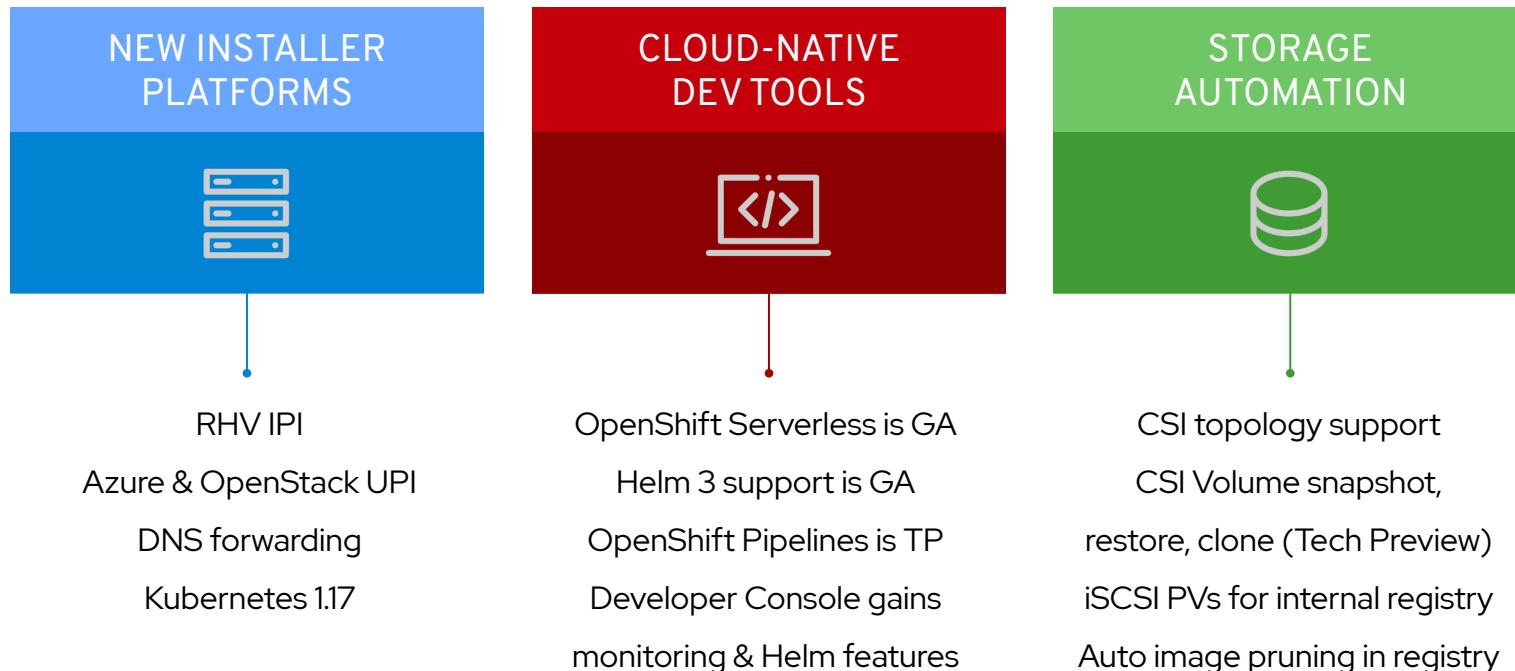




What's New in OpenShift 4.4

OpenShift Product Management

OpenShift 4.4



OpenShift Container Platform

Advanced Cluster Management

Multi-cluster Management

Discovery : Policy : Compliance : Configuration : Workloads

OpenShift Container Platform

Manage Workloads

Build Cloud-Native Apps

Developer Productivity

Platform Services

Service Mesh : Serverless Builds : CI/CD Pipelines Full Stack Logging Chargeback

Application Services

Databases : Languages Runtimes : Integration Business Automation 100+ ISV Services

Developer Services

Developer CLI : VS Code extensions : IDE Plugins Code Ready Workspaces CodeReady Containers

Cluster Services

Automated Ops : Over-The-Air Updates : Monitoring : Registry : Networking : Router : KubeVirt : OLM : Helm

Kubernetes

Red Hat Enterprise Linux & RHEL CoreOS



Physical



Virtual



Private cloud



Public cloud



Managed cloud
(Azure, AWS, IBM, Red Hat)



OpenShift Roadmap

Q2 2020 OpenShift 4.4		H2 2020 OpenShift 4.5/4.6		2021 OpenShift 4.7+			
HOSTED	PLATFORM	HOSTED	PLATFORM	HOSTED	PLATFORM		
HOSTED	PLATFORM	HOSTED	APP	HOSTED	APP		
<ul style="list-style-type: none">• OpenShift Serverless (Knative) GA• Guided application creation• OpenShift Pipelines (Tekton) TP• OpenShift Builds (v2) DP• Jenkins Operator DP• Helm 3 GA <ul style="list-style-type: none">• Improved Dev Console for monitoring• Helm Charts in Developer Catalog <ul style="list-style-type: none">• Multi-cluster summary dashboards• Centralized cluster updates• OpenShift for IBM Power• RHV (IPI), RHOSP (UPI), Azure (UPI)• Native Metric Dashboards in the Console• Descheduler (TP)• HA Proxy 2.0• SCTP support• CSI snapshot/restore (TP)• DNS Forwarding• Cluster etcd managed by Operator• Automated image pruning <ul style="list-style-type: none">• OSD SOC2 Type 1 Certification• OSD on GCP• OSD private clusters• Cost management GA	<th>DEV</th> <th>APP</th> <th>DEV</th> <th>APP</th> <th>DEV</th> <th>APP</th>	DEV	APP	DEV	APP	DEV	APP
			<ul style="list-style-type: none">• OpenShift Serverless Eventing GA• OpenShift Pipelines (Tekton) GA• OpenShift Builds (v2) TP• Jenkins Operator TP• Simplify Operator Lifecycle interactions• Build Operator catalogs in container images• Helm workflows in Console• Monitor application workloads• VMware vSphere (IPI), RHV (UPI)• AWS & Azure custom regions & endpoints• Node Terminal Access in the Console• Log forwarding GA• OVN GA, OVN Egress Firewall/Router/IP• Edge: 3-node clusters, remote workers• Compliance Operator• IPv6 (single/dual stack on control plane)• HTTP/2 and gRPC Support for Router• RHCOS installer, static networking UX• Graceful shutdown and recovery procedure• Logging: Elasticsearch v6• AWS Spot instance support & IAM Identity• Windows Containers <ul style="list-style-type: none">• OSD SOC & ISO Certifications• OSD RWX storage• OSD log forwarding		<ul style="list-style-type: none">• OpenShift Builds (v2) GA• Jenkins Operator GA <ul style="list-style-type: none">• Improvements to GitOps experience• Improvements to Operator management• Hybrid Operators with Operator-SDK <ul style="list-style-type: none">• Microsoft Hyper-V (UPI)• Single node cluster• Enable user namespaces• Utilize cgroups v2• Keycloak/External IdP integration• Priority and Fairness for APIserver• Azure Hub and HCI plus other public clouds• Network Enhancements derived from OVN <ul style="list-style-type: none">• OSD enhanced consumption billing		

Introducing!

Red Hat Advanced Cluster Management for Kubernetes

Robust, Proven, Award Winning



Multicloud
Lifecycle
Management



Policy Driven
Governance Risk and
Compliance



Advanced Application
Lifecycle Management

Introducing!

Red Hat Advanced Cluster Management for Kubernetes

Robust, Proven, Award Winning



Multicloud Lifecycle Management
Create, update and destroy Kubernetes clusters reliably, consistently and at scale



Policy Driven Governance
Risk and Compliance
Leverage policies to automatically configure and maintain consistency of security controls by industry corporate standards.

