Red Hat OpenShift

What's New in Red Hat OpenShift 4.18

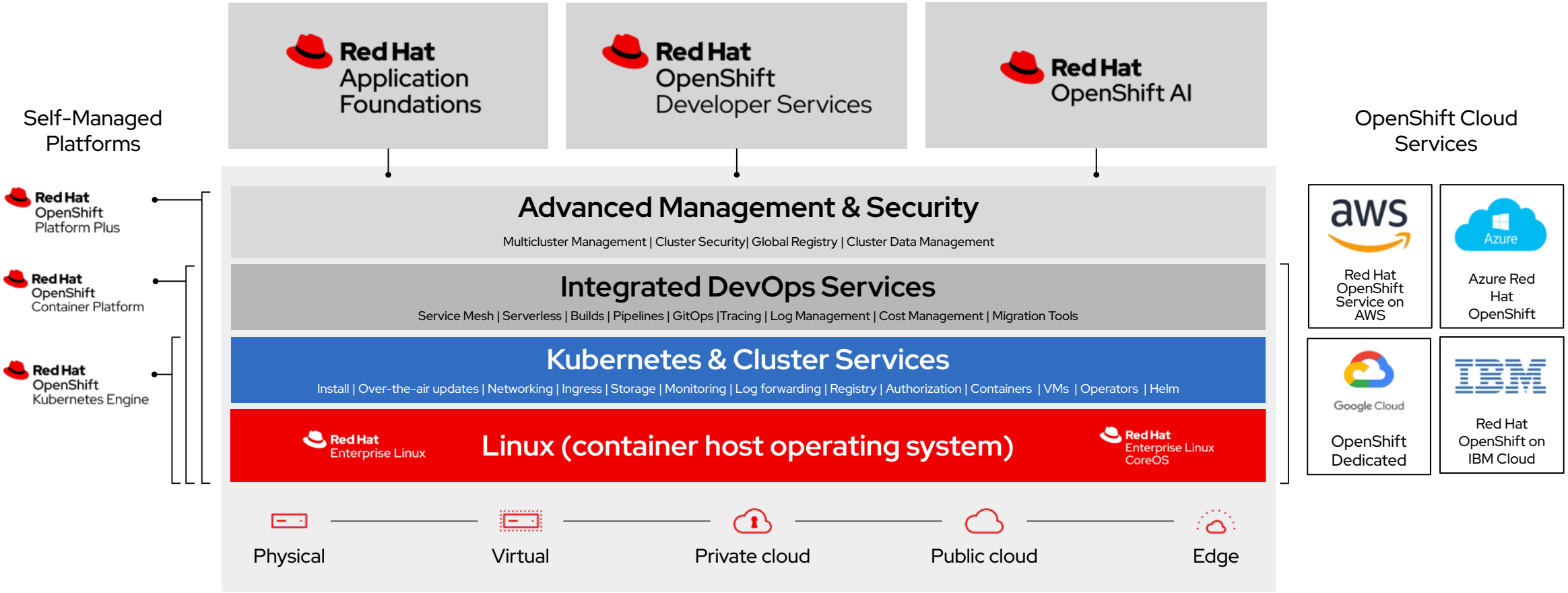
Jan 27, 2025

OpenShift Product Management

red.ht/whatsnew

Red Hat

Red Hat open hybrid cloud platform



Podman and Podman Desktop approved as CNCF Sandbox Projects!

🎉🎉🎉🎉

- Voting finished (link, link)
- Original announcement blog (Podman Desktop)
- Original announcement blog (Podman, Buildah, and Skopeo)

"While the CNCF currently hosts many projects that support developer pipelines and packaging, it does not yet have a complete set of user tools for container building and manipulation. Podman and its subprojects, already utilized by several existing CNCF projects, fills this gap. **Together with Podman Desktop, this gives the CNCF a more complete stack of developer tools for container application development.**"

Kubernetes 1.31

"Elli"

Notable Stable Features

- Improved Ingress Connectivity Reliability for kube-proxy
- Unhealthy Pod eviction policy for PodDisruptionBudget
- Random Pod selection on ReplicaSet downscaling
- Persistent Volume last phase transition time
- Elastic Indexed Jobs

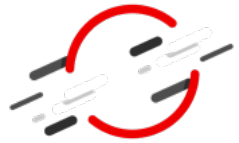
Notable Beta Features

- Always honor PersistentVolume Reclaim Policies
- nftables backend for kube-proxy
- Multiple Service CIDRs
- Traffic distribution for Services
- Kubernetes VolumeAttributesClass ModifyVolume

CRI-O 1.31

Kubernetes 1.31

OpenShift 4.18



Product Manager: Nick Png

Red Hat

Notable Top RFEs and Components

Top Requests for Enhancement (RFEs)

- Support for Server Message Block CSI driver via Operator - RFE-512
- User Defined Networks for OpenShift Virtualization - RFE-6390
- Support custom IPv4 subnets on OVN for BYO VPC deployments - RFE-3981
- OpenShift on Baremetal and OpenShift Virtualization on GCP - RFE-5176
- OpenShift on Baremetal and OpenShift Virtualization on Oracle Cloud - RFE-3635
- Allow disabling over-provisioning in LVMS as day 2 operation - RFE-5490

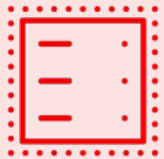
OpenShift 4.18 Spotlight Features

Red Hat

Red Hat OpenShift 4.18 Highlights

Core

- Enhanced User Defined Networks including BGP for UDN
- Operator Lifecycle Management v1
- oc-mirror v2 with Helm charts and proxy support
- OpenShift on bare metal in Google Cloud Platform (GA)
- OpenShift on Oracle Cloud: bare metal shapes on OCI (GA), Oracle Cloud@Customer and Oracle Private Cloud Appliance



Virtualization

- OpenShift Virtualization Engine
- VM friendly networking with User Defined Networks
- VM storage migration (GA)
- OpenShift Virtualization in Google Cloud Platform (TP)
- OpenShift Virtualization in Oracle Cloud Infrastructure (TP)

Security

- Secret Store CSI Driver (GA)
- Streamline secrets handling with Secret Store CSI Driver in OpenShift GitOps and OpenShift Pipelines workflows
- Secure OpenShift Service Mesh secrets with cert-manager (TP)
- Automated certificate recovery after cluster hibernation

GA: Generally Available
TP: Technology Preview
VM: virtual machines

red.ht/whatsnew

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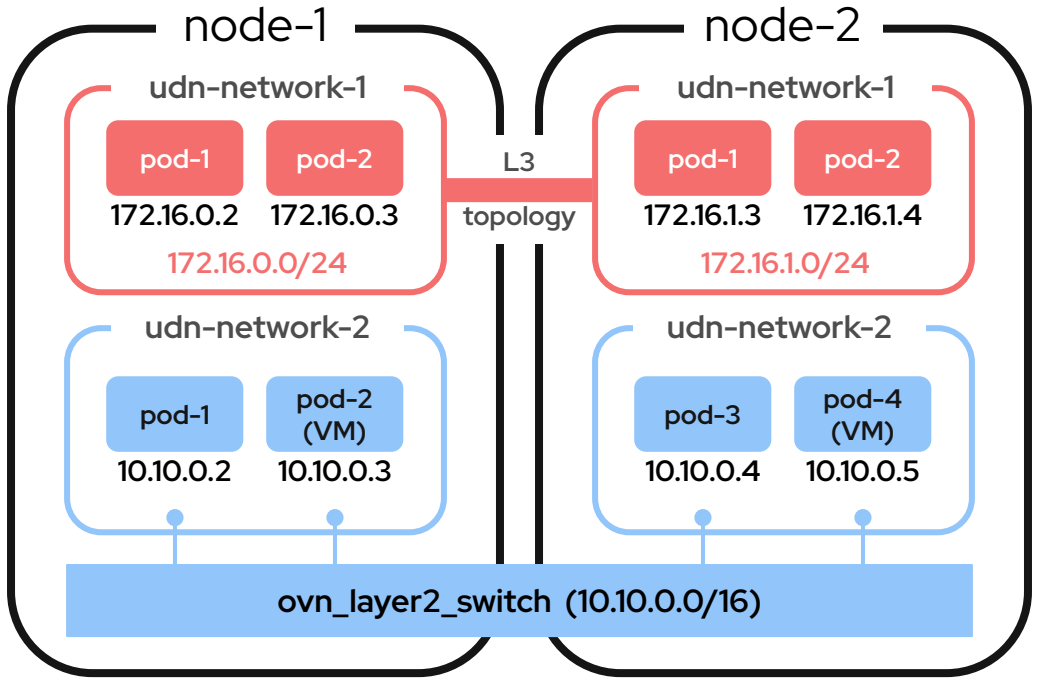
Native Network Isolation for Namespaces

A better solution for the monolithic layer 3 Kubernetes pod network

- **User Defined Network (UDN)** support in OVN-Kubernetes
- A default network for OVN-Kubernetes components + VRF support for additional **isolated-by-default** UDNs
- One or more namespaces in each UDN (tenant)
- A namespace can be connected to different UDNs, each meant for a specific purpose
- Support for:
  - OpenShift Virtualization
  - static IP assignments for the life of VMs (for OCP Virt)
  - L2, L3 & localnet UDN topologies
  - overlapping pod IPs across UDNs
  - Kubernetes Network Policy
  - clusterIP services and external services
  - BGP (GAs in a 4.18.z, EVPN integration targeting 4.19)



- Extend UDN into provider networks, so a VM can be directly referenced by its (static) L2 network address, rather than requiring NAT translation at the cluster edge
- Existing secondary networks (Multus) are not impacted

Product Managers: Marc Curry, Deepthi Dharwar

The next-gen Operator Lifecycle Manager → OLM v1 (Now Generally Available)

Operator Framework

OLM v1: a streamlined, secure, and automated management experience

Simpler and Automated Management

Consolidated API and declarative workflows for easier GitOps integration and zero-touch provisioning (ZTP), reducing human error.

Enhanced Update Control

Control over desired versions for updates, including optional automatic Z-stream updates for critical security patches.

Increased Reliability

Continuous reconciliation and opt-in rollbacks, ensuring proactive issue resolution and improved reliability.

Tightened Security

User-provided ServiceAccounts for installing and upgrading content, improving the overall security posture.

ⓘ The classic OLM, OLM v0, remains fully supported throughout OpenShift 4's lifecycle.

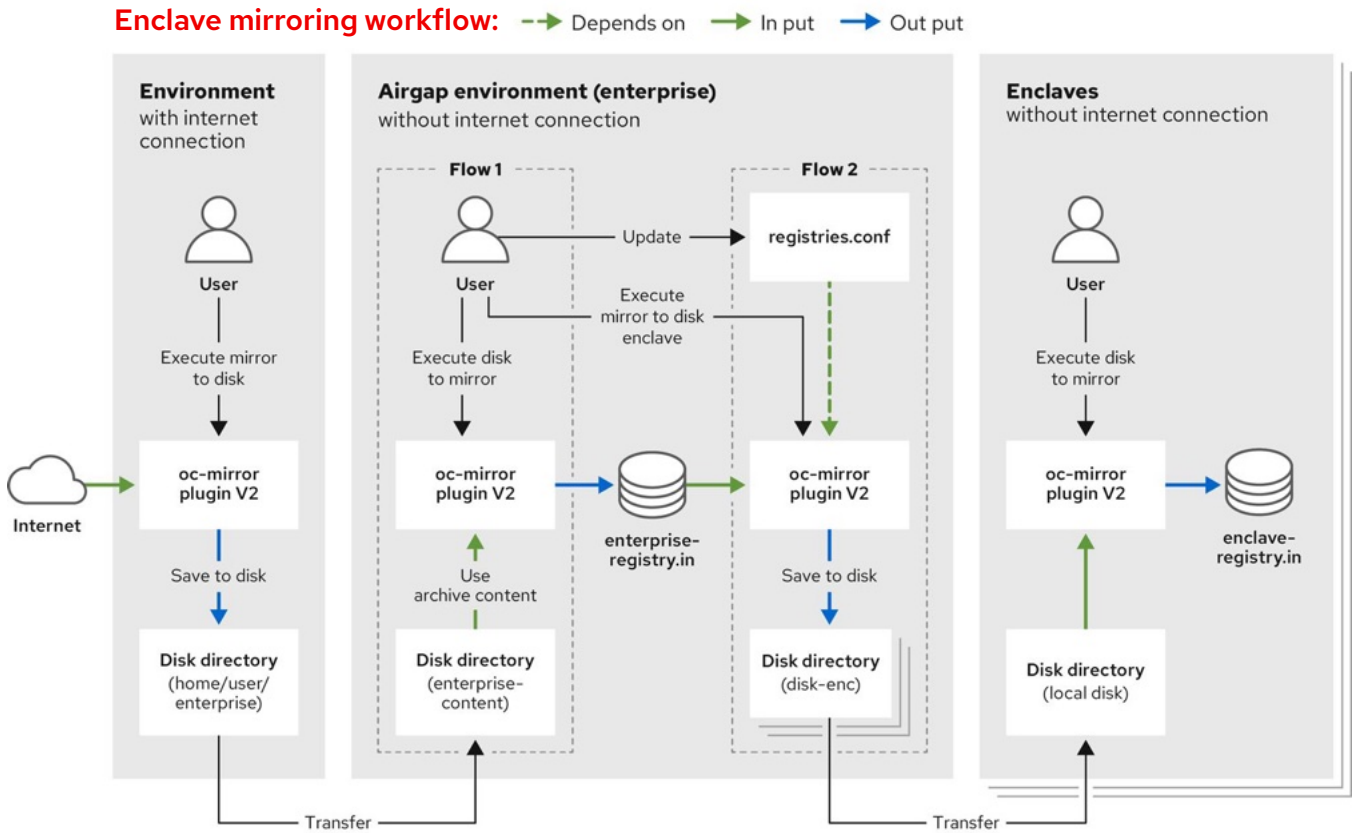
Product Manager: Tony Wu

Red Hat

Watch demo videos to learn more about oc-mirror v2 (Now **Generally Available**)

OpenShift oc-mirror

oc-mirror v2: Supercharging Restricted Environments



Enhanced Security

Support **enclave environments**, providing secure and isolated mirroring for **most sensitive workloads**.

Granular Image Deletion

Precisely manage **image deletion** in your mirror registry to **optimize storage**.

Faster Performance with Intelligent Caching

Reduced mirroring times, **bandwidth consumption**, and improved efficiency.

Helm Chart Support

Mirror Helm charts (including **in enclaves**) for simplified application management.

Proxy Support

Leverage **existing proxies** and **pull-through caches** in your infrastructure, optimizing efficiency.

