

RED HAT
SUMMIT

CoreOS and Red Hat

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May 2018





redhat®



Core OS

Combining Industry Leading Container Solutions

RED HAT QUAY REGISTRY

ETCD

PROMETHEUS

METERING &
CHARGEBACK



RED HAT COREOS

CoreOS Tectonic

- Fully integrated and merged with OpenShift
- Adds automated operations and day 2 management (install, upgrades, monitoring, metering and chargeback)
- Best-in-class support for CaaS/KaaS/PaaS use cases

CoreOS Container Linux

- Red Hat CoreOS inspired by Container Linux & RHEL/Atomic
- Fully immutable, container optimized, automatically updated Linux host foundation for OpenShift

CoreOS Quay Registry

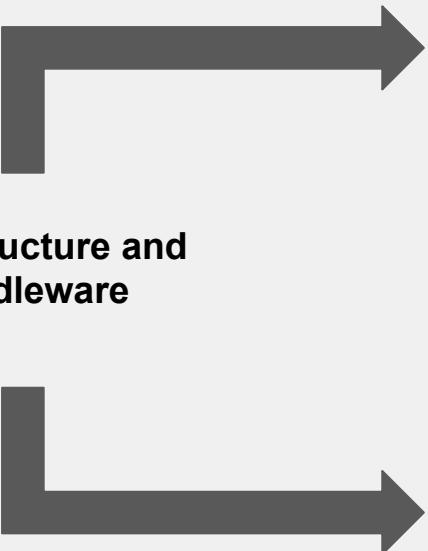
- Enterprise container registry; self managed & as-a-service
- Premium offering usable standalone or with OpenShift
- Geo-replication, vulnerability scanning, build automation

Bringing Automated Operations to OpenShift

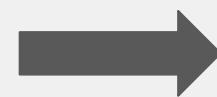
- App/Service Operations
- Multi-Cluster/Kubernetes Platform Operations
- Linux Host Operations

OPENSHIFT & TECTONIC + OPERATOR FRAMEWORK

**Infrastructure and
Middleware**



Large Cloud Providers



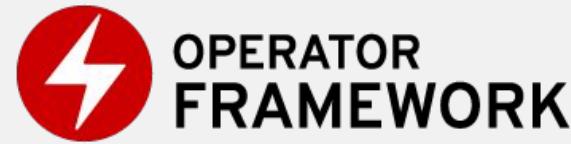
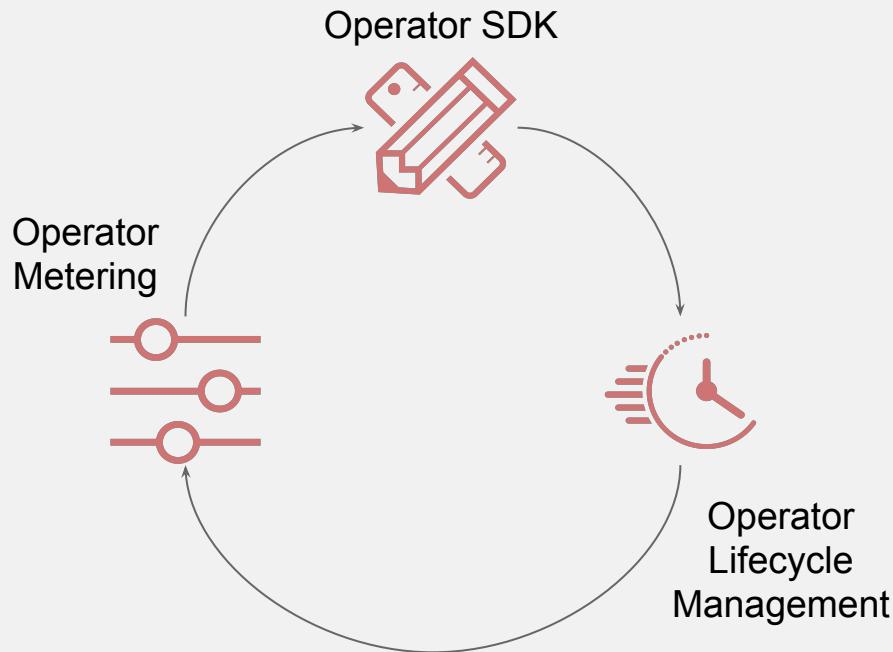
**Single cloud
and sticky**



Open Source

**Hybrid and
open**

Introducing the Operator Framework



Operator Framework is an open source toolkit to manage application instances on Kubernetes in an effective, automated and scalable way.

