapping CIDRs
- Makes use of **Multi-cluster Services-API**



View system alerts, critical application metrics, and overall system health. Search, identify, and resolve issues that are impacting distributed workloads using an operational dashboard designed for Site Reliability Engineers (SREs).

Create, update, scale, and remove clusters reliably, consistently using an open source programming model that supports and encourages Infrastructure as Code best practices and design principles.

Define a business application using open standards and deploy the applications using placement policies that are integrated into existing CI/CD pipelines and governance controls.

 **Governance, Risk, and Compliance**
[Go to Governance](#)

Use policies to automatically configure and maintain consistency of security controls required by industry or other corporate standards. Prevent unintentional or malicious configuration drift that might expose unwanted and unnecessary threat vectors.

 **Multicluster networking**
[Go to Cluster sets](#)

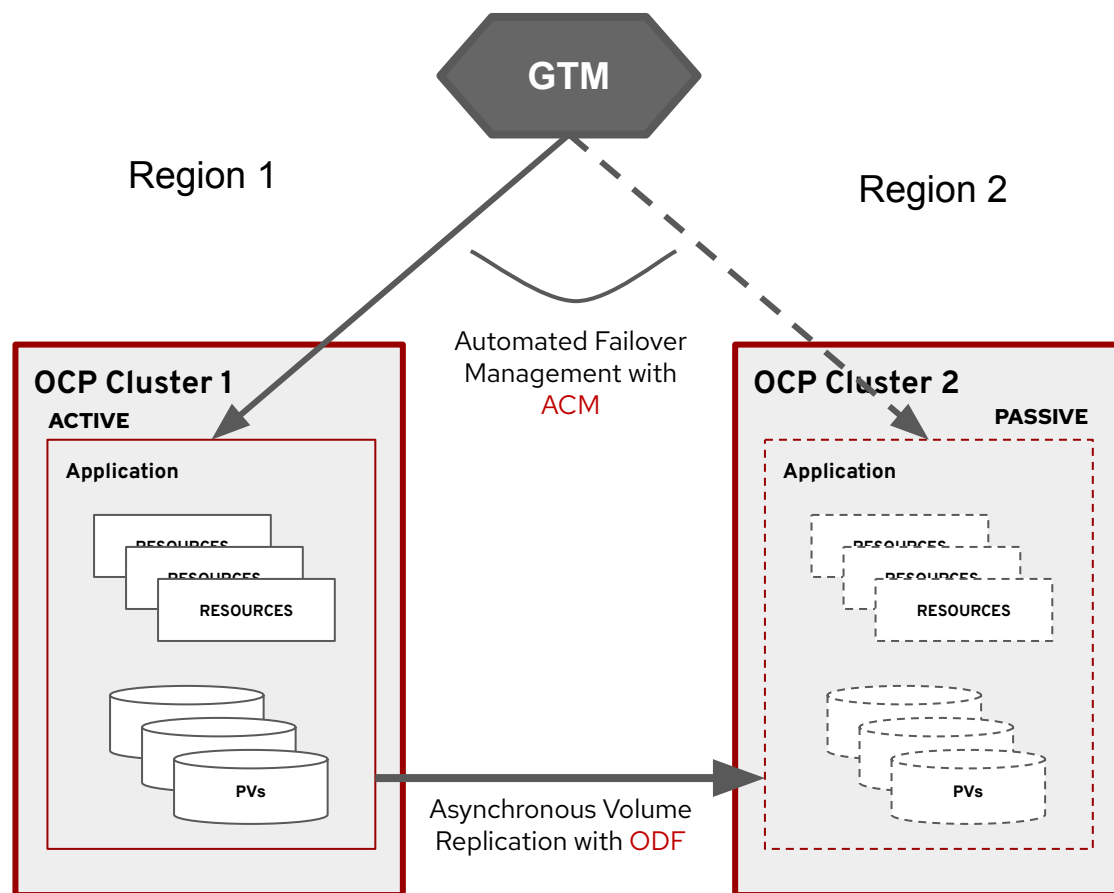
Enable direct networking connection between different on-premises or cloud-hosted Kubernetes clusters by grouping them in cluster sets and enabling the Submariner add-on.