Product Manager: Tony Wu

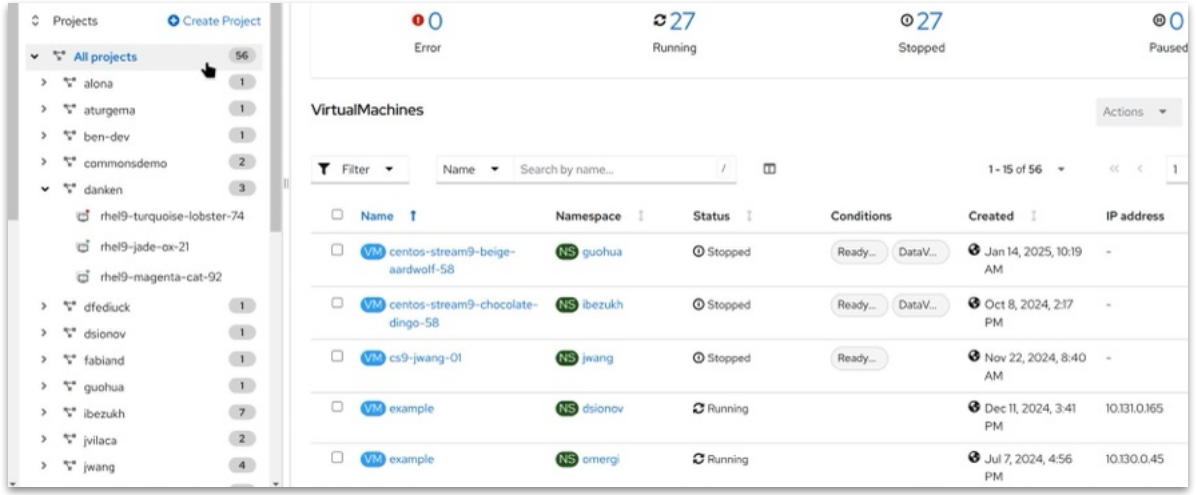
Red Hat

OpenShift Virtualization Highlights

Modernize your operations with comprehensive lifecycle and infrastructure management

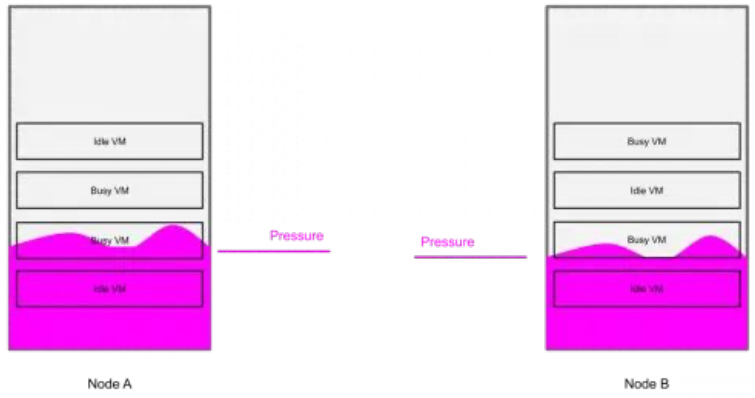
Flexible Infrastructure

- Native network isolation for VMs with User-defined primary network
- Easier to configure VM networking for AWS and ROSA
- Dynamically reconfigure VM storage with Storage Live Migration in production environments
- Wider public cloud support (TP)
  - Google Cloud Platform
  - Oracle Cloud Infrastructure



Improved infrastructure optimization

- Automatic VM workload balancing based on actuals
- Easier golden image provisions across multiple clusters



Simplified VM Management

- Virtualization Admin inventory tree view
- Fast reliable migration [MTV performance recommendations]

Product Manager: Peter Lauterbach

Red Hat

OpenShift Virtualization Engine

Opening the door to virtualization and modernization

Unlimited VMs

Run as many VMs as you need, maximizing the value of your hardware. Purchase RHEL subscriptions, virtualized OpenShift for container-based applications, or upgrade to other bare metal OpenShift editions if needed.

128 core bare metal scale

Get bare metal scale with 128 cores per subscription - run more VMs on less hardware, optimizing your infrastructure efficiency.

Optional Advanced Cluster Management for Virtualization

Scale as big as you can; add Advanced Cluster Management for Virtualization to make management of thousands of nodes as easy as managing a single rack.

Workload monitoring and platform logging

Keep tabs on and track your environment with a preconfigured, preinstalled, and self-updating stack then stay in command with the included OpenShift GitOps operator to leverage Kubernetes-powered orchestration for VMs.

Product Manager: Peter Lauterbach

Security Highlights for OpenShift 4.18

Increased security for networking, secrets management, cluster stability

Networking

- istio-csr integration between cert-manager and OpenShift Service Mesh (OSSM) - Technology Preview.
- Seamless ability to secure OSSM workload and control plane components.
- Supports BYO Issuer.

Workload Secrets

- General Availability of Secret Store CSI driver and operator.
- Highly secure, secrets mounted in ephemeral volume per workload, no data in etcd.
- e2e testing for Azure, GCP, and Vault provider plugins.

Cluster Stability

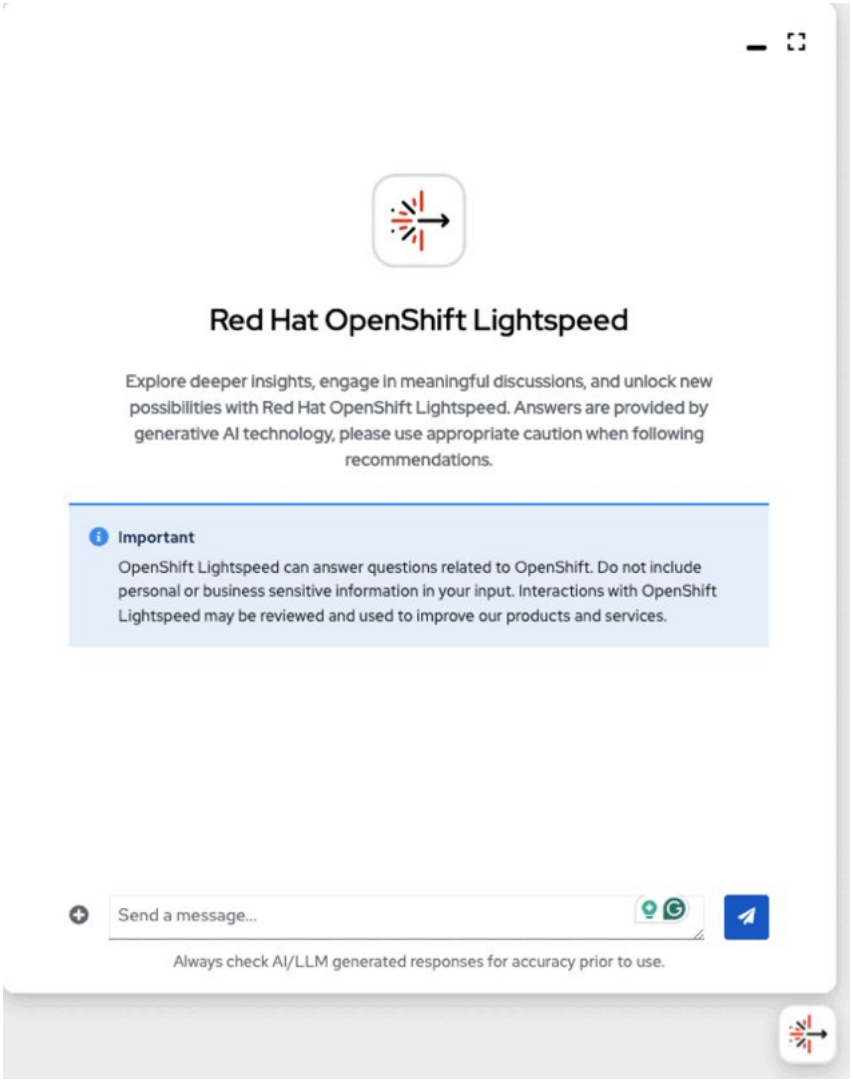
- OCP 4.18+
- New Single-Node OpenShift clusters can be shutdown and recovered automatically.
- High Availability self-managed clusters in the cloud can be suspended for up to 90-days.

Product Manager: Nick Png

Intelligent OpenShift

Openshift Lightspeed v0.3

Technology Preview



- **OpenShift 4.18 knowledge**

  OpenShift Lightspeed 0.3 incorporates OpenShift 4.18 product knowledge

- **Arm support**

  Deploy on Arm-based CPUs for greater flexibility

- **Faster responses**

  Experience faster answers with line-by-line live streaming from the LLM provider

- **Designed for FIPS**

  Meets FIPS security standards for secure deployments

- **OpenShift Virtualization Virtual Machine page aware**

  Imports YAML, logs, events, and alerts directly from VMs in OpenShift Virtualization

- **Import YAML from OLS into OpenShift UI YAML editor**

  Imports OpenShift Lightspeed generated YAML into the OpenShift Console YAML editor with one click

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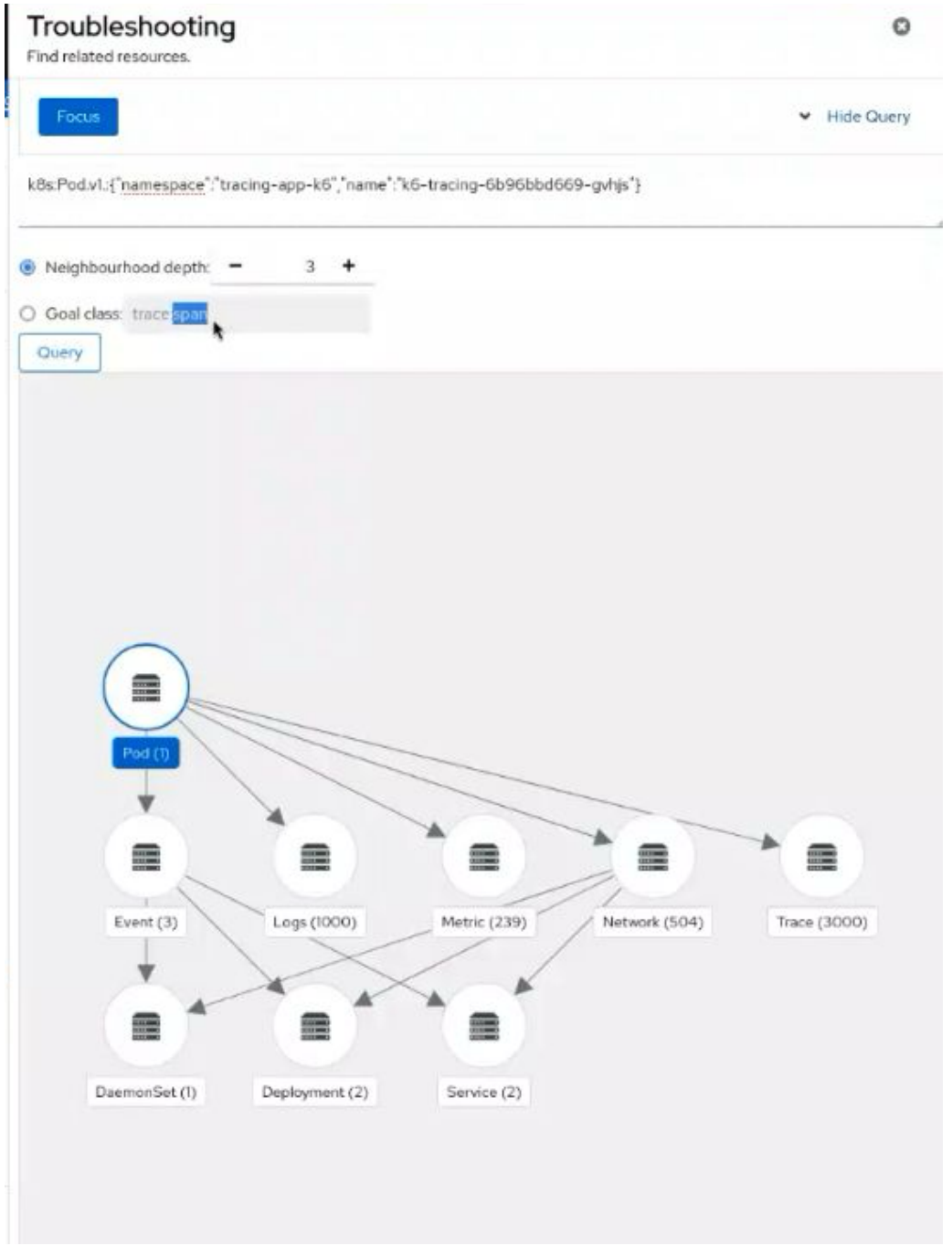
Product Manager: Gaurav Singh

Troubleshooting panel with (observability) signal correlation

Enhanced Technology Preview

- **Troubleshoot faster on OpenShift clusters**
  Correlation of K8s resources & observability signals from multiple heterogeneous data stores
- **Powered by Korrel8r**
  (Extendable) rules define *relationships* between those signals
- **Install the Cluster Observability Operator (COO)**
  Deploy the operator to make use a dedicated Troubleshooting side-panel in the OpenShift web console
- **New feature**
  Support extended to distributed **traces** with the **COO 1.0.0** release!



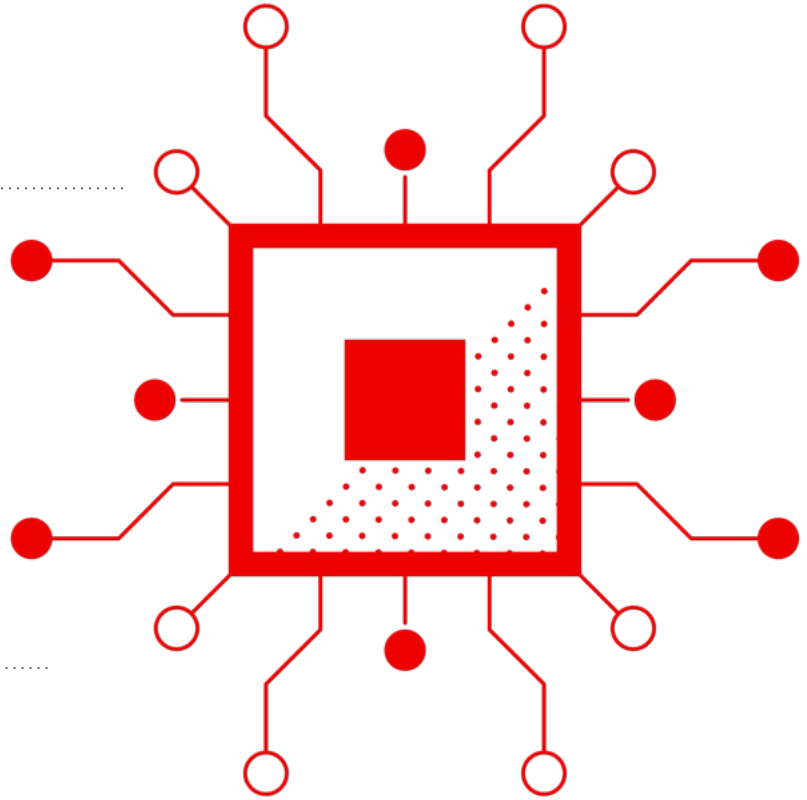
AI Accelerators

- NVIDIA GPU Operator support for the H200 NVL GPU
- OpenShift Virtualization with vGPU time-sliced for AI (GA)
- Oracle Cloud Infrastructure support for bare-metal compute shapes A100/H100
- Grace Hopper GH200 NVL2 systems certified (HPE DL384 Gen12)

- AMD GPU Operator (GA)
- Support for AMD Instinct MI210 and MI300X

- Intel Gaudi 3 supported with the Intel Gaudi Base Operator

- Spyre AI Accelerator supported in OpenShift with the AIU Operator



Manage at Scale

Hosted Control Plane (Self-Managed)

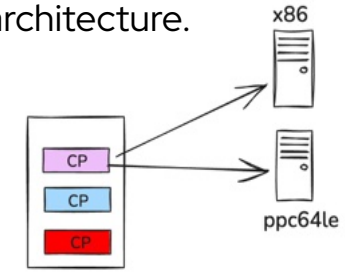
Host Tenancy Support exposed for AWS Node Pools

Allows launching AWS EC2 instances into dedicated instances or dedicated hosts, providing enhanced tenant isolation and customization options.