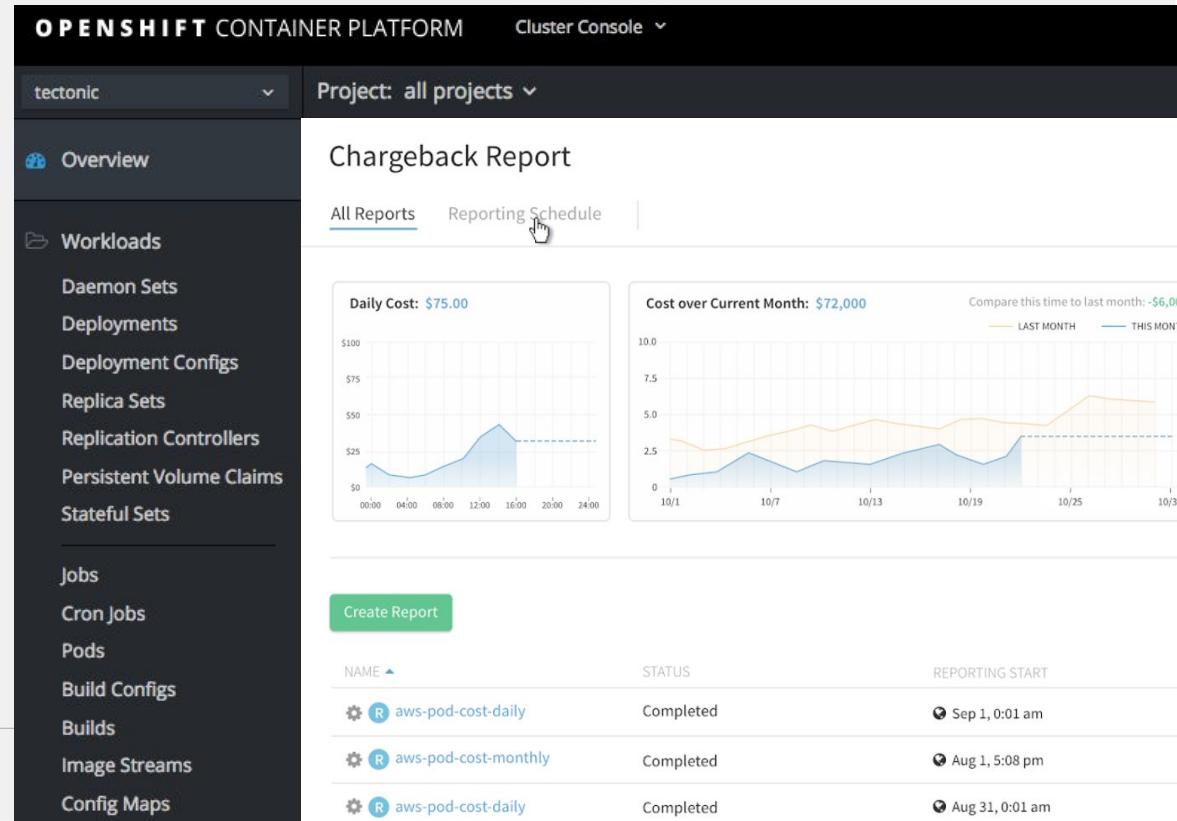
New OpenShift Admin Console

- OpenShift will introduce an Admin centric console that leverages the Tectonic console
- The Operator Lifecycle Management and Metering capabilities of Tectonic will be exposed in this new console

