OpenShift 4.x Architecture Workshop

Enterprise Registry QUAY

July 2019

Red Hat

What Is Quay?

- Market leading enterprise container registry
- Available on-premise, on public cloud and as a hosted service (SaaS)
- Key strengths:
  - Security
  - Robustness & speed
  - Automation
- Quay works with any container environment or orchestration platform

First hosted registry in the market with private repos

2nd biggest hosted registry overall

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Red Hat Quay Feature Highlights

Security	Robustness and Speed	Automation
Support multiple authentication systems and identity providers	High availability & scalability	Build triggers
Vulnerability scanning	Geo-synchronous replication	Git hook compatible
Encrypted CLI passwords	Continuous, zero-downtime garbage collection	Robot accounts
Detailed logging for auditing	Torrent Distribution	Webhooks
Orgs & team support	Integration with multiple storage backends	Extensible API

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Quay Use Cases

- Large-scale and distributed environments (thousands of users and images)
- Customer has multiple OpenShift/Kubernetes clusters (content ingress)
- Customer needs OpenShift/Kubernetes in multiple geographical regions
- Customer needs governance for container images (scanning)
- Customer has high image maintenance and automation requirements
- Large number of build and high requirements on image delivery throughput

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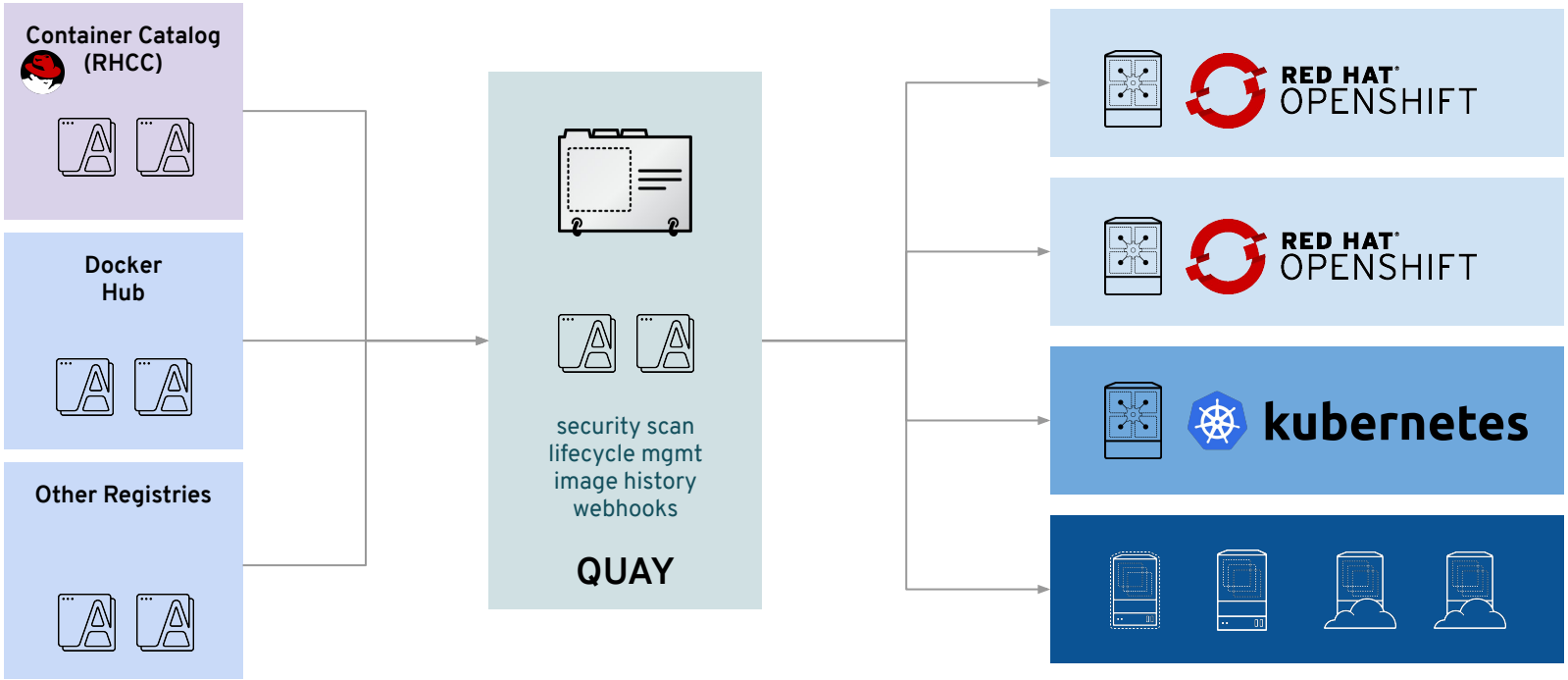
Content Ingress with Quay