Heterogeneous NodePools with Agent

Support for heterogeneous NodePools via the Agent Platform including IBM's Power/Z.

E.g, Deploy an x86 Hosted control plane and to add at least one NodePool running with a ppc64le architecture.



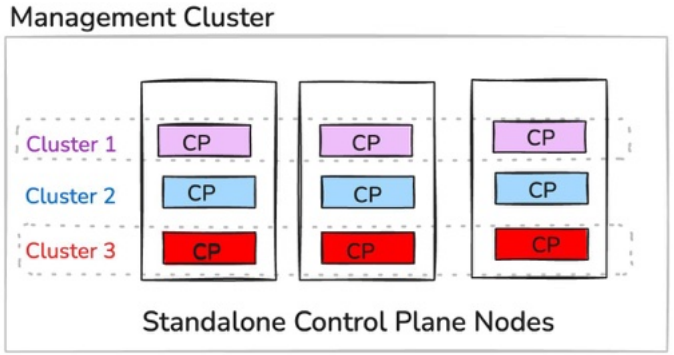
Deploy Hosted Clusters on OpenStack (Dev-Preview)

HCP now available on a new provider. Test Hosted Control Planes on OpenStack in dev-preview .

I.e., spec.platform = openstack

Deploy Hosted Control Planes alongside Standalone

Deploy up to 3 hosted clusters alongside standalone OpenShift control-plane nodes and save resources as you are scaling up to larger deployments.



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ACM 2.13 - Support for OpenShift virtualization

Red Hat Advanced Cluster Management for Kubernetes

Gain powerful insights and deeper control of your OpenShift virtualization environments

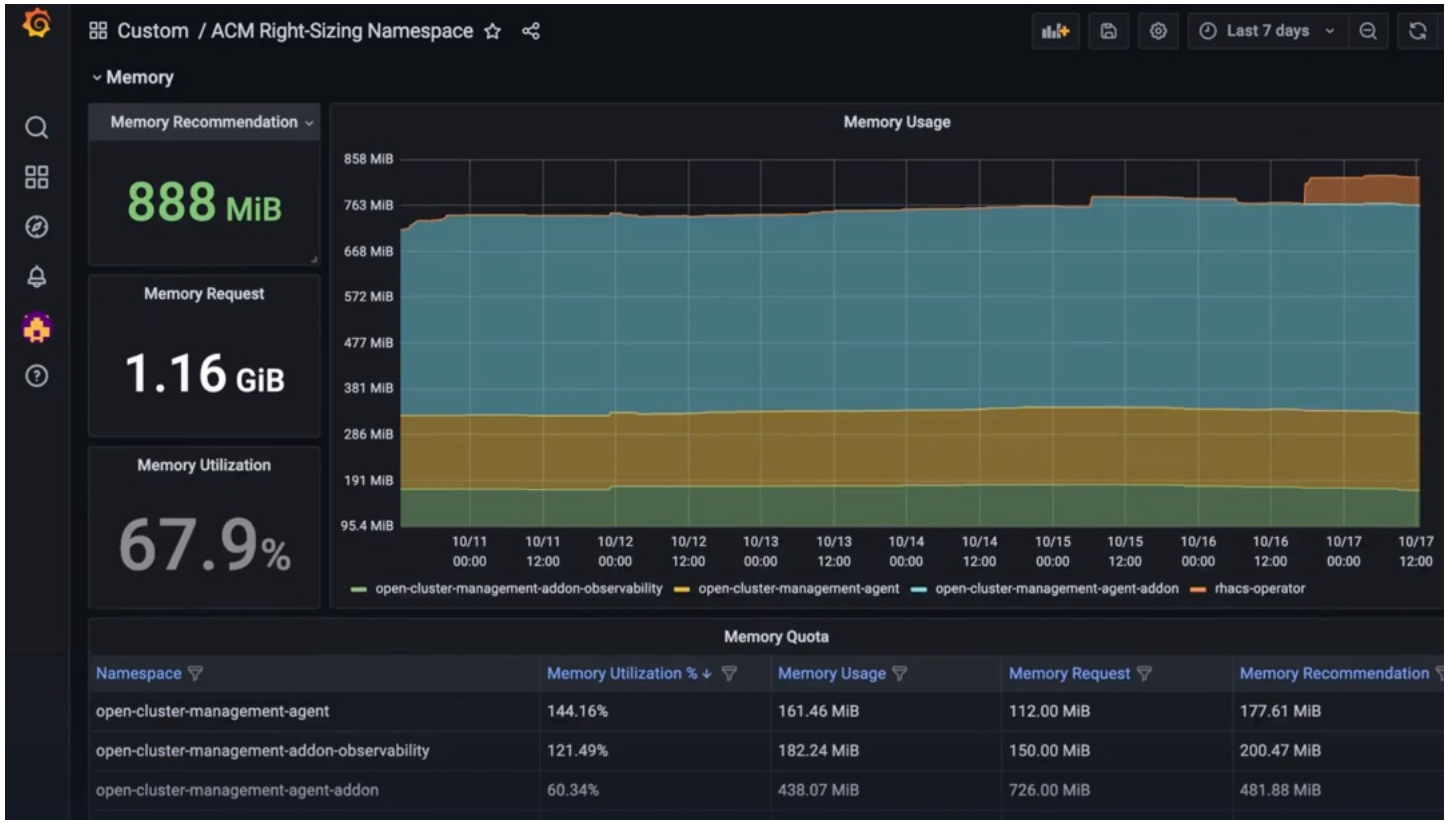
SEE: Enhanced Observability with Right Sizing for OpenShift Virtualization dashboard (DP)

red.ht/ACMRightSize

Virtual Machines Operating System Details

FIND: Virtual machines easily with enhanced search capabilities

DO: Policy based backup of Virtual Machines

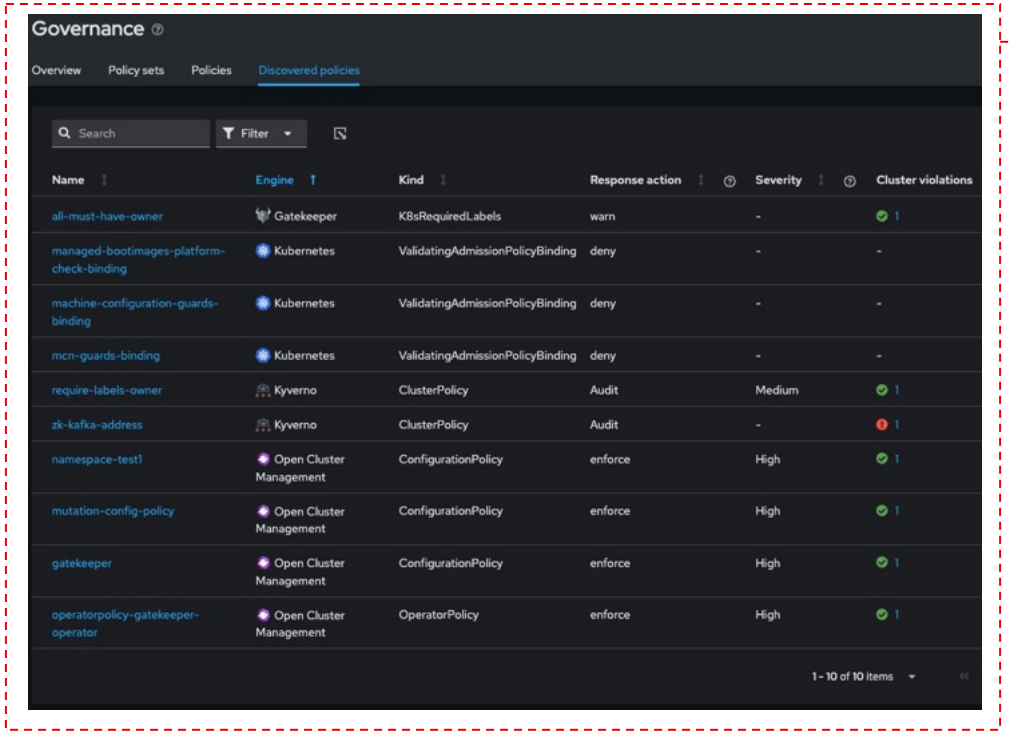


Product Managers: Bradd Weidenbenner (speaking on behalf of Scott Berens, Christian Stark, August Simonelli, Sho Weimer)

Red Hat

Red Hat Advanced Cluster Management for Kubernetes

What's New in RHACM 2.13 - Policy-based Governance

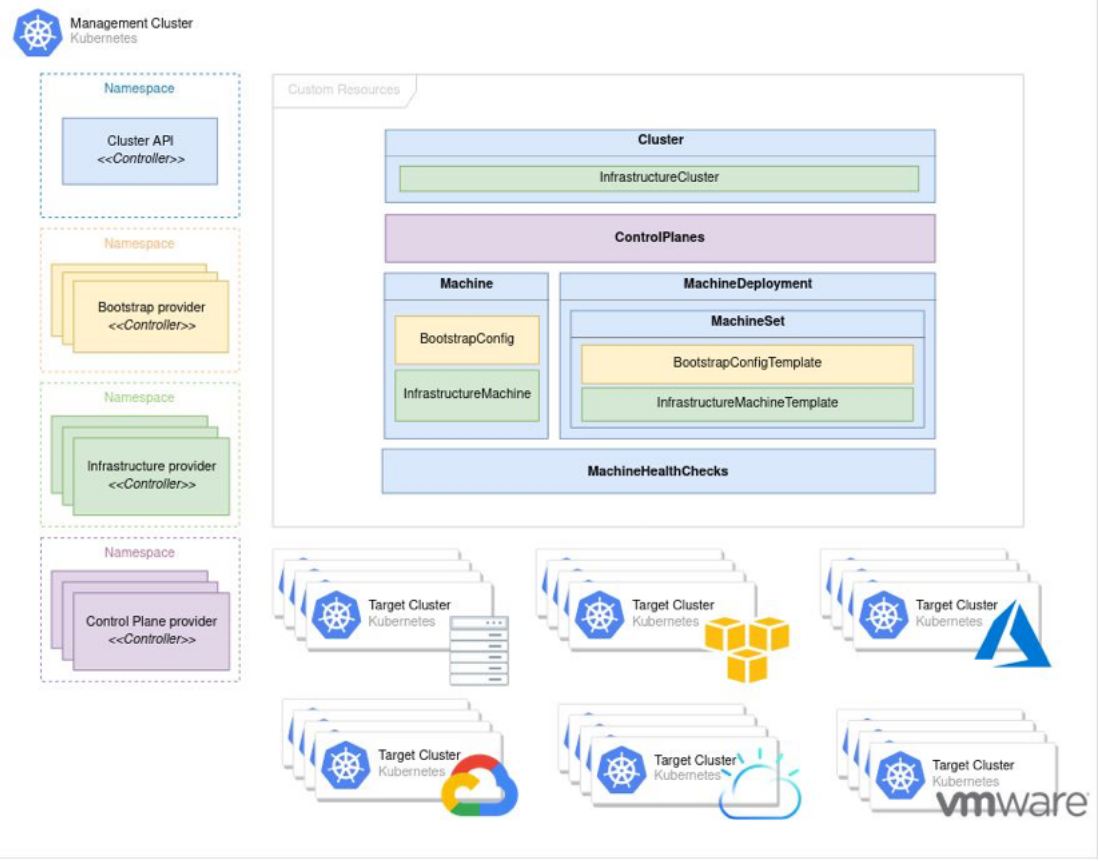


- **Kyverno and ValidatingAdmissionPolicy in Governance UI**
  (Note: Red Hat support for Kyverno as a run-time policy engine is not being offered)
  - Automated discovery of Kyverno and Kubernetes ValidatingAdmissionPolicies deployed across the fleet.
  - View Kyverno resource audit violations, generated resources, image verification violations, and mutated objects.
- **(TP) Tools for testing Open Cluster Management policies**
  - Leverage the policytools CLI "dryrun" command to create automated tests for policies and integrate them into a CI pipeline for increased pre-deployment validation.
- **Gatekeeper operator uplift to 3.18**
  - Alignment with latest version available in the upstream community.

Product Managers: Bradd Weidenbenner (speaking on behalf of Scott Berens, Christian Stark, August Simonelli, Sho Weimer)

Red Hat Advanced Cluster Management for Kubernetes

What's New in RHACM 2.13 - Cluster Lifecycle and Multicluster Networking



Cluster API Provider

- CAPA implementation for ROSA HCP features (Technology Preview)
- Auto import CAPI clusters to ACM (Developer Preview)

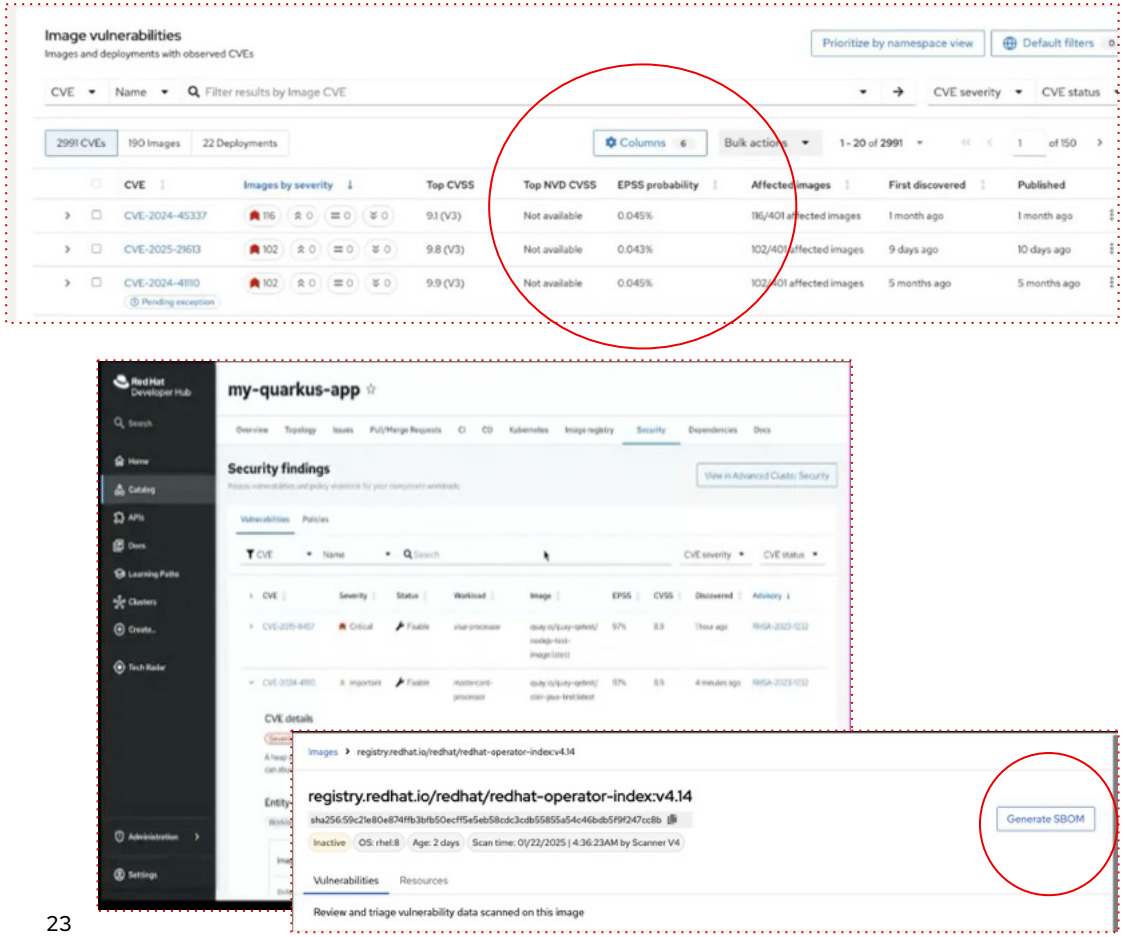
Networking

- Submariner Hosted Control Planes & BareMetal support

Product Managers: Bradd Weidenbenner (speaking on behalf of Scott Berens, Christian Stark, August Simonelli, Sho Weimer)

