Red Hat
Advanced Cluster Management
for Kubernetes

OpenShift Multi-Cluster Management with RHACM

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AGENDA

- Hybrid Cloud and k8s Multi-Cluster Management challenges
- Red Hat Advanced Cluster Management for Kubernetes
- RH ACM and GitOps
- Demos:
  - RH ACM Overview
  - RH ACM Applications
  - RH ACM Governance, Risk and Compliance

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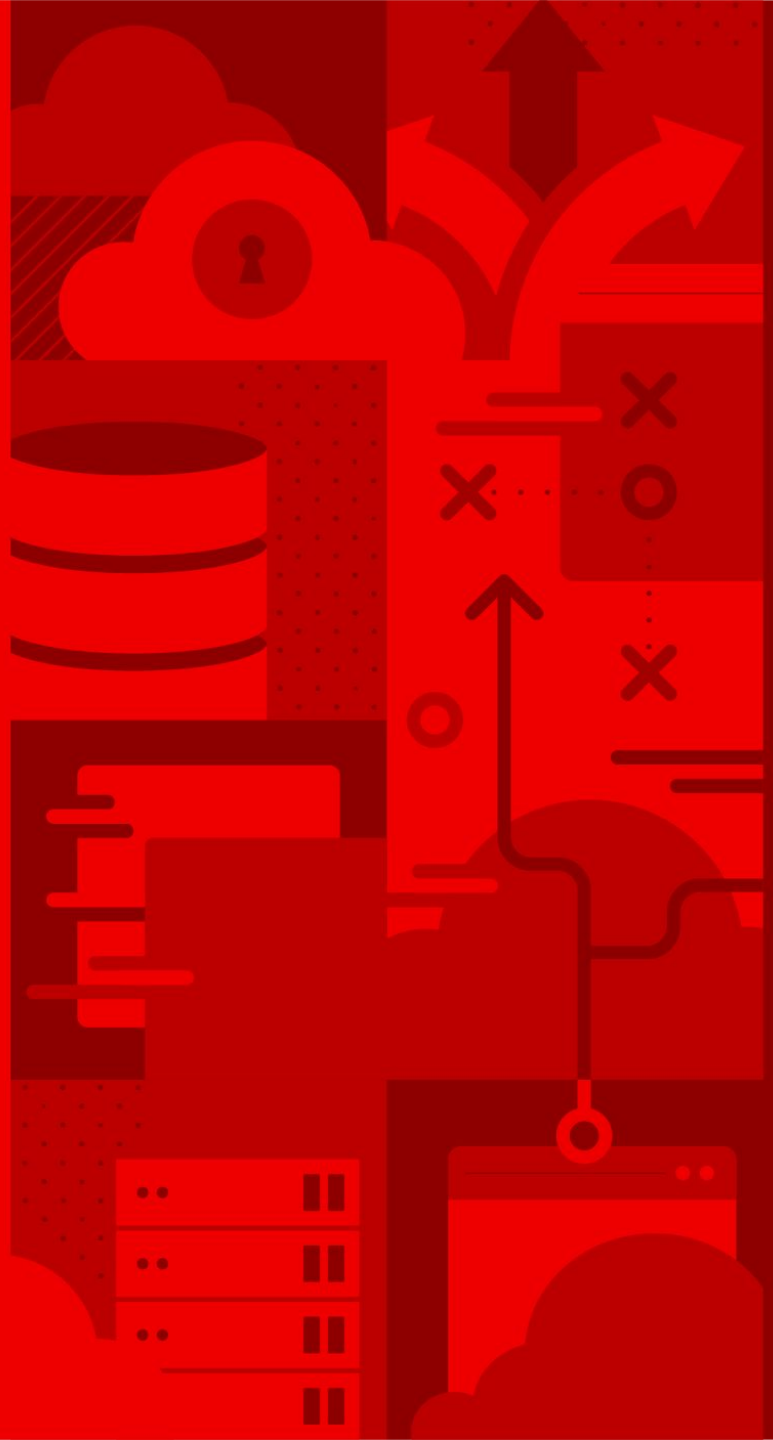