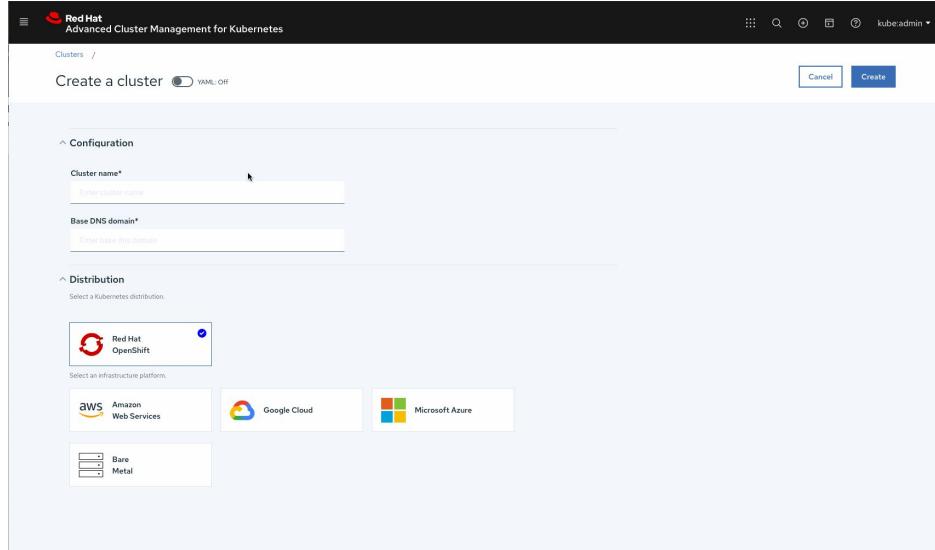


Advanced Application Lifecycle Management
Use open standards and deploy applications using placement policies that are integrated into existing CI/CD pipelines and governance controls

Multi-Cluster Lifecycle Management

Creating & Importing Clusters

- **Create, Upgrade and Destroy** OCP clusters..
- Leverage Hive IPI for OCP cluster deployment
- Wizard or YAML based create cluster flow
- Launch to an OCP Console from ACM
- Access cluster login credentials and download kubeadmin configuration



The screenshot shows the Red Hat Advanced Cluster Management (ACM) interface for creating a new cluster. The top navigation bar includes the Red Hat logo, the title 'Advanced Cluster Management for Kubernetes', and user information like 'kube:admin'. Below the header, there's a 'Clusters' section with a 'Create a cluster' button. The main form is divided into two sections: 'Configuration' and 'Distribution'. In the 'Configuration' section, fields for 'Cluster name*' and 'Base DNS domain*' are present. In the 'Distribution' section, 'Red Hat OpenShift' is selected as the Kubernetes distribution. Below this, there are options for selecting an infrastructure platform, with 'AWS Amazon Web Services' and 'Google Cloud' currently visible. A separate section at the bottom shows 'Bare Metal' infrastructure.



Enterprise
Architect



SRE/DevOps

Policy based Governance, Risk and Compliance

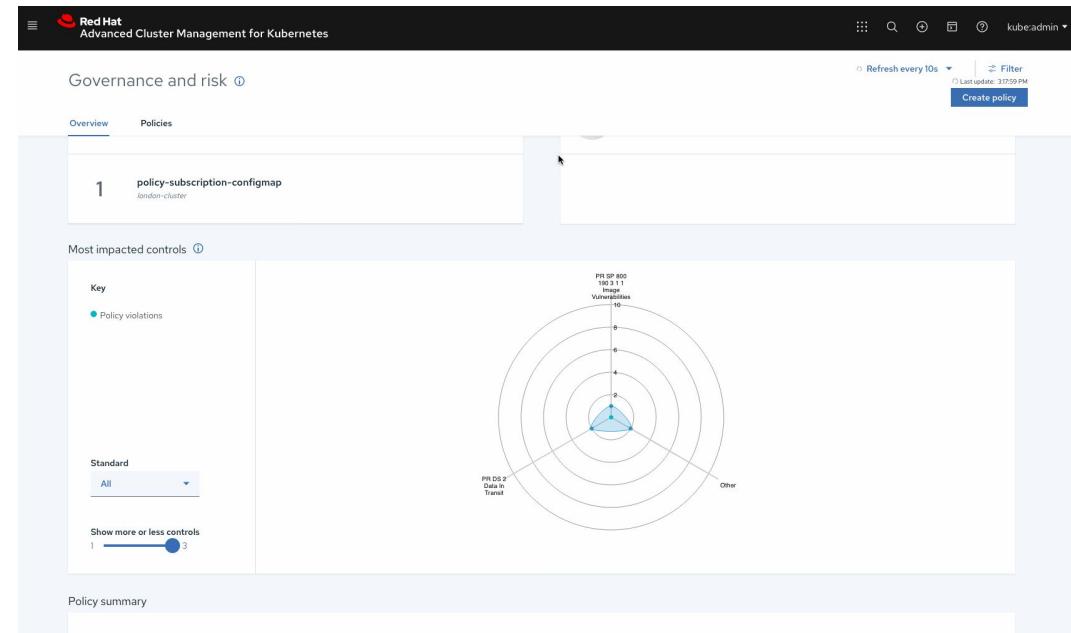
Don't wait for your security team to tap you on the shoulder



SecOps

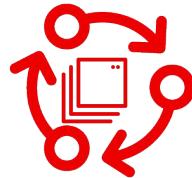
CTO/CIO

- Set and enforce policies for security, applications, & infrastructure
- Deep visibility for auditing configuration of apps and clusters
- Unique policy capabilities around CIS compliance
- Categorize violations based on your standards for immediate visibility into your compliance posture



Advanced Application Lifecycle Management

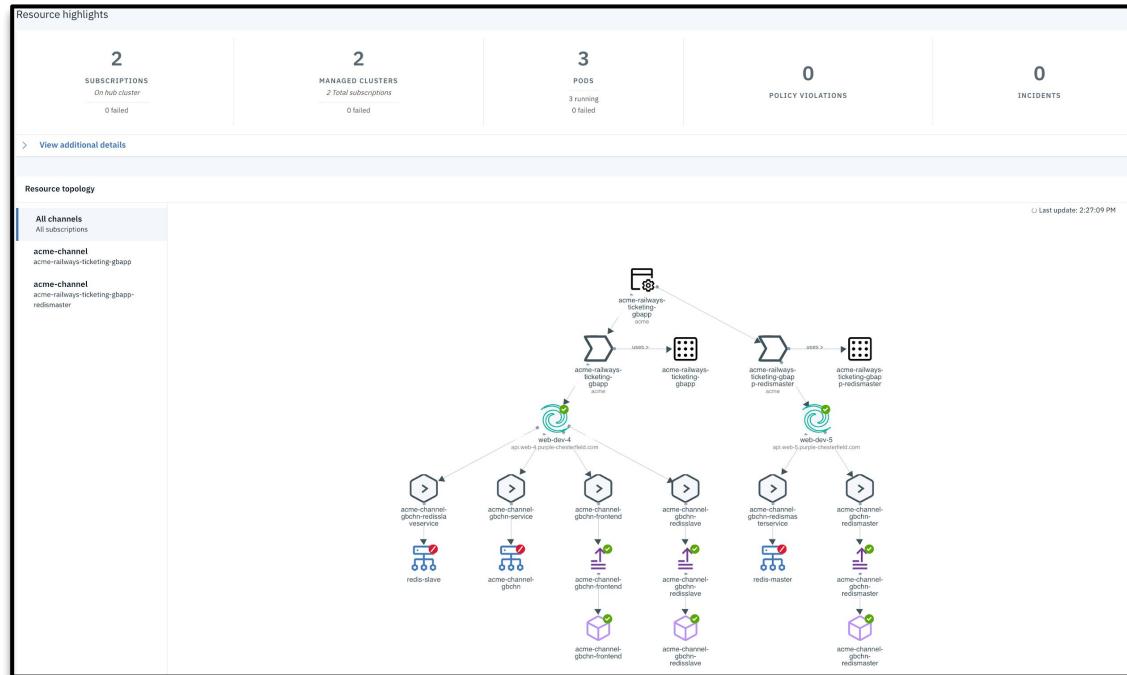
Simplify your Application Lifecycle



- Deploy Applications at Scale
 - Deploy Applications from Multiple Sources and Clusters
 - Quickly Visualize Application Relationships
 - Using the subscription & channel model, the latest application revisions are delivered to appropriate clusters, automatically.

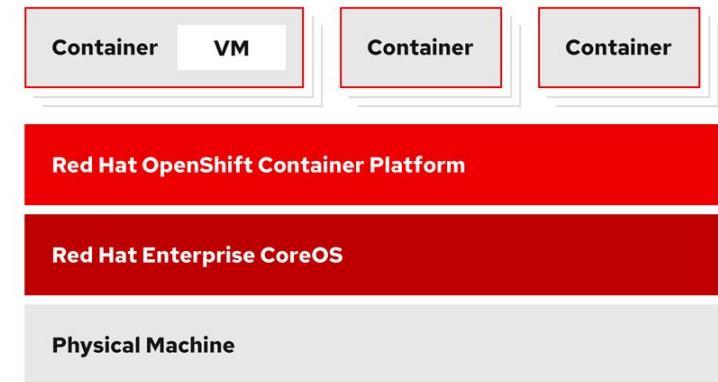
SRE/DevOps

Enterprise Architect



Virtual Machines in OpenShift

- Accelerate app delivery with a single platform managing “mixed applications” with same tools & teams
- Modernize legacy VM applications over time, or maintain them as VMs
- Provide customers with path, services, and tooling to modernize current applications and workloads
- Zero technical debt migrations from VMw, RHV, RHOSP