Red Hat Advanced Cluster Security for Kubernetes

ACS 4.7 Highlights



Vulnerability Management

- **SBOM Generation** based on scanned container images (SBOM type Analyzed) (Tech Preview)
- **Enriched Vulnerability Data with EPSS Score**
- **Integration with ServiceNow** Container Vulnerability Response Application (April 2025)
- **Integration with Red Hat Developer Hub** (Tech Preview)

Platform

- **Auto-renewal of Internal certificates** for Secured clusters
- Short-lived **OIDC credential from Microsoft Entra ID** for m2m auth
- Integration with **Azure services** using **workload Identity**

** Note: Released UI may have some differences

Product Manager: Anjali Telang

Red Hat

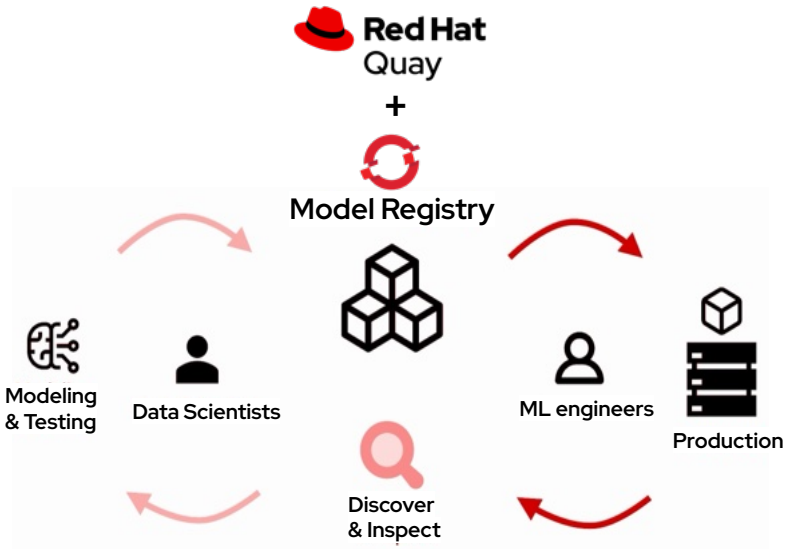
Restricting access to ACS Console to authorized IP ranges

- Enhanced Security: Lowers risk of unauthorized access and potential attacks.
- Attack Surface Reduction: Limiting console access to a narrow range of known IPs
- Improved Compliance: Ensures adherence to organizational or regulatory requirements that mandate restricted access to sensitive security management interfaces.

Product Manager: Anjali Telang

Red Hat Quay 3.14

ML Model Storage and UI/UX Upgrades



ML Model Storage Expansion

Introducing basic artifact storage functionality for AI/ML models as a Tech Preview

New UI - Road Towards Defaulting by adding:

- Proxy-Pull Cache UI
- OAuth API Token Management
- Quota UI
- SuperUser UI

UX Upgrade: Intuitiveness

Improved Tag Management: This feature provides users with the date and time a tag was last pulled, eliminating the need to manually extract this information from audit logs.

Enhanced Notification Management: By allowing non-unique email addresses, we can simplify user experience and reduce manual intervention

Observability & Sustainability

Red Hat

Observability

Cluster Observability Operator

Generally Available with the 1.0.0 Release

Powered by **Konflux**

Creating Standalone Monitoring Stacks

Deploy it to create **standalone monitoring stacks** - independent from the default in-cluster monitoring stack (CMO)

Making Use of Analytics Features

Deploy it to benefit from **observability signal correlation** & additional analytics features - provided as part of UI features

New

Enhanced Technology Preview: observability signal correlation with troubleshooting panel in OCP web console - now supporting traces

Exploring Observability Data with UI Plugins

Deploy it to make use of observability **visualization capabilities:** Dashboard UI Plugin, Troubleshooting UI Plugin, Distributed Tracing UI Plugin, Logging UI Plugin & Monitoring UI Plugin

New

Developer Preview: Observe > Alerting UI in RHACM console / Multi-Cluster Alerting UI

Product Managers: Roger Floren, Vanessa Martini

Red Hat

Observability

OpenShift Monitoring

OpenShift 4.18

New Features

- Allow user-defined monitoring administrators to define **multi-namespace Prometheus alerts**
- Improve **Prometheus I/O pattern** on shared storage
- Integrate **AlertManager** with common proxy settings
- Collect **accelerator metrics**
- Immediate **config validation & feedback** for Monitoring

Improvements

- Custom **metrics collection** in **must-gather**
- **Alert** updates
  - Minor improvements, more runbooks
- Monitoring stack **components** updated
  - Alertmanager: 0.27.0
  - Prometheus Operator: 0.78.1
  - Prometheus: 2.55.1
  - kube-state-metrics: 2.13.0
  - node-exporter: 1.8.2
  - thanos: 0.36.1

Product Manager: Roger Floren

Red Hat

Observability

OpenShift Logging

Logging 6.2

Log Collection

- Cluster Logging Operator will have **Short Term Token** support for exporting logs to Google Cloud Platform via Workload Identity Federation

Log Storage

- Loki queries will be optimized for **OpenTelemetry** semantic conventions

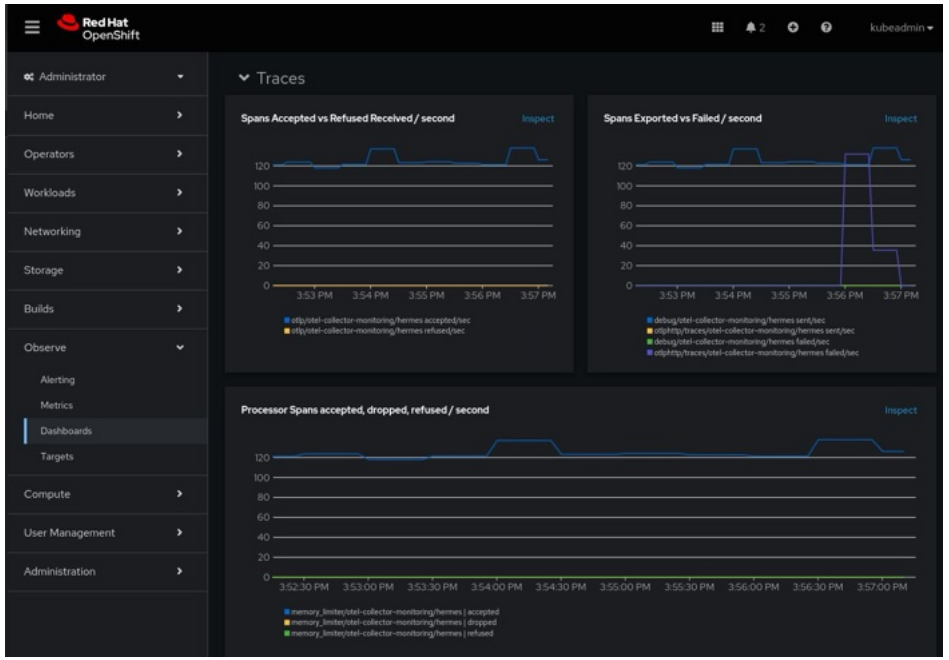
Product Manager: Jamie Parker

Observability

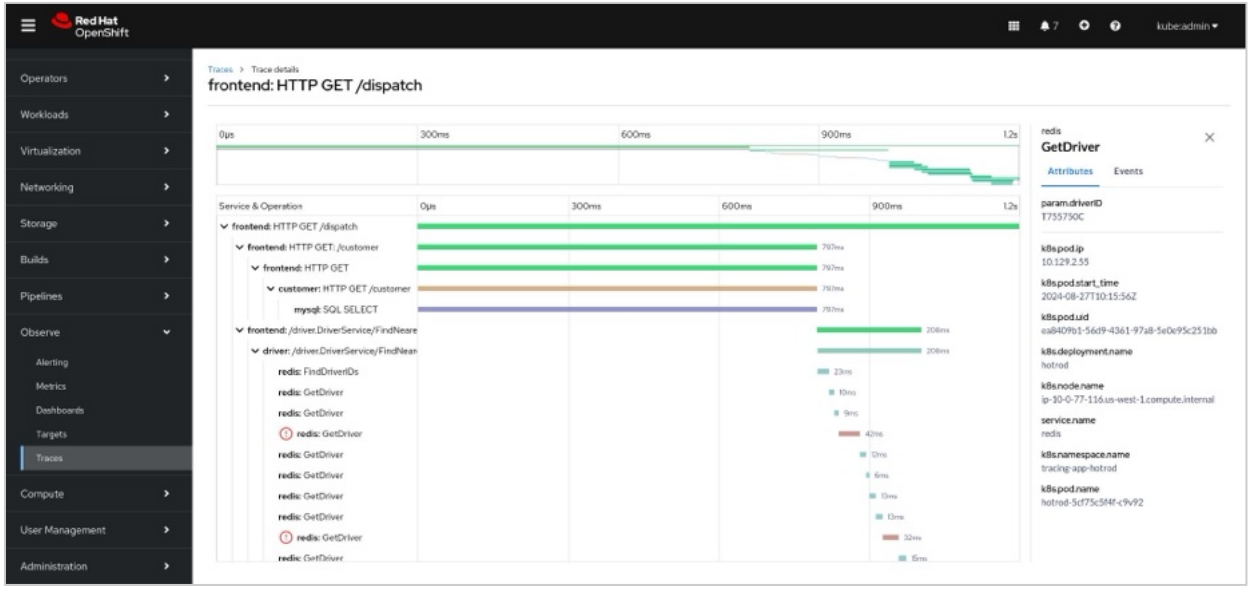
Application Observability & Integrations

Red Hat build of OpenTelemetry

- Automated RBAC for **OpenTelemetry** components
- Export OpenShift Monitoring Metrics via **OTLP**
  - Kubestats
  - Hostmetrics



Distributed tracing



- **Fine Grained RBAC** for stored Tracing data
- Support for IBM Cloud Object Storage in **Tempo**
- **Tempo** monolithic memory handling improvements

Product Manager: Jamie Parker

Red Hat

Observability

Power Monitoring

Currently - Power monitoring 0.3 - TP ≤ OCP 4.17

Upcoming - Power monitoring 0.4 (Feb 5th) - TP ≥ OCP 4.18

Improved performance & data accuracy

- **Kepler** 0.7.12
  - Reduce overhead & performance improvements
  - Improved data accuracy on bare metal & updated machine learning model for estimator (estimating power data in env with no direct access to hardware)
- **kepler-operator** 0.15.0
- Next: **GPU** support
- **GA** planned for April 2025
- Powers sustainability research projects

Product Manager: Roger Floren

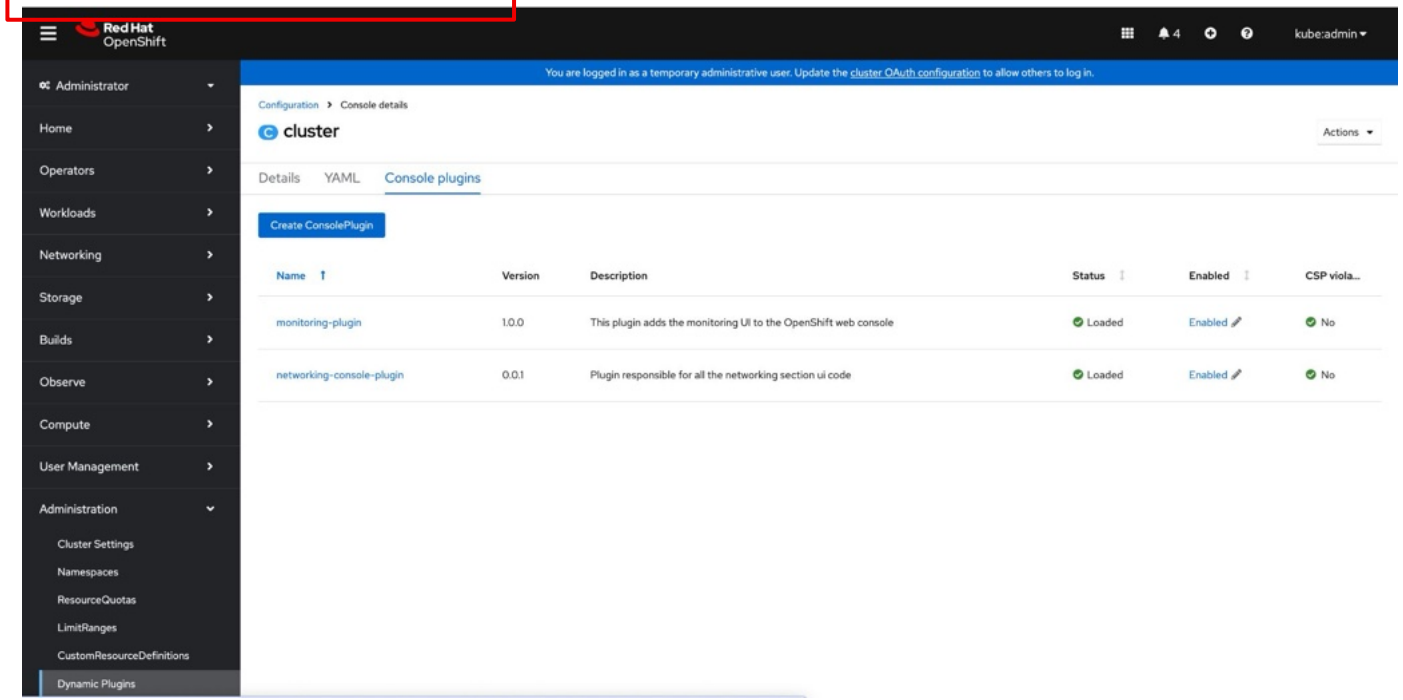
Red Hat

Console

Console: Content Security Policy (CSP)

Content-Security-Policy (CSP) header provides a defense-in-depth measure in client-side security

Console



Dynamic Plugin

Example:

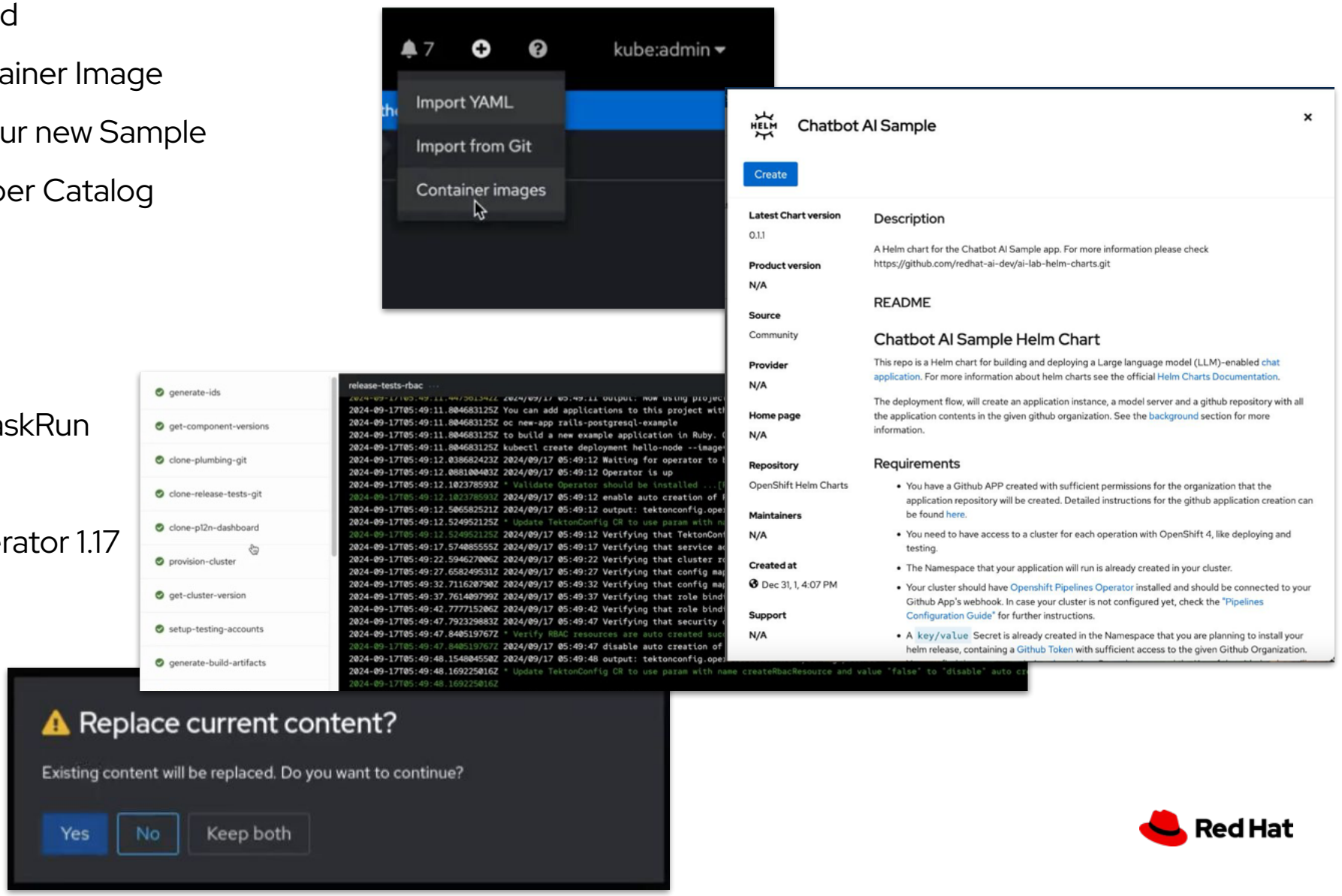
```yaml
kind: ConsolePlugin
metadata:
  name: my-console-plugin
spec:
  displayName: "My Custom Console Plugin"
  backend:
    service:
      name: "plugin-backend-service"
      namespace: "plugin-namespace"
      port: 8080
  csp:
    - directive: script-src
      sources:
        - "https://trusted-scripts.com"
    - directive: img-src
      sources:
        - "https://trusted-images.com"
        - "https://cdn.images.com"
    - directive: style-src
      sources:
        - "https://trusted-styles.com"
```

Read more at: https://github.com/openshift/console/blob/master/frontend/packages/console-dynamic-plugin-sdk/README.md#content-security-policy

Console

Console Updates

- New Quick Create from Masthead
  - Import YAML, Git, or Container Image
- Build your own AI ChatBot with our new Sample
  - Accessible via the Developer Catalog
  - Helm Based
  - Does Not Require GPU
- Colorize Tekton Pipeline Logs
  - Supports PipelineRun & TaskRun
- ClusterTask Deprecation
  - Removed in Pipelines Operator 1.17
- LightSpeed Integration
  - Import YAML to Console



Product Manager: Ali Mobrem

Red Hat

Console

Console **RFEs** "Customer Happiness"

- RFE-4475 - Ability to hide Getting Started Card on Overview Page
  - Console-operator config: new field 'GettingStartedBanner'
- RFE-6131 - Start a Job from a CronJob
  - Start Job action from both List and Details pages for a CronJob

Developer Tools Update

OpenShift Developer Experience

IDE Extensions and Cloud Developer Environment

OpenShift Toolkit for VS Code and IntelliJ - 1.17.0

- The extension activation is improved by bundling and removing unnecessary files
- Use SSO account to configure sandbox in one click
- The Helm UI Page is added with additional tag based filtering
- The selection of devfile version is added to the Devfile Registry editor

Quarkus Tools & EAP for VS Code and IntelliJ - 1.20.0

- Support for global namespace
- Support for multiple Qute template root
- Data model template matcher support.
- Roq DataMapping support
- Various performance enhancements in VS Code extension

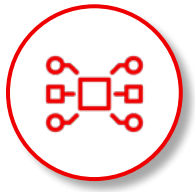
Language Server Protocol Plugin - 0.9.0

- **(Still New :-))** Language Server Protocol Plugin for IntelliJ
- Available on JetBrains Marketplace and user guide is on GitHub
- Various bug fixes and improvements.
- Integration example demo for the curious

OpenShift Dev Spaces

Version 3.17 is now available

Red Hat OpenShift Dev Spaces 3.17 is based on Eclipse Che 7.92



Restricting the total number of the 'Running' workspaces on a cluster

You can restrict the total number of the 'Running' workspaces on a cluster using the `maxNumberOfRunningWorkspacesPerCluster` CheCluster CR property.

Specifying the list of the allowed sources based on which CDEs can be started

Starting from this release, you can specify the list of URLs based on which Cloud Development Environments (CDEs) can be initialized using the dedicated optional `allowedSources` property.

Adding an option to deploy operands on specific cluster nodes

With this release, you can deploy operands managed by the operator (dashboard, gateway, plugin-registry etc.) on the specific cluster nodes using the dedicated 'nodeSelector' and 'tolerations' properties

Support devfile endpoint annotations

With this release, you can provide endpoint annotations in the devfile. For example, the following devfile snippet will create an ingress or route with the annotation `foo: bar` on Cloud Development Environment (CDE) startup.

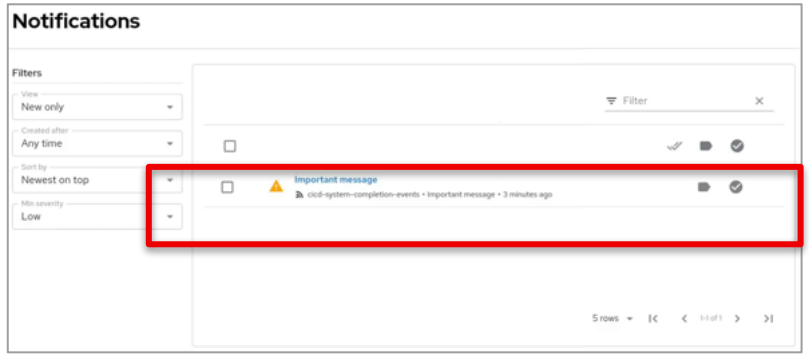
Red Hat Developer Hub

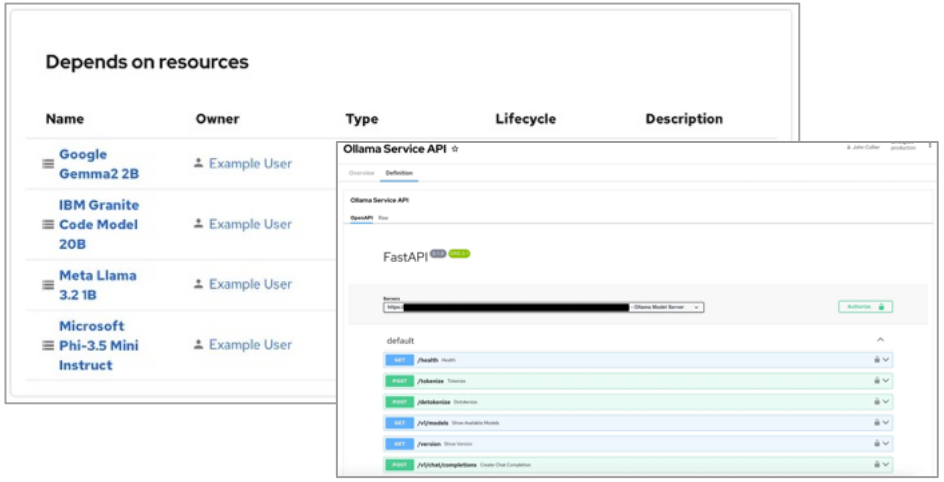
Red Hat Developer Hub - IDP for OpenShift Platform

Setting Development Teams up for success!

RHDH 1.4 Core

- NEW Add middleware functions to the RootHttpRouter
- NEW OpenShift Dedicated is fully supported
- 💡 Installation on GKE is now fully supported (joining AKS, EKS, OpenShift)
- 💡 Janus plugins have been moved to new homes on Backstage Community and Red Hat Developer GitHub





RHDH 1.4 Plug-ins and templates:

- NEW Notification Plugin
- NEW Support for Open Telemetry
- 💡 Documentation on converting & installing Dynamic Plugins
- 💡 New AI Templates for OpenShift
- 💡 Example of AI Asset Tracking using the Software Catalog

Release Notes

TMM: Markus Eisele

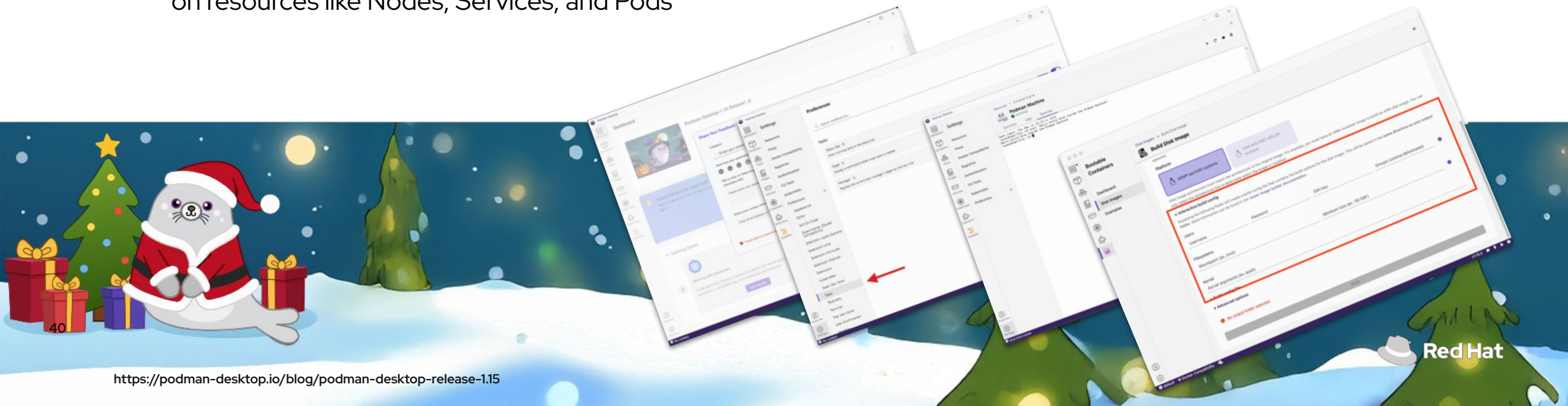
Red Hat

Podman Desktop 1.15

and the BootC extension 1.6

5.1k !

- Improved Feedback Form: Redesigned for seamless issue reporting to GitHub
- New Experimental Task Manager: A revamped task manager is now available for testing
- Enhanced Kubernetes Events: Added support for events on resources like Nodes, Services, and Pods
- SSH Access to Podman Machine: Directly connect to your Podman machine from Podman Desktop
- BootC: From a standard container image to a full bootable-on-a-usb-stick OS!



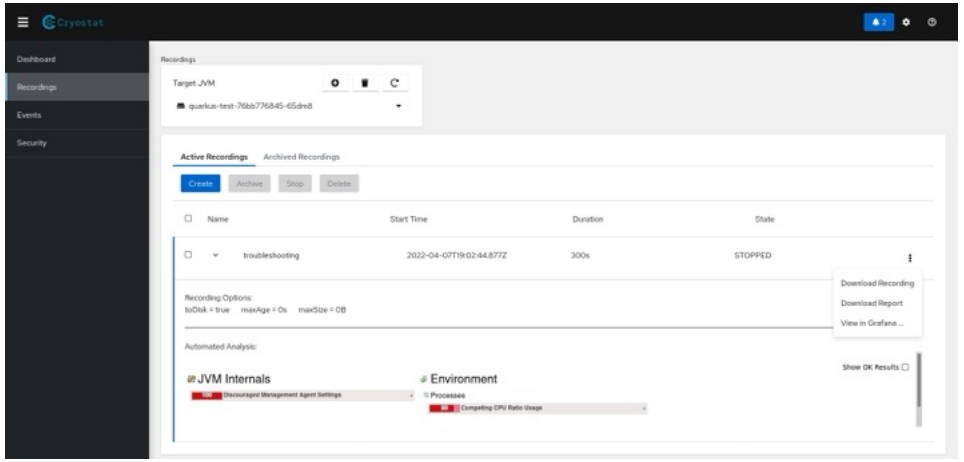
https://podman-desktop.io/blog/podman-desktop-release-1.15

Runtimes

Red Hat build of Quarkus

What's New in 3.15

- Improved integration with Red Hat Developer Hub
- Security improvements
  - Auto generated TLS certificates for development
  - Easier configuration
- Front end development improvement
  - WebBundler (NPM integration)
  - HTMX support
  - WebComponents
- Java Flight Recorder extension for monitoring containerized Java app stats on OpenShift with Cryostat



Cryostat Automated Analysis Report

Cryostat Grafana dashboard

PMM: Jeff Beck

Red Hat

Red Hat Build of Keycloak

What's New

RHBK 26.0 (GA: Nov 13th, 2024) ; **RH-SSO ELS-1** (2 years)

Key Highlights of the new version:

- Multi-Organizations for a multi-tenancy concept for SaaS platforms, enabling support for B2B, B2C, and B2B2C use cases.
- Multi-Site HA active-active deployment support on AWS (see FAQ for more details)
- Persistent user sessions (or Durable Sessions across restarts)
- New Hostname options
- New Password hashing (Argon2)
- Java 21 support
- Improved Lifecycle Support Policies (see Notes)