Hybrid Cloud and OpenShift Multi-Cluster Management Challenges

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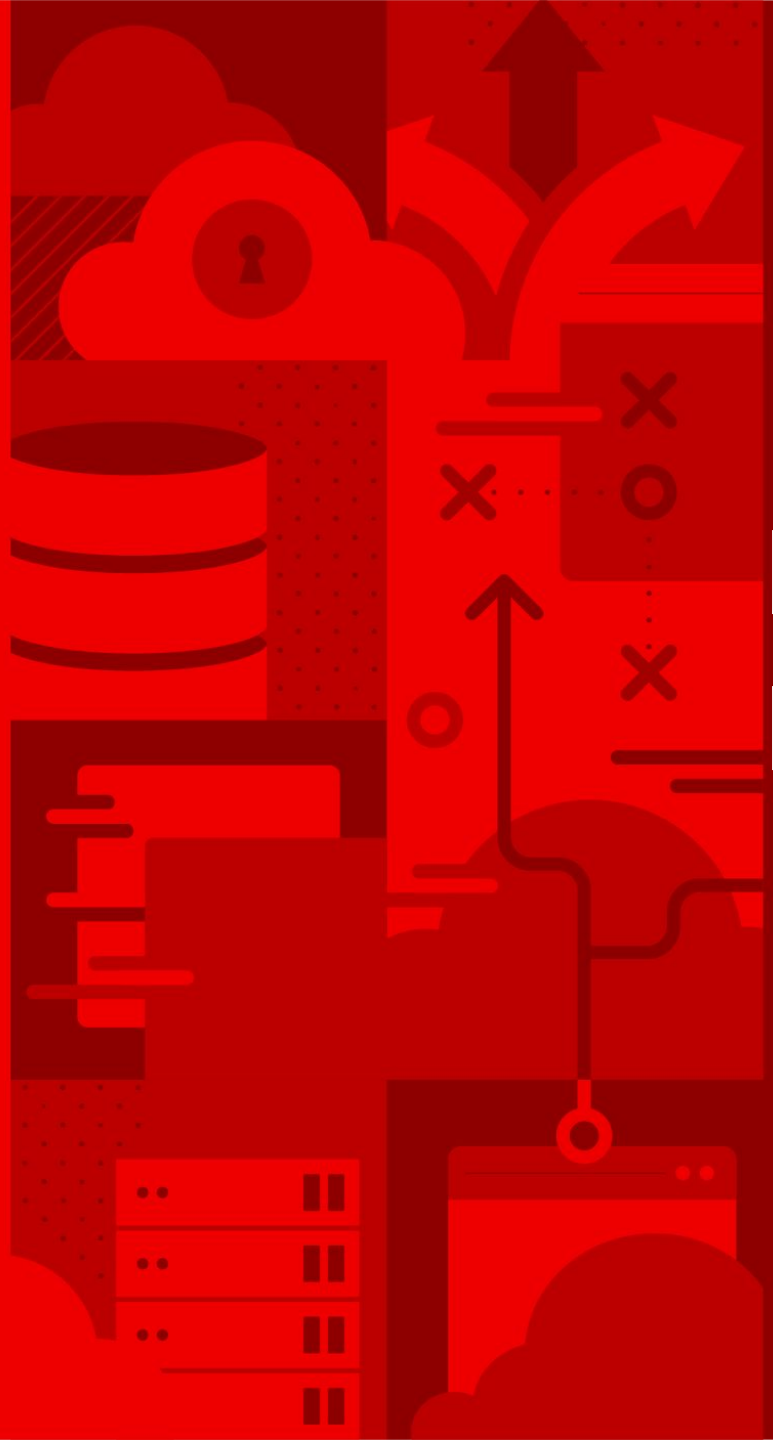
Multi-Cluster Management in a Hybrid, Multi-Cloud world is really hard

- Managing clusters across different clouds is complicated and error prone
- Configuration management and security enforcement can be overwhelming
- Deploying applications and manage updates in different clusters across clouds is very challenging
- Find and manage resources in such landscape is time consuming