RHACM 2.5

Other highlights

ODF 4.10 and ACM 2.5 - Regional-DR with Failover Automation (TP)

Protection against Geographic Scale Disasters



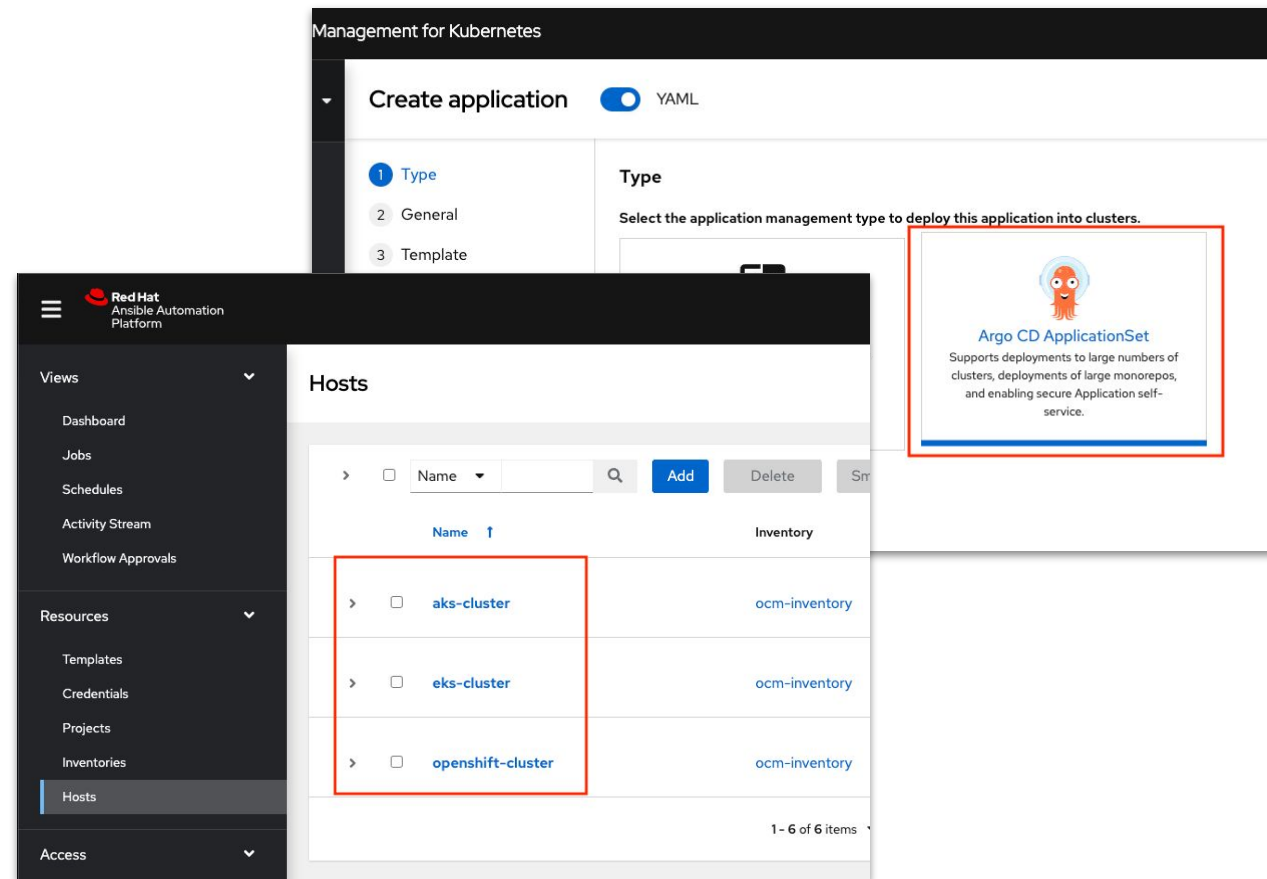
- ▶ Asynchronous Volume Replication => low RPO
 - ODF enables cross cluster replication of data volumes with replication intervals as low as 1 min
 - ODF Storage operators synchronizes both App data PVs and Cluster metadata
- ▶ Automated Failover Management => low RTO
 - ACM Multi-Cluster manager enables failover and failback automation at application granularity
- ▶ Both clusters remain active with Apps distributed and protected among them