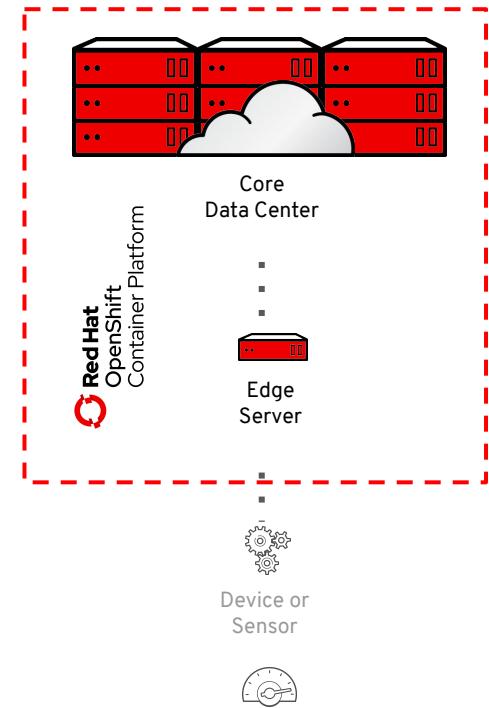


Availability

- Currently in Technology Preview and High Touch Beta
- Target GA in OCP 4.5
- Ships as feature of OpenShift Container Platform and OpenShift Kubernetes Engine
- Summit session - OpenShift Virtualization: A simplified, converged management platform for virtual machines and containers

OpenShift at the Edge

- Cloud-native 5G deployment platform - Hear about a Tier 1 US Communications Service Provider's 5G journey with OpenShift and OpenShift virtualization
- Factory Edge IoT the open source way - See the Manufacturing Edge Light Weight Accelerator Demo (MANUela) using CRC, OpenShift and OpenShift Pipelines
- Recommended session:
Red Hat OpenShift's road to the network edge

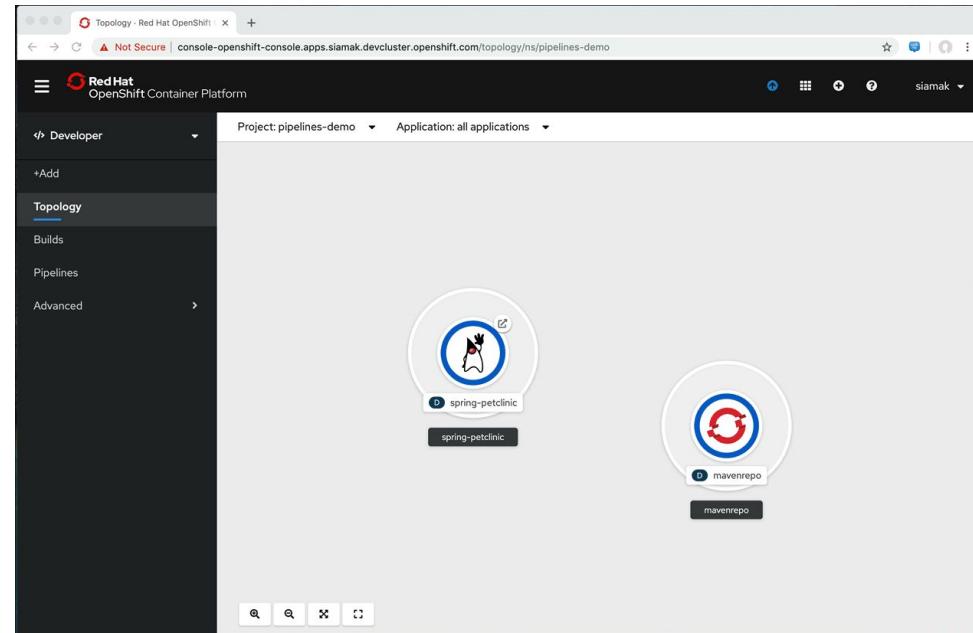


Pipelines

OpenShift Pipelines



- OpenShift Pipelines 1.0 Tech Preview
- Authoring pipelines with Pipeline builder
- Share data between tasks in pipeline
 - Workspaces for sharing artifacts
 - Results for small data e.g. commit sha
- Webhooks
 - Default GitHub TriggerBinding
 - Filtering on payload (event, files, etc)
 - Add to payload with CEL expressions
 - Custom processing with interceptors
- Proxy support for git repositories



Create Pipelines with Pipeline Builder

The Pipeline Builder interface allows users to define pipelines using a visual builder or a text-based configuration file.

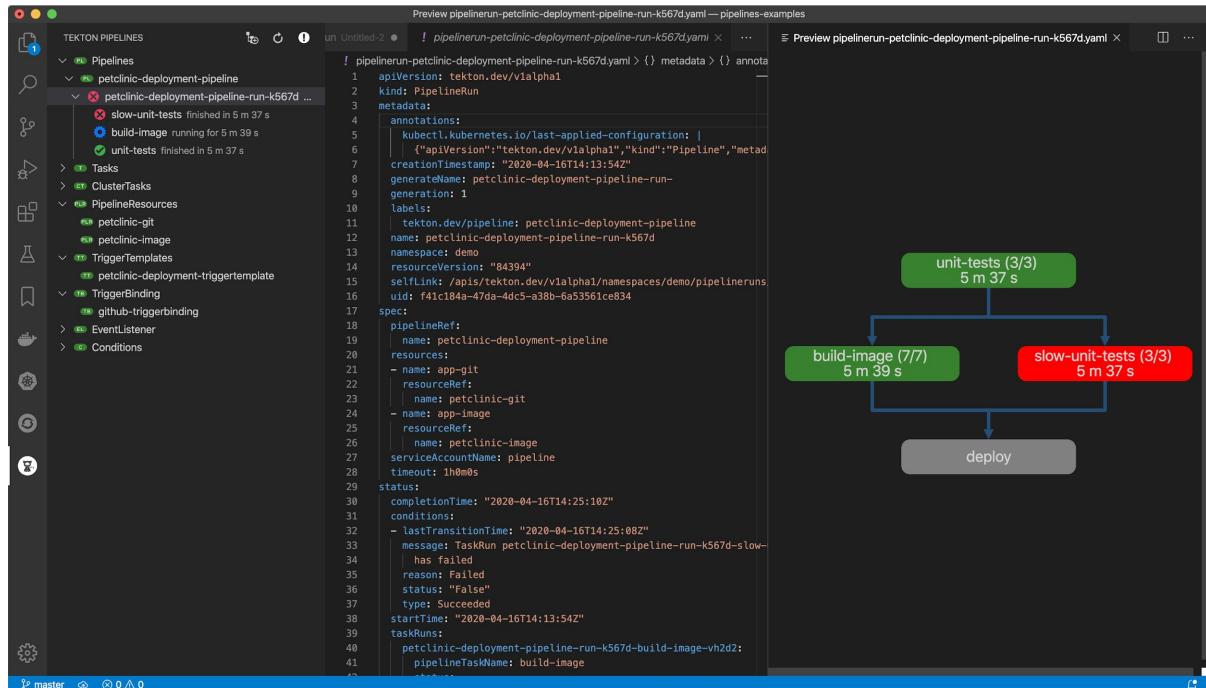
Screenshot 1: Pipeline Builder interface with a pipeline named "my-pipeline". The "Tasks" section shows a single "build" task. The "Parameters" section includes a parameter named "appName".

Screenshot 2: Pipeline Builder interface showing the selection of a task for the pipeline. A dropdown menu lists several options: buildah, buildah-v0-10-0, jib-maven, kn, maven, openshift-client, openshift-client-v0-10-0, s2i, and s2i-go.

Screenshot 3: Pipeline Builder interface showing the configuration of a Maven pipeline named "code-analysis". It includes parameters for GOALS (sonarsonar), MAVEN_MIRROR_URL (empty), and INPUT RESOURCES (source: app-git). The pipeline tasks include build, build-in, and code-analysis.