Red Hat Advanced Cluster Management for Kubernetes

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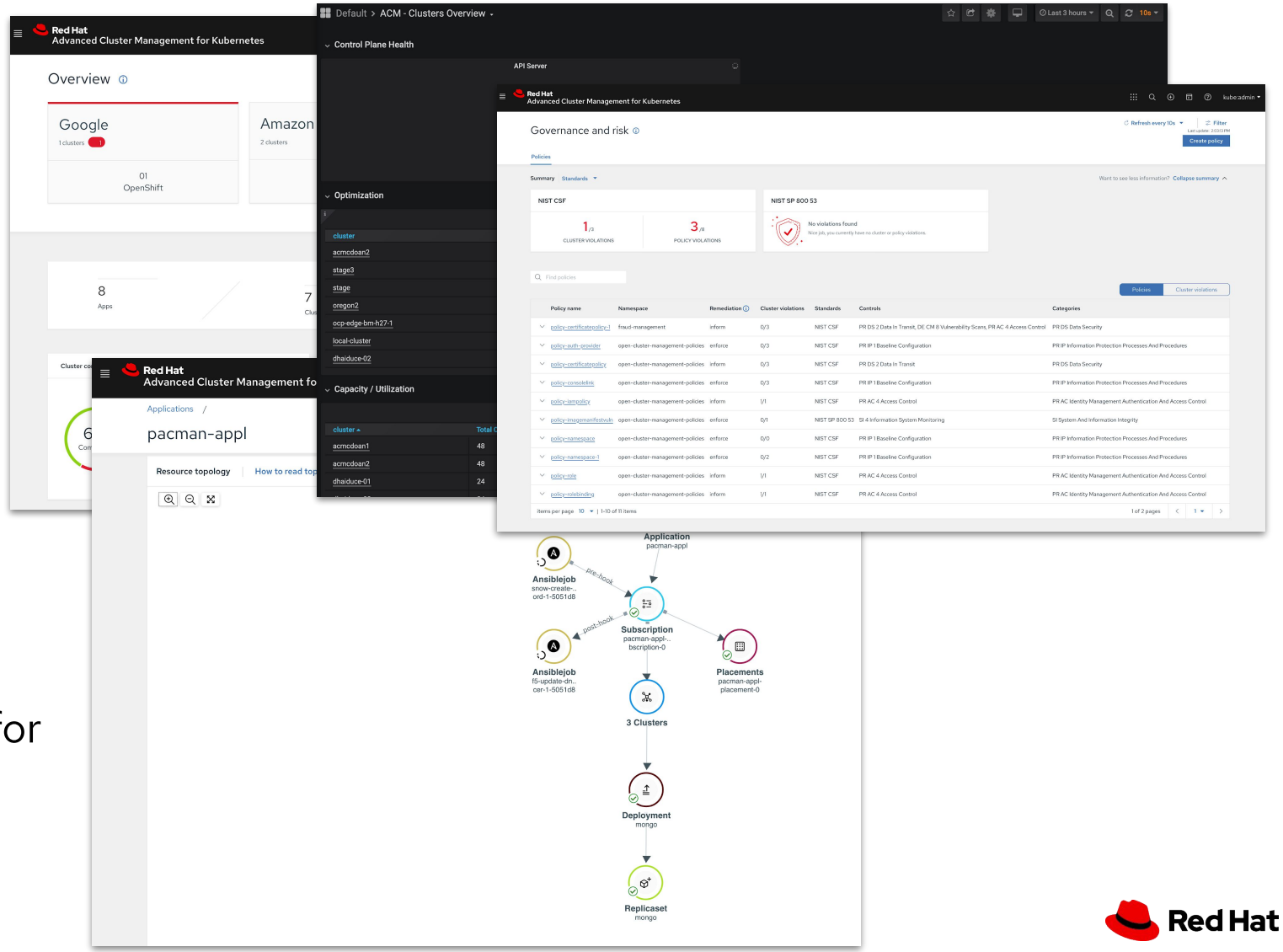
Red Hat Advanced Cluster Management for Kubernetes

- Multicluster lifecycle management
- Policy driven governance, risk, and compliance
- Advanced application lifecycle management
- Multicluster observability for health and optimization