The screenshot shows the OpenShift Container Platform Admin Console. At the top, there's a navigation bar with 'OPENShift CONTAINER PLATFORM' and 'Service Catalog'. A dropdown menu is open over the 'Service Catalog' button, showing options like 'Application Catalog', 'Cluster Console', and 'Service Catalog'. Below the navigation is a 'Browse Catalog' section with tabs for 'All', 'Languages', 'Databases', 'Middleware', 'CI/CD', and 'Other'. It displays various service catalog items, including '.NET' (with sub-options like '.NET Core + PostgreSQL (Persistent)', '.NET Core Builder Images', '.NET Core Example', '.NET Core Runtime Example', and '3scale-gateway'), 'amp-apicast-wildcard-router', 'php', and 'CakePHP + MySQL (ephemeral)'. To the right of the catalog is a 'Getting Started' sidebar with links to 'Documentation', 'Interactive Learning Portal', 'Container Development Kit', 'YouTube', and 'Blog'. The main content area features a dark-themed dashboard with several monitoring and management sections. On the left, a sidebar includes 'Clusters' (selected), 'Namespace: default', and 'Overview', 'Applications', 'Workloads', 'Routing', 'Troubleshooting', and 'Administration'. In the center, there are four main cards: 'Cluster CPU Utilization' (30%, Used: 4.80 cores, Total Limit: 16.00 cores), 'Cluster Memory usage' (57.63%), 'Cluster CPU Utilization' (line graph from 08:00 to 11:00), and 'Cluster Memory utilization' (line graph from 08:00 to 11:00). The bottom right corner features the Red Hat logo.

Operator metering - In OpenShift Admin console

- CPU, Memory, networking, and storage tracking + reports
- Actual and reserved usage
- By namespace, pod, label, cloud service, and app type
- Correlated to underlying IaaS cost



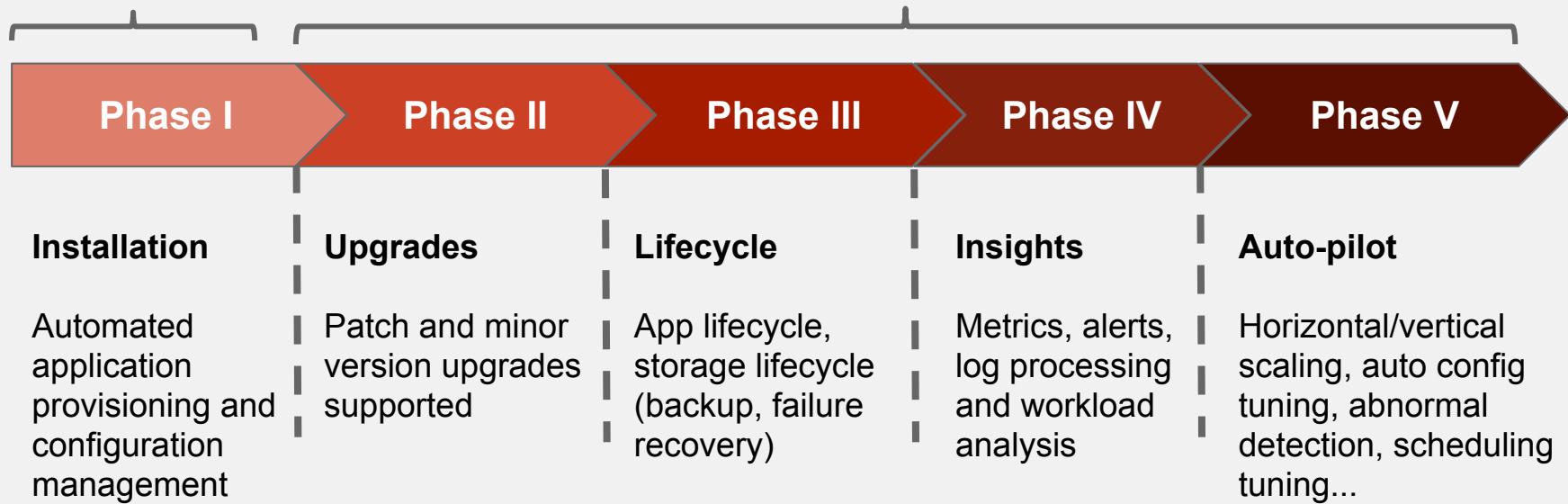
Operator Lifecycle Manager - In OpenShift Admin console