Tekton VSCode Extension

- Live pipeline diagram
- Auto-refresh tree
- Redeploy tasks and pipelines on Save
- Code snippets



Builds

OpenShift Builds

Build lean images from application source code and binary using
Kubernetes tools on OpenShift



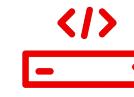
Use Kubernetes build tools (e.g. buildah, S2I, CNB¹, Kaniko, etc)



Build slim runtime images without the build dependencies



Extensible and customizable with your own build tools



Portable builds to any Kubernetes platform

OpenShift Builds

- Enabled via an Operator
- Build strategies
 - S2I
 - CNB (Buildpacks v3)
 - Buildah
 - Kaniko
- Extensible with custom strategies
- Based on Tekton

Cloud-Native Buildpacks	Source-to-Image (S2I)
<pre>kind: Build metadata: name: myapp-cnb-build spec: source: url: https://github. strategy: name: buildpacks-v3 builder: image: heroku/buildp output: image: quay.io/myorg</pre>	<pre>kind: Build metadata: name: myapp-s2i-build spec: source: url: https://github.com/myorg/myapp strategy: name: source-to-image builder: image: registry.redhat.io/openjdk/openjdk-11-rhel8 output: base: docker.io/openjdk:11-jre-slim image: quay.io/myorg/myapp:v1</pre>

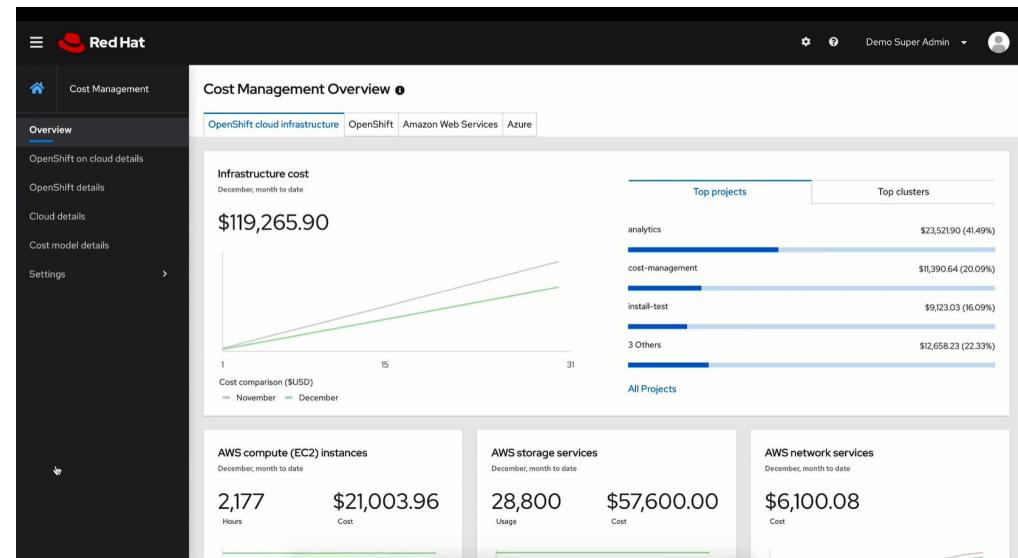
<https://github.com/redhat-developer/build>

Cost management

Cost management for OpenShift Container Platform

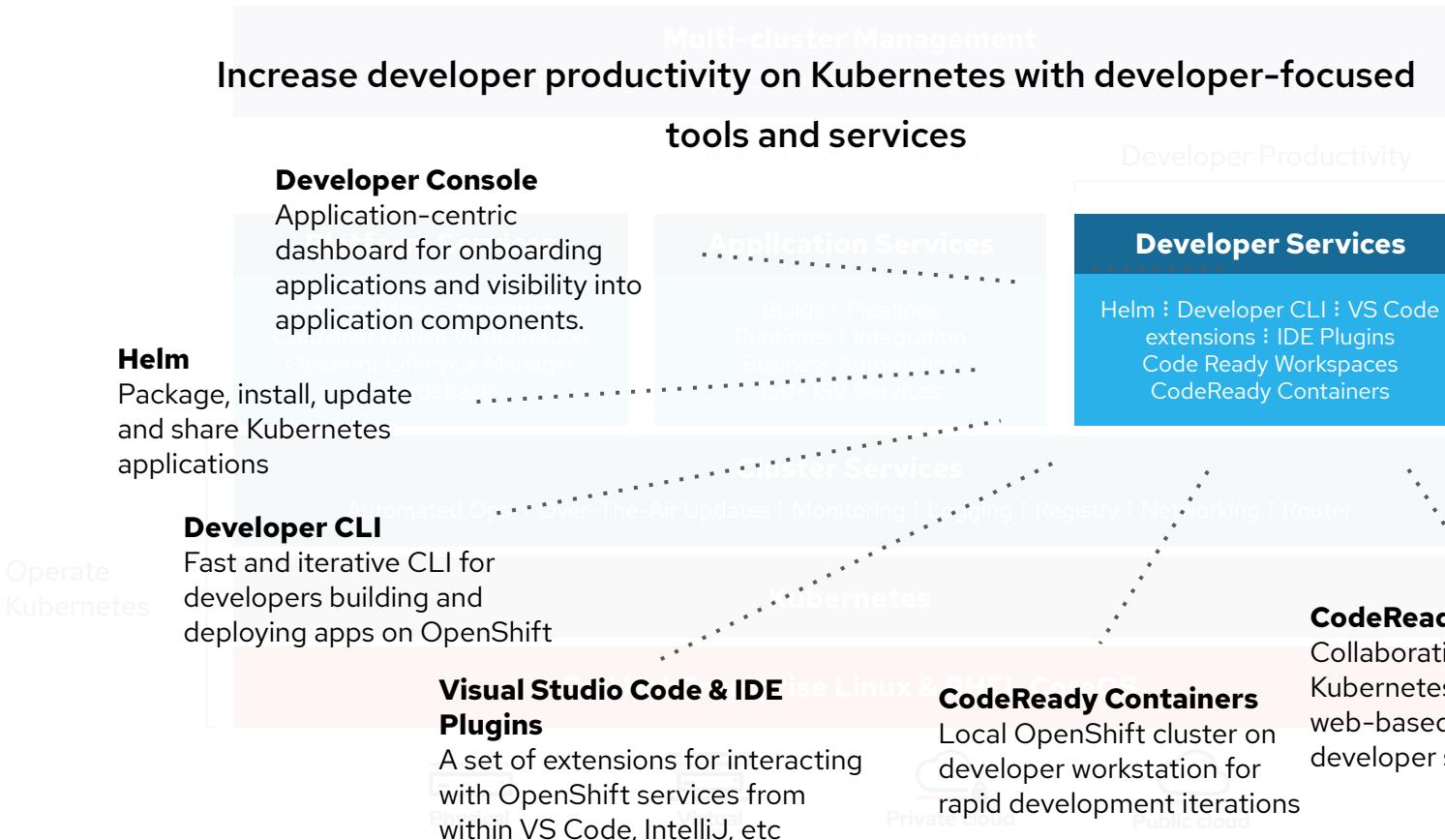
Red Hat's newest SaaS offering to provide customers with cost visibility across clusters both on-premises and in the cloud

- Visualize costs across hybrid cloud infrastructure
- Track cost trends
- Map charges to projects and organizations
- Normalize data and add markups with cost models
- Generate showback and chargeback information



CodeReady / Dev Tools

OpenShift Container Platform



CodeReady Workspaces 2.1

Available Now!

- **New onboarding experience -** updated catalog and simple workspace creation options
- **Quarkus support -** includes stack and plugin
- **Updated languages -** .NET Core 3.1, Camel K, Java 11 & Gradle
- **Air Gap improvements**
- Many editor enhancements

The screenshot displays the CodeReady Workspaces 2.1 interface. On the left is a sidebar with navigation links: Dashboard, Get Started, Workspaces, Projects, Factories, and Administration. The main area is titled "Getting Started with CodeReady Workspaces" and shows a grid of workspace samples. The grid contains 18 items, each with a thumbnail icon and a brief description:

Icon	Name	Description
JBoss logo	Java EAP Maven	JBoss Java stack with JBoss 7.2, OpenShift 4.4 and Maven 3.5
Thrift logo	Thriftail REST HTTP	Quarkus to expose a REST Greeting endpoint using Thrift
Red Hat logo	Red Hat Fuse	Red Hat Fuse
Coffee cup icon	Java Maven	Java stack with OpenShift 4.4, Maven 3.5 and Vert.x demo application
Apache Camel logo	Apache Camel K	Touring to develop integration projects with Apache Camel K
Gradle logo	Java Gradle	Java Stack with OpenShift 4.4 and Gradle 6.1
Quarkus logo	Quarkus Tools	Quarkus Tools with GraalVM and Maven 3.6.0
Spring Boot logo	Java Spring Boot	Java stack with OpenShift 4.4 and Spring Boot Microservices demo application
Vert.x logo	Java Vert.x	Java stack with OpenShift 4.4 and Vert.x demo application
Node.js logo	Node.js Express Web Application	Stack with Node.js 10
Node.js logo	Node.js ConfigMap	Stack with Node.js 10
Node.js logo	Node.js MongoDB Web Application	Stack with Node.js 10 and MongoDB 3.6
C++ logo	C/C++	C and C++ Developer Tools stack
.NET logo	.NET	.NET 5.0 stack with .NET Core 5.0, Red Hat .NET Core Language Support and Debugger
Go logo	Go	Stack with Go 1.11.5
PHP logo	CakePHP Example	PHP Stack with PHP 7.3 and a sample CakePHP application for OpenShift v3
PHP logo	PHP Simple	PHP Stack with PHP 7.1 and simple web application
Python logo	Python	Python Stack with Python 3.6