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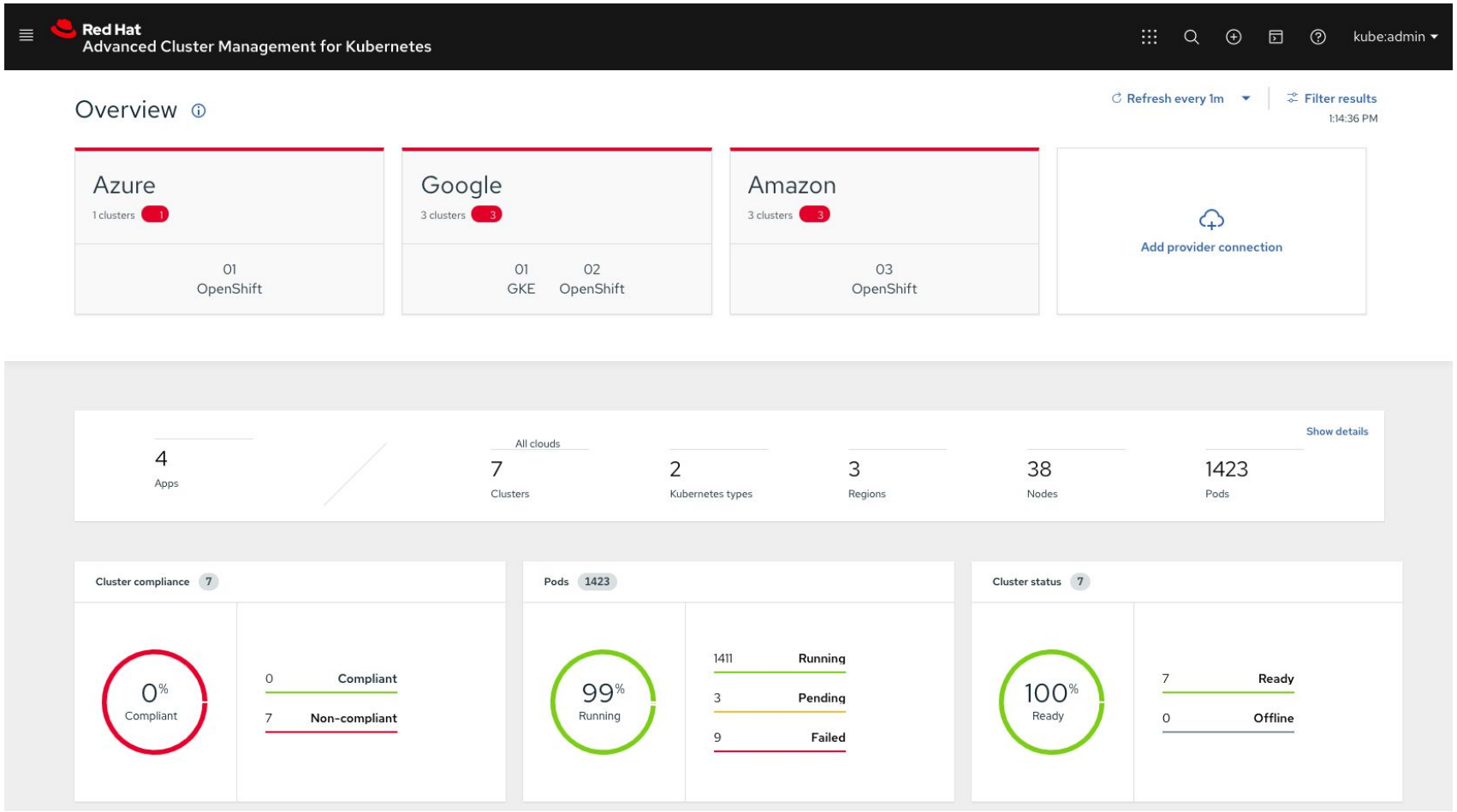
Unified Multi-Cluster Management

Single Pane for all your Kubernetes Clusters



- **Centrally** create, update and delete Kubernetes clusters **across multiple** private and public clouds
- Search, find and modify **any** kubernetes resource across the **entire** domain.
- **Quickly** troubleshoot and resolve issues across your **federated** domain

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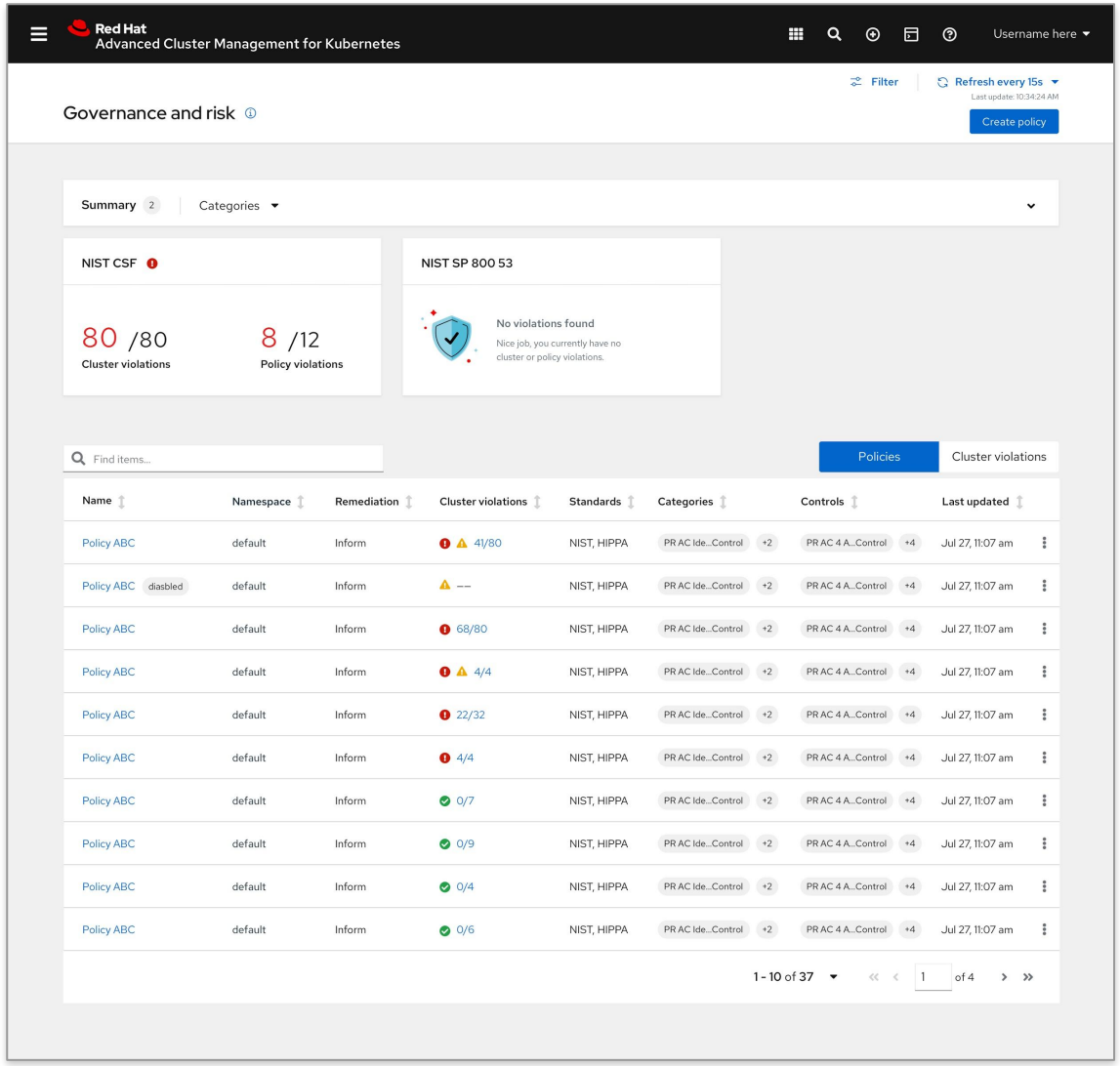
Policy based Governance, Risk and Compliance