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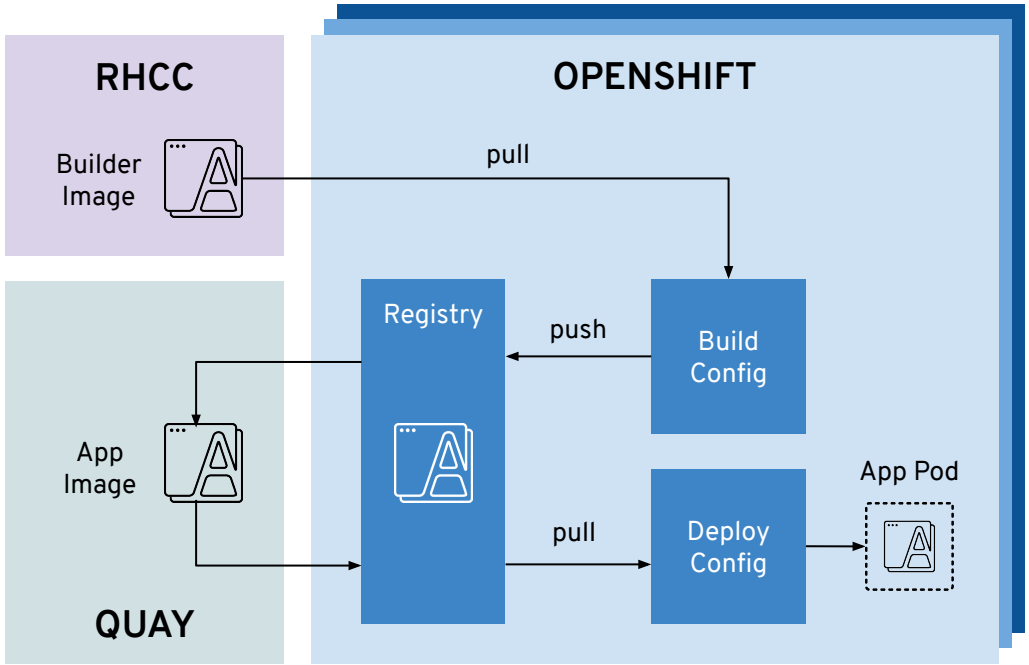
Quay as Upstream Registry with OpenShift

- Images pulled from Quay into the integrated OpenShift registry
- Images are pushed to the integrated OpenShift registry, and synced externally with Quay



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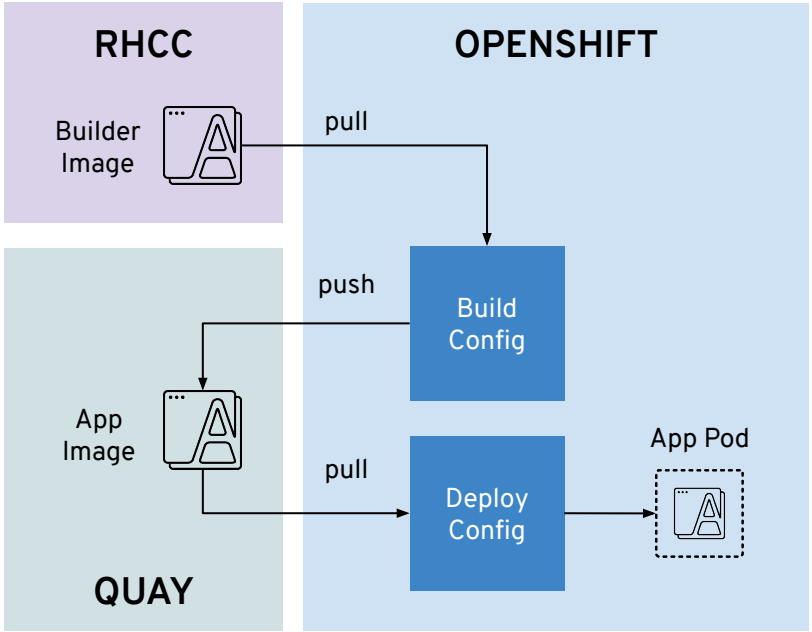
Quay as OpenShift Registry