RH-SSO ELS-1 Availability (Jun 2025 - 2027) - more in KB Article

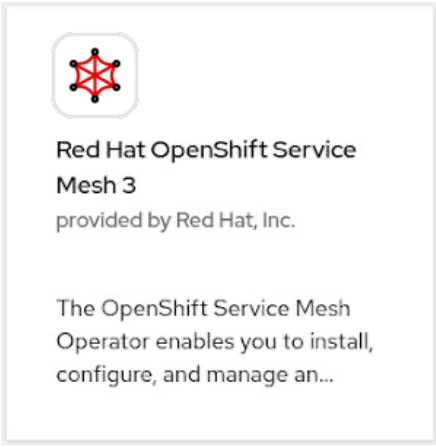
PMM: Jeff Beck

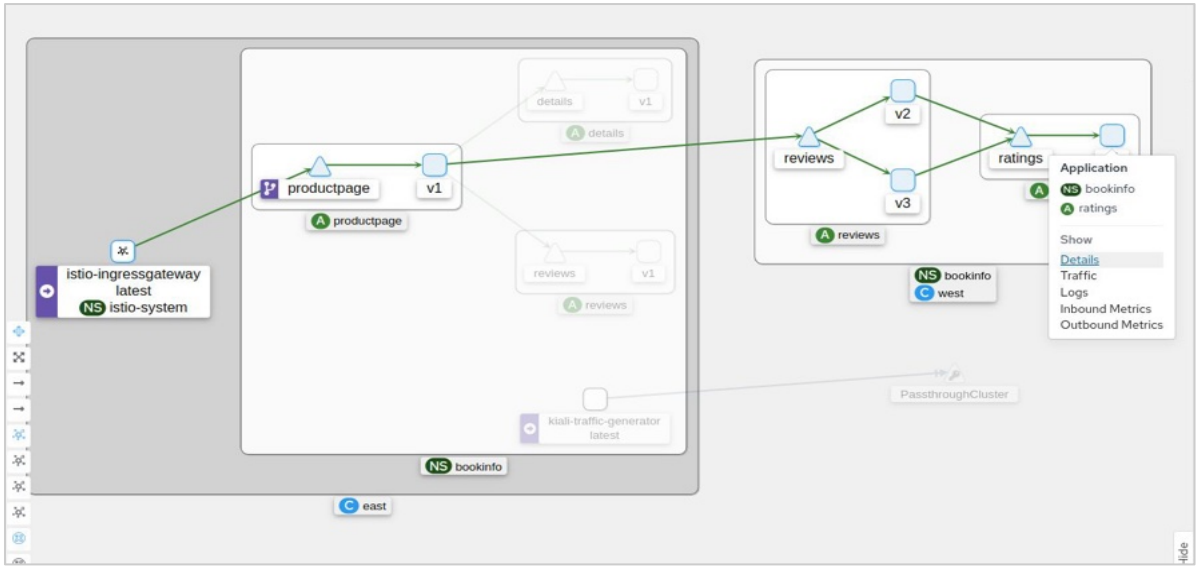
Red Hat

Platform Services

OpenShift Service Mesh

- OpenShift **Service Mesh 3.0 General Availability**:
  - Based Istio 1.24 and Kiali 2.1
  - Managed by a **new Istio operator** based on community Istio - the "Sail Operator"
  - New Service Mesh 3.0 documentation
  - Supported migration paths from OpenShift Service Mesh 2.6
  - New included features:
    - **Istio's multi-cluster topologies**
    - Canary control plane upgrades
    - Istioctl command line utility
  - "sidecar-less" **ambient mode developer preview**
- OpenShift Service Mesh 3.0 will be supported on OCP 4.14+.

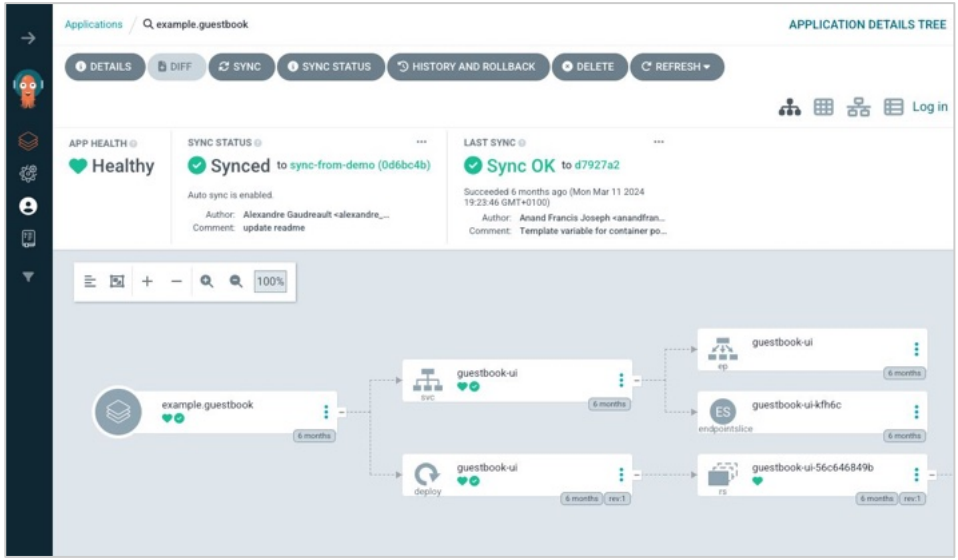




Red Hat

OpenShift GitOps

- OpenShift GitOps **1.15** release, includes Argo CD 2.13 and Argo Rollouts 1.7.2
- Multi-source applications GA
- Argo Rollouts extension in the Argo CD dashboard
- Rollouts plugins enabled
- Decoupled control plane and app sync privileges



- RFE-5037 Secrets for custom TLS certificates
- RFE-3545 Config option for AppSet deletion prevention
- GITOPS-5382 Rollouts HA

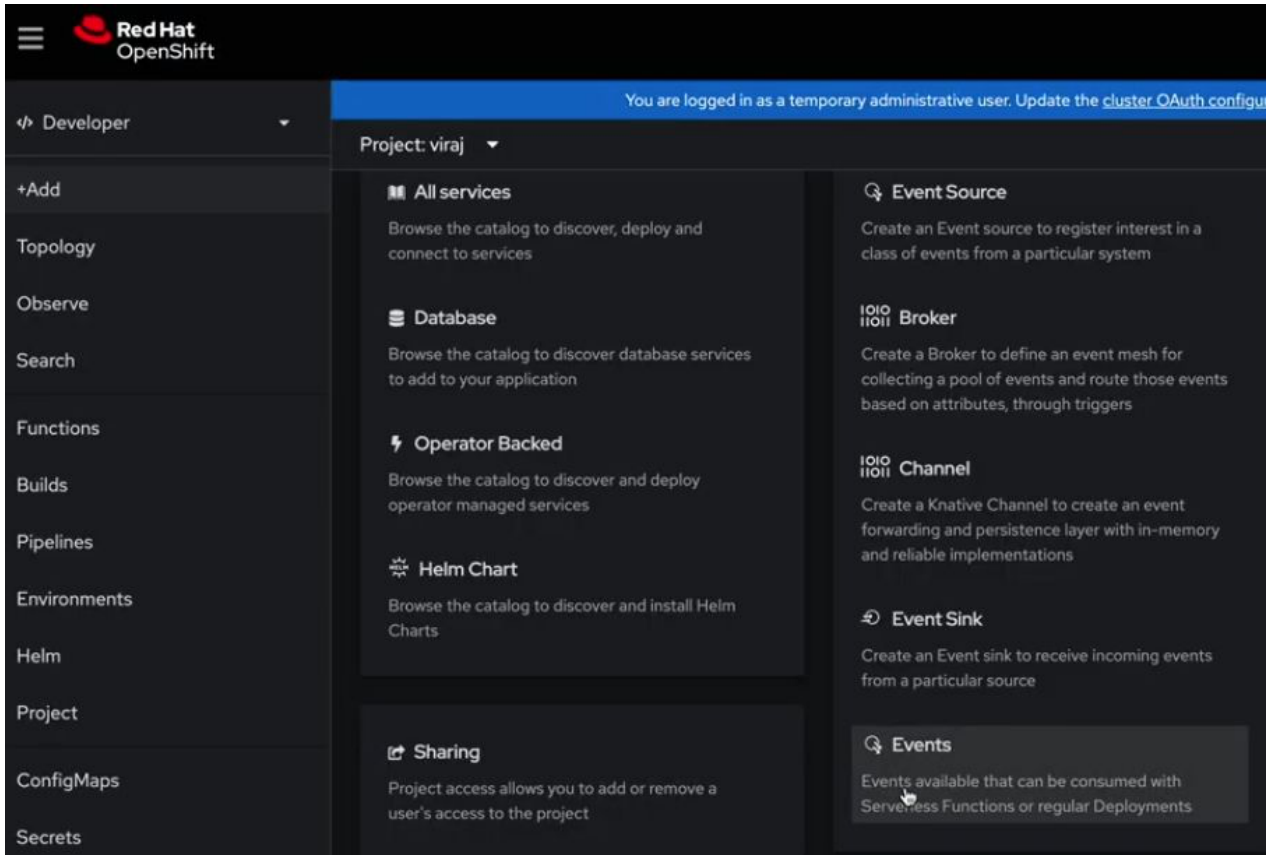
OpenShift Pipelines

- **OpenShift Pipelines 1.17**
- Multiple auth configurations for Git resolver
- Additional fields in affinityAssistantPodTemplate for TaskRuns
- New Prometheus metrics
  - Per namespace
  - Per pipeline
  - Per Git repository (pac)

Product Manager: Siamak Sadeghianfar

OpenShift Serverless

- Serverless 1.35 release based on Knative 1.15
- Golang Functions are now GA
- Event Catalog for easy events discoverability in Dev Console
- Autoscaling of Knative Kafka Subscription using KEDA/CMA - TP
- Support for long running requests for RHAI/LLM use cases
- Serverless Logic
  - Knative Eventing Workflow Events Management
  - Workflow Monitoring Management for Prometheus

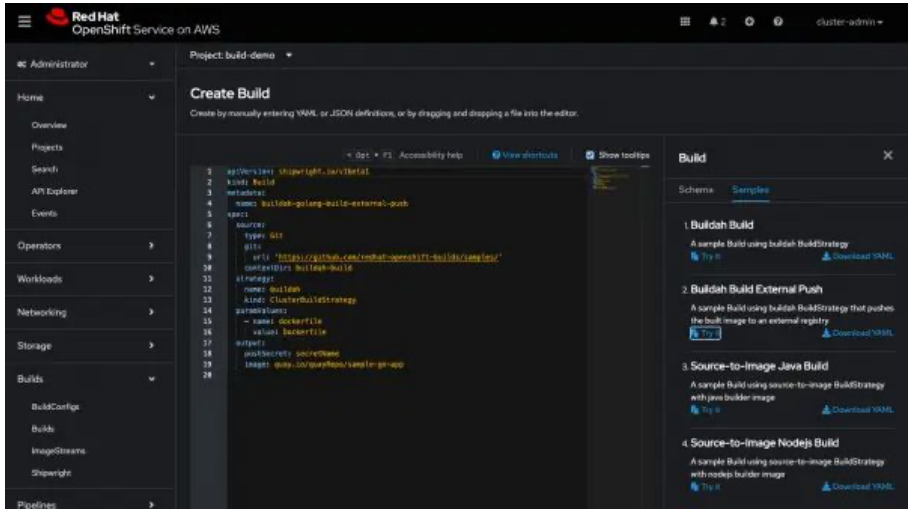


Product Manager: Naina Singh

Red Hat

Builds for OpenShift

- Builds 1.3 released
- Air-gapped and restricted network support
- Builds on Arm, IBM Power and IBM Z systems
- FIPS support
- Entitled builds with Shared Resource CSI Driver
- Console enhancements
  - Build samples in YAML editor
  - Form-based Build creation



Product Manager: Siamak Sadeghianfar

Red Hat

Installation & Updates

OpenShift 4.18 Supported Providers

Installation Experiences

aws
Outposts
Wavelength
Local Zones

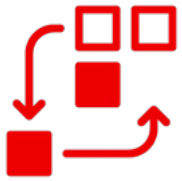
Azure
Azure Stack Hub
Alibaba Cloud
(Tech Preview)

IBM Cloud
IBM Power Systems
IBM Z and
IBM LinuxONE

Bare Metal
ORACLE Cloud

Google Cloud
NUTANIX

vmware vSphere
RED HAT OPENSTACK PLATFORM



Automated

Installer Provisioned Infrastructure

- Auto-provisions infrastructure
- *KS like
- Enables self-service

Full Control

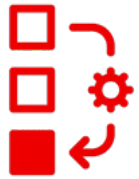
User Provisioned Infrastructure

- Bring your own hosts
- You choose infrastructure automation
- Full flexibility
- Integrate ISV solutions

Interactive – Connected

Assisted Installer

- Hosted web-based guided experience
- Agnostic, bare metal, vSphere and Nutanix
- ISO driven



Local – Disconnected

Agent-based Installer

- Restricted network (disconnected / air -gapped)
- Automatable installations via CLI
- Bare metal, vSphere, SNO
- ISO driven

Red Hat

Product Managers: Marcos Entenza (AWS, Azure, GCP, IBM Cloud, Oracle Cloud), Ju Lim (Alibaba), Ramon Acedo (BM, Nutanix, VMware), Linh Nguyen (BM), Peter Lauterbach (OCP Virtualization), Gil Rosenberg (OpenStack), Duncan Hardie (IBM Z & Power), Adel Zaalouk (HCP)

Cloud

Installation Highlights for Cloud Providers

aws

- Custom IPv4 subnets on OVN for BYO VPC deployments
- Rotate keys on AWS (docs)

Google Cloud

- BYO DNS for OpenShift on GCP (GA)
- GCP Workload Identity enablement for additional OLM operators
- OpenShift on c3-metal, C4/C4A, and N4
- Rotate keys on GCP (docs)

Azure

- Microsoft Entra Workload ID enablement for additional OLM operators
- Cluster API Provider for Azure (TP)
- Rotate keys on Azure (docs)

Installation Highlights for On-premises Providers

Bare Metal

- Support additional NTP servers in install-config
- Bare Metal day 2 firmware settings reconfiguration and firmware updates (Technology Preview)

vmware vSphere

- vSphere multi-NIC VM creation support in the IPI installer (Technology Preview)
- Support for Multi-vCenter without shared storage (GA)

NUTANIX

- Support multi-NIC in Nutanix
- Support for preloaded RHCOS image from Prism Central

IBM Power Systems IBM Z and IBM LinuxONE

- Add compute nodes as a day 2 operation using Agent Based Installer

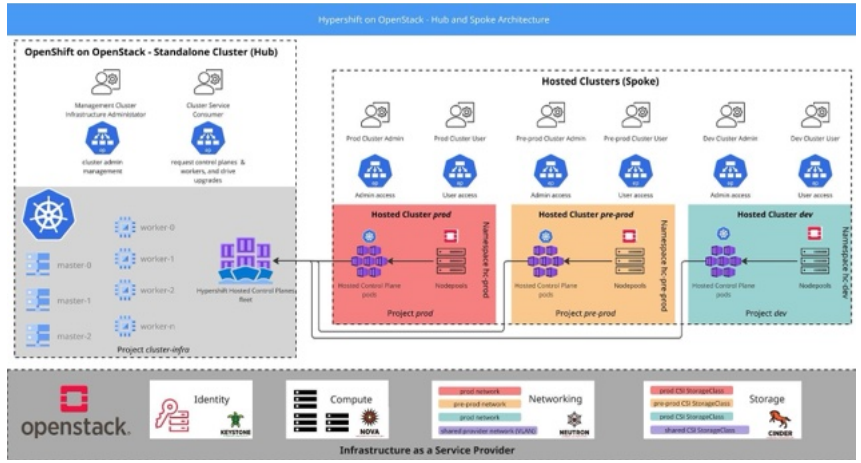
Multi- Arch

- Automatically move your x86 control plane over to Arm Nodes on AWS
- Fine-tune how to distribute workloads that support multiple architectures in a mixarch cluster
- Multi-arch Tuning Operator validated on Hosted Control Planes