Don’t wait for your security team to tap you on the shoulder



- **Centrally** set & enforce policies for security, applications, & infrastructure
- Quickly **visualize** detailed **auditing** on configuration of apps and clusters
- Built-in **CIS** compliance policies and audit checks
- **Immediate** visibility into your compliance posture based on **your** defined standards
- Integration with **OPA Policy Agent**

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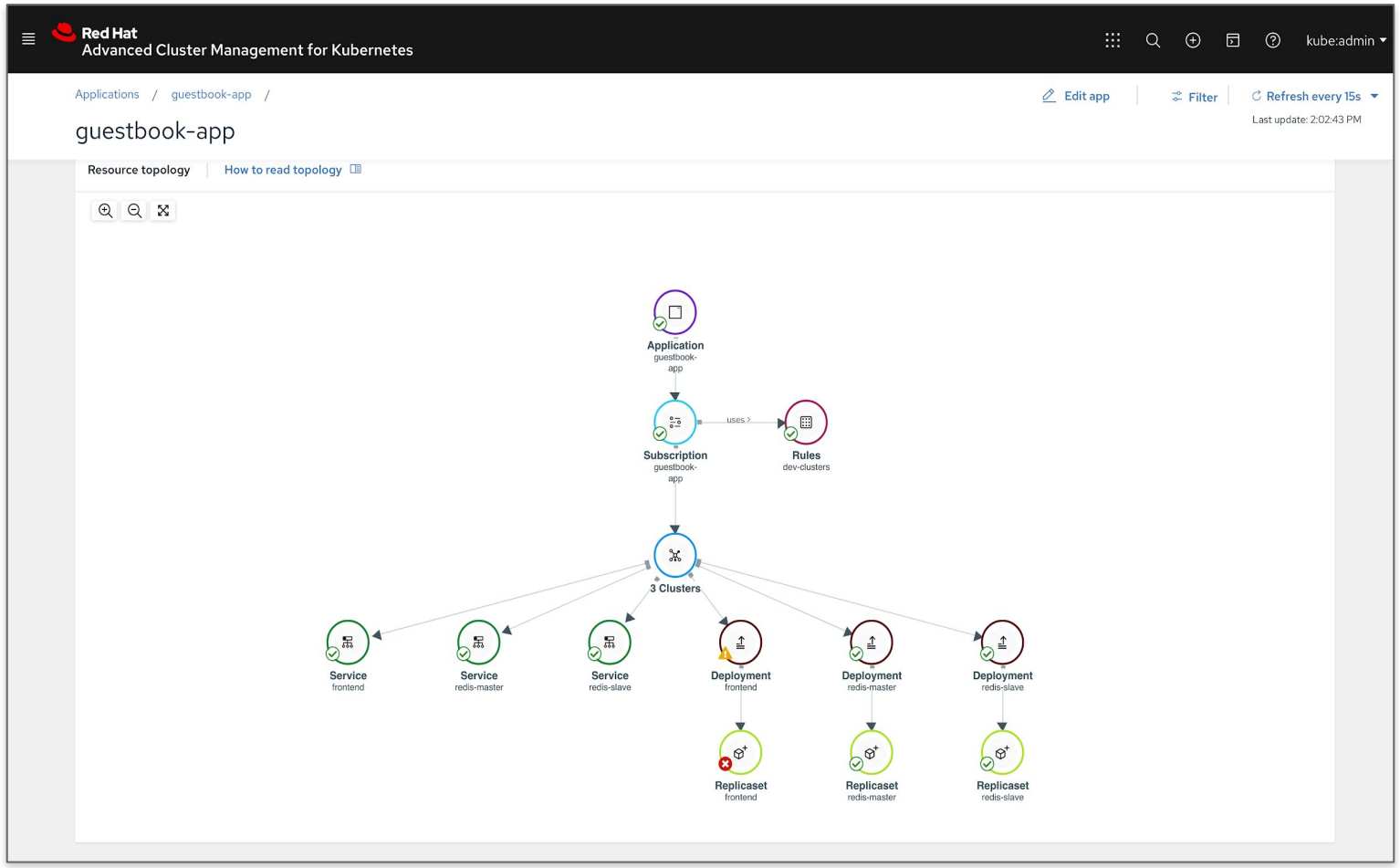
Advanced Application Lifecycle Management