Below the catalog is a "CREATE A WORKSPACE" button. To the right, there is a terminal window with the command ">>qui" entered, followed by a list of Quarkus-related commands:

```
>qui
Quarkus: Add extensions to current project
Quarkus: Debug current Quarkus project
Quarkus: Generate a Quarkus project
Quarkus: Welcome
```

odo - OpenShift's Dev-Focused CLI

- Ability to provision operator-backed services / CRs (Tech Preview)
- Support for Che devfiles (Tech Preview)
- odo debug info - tell if the debug mode is enabled and if can port-forward

```
$ odo catalog list services
Operators available through Operator Hub
NAME          CRDs
etcdoperator.v0.9.4    EtcdCluster, EtcdBackup,
EtcdRestore

$ odo service create etcdoperator.v0.9.4 --crd EtcdCluster
Deploying service etcdoperator.v0.9.4 of type:
etcdoperator.v0.9.4
example
✓ Deploying service [6ms]
✓ Service 'etcdoperator.v0.9.4' was created

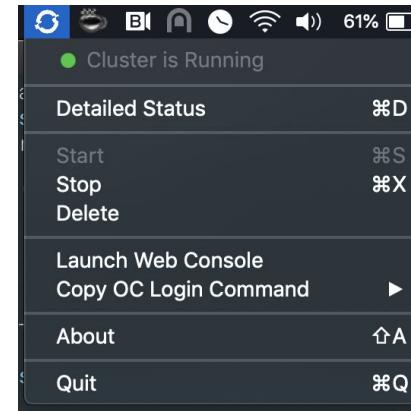
Progress of the provisioning will not be reported and might
take a long time
You can see the current status by executing 'odo service
list'
Optionally, link etcdoperator.v0.9.4 to your component by
running: 'odo link <component-name>'
```



Local development

CodeReady Containers: OpenShift on your Laptop

- Available with OCP 4.4 ~May 4th
- Regular releases to pick up 4.3 z-streams and fresh certs
- System tray - access key actions and status from familiar toolbar (Tech Preview)
- podman - docker build|run replacement (Tech Preview)



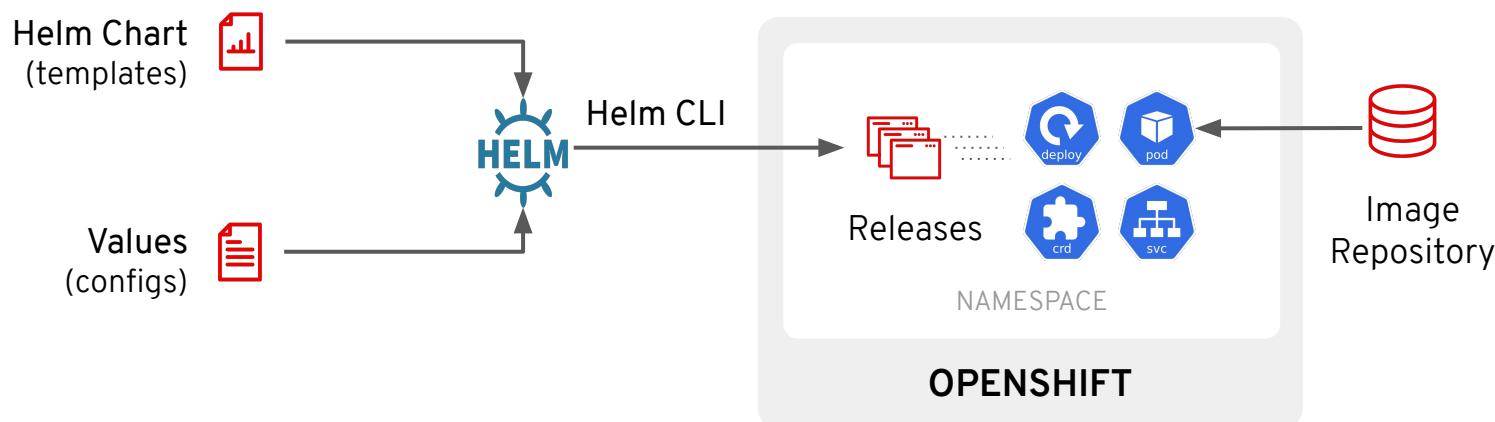
```
$ eval $(crc podman-env)
Setup environment to run podman

$ podman run hello-openshift
Trying to pull quay.io/library/hello-openshift...
Pulling hello-openshift...
Hello OpenShift World!
```

Helm

Helm 3 on OpenShift

Helm is a package manager for Kubernetes applications and helps to define, install and update apps



Helm 3 on OpenShift

- Helm 3.1 GA
- Helm Charts in Developer Catalog
- Custom values.yaml during chart install
- Helm Releases in Console
- Helm Releases in Topology

Helm 3 Overview Slides

The screenshot displays two main views of the Red Hat OpenShift Container Platform interface:

- Developer Catalog View:** Shows the "Developer Catalog" page for the "demo" project. It lists various shared apps, services, or source-to-image builders. A specific Helm chart, "mynodejs-app-1", is highlighted with a blue dashed box. The "Helm" category is selected in the sidebar.
- Helm Release Details View:** Shows the "Helm Release Details" page for the "mynodejs-app-1" release in the "demo" project. It provides details such as Name (mynodejs-app-1), Namespace (NS demo), Type (helm.sh/release/v1), and Labels (modifiedAt=1583254368, name=mynodejs-app-1, owner=helm, status=deployed). It also shows a list of resources: nodejs-example (BuildConfig, Created 3 minutes ago) and nodejs-example (DeploymentConfig, Created 3 minutes ago).

Helm & Operators Capabilities

	Helm Chart	Operator
Packaging	✓	✓
App Installation	✓	✓
App Update (kubernetes manifests)	✓	✓
App Upgrade (data migration, adaption, etc)	-	✓
Backup & Recovery	-	✓
Workload & Log Analysis	-	✓
Intelligent Scaling	-	✓
Auto tuning	-	✓

OpenShift Console

The future is now.

**Extending the
Console**

**Improve
Observability**

**Administration
made easy**

**Developer
Focused**

Information at your fingertips: Updated Pods/Projects List View

Key pod and project data surfaced in the improved list views.

- Pod list view
 - Status
 - Readiness
 - Restart count
 - Owner ref
 - Creation Time
 - CPU Utilization
 - Memory Utilization
- Project list view
 - Display Name
 - Status
 - Requester
 - Creation Time
 - CPU Utilization
 - Memory Utilization

The screenshot shows the 'Projects' screen in the OpenShift web interface. At the top, there is a 'Create Project' button and a search bar labeled 'Filter by name or display name'. Below this, the 'Pods' section is displayed with its own 'Create Pod' button and a filter bar showing 238 of 315 items. The main table lists pods with columns for Name, Namespace, Status, Ready, Restarts, Owner, Memory, CPU, and Created. Each row includes a 'More' (three dots) button. The table shows several pods from namespaces like openshift-monitoring and apiserver, with various statuses such as Running, CrashLoopBackOff, and Failed.

Name	Namespace	Status	Ready	Restarts	Owner	Memory	CPU	Created
alertmanager-main-0	openshift-monitoring	Running	5/5	0	alertmanager-main	59.5 MiB	0.003 cores	3 hours ago
alertmanager-main-1	openshift-monitoring	Running	5/5	0	alertmanager-main	59.9 MiB	0.004 cores	3 hours ago
alertmanager-main-2	openshift-monitoring	Running	5/5	0	alertmanager-main	66.2 MiB	0.004 cores	3 hours ago
apiserver-7bc97cf9-hnjpc	openshift-apiserver	Running	1/1	0	apiserver-7bc97cf9	130.0 MiB	0.015 cores	3 hours ago
apiserver-7bc97cf9-sjs5v	openshift-apiserver	Running	1/1	0	apiserver-7bc97cf9	128.4 MiB	0.015 cores	3 hours ago
apiserver-7bc97cf9-vztqd	openshift-apiserver	Running	1/1	0	apiserver-7bc97cf9	132.9 MiB	0.016 cores	3 hours ago
authentication-operator-7b8dc99f95-mckcq	openshift-authentication-operator	Running	1/1	1	authentication-operator-7b8dc99f95	48.9 MiB	0.011 cores	3 hours ago

Not on My Watch:

Image Vulnerabilities List

Security taken seriously! Quickly dive into your image vulnerability data sourced from image scans with Quay and Clair.