- Images are pushed directly by builds to Quay
- Images are pulled directly from Quay



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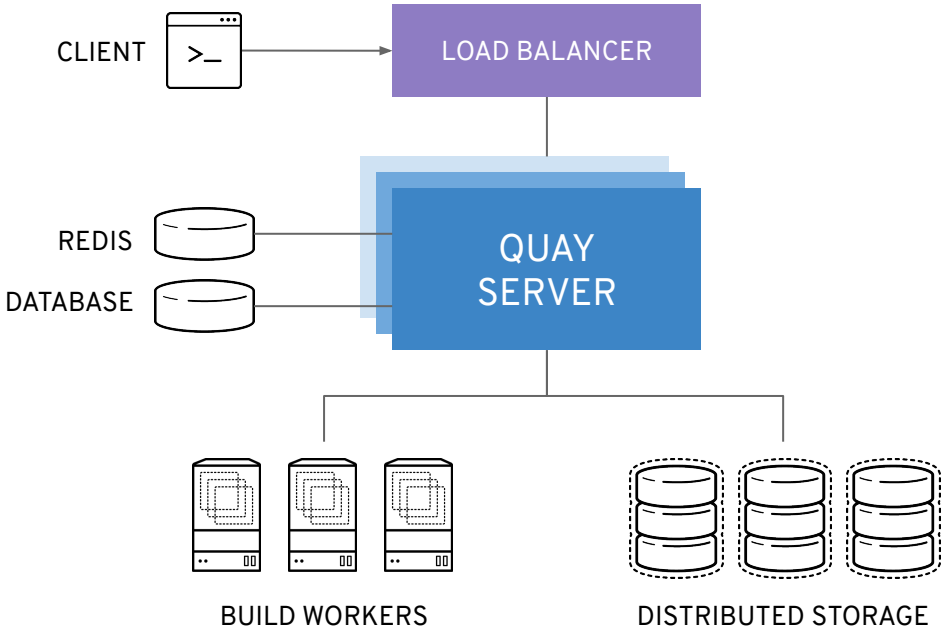
Quay Architecture