Simplify your Application Lifecycle



- **Easily** Deploy Applications at **Scale**
- Deploy Applications from **Multiple** Sources
- Quickly **visualize** application relationships **across** clusters and those that **span** clusters
- Integration with **Ansible Automation Platform** (Tech Preview)

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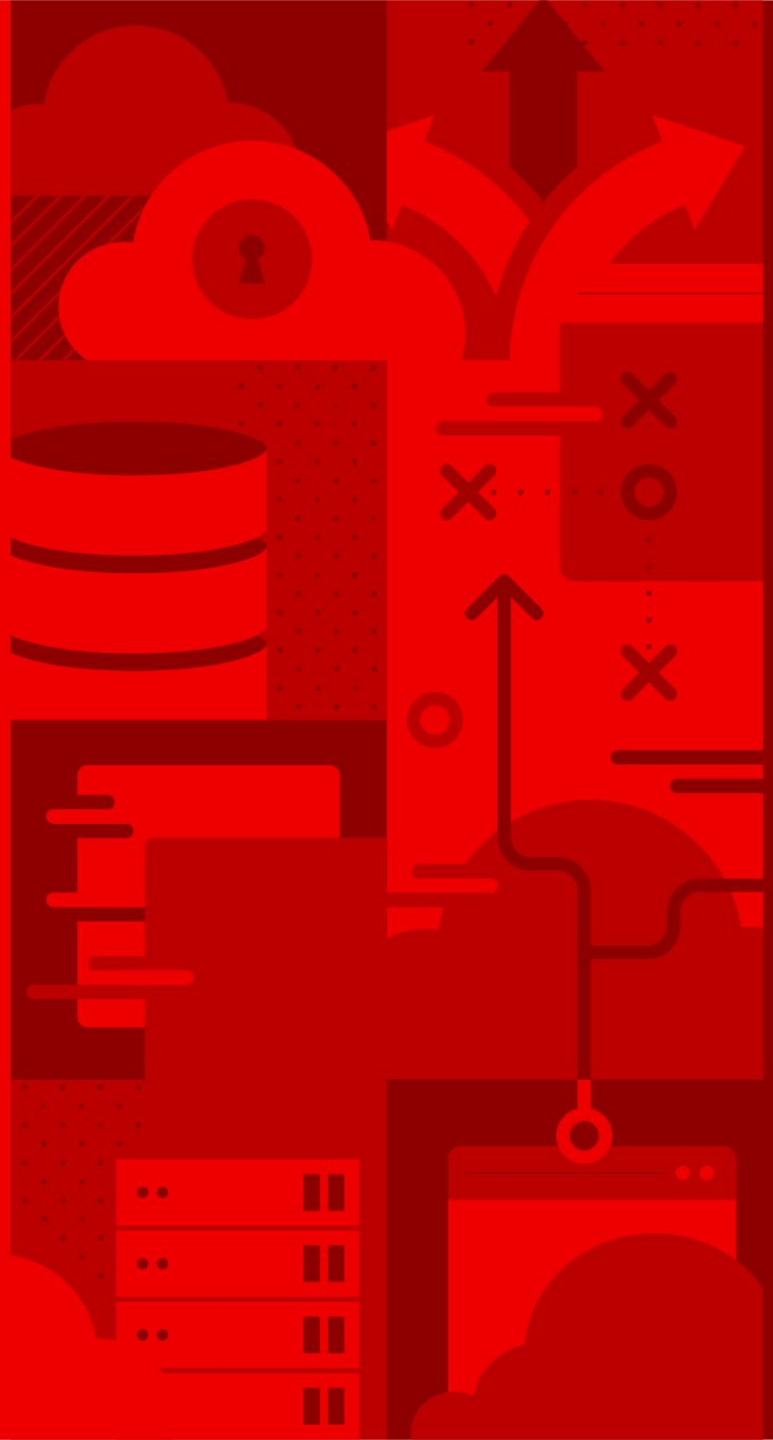

RH ACM and GitOps

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Using Git as your source of truth, manage your data center via code

Create, modify & delete, just as you would any source code. Git becomes your source of truth controlling your data center.