Red Hat Advanced Cluster Management for Kubernetes

What's new in RHACM 2.5

Better Together

Red Hat Advanced Cluster Management brings together Ansible and OpenShift Platform Plus, including OpenShift GitOps, Red Hat Advanced Cluster Security, Red Hat OpenShift Data Foundation across cloud vendors all from a single-pane of glass.



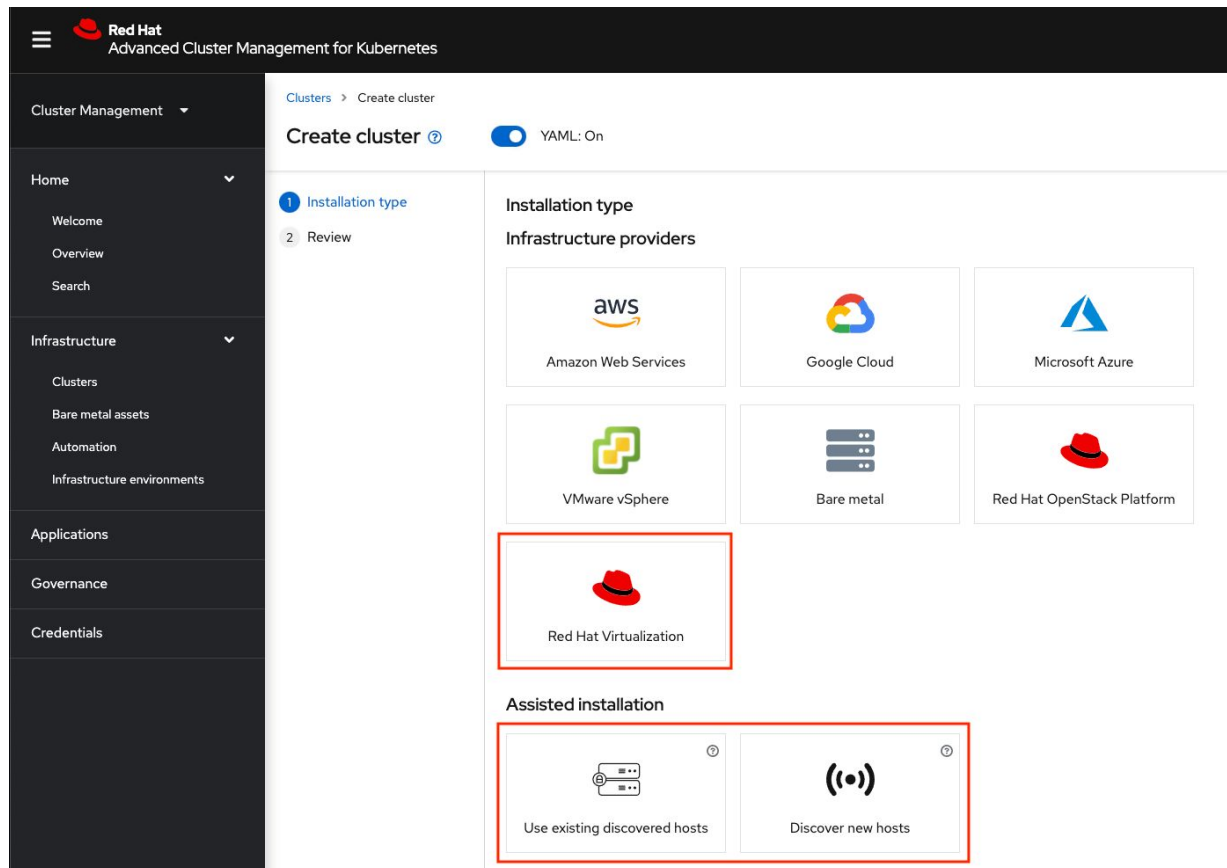
- ▶ **RHACM cluster inventory available in Ansible Automation Platform (Dev Preview):** Access ACM functionality, such as cluster creation, directly from Ansible Automation Platform using the Ansible collections.
- ▶ **Support for OpenShift GitOps ApplicationSets:** Easily create ArgoCD ApplicationSets directly from RHACM.