- Administrative view of Operator based services
- Includes catalogue of certified ISV services
- Customers can build/bring their own operator backed apps
- Helm apps are operator backed with zero coding

The screenshot shows the OpenShift Container Platform Cluster Console interface. The top navigation bar includes the 'OPENSHIFT CONTAINER PLATFORM' logo and a 'Cluster Console' dropdown. A search bar at the top right contains the text 'tectonic'. Below the header, a sidebar on the left lists various cluster management options: Overview, Workloads (with sub-options Daemon Sets, Deployments, Deployment Configs, Replica Sets, Replication Controllers, Persistent Volume Claims, Stateful Sets), Jobs, Cron Jobs, Pods, Build Configs, Builds, Image Streams, and Config Maps. The main content area is titled 'Application Catalogs' and displays a catalog of certified ISV services. It includes sections for 'Open Cloud Services' and 'Atlassian Internal'. Under 'Open Cloud Services', there are cards for 'etcd' (version 3.2.2 by CoreOS, Inc.) and 'Prometheus' (version 2.0.0 by CoreOS, Inc.). Both cards describe their functions and show status indicators ('0 running'). Under 'Atlassian Internal', there are cards for 'Bitbucket' (version 4.8 by Atlassian) and 'Confluence' (version 6.4 by Atlassian). The Bitbucket card describes it as a web-based hosting service for source code and development projects. The Confluence card states that Confluence is content collaboration software that changes how modern teams work.