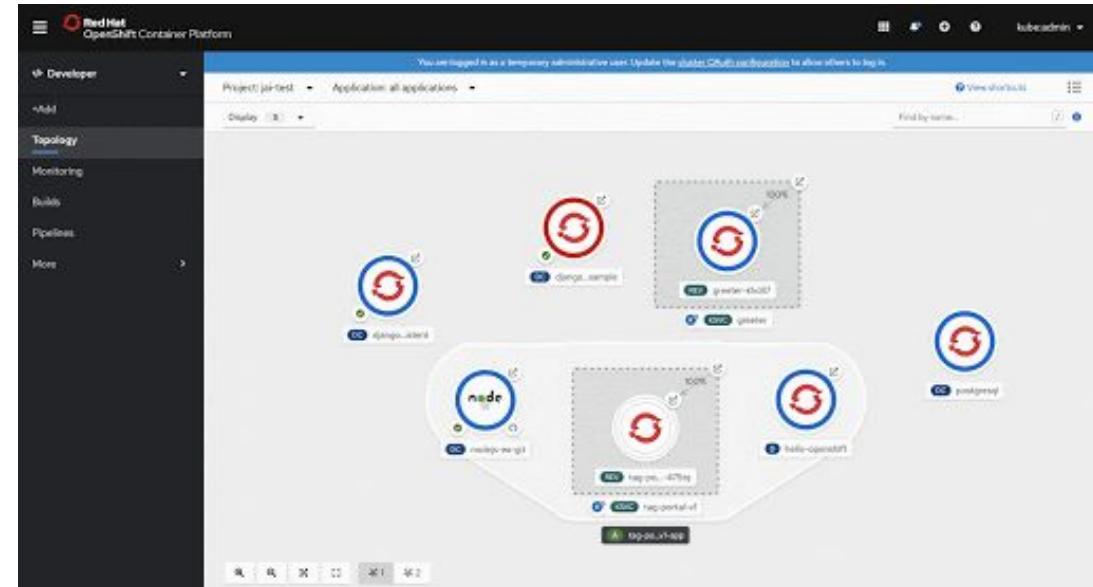
- Requires you to deploy **Container Security Operator (CSO)**
- **List view** - easily view vulnerabilities of the images
 - Highest severity
 - Number of affected pods
 - Number fixable
 - Manifest SHA external link for viewing the vulnerability in Quay.
- **Details view** - see a list of vulnerabilities of an image
 - Vulnerability info, severity, package, current package, and the fixed version.
- **Affected Pods tab** - easy access to the affected pods to quickly update with the fixes.

Image Name	Namespace	Highest Severity	Affected Pods	Fixable	Manifest
IMV openshift-knative/knative-e-evening-channel-controller	NS knative-eventing	High	1	7	08aed83c1bb
IMV openshift-knative/knative-e-evening-sources-controller	NS knative-eventing	High	1	7	32f3ca637k
IMV openshift-knative/knative-e-evening-controller	NS knative-eventing	High	1	7	cc4ec0d7fb

Vulnerability	Severity	Package	Current Version	Fixed in Version
RHSA-2019-4190 ↗	High	nss-softokn-freebl	3.44.0-5.el7	0:3.44.0-8.el7_7
RHSA-2019-4190 ↗	High	nss-util	3.44.0-3.el7	0:3.44.0-4.el7_7
RHSA-2019-4190 ↗	High	nss-tools	3.44.0-4.el7	0:3.44.0-7.el7_7
RHSA-2019-4190 ↗	High	nss-softokn	3.44.0-5.el7	0:3.44.0-8.el7_7

Understanding Complex Apps find

- Allow developers to easily find and focus on interested components
- Matched items are highlighted and non-matches are dimmed
- Indicates matches off of visible area



Understanding Complex Apps grouping, collapse

Operator-managed and Helm-based services

- Groups all resources to easily understand what is being managed by which CR/operator
- Add simple info in resources side panel, for custom resource or general resource parent

my-connect-cluster-connect

Managed by: my-connect-cluster

Pods

Services

Collapse / Expand

- Manage large multi-application projects by expanding/collapsing certain grouping types
- Reduce Application, Helm, Knative and Operator to simple summary tiles

Display 3

Show

Expand

Event Sources

Helm Releases

Knative Services

Operator Groupings

django...it-app

1 KService

2 Deployment

1 Deployment Config

nodejs-example

amqstr...v1.4.0

1 Deployment

2 Stateful Sets

Add in Context quickly expand your app

Add via popup action

- Developer stays focused and in context of app
- Streamline to access to "Add" features
- Maintains application grouping



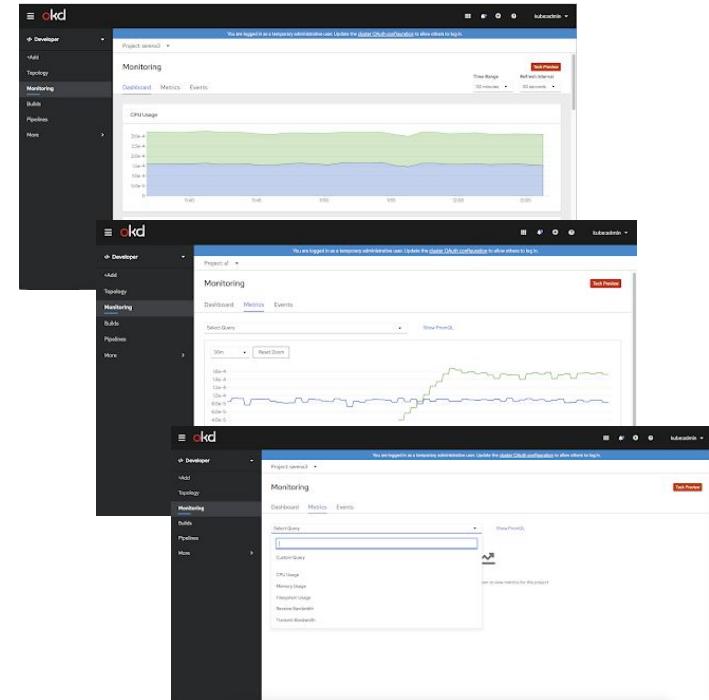
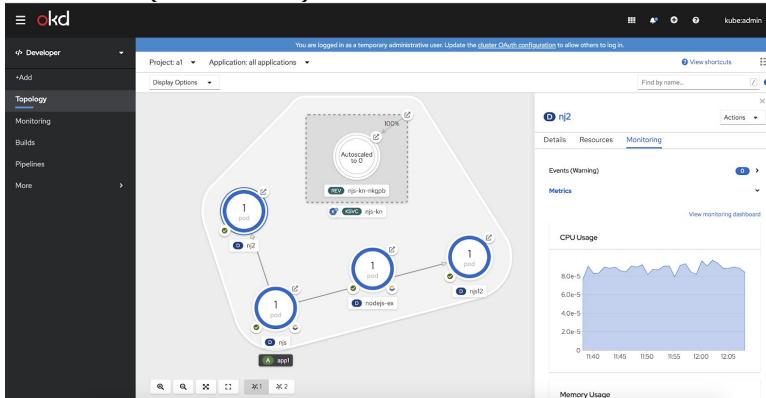
Add via connector drop

- Developer stays focused and in context of app
- Easy access to "Add" feature and adds connector, either service binding or just visual connector