Red Hat Advanced Cluster Management for Kubernetes

What's new in RHACM 2.5

Manage OpenShift Everywhere

Meeting the needs of customers across all sectors, whether on premise with Red Hat Virtualization, bare metal, or in the cloud with AWS GovCloud (US).



- ▶ **Cluster lifecycle:** New provider support for OCP on Red Hat Virtualization and AWS GovCloud (US).
- ▶ **Arm architecture (Tech Preview):** Deploy an ACM hub on Arm, as well as import and manage OpenShift clusters leveraging Arm for low power consumption.
- ▶ **HyperShift (Tech Preview):** Host and provision containerized OpenShift control planes at scale, reducing cost, hardware footprint, and time to provision.
- ▶ **Central Infrastructure Management (GA):** Provides a self-service model that easily allows infrastructure owners to enable developers access to bare metal hosts for OCP cluster provisioning.

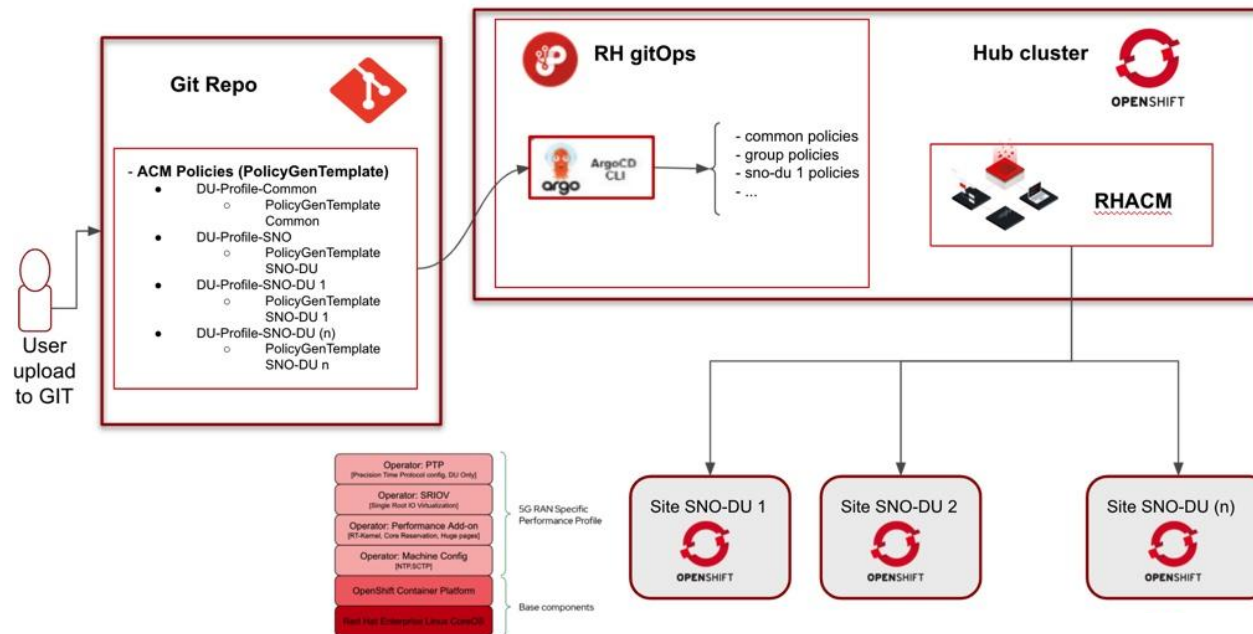


Red Hat Advanced Cluster Management for Kubernetes

What's new in RHACM 2.5

Manage At the Edge

At Red Hat, we see edge computing as an opportunity to extend the open hybrid cloud all the way to the data sources and end users. Edge is a strategy to deliver insights and experiences at the moment they're needed.