Quay Architecture



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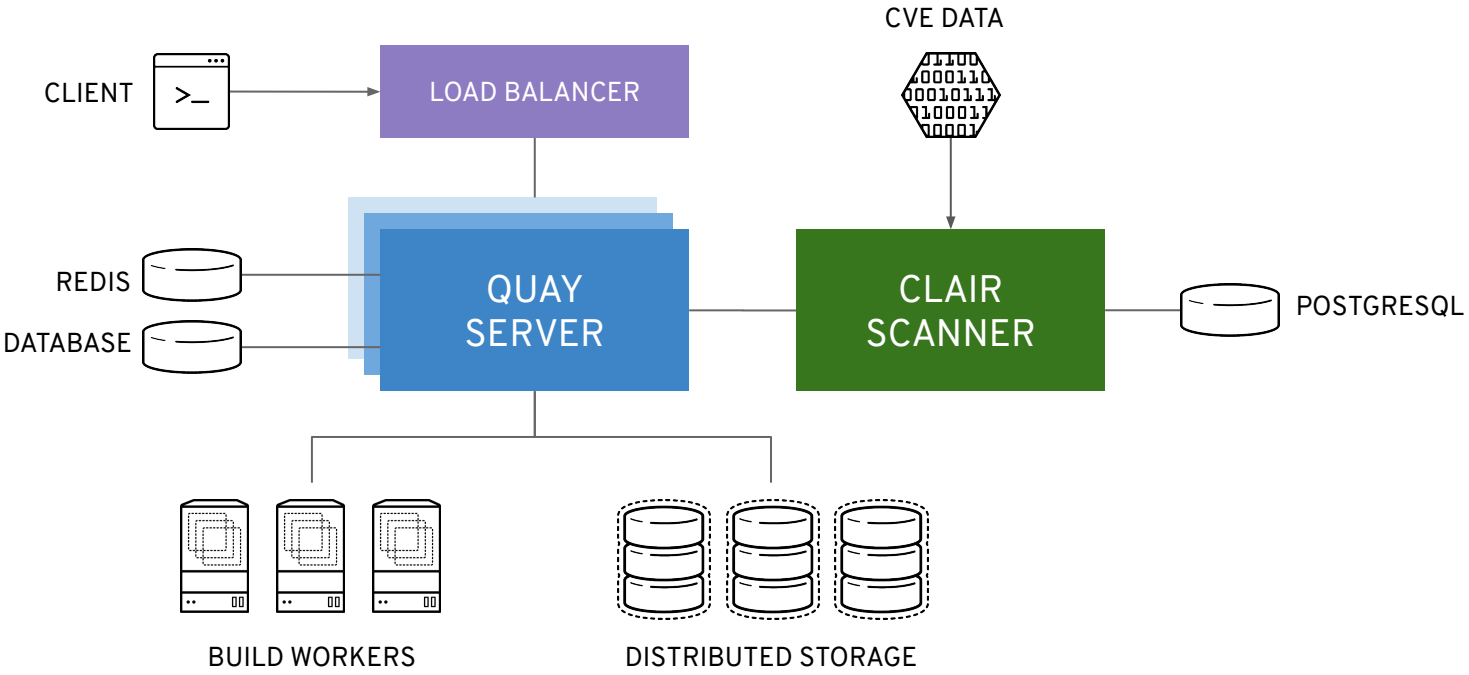
Quay Architecture with Image Scanning



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Underlying Infrastructures Quay can run

- Quay can run on
  - standalone container host
  - (Tectonic) / Kubernetes / OpenShift
- Quay runs on any public cloud infrastructure as well
  - Quay.io runs on AWS
- Reference Architectures in planning

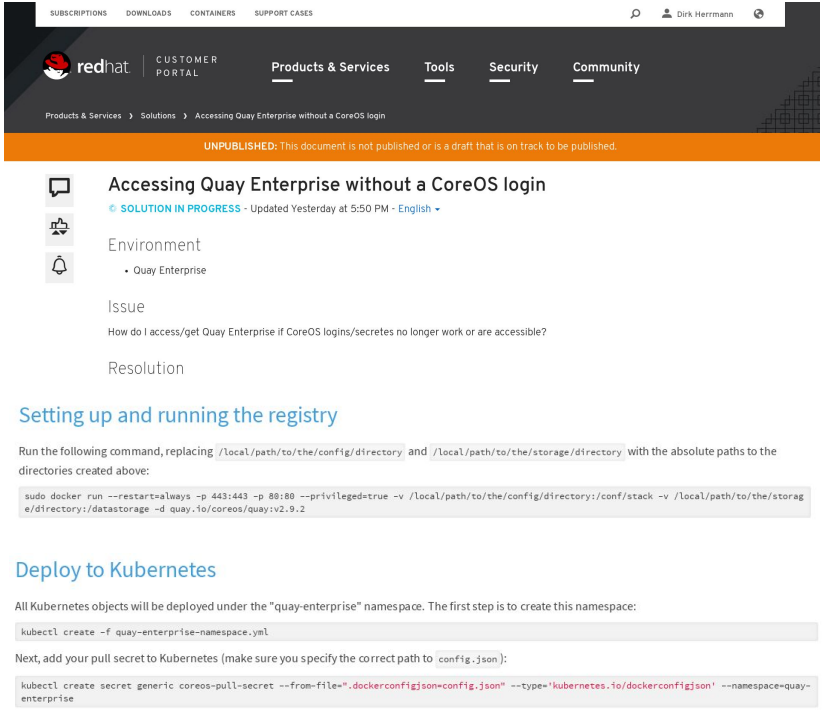
Underlying Infrastructure

- Quay is shipped as container images
  - Images are distributed via Quay.io (will move to RHCC later)
  - Required secret to pull them in customer portal (requires login)