No need for operator development

Requires custom Operator - can be facilitated with SDK

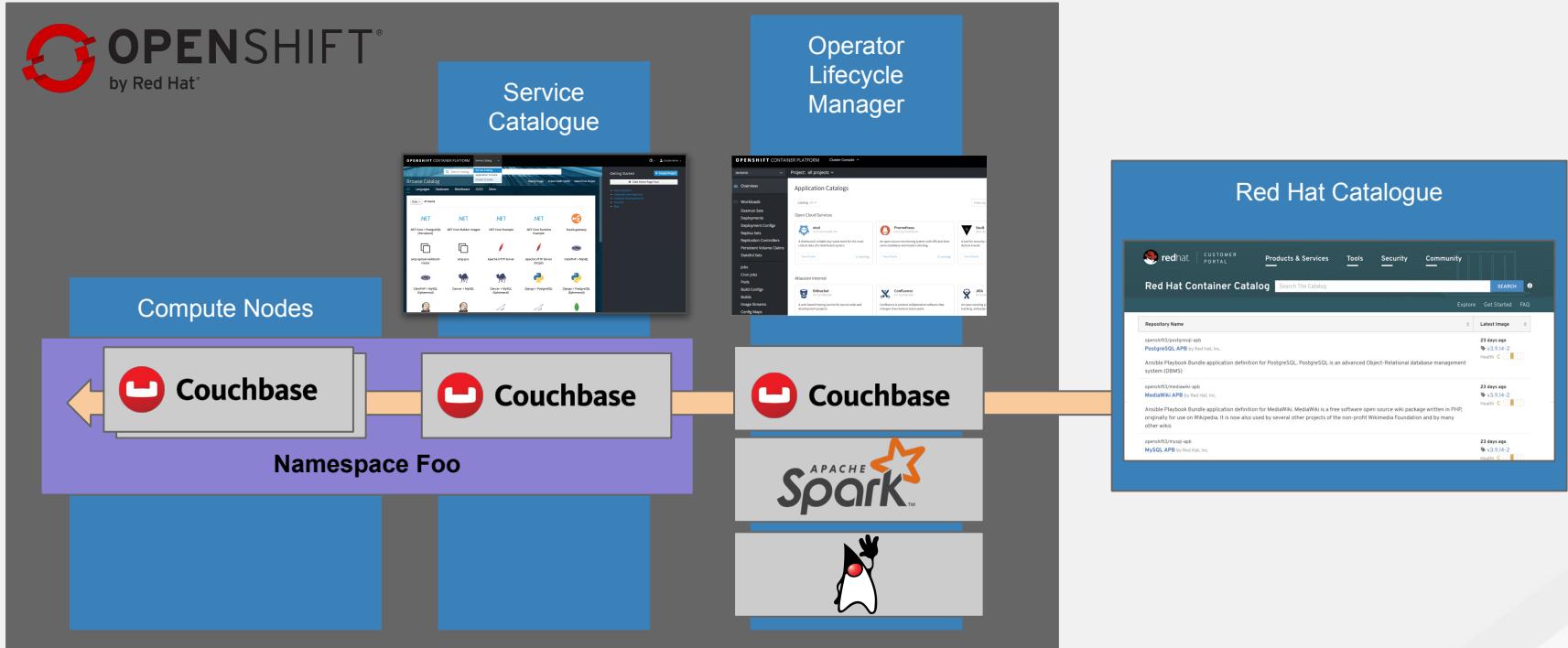


60+ ISVs planning to provide initial certified operators

- Certified operators will be available on Red Hat Container Catalog
- Can be imported into OpenShift Operator Lifecycle Manager
- Then exposed in OpenShift Service Catalogue