- **Deploy & manage 2000 SNO (GA):** Support DU profile delivery with ACM in IPv6 connected and disconnected scenarios.
- **Export hub collected metrics to external tools:** Operations teams can integrate metrics collected from their Kubernetes clusters with metrics collected from other IT sources for a holistic view in their preferred tooling.

RHACM 2.6

What's coming soon

**2.6 works only with
OpenShift 4.11**

Red Hat Advanced Cluster Management for Kubernetes

What's new in RHACM 2.6

Governance

Red Hat Advanced Cluster Management's Governance Framework is continuously evolving to keep up with the growing Kubernetes policy landscape.

The screenshot displays the RHACM Governance Framework interface. On the left, a sidebar shows a list of policy sets, including 'openshift-plus-clusters' and 'production-clusters'. The main area shows the details of the 'openshift-plus-hub' policy set, which is described as applying several policies that install the OpenShift Platform Plus products using best practices that allow them to work well together. The interface also shows a table of policies with columns for Policy name, Cluster violation, Status, and Remediation.

Policy name	Cluster violation	Status	Remediation
policy-compliance-operator-install	-	Enabled	enforce
policy-advanced-managed-cluster-status	-	Enabled	inform
policy-ac-operator-central	-	Enabled	enforce
policy-ac-central-status	-	Enabled	inform
policy-ac-central-ca-bundle	-	Enabled	enforce

- **ACM Policy-Controller-Improvements**
 - Select Namespaces via labels/expressions for better flexibility
 - Option to delete resources when Policies are removed
- **Kyverno and Gatekeeper community PolicySets - PolicySet for Multi Tenancy**
- **Multi Tenant/RBAC Guide** for Applications including Kyverno
- Integration of **PolicyGenerator** and OpenShift GitOps

Red Hat Advanced Cluster Management for Kubernetes

What's new in RHACM 2.6

Better Together

With key integrations across tools, we continue offering you the best experience across your Kubernetes fleet.

Applications

[Overview](#) [Advanced configuration](#)

csi-snapshot-controller-operator	OpenShift	openshift-cluster-storage-operator	1 Remote
etcd-operator	OpenShift	openshift-etcd-operator	Local
etcd-operator	OpenShift	openshift-etcd-operator	1 Remote
feng-nodejs-basic	OpenShift	feng-nodejs-basic	Local
flux	OpenShift	flux-system	Local
governance-policy-framework	OpenShift	open-cluster-management-agent-addon	Local
governance-policy-framework	OpenShift	open-cluster-management-agent-addon	1 Remote
grc	OpenShift	open-cluster-management	Local
helloworld-helm	Flux	feng-flux-helm	Local