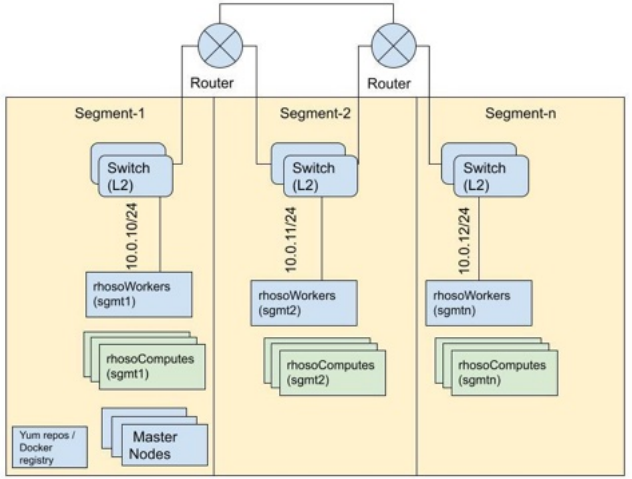
Product Managers: Ramon Acedo Rodriguez, Linh Nguyen, Duncan Hardie

Shift-On-Stack and RHOSO in 4.18

- Openshift on Openstack Key Highlights
  - Deploying Single Stack IPv6 clusters is now GA
  - Hosted Control Plane support for openstack is now Dev Preview
    - Host a Hub cluster in a “administrative” project
    - Run multiple NodePools in different tenant projects



- Red Hat OpenStack Services on Openshift (RHOSO) Feature Release 2 On 4.18
  - Support for L3 Distributed RHOSO control planes
    - Leverages FRRK8s
    - Support Spine leaf network topology
    - Openstack dataplane AZ awareness
  - Tech Preview of Multiple RHOSO deployments under namespace isolation
  - Tech Preview of Dynamic workload scheduling via the Openstack Watcher Operator



Product Manager: Gil Rosenberg

Red Hat

* As measured in Red Hat labs, April 2024

Find Recommended Update Paths via CLI

Technology Preview

- Use **oc adm upgrade recommend** to narrow down your release version suggestions and recommend a new target release before you launch your update.
  - read-only command and does not alter the state of your cluster.
- **oc adm upgrade recommend --version**
  To determine whether a specific version is recommended for your update, use
  E.g. **oc adm upgrade recommend --version 4.12.51**

```
$ export OC_ENABLE_CMD_UPGRADE_RECOMMEND=true
$ oc adm upgrade recommend

Channel: stable-4.13 (available channels:
candidate-4.12, candidate-4.13, eus-4.12,
eus-4.14, fast-4.12, fast-4.13, stable-4.12,
stable-4.13)

Updates to 4.13:

Version: 4.13.50
Image:
quay.io/openshift-release-dev/ocp-release@sha25
6:6afb11e1cac46fd26476ca134072937115256b9c6360f
7a1cd1812992c065f02
Reason: AdminAckRequired
Message: Kubernetes 1.26 and therefore
OpenShift 4.13 remove several APIs which
require admin consideration. Please see the
knowledge article
https://access.redhat.com/articles/6958394 for
details and instructions.


Updates to 4.12:
VERSION     ISSUES
4.12.64     no known issues
4.12.63     no known issues
And 43 older 4.12 updates you can see with
'--show-outdated-releases' or '--version
VERSION'.
```

```
$ export OC_ENABLE_CMD_UPGRADE_RECOMMEND=true
$ oc adm upgrade recommend --version 4.12.51

Channel: stable-4.13 (available channels:
candidate-4.12, candidate-4.13, eus-4.12, eus-4.14,
fast-4.12, fast-4.13, stable-4.12, stable-4.13)

Update to 4.12.51 Recommended=False:
Image:
quay.io/openshift-release-dev/ocp-release@sha256:15
8ced797e49f6caf7862acccef58484be63b642fdd2f66e64162
95fa7958ab0
Release URL:
https://access.redhat.com/errata/RHSA-2024:1052
Reason: MultipleReasons
Message: An unintended reversion to the default
kubelet nodeStatusReportFrequency can cause
significant load on the control plane.
https://issues.redhat.com/browse/MCO-1094

    After rebooting into
  kernel-4.18.0-372.88.1.el8_6 or later, kernel
  nodes experience high load average and io_wait
  times. The nodes might fail to start or stop
  pods and probes may fail. Workload and host
  processes may become unresponsive and workload
  may be disrupted.
  https://issues.redhat.com/browse/COS-2705
```

Control Plane

Simplified Shutdown and Restore with Recovery from Expired Certificates

Simplified Shutdown and Restore (hibernation) with Recovery from Expired Certificates

Improvements for cluster shutdown and recovery, allowing restoration after up to 90 days,, simplifying operations, and eliminating complex manual recovery steps.

Product Manager: Ramon Acedo Rodriguez

Automated Control Plane Recovery

Automate the recovery process from an etcd quorum loss scenario in OpenShift, automating the manual steps* required

- **Reduced Complexity** Eliminates the need to follow a manual recovery process
- **Improved Efficiency** Saves time and minimizes human error
- **Better Support** Enhanced test & support of disaster recovery workflows

How it works

1. Admin initiates automation on a designated recovery host (e.g., via CLI)
2. Required inputs gathered (backup files, static pod configs, SSH access details)
3. Recovery steps executed
4. Control plane is restored and fully functional with standing nodes
5. Recovered nodes are added to the cluster

*https://docs.openshift.com/container-platform/4.17/backup_and_restore/control_plane_backup_and_restore/disaster_recovery/scenario-2-restoring-cluster-state.html

Product Manager: Ramon Acedo Rodriguez

Re-validation of sigstore signed image at cluster & namespace level

Technology Preview

Once images are signed via sigstore and stored in an image registry, they are not re-verified when pulled to nodes.

- If these images are compromised after being signed and stored, there is no existing mechanism to re-verify their integrity during the pull process.
- This lack of re-verification presents a security risk, as compromised images could be deployed within the cluster or namespace without detection.

What's New in 4.18

OpenShift administrators now can **re-verify the integrity of images** before pulling them from the image registry into the Openshift cluster or namespace. This ensures that images have not been compromised since their initial signing and storage, thus enhancing the security of the deployment process.

Product Manager: Gaurav Singh

Crun is now default in Openshift 4.18

What's New in 4.18 is an open-source, lightweight, and fast container runtime written in C.
It is an implementation of the Open Container Initiative (OCI) runtime specification and serves as an alternative to other runtimes like runc.

What's New in 4.18

- Starting Openshift 4.18, **Crun** will be installed as **default** in all OpenShift installations.
- **RunC** will be still available as **non default** option.

Product Manager: Gaurav Singh

Re-implemented CLI Manager as “Openshift CLI manager Operator”

Technology Preview

OpenShift CLI Manager Operator enables users to manage the CLI lifecycle (install, update, delete) through the upstream project Krew (using `oc krew install abc`).

What's New in 4.18

CLI Manager, previously available as a technology preview, has been re-implemented and now available as the OpenShift CLI Manager Operator, offering support for **disconnected** use cases.

Networking & Routing

Red Hat OpenShift Networking Enhancements

Ingress Enhancements

Support for HAProxy Dynamic Configuration Manager [Tech Preview]

- Helps propagate endpoint changes using dynamic HAProxy API
- Reduces
  - Number of reloads
  - Memory footprint
- End point changes including those during scaling the number of Ingress pods is now more seamless

Bare metal deployments

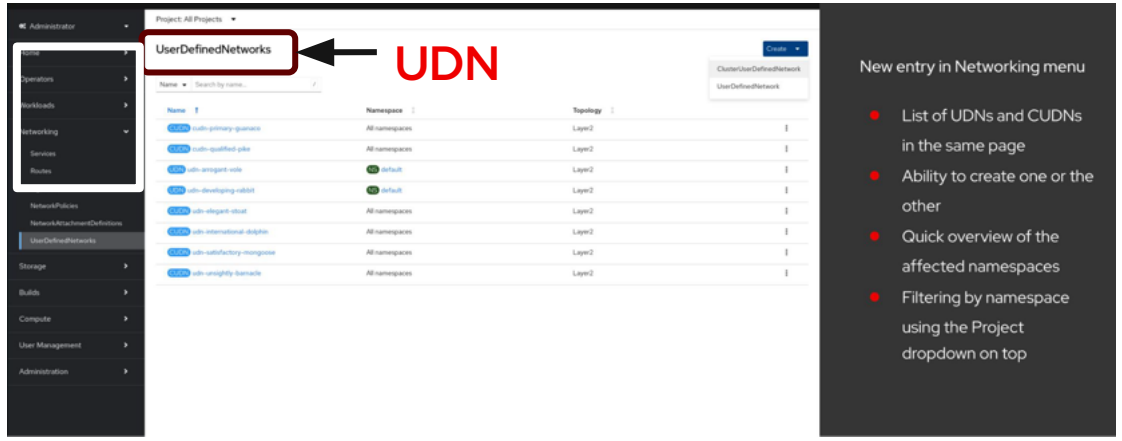
On Premises deployment Networking configuration flexibility [General Availability]

- Alternative to using ‘configure-ovs.sh’
- Ability to explicitly configure the br-ex bridge to their exact specifications at install-time
- Modify it after deployment using standard networking tools.

Network Observability

Network Observability Operator

- **New release: v1.8**
- **User Defined Networks Support [Dev Preview]**
- Net Observ CLI improvements
- Making tcpdump collection simpler using the lightweight NetObserv CLI
- eBPF multi filter and sampling
- Network Observability integration with eBPF Manager [Dev Preview]



Syntax: netobserv [flows|packets|metrics|follow|stop|copy|cleanup|version] [options]

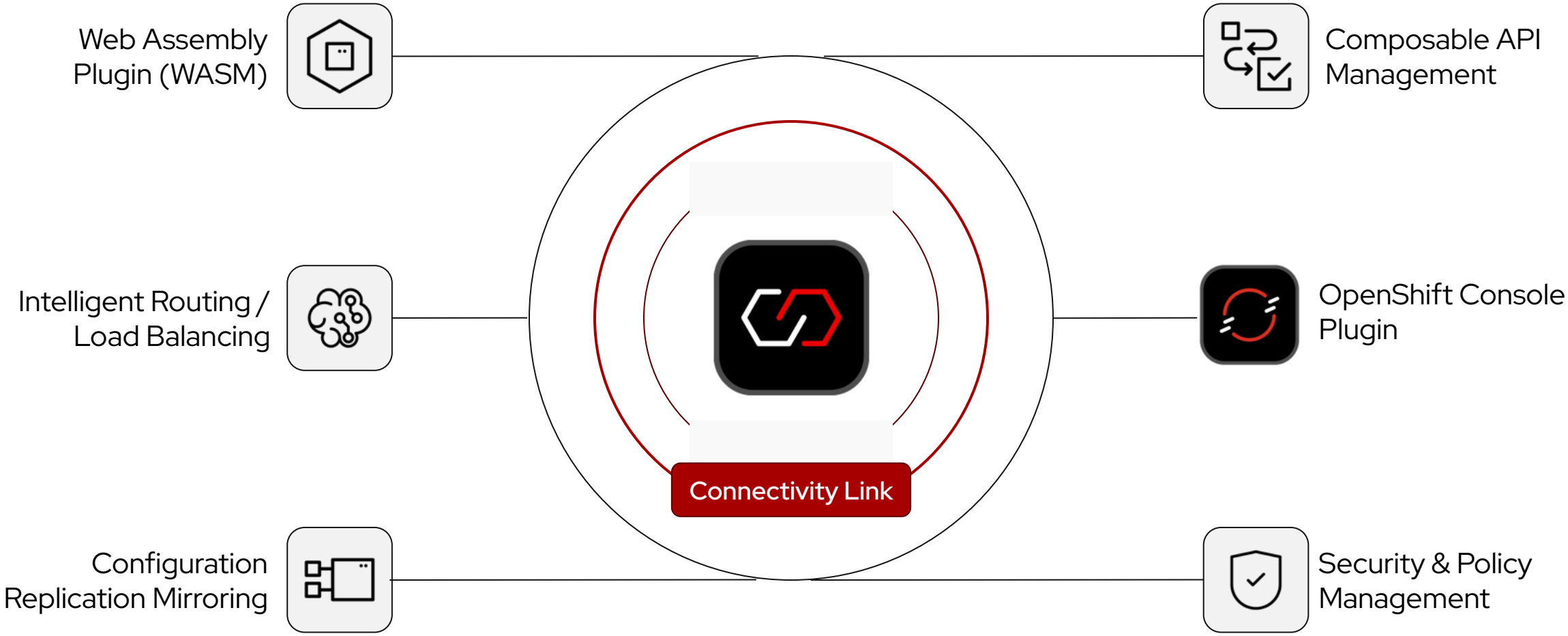
CLI

commands:

flows	Capture flows information in JSON format using collector pod.
packets	Capture packets information in pcap format using collector pod.
metrics	Capture metrics information in Prometheus using a ServiceMonitor (OCP cluster only).
follow	Follow collector logs when running in background.
stop	Stop collection by removing agent daemonset.
copy	Copy collector generated files locally.
cleanup	Remove net observ components and configurations.
version	Print software version.

Product Managers: Marc Curry, Deepthi Dharwar

Introducing Red Hat Connectivity Link



Storage

OpenShift Storage

Operators & Drivers

- Secret Store CSI
  - GA!
- vSphere
  - Support for multiple vCenter (GA)
- SMB/CIFS CSI
  - GA!
- GCP PD
  - Support for hyperdisk-balanced (GA)
- Manila
  - Resize support (GA)
- LSO
  - Auto clean up volume deletion

CSI Operators

Operator	Migration	Driver
AWS EBS	GA	GA
AWS EFS	n/a	GA
Azure Disk	GA	GA
Azure File	GA	GA
Azure Stack Hub	n/a	GA
GCE Disk	GA	GA
GCP Filestore	n/a	GA
IBM Cloud	n/a	GA
RH-OSP Cinder	GA	GA
RH-OSP Manila	n/a	GA
vSphere	GA	GA
SecretStore	n/a	GA
SMB/CIFS	n/a	GA

Product Manager: Gregory Charot

Red Hat

OpenShift Data Foundation 4.18

- Disaster Recovery
  - Regional Disaster Recovery Recipes for complex applications
  - Support application consistency
- Security
  - Key rotation support for cluster wide encryption
- Multicloud Object Gateway
  - Object browser within OpenShift Console
  - Bucket notifications
- Support multi device classes for storage tiering, data isolation and mixture of SAN and local devices.