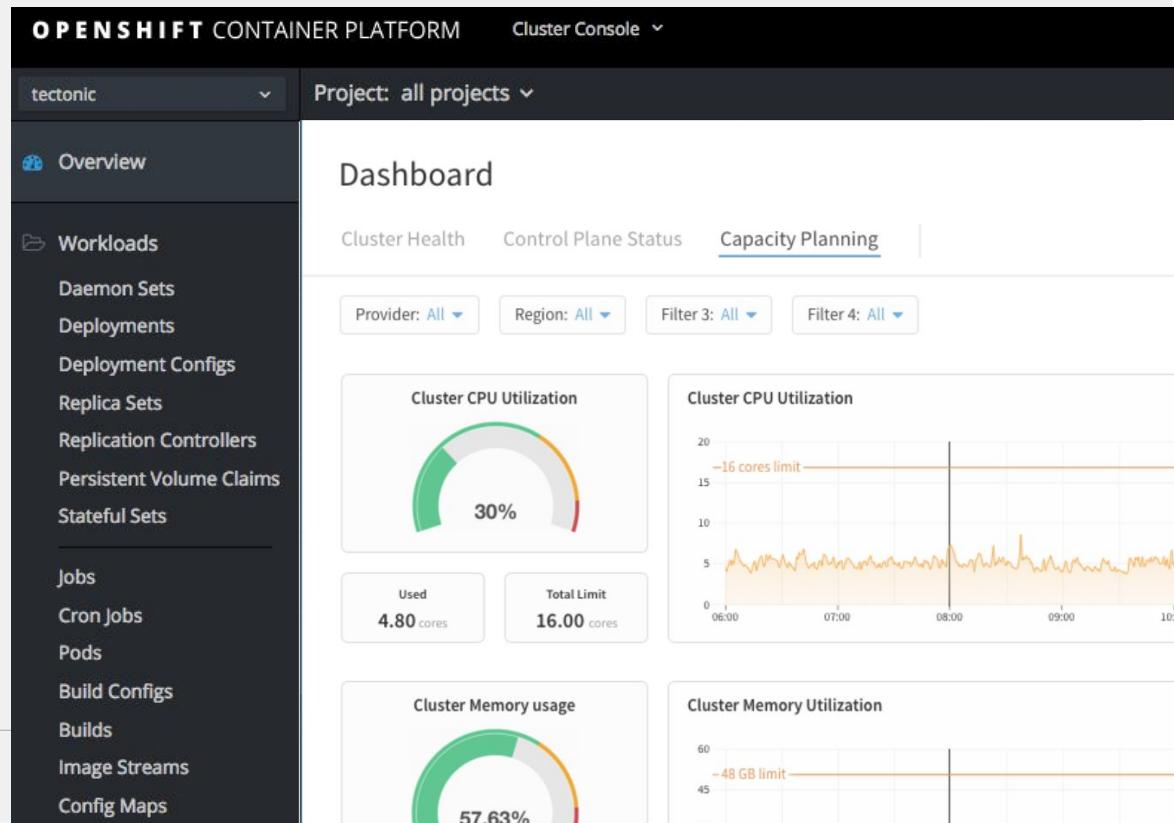


End-to-end workflow



Out of the box infrastructure monitoring

- Cluster management for OpenShift Admins
- Cluster health, control plane status, and capacity planning
- Prometheus alerting with pre-configured alerts



OpenShift Installation/Upgrade Experience



Immutable platform on traditional RHEL host

More customization

Manage own RHEL/infra, automated w/ Ansible



Fully immutable infra on Red Hat CoreOS host

More automation

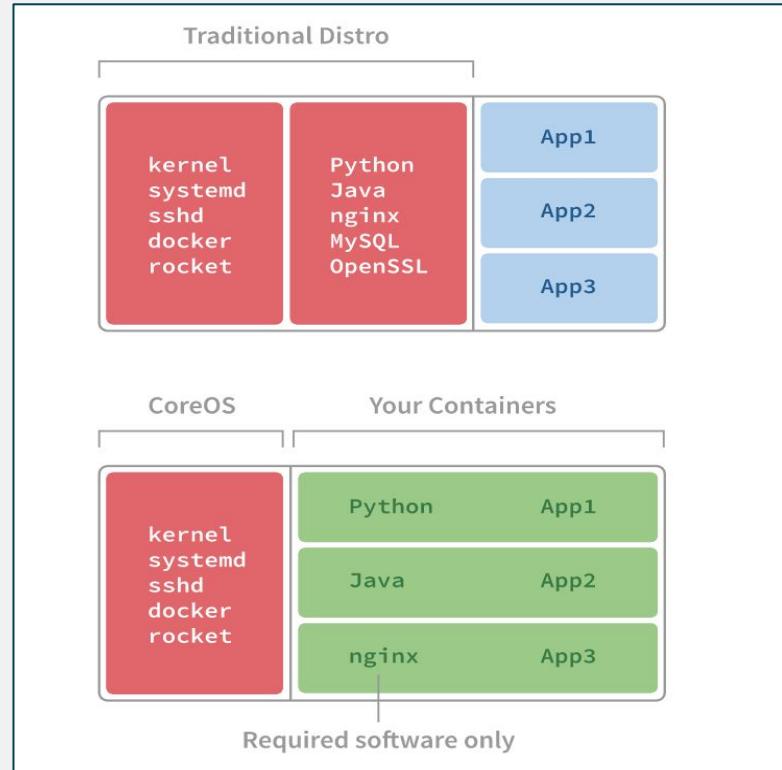
Full stack management, from infra to app services

DEMO

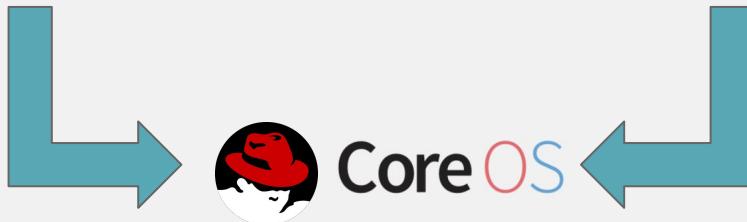
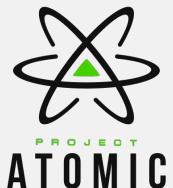
RED HAT COREOS