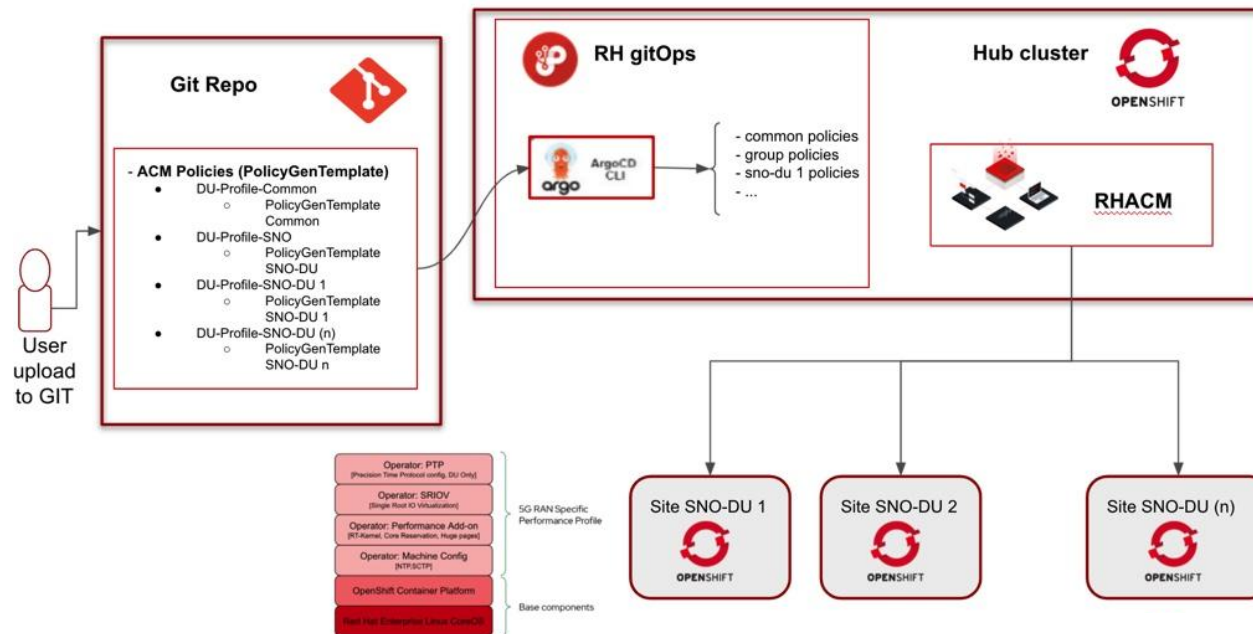
- Visibility of **Flux and OpenShift** Applications in ACM
- **Manage** RHACM clusters from **Ansible** (AAP) (TP)
- ACM and MCE **community operators** - coming soon
- Enhanced integration with **VolSync** is now GA
- **Submariner** enhancements:
 - Automated configuration for Azure
 - Support for OVN SDN