- Have a record of who, what & when for every change precipitated in your environments
- Through code Reviews & Approvals, take full control of all changes to your data center(s)
- Restore your environment, via the Git commit history (system of record)

GitOps in ACM, how does it work?

Channel - Source

```yaml
---
apiVersion: apps.open-cluster-management.io/v1
kind: Channel
metadata:
  name: etherpad-app-latest
  namespace: etherpad
spec:
  type: GitHub
  pathname: https://github.com/avaleror/nvs_demo.git
```

Subscription - What

```yaml
apiVersion: apps.open-cluster-management.io/v1
kind: Subscription
metadata:
  name: etherpad-app
  namespace: etherpad
  labels:
    app: etherpad-app
  annotations:
    apps.open-cluster-management.io/git-path: app-lifecycle/etherpad
    apps.open-cluster-management.io/git-branch: main
spec:
  channel: etherpad/etherpad-app-latest
  placement:
    placementRef:
      kind: PlacementRule
      name: etherpad-pr
```

Placement Rule - Where

```yaml
apiVersion: apps.open-cluster-management.io/v1
kind: PlacementRule
metadata:
  name: etherpad-pr
  namespace: etherpad
  labels:
    app: etherpad-app
spec:
  clusterReplicas: 1
  clusterConditions:
    - type: ManagedClusterConditionAvailable
      status: "True"
  clusterSelector:
    matchLabels:
      environment: dev
```