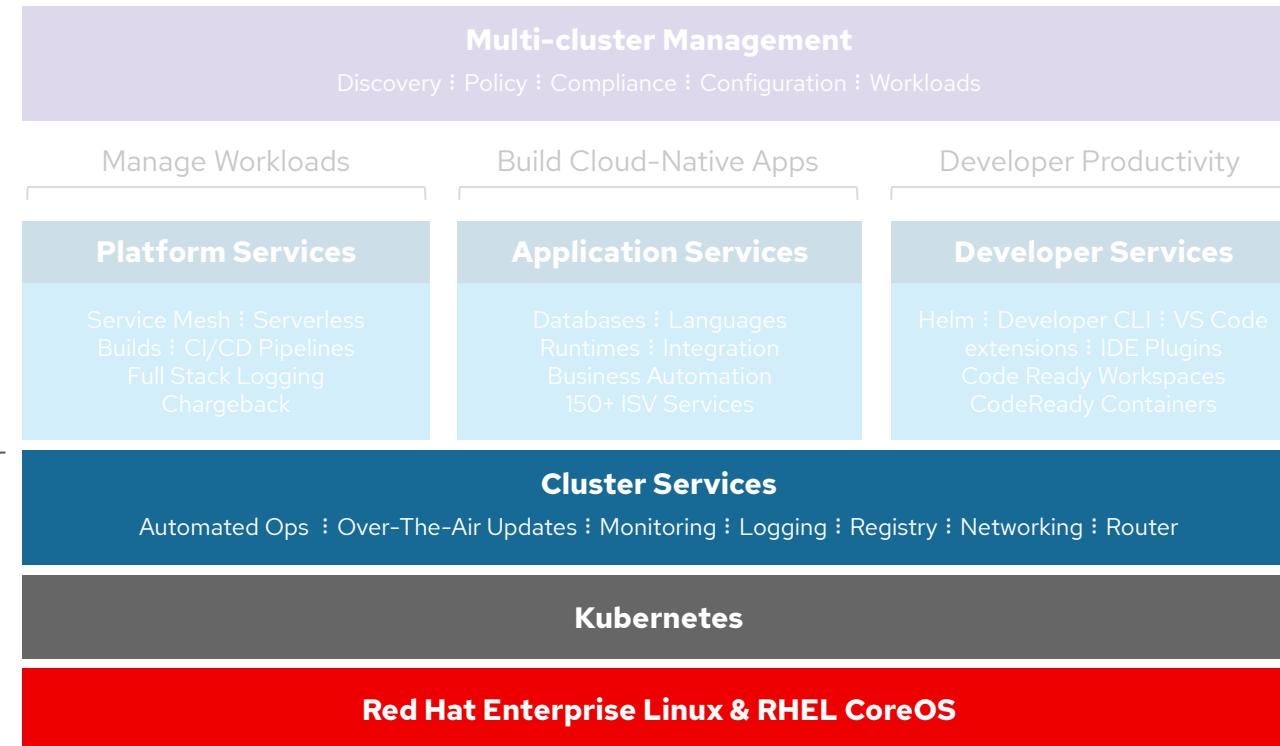
Monitoring Your Apps

- Focused Monitoring nav item - subitems with Dashboard, Metrics (PromQL) and Events
- Out of the box monitoring for CPU & Memory Usage, Bandwidth, Packets Rate & Loss
- Focused Monitoring section of selected workload details (see below)



Core Platform

OpenShift Container Platform



Physical



Virtual



Private cloud



Public cloud

Install & Upgrades

4.4 Supported Providers

Full Stack Automation (IPI)



Microsoft Azure



RED HAT[®]
OPENSTACK[®]
PLATFORM

RED HAT[®]
VIRTUALIZATION

Pre-existing Infrastructure (UPI)



Microsoft Azure



vmware
vSphere



IBM Z^{*}

IBM Power Systems^{*}



Bare Metal

* Note: Planned for an upcoming 4.3.z release on April 30th

Denotes new addition in OCP 4.4

Generally Available



Red Hat OpenStack Platform Support

Supported OSP releases with OCP 4.4

Red Hat OpenStack Platform 13

Red Hat OpenStack Platform 16

New with OCP 4.4 on OSP

- **UPI support:** OpenShift on Pre-existing OpenStack Infrastructure
 - User pre-creates OpenStack resources
 - Installer creates the OpenShift cluster
 - Ansible Playbooks
- Registry on Cinder or Swift (IPI defaults to Swift when available)
- Kuryr SDN integration with Octavia OVN Load Balancing
- PVs on OpenStack Manila with RWX support (upcoming 4.4.z release)



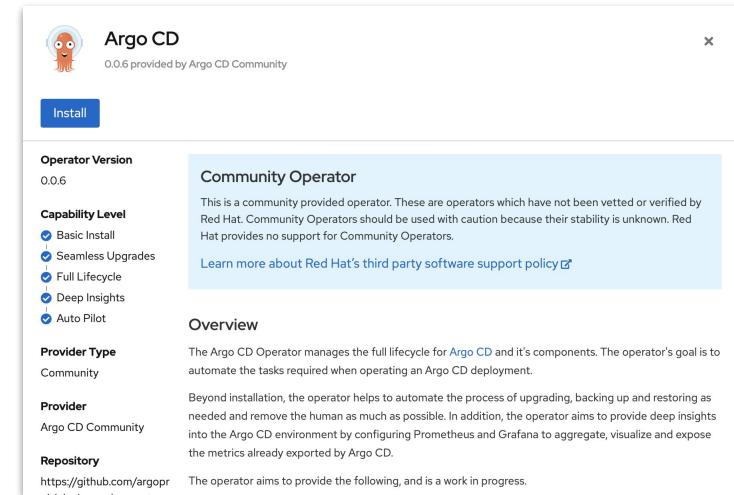
**RED HAT®
OPENSTACK®
PLATFORM**

UPI Dev Preview docs available today https://github.com/openshift/installer/blob/master/docs/user/openstack/install_upi.md

Generally Available

GitOps with ArgoCD Guide

- Guide published to GitHub
github.com/openshift/openshift-gitops-examples
- Topics
 - Install and configuration of ArgoCD
 - Cluster configs with ArgoCD
 - Operator installation
 - Multi-cluster configs



Security

Stronger Platform Security

Defense in Depth



CONTROL Application Security

- Support the Audience flag for easier workload integration with AWS IAM
 - See [Introducing fine-grained IAM roles for service accounts](#)



DEFEND Infrastructure

- Automatic rotation of the Service CA



EXTEND

Broken (Do Not Present) Platform Certificate Rotation

- When clusters are shut off for more than 30 days, kube-apiserver related certificates are expired and manual recovery is needed. We have merged PRs to implement [an enhancement](#), making this recovery process automatic in 4.4
- Master kubelet bootstrap credentials are invalid after 24 hours and manual recovery is needed. We have merged PRs to implement [an enhancement](#) eliminating this problem in freshly installed 4.4 clusters (upgraded clusters still have problems), while retaining the ability to revoke credentials in the case of compromise

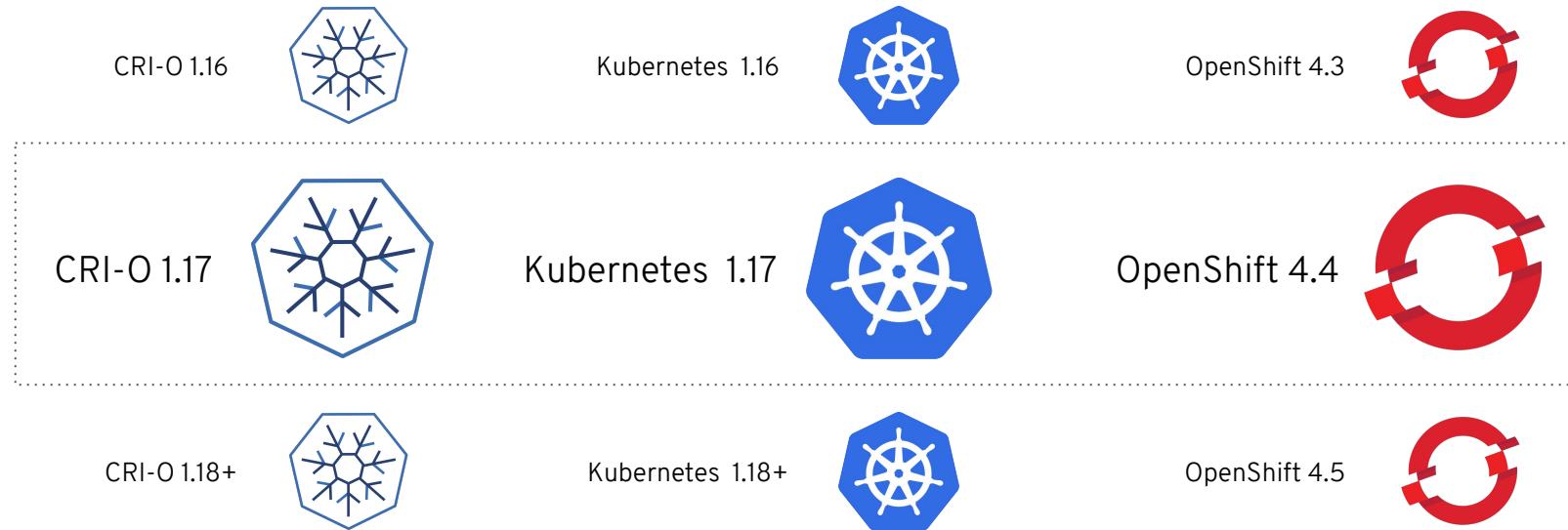
Broken: https://bugzilla.redhat.com/show_bug.cgi?id=1817997,

Compute

BROAD ECOSYSTEM OF WORKLOADS

CRI-O Support in OpenShift

CRI-O tracks and versions identical to Kubernetes, simplifying support permutations