Red Hat Advanced Cluster Management for Kubernetes

What's new in RHACM 2.6

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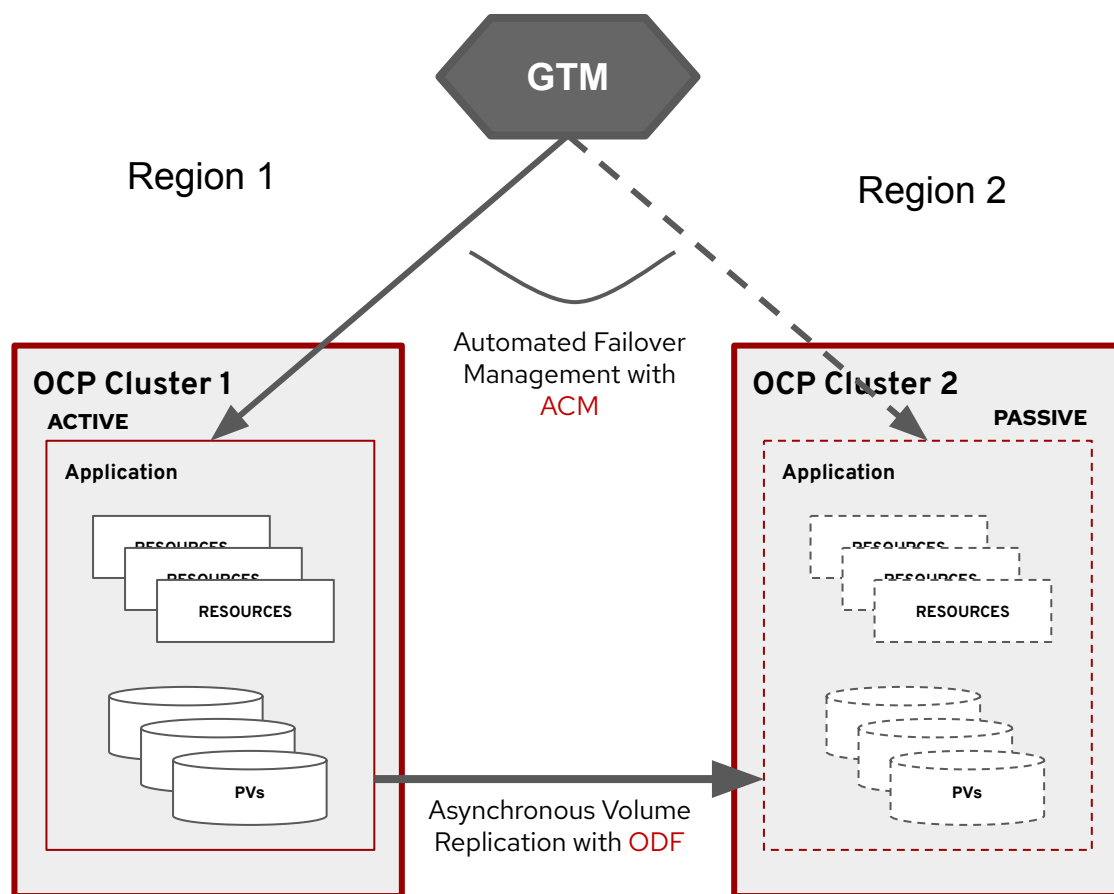
- **Deploy & manage 2500 SNO (GA):** Support DU profile delivery with ACM in IPv6 connected and disconnected scenarios.
- **Search v2 Odyssey for high-scale environments - (Dev Preview):** Resilience and scalability of the collected Kubernetes resources (removal of RedisGraph dependency).
- **Configurable search data collection:** Get better controls for scale and security, limiting what we collect from the managed cluster.
- **Configurable dynamic metrics collection:** Improved controls on platform metrics that are dynamically pulled into the Hub during critical events.