https://access.redhat.com/solutions/3533201

- Install procedure documentation at

https://access.redhat.com/documentation/en-us/red_hat_quay/2.9/



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Running Quay on OpenShift

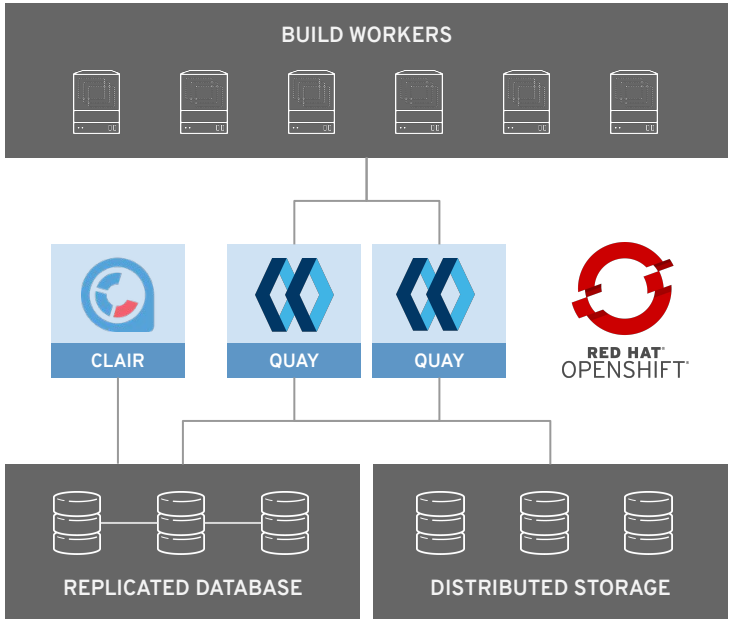
Quay on OpenShift: Recommended Setup

On OpenShift Cluster:

- Quay Enterprise
- Clair

Outside OpenShift cluster:

- Database
- Storage
- Builders



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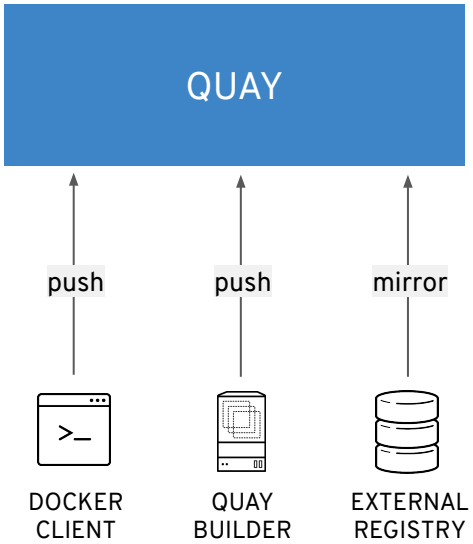
Getting Images into QUAY

Getting Images into Quay Registry

- Multiple ways to get images into Quay
  - Push images to Quay
  - Quay builders
  - Repository mirroring (coming soon)
- Any compliant Docker client can push images into Quay
  - OpenShift build config
  - Docker CLI
  - Skopeo (recommended)



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Clair

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Clair Vulnerability Scanning

clair

Complete Visibility into known vulnerabilities and how to fix them

Description: Quay integrates with Clair to continually scans your containers for vuln's.

How it Works:

- Static analysis of vulnerabilities
- Multiple drivers and data sources
- Synchronous update of vuln metadata
- New vuln's trigger notifications
- Rich Clair API
- Can run single-instance or HA

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Thank you !