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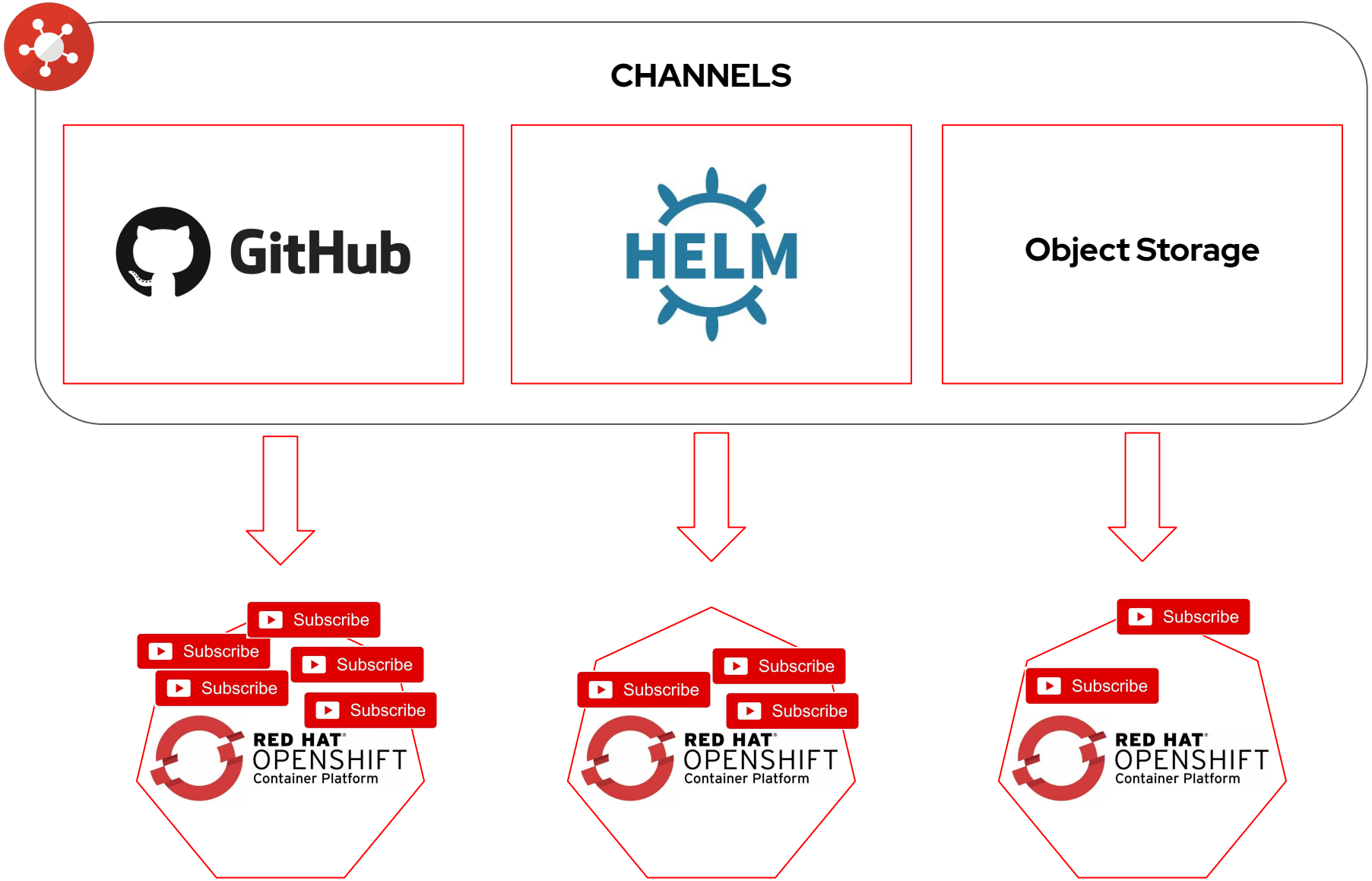
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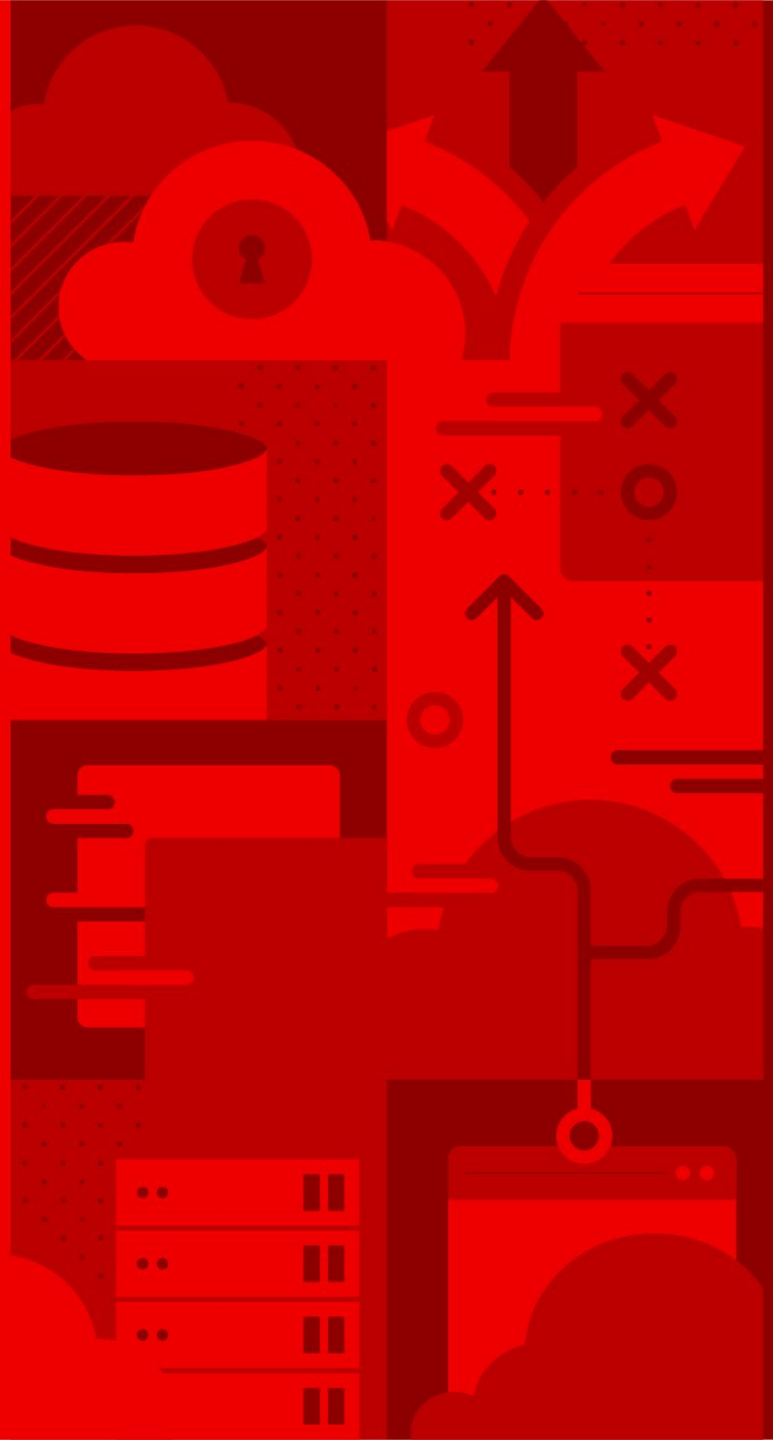

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