Container Linux

- Minimal Linux distribution
- Optimized for running containers
- Decreased attack surface
- Over-the-air automated updates



DELIVERING IMMUTABLE INFRASTRUCTURE WITH RED HAT COREOS



- Minimal Linux distribution
- Optimized for running containers
- Decreased attack surface
- Over-the-air automated updates
- Ignition-based Metal and Cloud host configuration
- Immutable foundation for OpenShift clusters

Container Linux and Red Hat Enterprise Linux: The road ahead

Ben Breard, Red Hat, Brandon Philips, Red Hat

Now that CoreOS has joined Red Hat, what does the future hold for Container Linux? What about Red Hat Enterprise Linux Atomic Host? Will there be four Linux distributions in the Red Hat family?

In this session, we'll put an end to the speculation and dive into our strategy and roadmap for creating the next chapter in Linux history. Find out how we're changing the game around immutable infrastructure and automating the foundation of Red Hat OpenShift.

Date: Wednesday, May 9

Time: 11:45 AM - 12:30 PM

Room: 2014

Location: Moscone West - 2014

Session Type: Breakout

Session Code: S2704

QUAY

Quay Enterprise Registry

What is Quay?

Quay is the container and application registry developed by CoreOS. It builds, analyzes and distributes container images, and is used by thousands of companies, large and small, as part of their containerized infrastructure.



**Securely store
your containers**



**Easily build
and deploy
new containers**

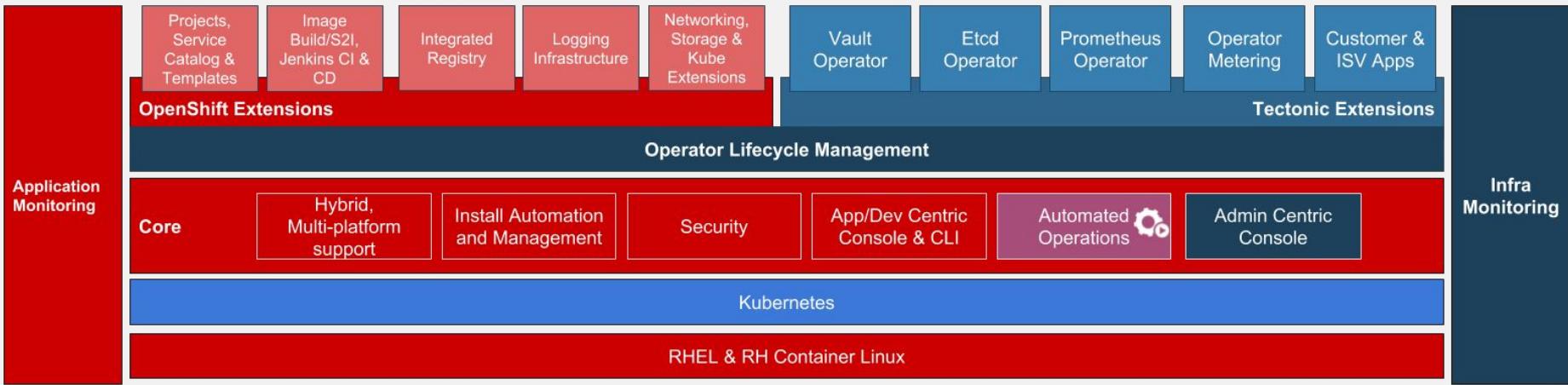


**Automatically
scan and secure
containers**

Red Hat Quay



- **Vulnerability Scanning (powered by Clair)**
continually scan your containers for vulnerabilities, giving you complete visibility into known issues and how to fix them
- **Geographic Replication**
Reliably store, build and deploy a single set of container images across multiple geographies
- **Build Image Triggers**
As push actions happen in your code repo (GitHub, Bitbucket, GitLab and Git), Quay will automatically build a new version of your app
- **Image Rollback with Time Machine**
View history of images and quickly and easily switch image builds





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