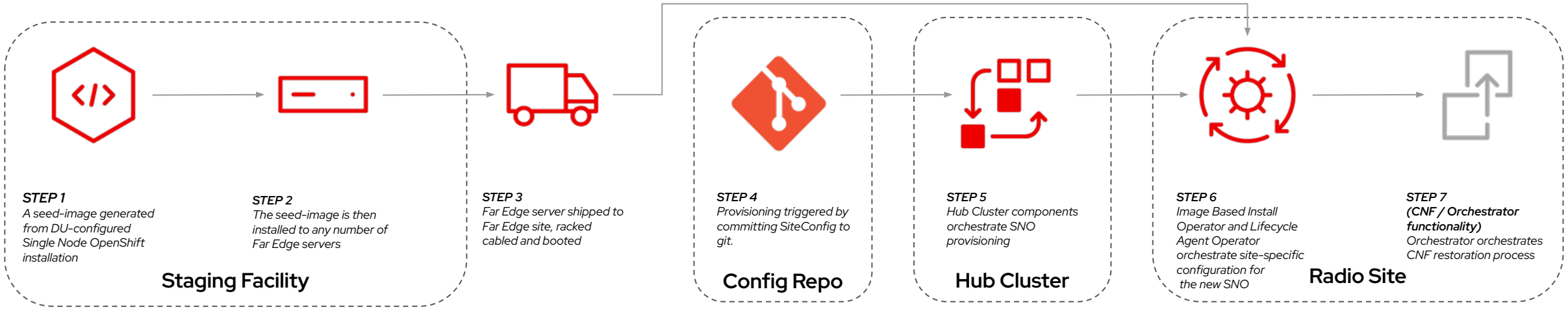
Out of the box support	
Block, File, Object, NFS	
Platforms	
AWS/Azure	Google Cloud (GA)
OpenShift Virtualization	OSP (Tech Preview)
Bare metal/IBM Z/Power	VMWare 7,**8** Thin/Thick IPI/UPI
ARO (GA), **ROSA HCP (GA*)** with Self managed ODF	IBM ROKS & Satellite - Managed ODF (GA)
Any platform using agnostic deployment mode for self managed OpenShift deployments.	
Deployment modes	
Disconnected environment and Proxied environments	

Product Manager: Gregory Charot (speaking on behalf of Eran Tamir)

Telco 5G & Edge

Image Based Break+Fix (IBBF)

Steps to replace a DU-configured Single Node OpenShift using Image Based Break Fix (IBBF)



- Procedurally similar to Image Based Install

Commercial DU site preparation

- Server is shipped to the Far Edge site

Technician Delivers Server

- Procedurally similar to Image Based Install
- Cluster identifiers retained from previous installation to maintain manageability and observability continuity

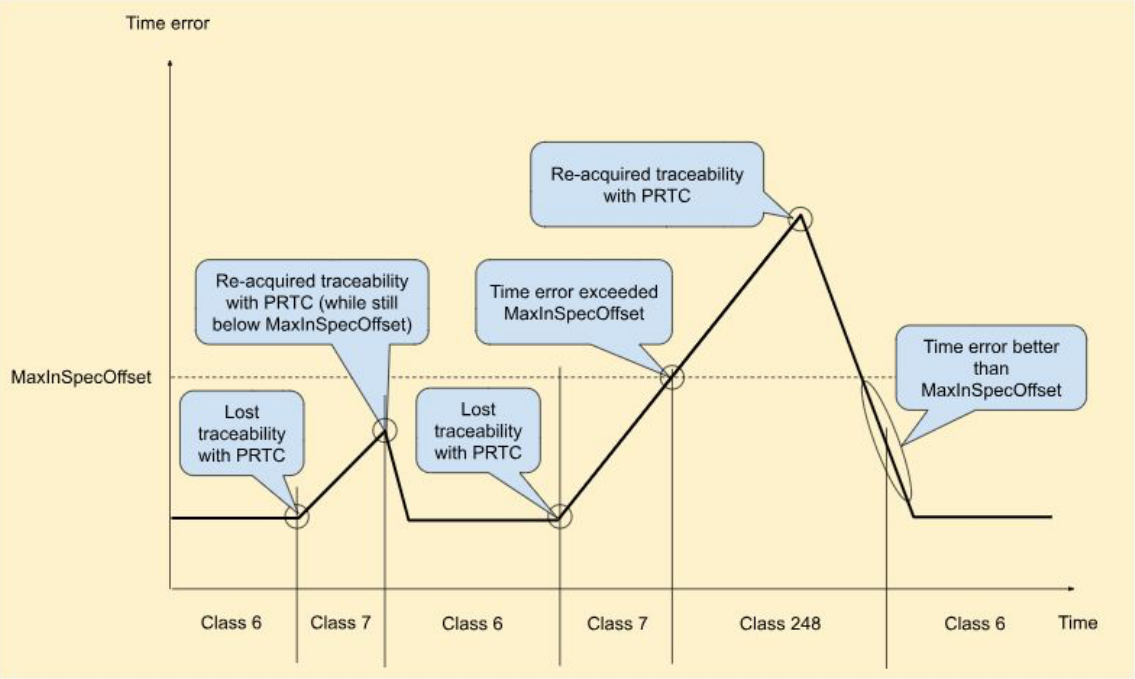
Commercial DU site upgrade

Activities which should be done before hardware failure.

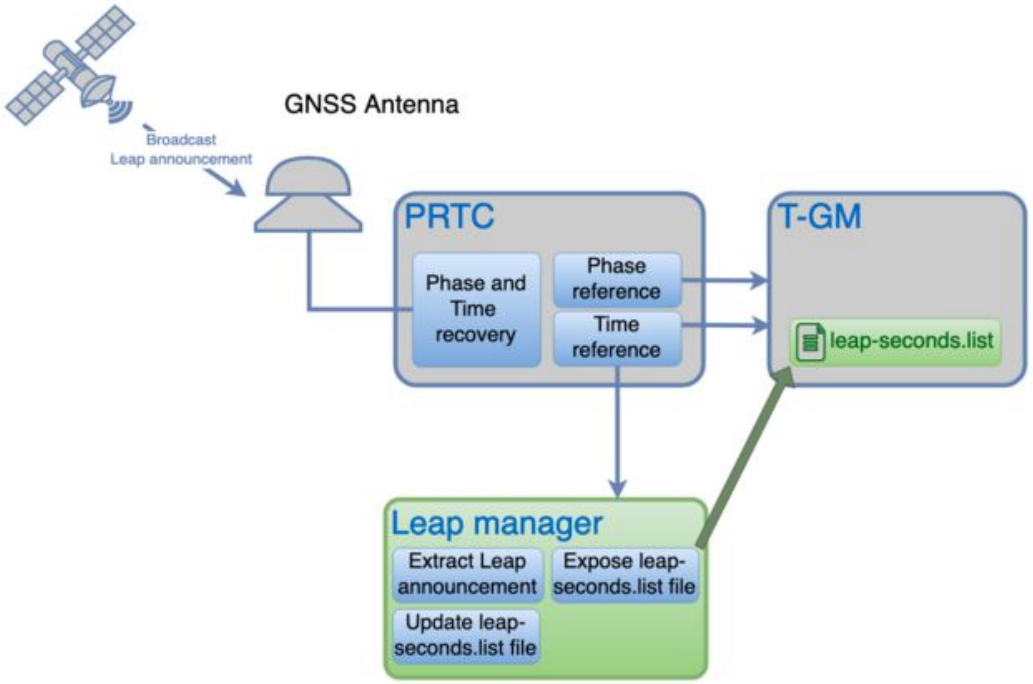
Activities which are done after hardware failure.

Developer Preview to be available in 4.18

T-GM Holdover



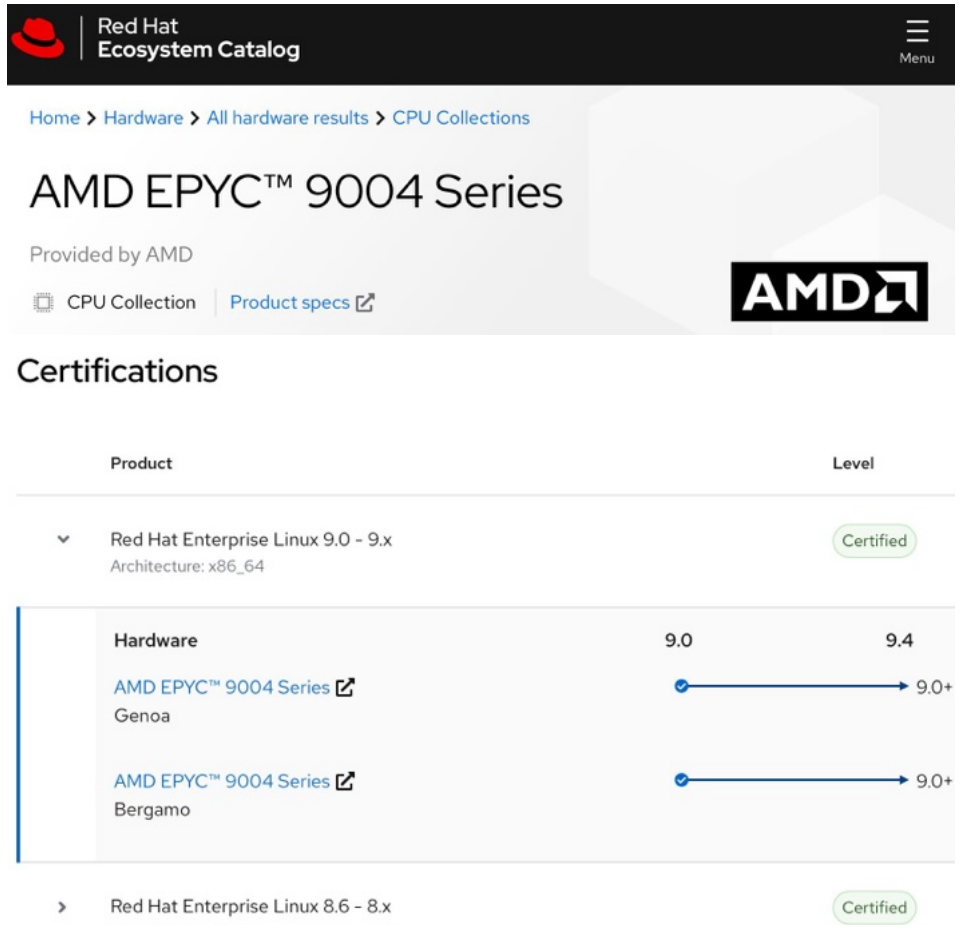
T-GM Leap Second Mitigation



PTP Operator Upstream Community: https://github.com/k8snetworkplumbingwg/ptp-operator

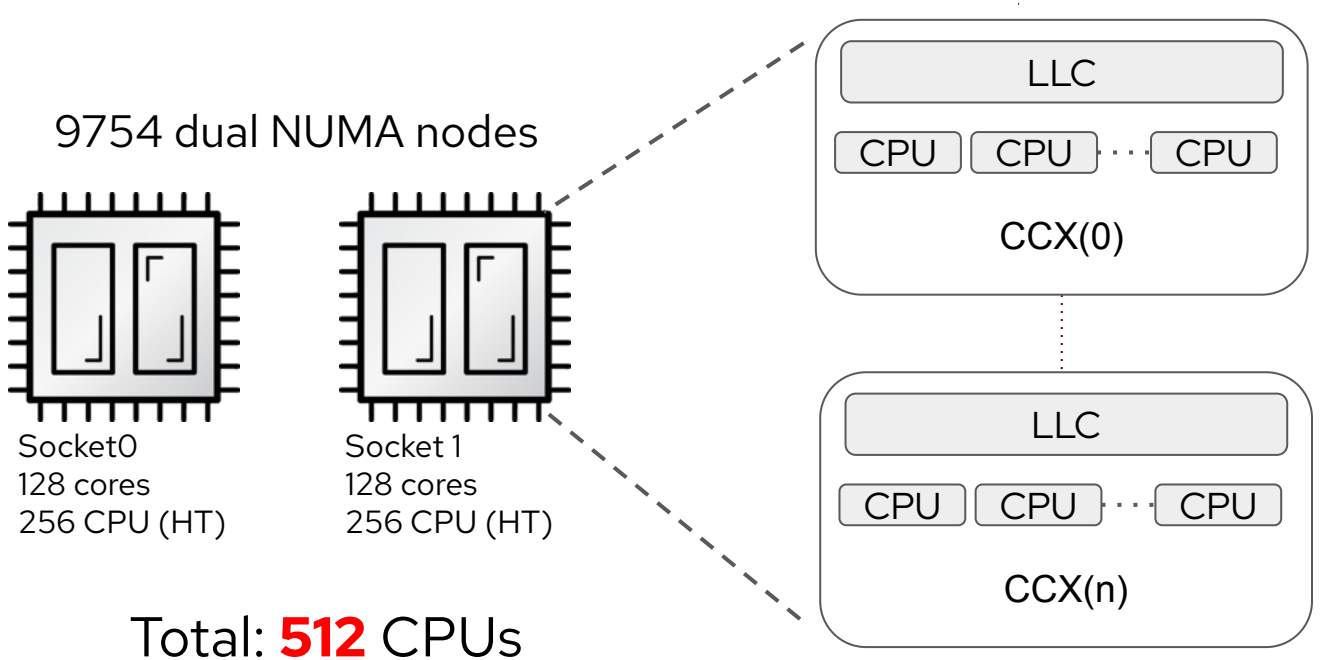
Telco 5G

AMD EPYC Bergamo and Genoa support for OCP Telco use cases



Support already added for OCP4.17.z and OCP4.16.z

OCP 4.18 adds LLC Locality feature - Tech Preview



Total: **512** CPUs

Product Manager: Franck Baudin

Red Hat Device Edge and MicroShift V4.18

Red Hat Device Edge with MicroShift is a Kubernetes distribution derived from OpenShift designed for small form factor devices and edge computing.

Gateway API (Dev Preview)

- aka Kubernetes “Ingress V2” (details)
- Expressive, portable, and extensible API
- Simplified configuration for Ingress
- Optional install for MicroShift

Auto-Recover MicroShift from backups

- MicroShift can recover from backups in case startup fails, e.g. due to corrupt etcd database or human errors
- provides an addition layer of protection and robustness for edge devices, avoiding manual intervention
- Create a cronjob to create backups, store them on the device and point MicroShift to them. In case of a startup-failure, MicroShift will try to starting from the backups (newest first)

Base image for RHEL image mode (Tech Preview)

- OCI container image that contains OS and MicroShift
- `bootc` this image to run MicroShift instantly
- Use as base image for your solution to simplify and speedup your CI/CD pipeline

Enhanced config options

- Allow to delete application manifests in addition to applying them. This helps with application lifecycle management
- Ingress operation and performance options can now be configured (e.g. httpHeaders)

Product Manager: Daniel Fröhlich

Red Hat

Red Hat OpenShift

Thank you

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Nominate an OpenShift Super hero

OpenShift user award to celebrate:

- The Builder: contributes to the evolution of OpenShift
- The Advocate: amplifies their OpenShift experience and learnings through events, blogs, meetups, etc.
- The Ambassador: shares knowledge across diverse teams, industries, organizations
- Or the category of your choosing

Nominate your OpenShift Super Hero