(Tech Preview) Regional-DR with Failover Automation

protection against
geographic-scale disasters

New with ODF 4.11 and ACM 2.5

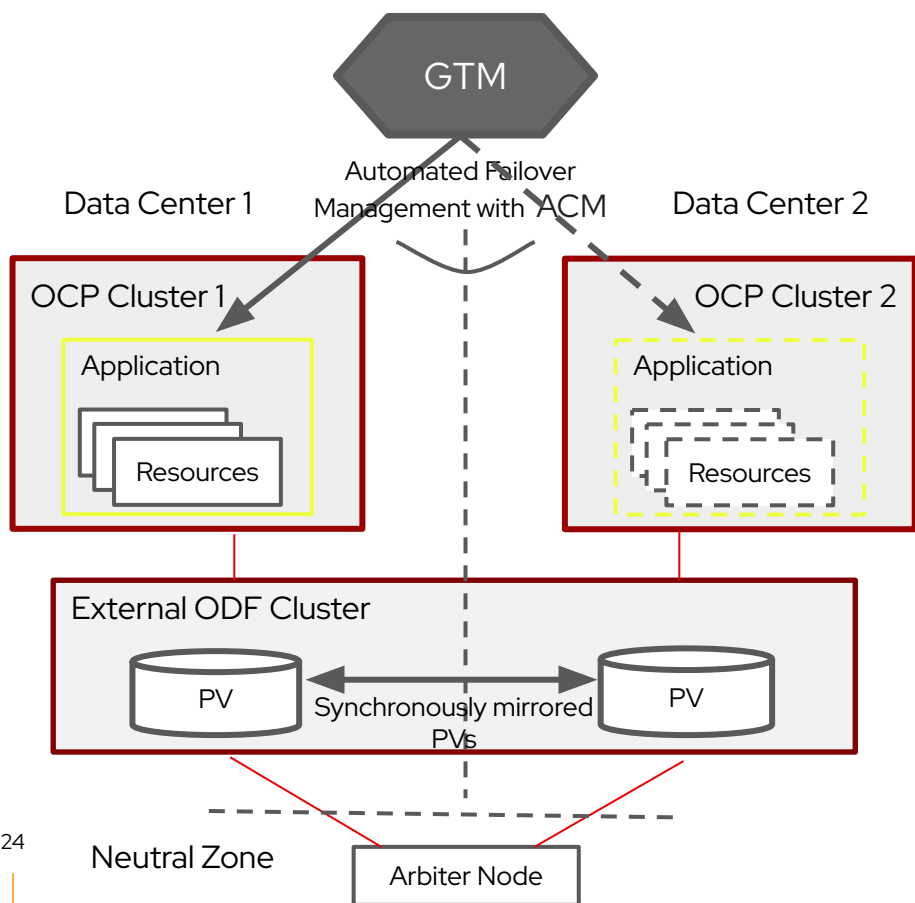


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(Tech Preview) Metro-DR with Failover Automation

protection against
metro-scale disasters

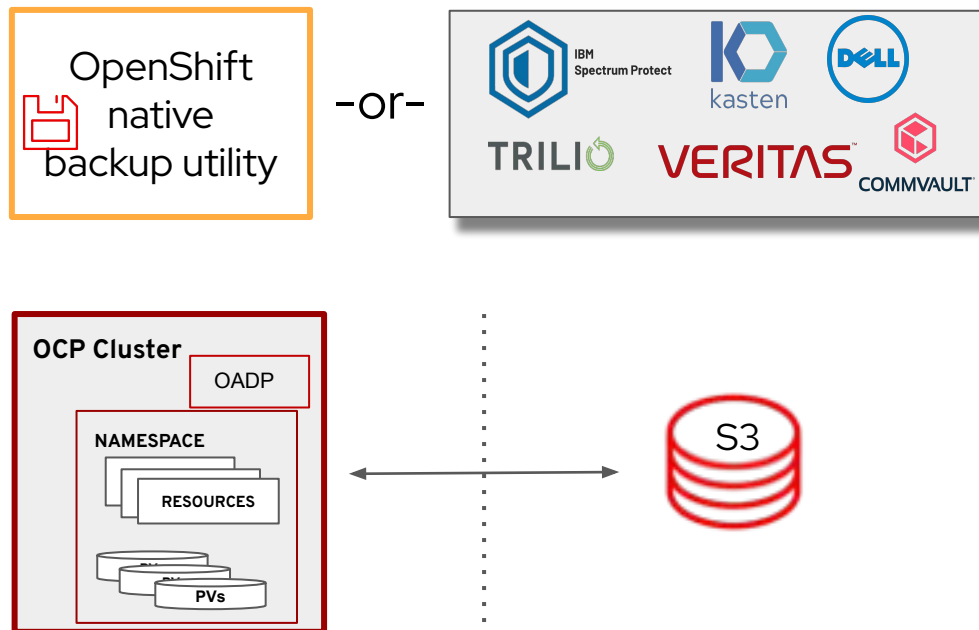
New with ODF 4.11 and ACM 2.5



- Multiple OCP clusters deployed in different AZs provide a complete fault isolated configuration
- External RHCS storage cluster provides persistent synchronous mirrored volumes across multiple OCP clusters enabling zero RPO
- ACM managed automated Application failover across clusters reduces RTO
- Requires Arbiter node in a third site for storage cluster
 - Arbiter node can be deployed over higher latency networks provided by public clouds

Backup Solutions for Red Hat OpenShift

Introducing OpenShift native backup utility with 4.11 (Tech Preview)



- **Application granular, cluster consistent backups with OADP**
- CLI based backup scheduling and management
- Built-in data mover enables CSI-based storage snapshots to be backed up to a remote S3 compatible object store.
- Backups solutions works for all OpenShift storage provisioners that support CSI Snapshots

Thank you

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