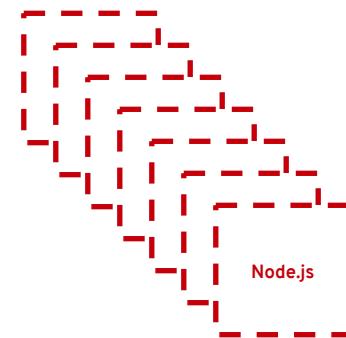
BROAD ECOSYSTEM OF WORKLOADS

Red Hat Universal Base Image

Enable an ecosystem of freely distributable operators for Kubernetes/OpenShift



Base
Images



New Java and
Golang Images



Package
Subset

Generally Available

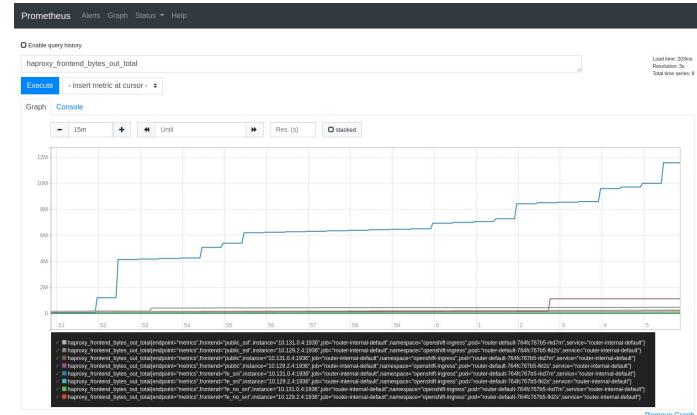
Networking and Routing

HAProxy 2.0



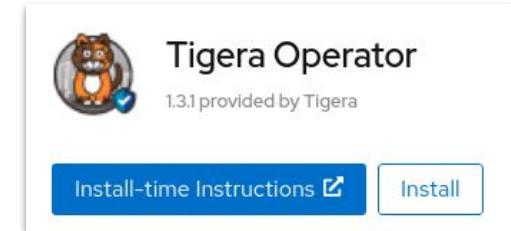
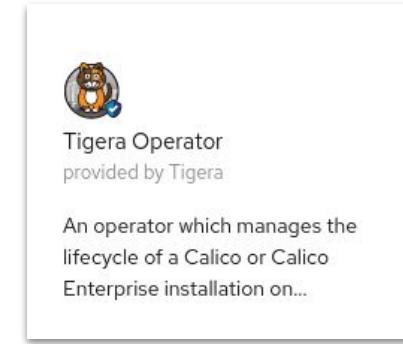
**HAProxy
2.0**

- We've upgraded our version of HAProxy used for Ingress from version 1.8.17 to 2.0.13
- This is a "transparent" upgrade to HAProxy 2.0 and introduces no new API or supported user-facing capabilities to the platform
- Represents significant performance improvements and many bug fixes
- Adds native Prometheus metrics
- Full IPv6 support when the rest of the product is ready
- Provides the foundation for high-value ingress controller features, which we'll add full support for in future releases, including:
 - HTTP/2 and gRPC (targeting 4.5)
 - [Layer 7 retries](#)
 - ...and [many others](#)



Calico Kubernetes CNI Plug-In Certification

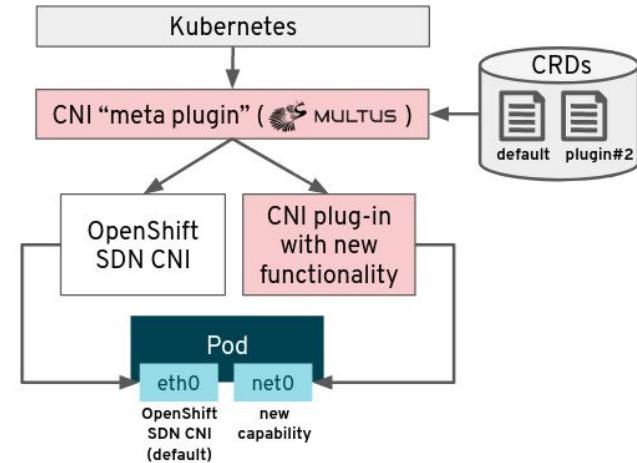
- The open source Calico networking solution is now a certified Kubernetes CNI plug-in that can be used to replace OpenShift's default out-of-the-box networking during installation (only)
- The integration is fully supported through the Partner Connect relationship between Red Hat and Tigera
- Calico 3.12.0 on OpenShift 4.2+
- Installation Instructions:
<https://docs.projectcalico.org/getting-started/openshift/installation>



Multus Enhancements

We also made some improvements to Multus:

- **SR-IOV NIC partitioning**
 - the ability to configure a single cluster node's NIC for both default networking and secondary Multus interfaces like SR-IOV
- **Custom pod routing**
 - allows specifying a custom route change (add/del) in a pod annotation (i.e. cni-args) using a route override CNI, rather than having to request NET_ADMIN capability (a security issue)
- **IPAM enhancements**
 - Dynamic IP address assignment for secondary Multus interfaces without needing to run DHCP, using the "whereabouts" CNI plugin for IP Address Management (IPAM)



Multi-Arch

OpenShift on IBM Z & P

Here comes the POWER ...

- In a near future 4.3 zStream we will update support of IBM Z and **add** IBM Power
 - Releases for future OCP versions will remain zStream for now
- Only certain pieces of OCP platform are supported initially
- This is a UPI installation based on zVM or bare metal on Power
- This is a homogeneous cluster.
 - One cluster for Z and a different clusters for x86 (or P)
 - No support for RHEL7 workers
- Remember good for:
 - Data Gravity
 - Security/Compliance
 - Cloud in a box

Supported

- OpenShift Core (CVO Operators)
- UPI installer
- OVS/OVN
- RHEL7 Based container support
- RHEL CoreOS
- Ansible Engine
- Red Hat Software Collections
- AdoptOpenJDK with OpenJ9
- OpenShift Cluster Monitoring (Prometheus, grafana)
- Node Tuning Operator
- OpenShift Jenkins
- OpenShift Logging (elasticSearch, kibana)
- Machine Configuration Operator (used in IPI installs)
- Node Feature Discovery Operator

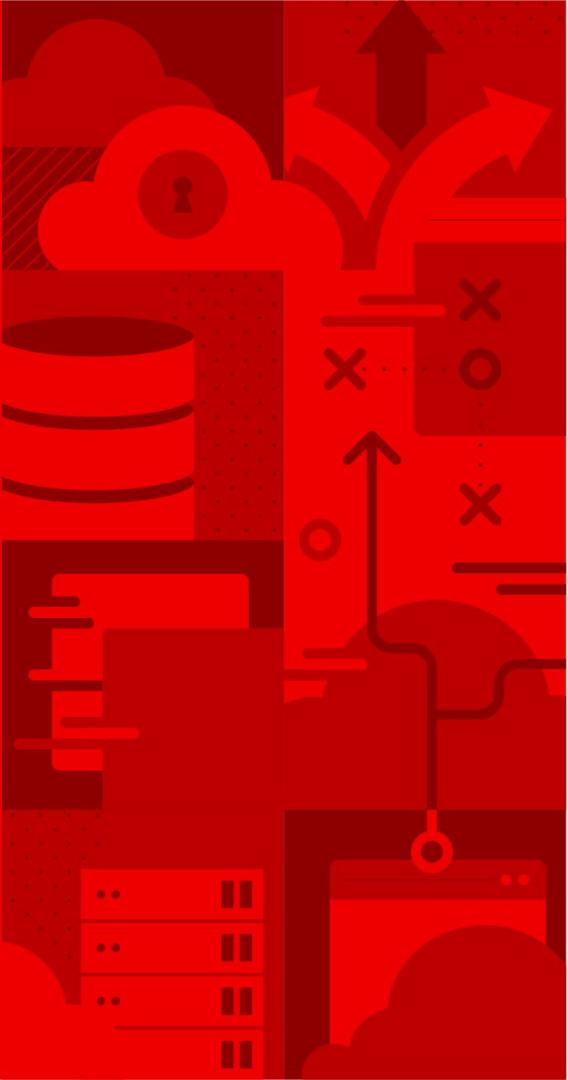
Addons not currently supported

- CodeReady odo (Developer Command line)
- CodeReady Workspaces
- CodeReady Containers
- OpenShift Pipelines (Tekton)
- Red Hat Single Sign-On
- JBoss Web Server (tomcat)
- dotNET on RHEL (* not available on any non x86_64 arch)
- Container Native Virtualization (kubeVirt)
- OpenShift Service Mesh (istio, jaeger, kiali)
- OpenShift Serverless (knative, FaaS integrations)
- OpenShift Metering (Presto, Hive)
- Multus Plugins (SR-IOV, IPVAN, Bridge with VLAN, Static IPAM)
- Special Resources Operator
- Device Manager for NVIDIA GPUs
- IPI installer
- OpenShift Ansible Service Broker Operator (deprecated)
- Local Storage Operator

Extra content not ported

- Red Hat Middleware products
- OpenShift Container Storage
- operatorHub.io 3rd party ISV Eco-System
- Red Hat Quay (on premise)





Thank you



[linkedin.com/company/red-hat](https://www.linkedin.com/company/red-hat)



[youtube.com/user/RedHatVideos](https://www.youtube.com/user/RedHatVideos)

Red Hat is here to help

Responding to COVID-19 requires collaboration, transparency, and the free exchange of expertise.

[Ways to contact us](#)

