



Red Hat

OpenShift

Openshift Day 2 - Continuous Delivery, Service Mesh, and the Magic of the Operator Framework



Let's just get this out there...

Kubernetes **done right** is hard

INSTALL

- Templating
- Validation
- OS setup

DEPLOY

- Identity & security access
- App monitoring & alerts
- Storage & persistence
- Egress, ingress, & integration
- Host container images
- Build/Deploy methodology

HARDEN

- Platform monitoring & alerts
- Metering & chargeback
- Platform security hardening
- Image hardening
- Security certifications
- Network policy
- Disaster recovery
- Resource segmentation

OPERATE

- OS upgrade & patch
- Platform upgrade & patch
- Image upgrade & patch
- App upgrade & patch
- Security patches
- Continuous security scanning
- Multi-environment rollout
- Enterprise container registry
- Cluster & app elasticity
- Monitor, alert, remediate
- Log aggregation



75%

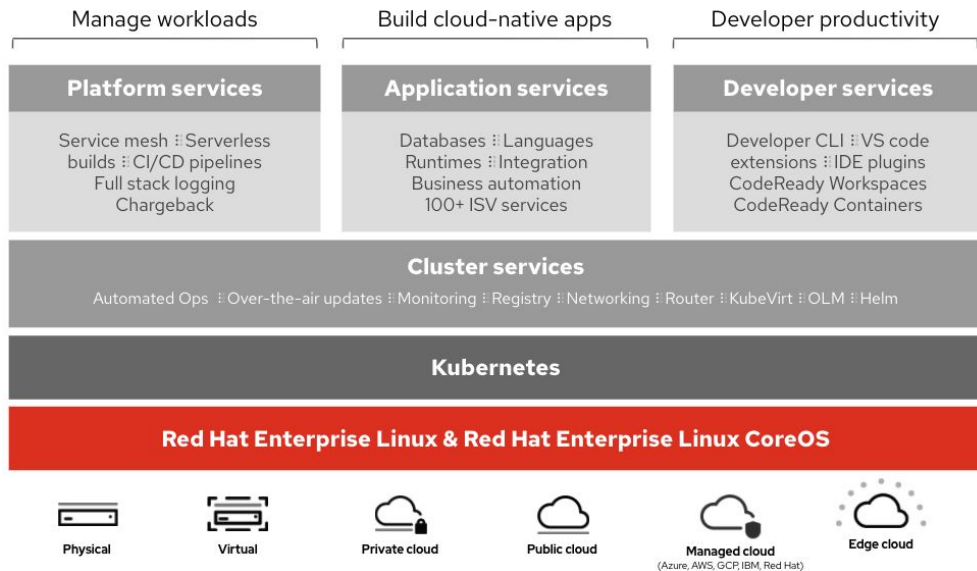
of enterprise users identify
complexity of implementation and
operations as the top blocker to adoption

Source: The New Stack. *The State of the Kubernetes Ecosystem*, August 2017.

How can Openshift help?

OpenShift Container Platform

A smarter Kubernetes platform



Automated, full-stack installation
from the container host to application services

Seamless Kubernetes deployment
to any cloud or on-premises environment

Autoscaling of cloud resources

One-click updates for platform, services, and applications

A consistent container application platform

FROM YOUR DATACENTER TO THE CLOUD



Automated
operations



Multi-tenant



Secure by
default



Network
traffic control



Over-the-air
updates



Monitoring
& chargeback



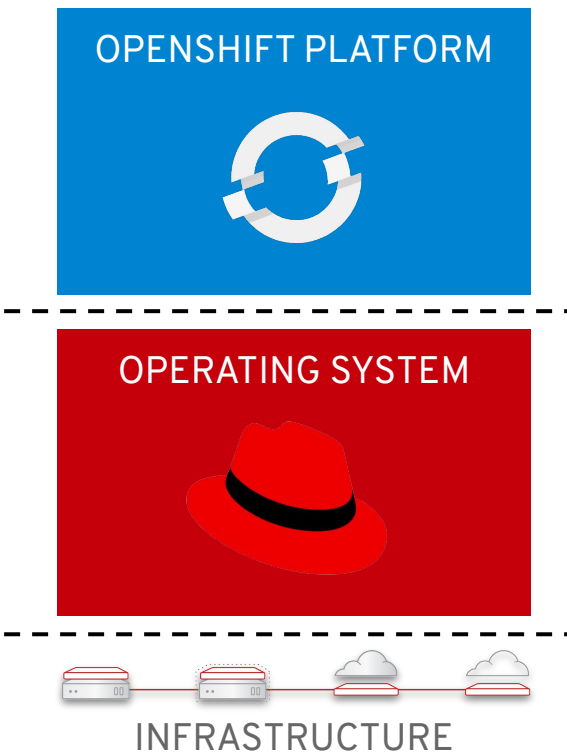
Pluggable
architecture



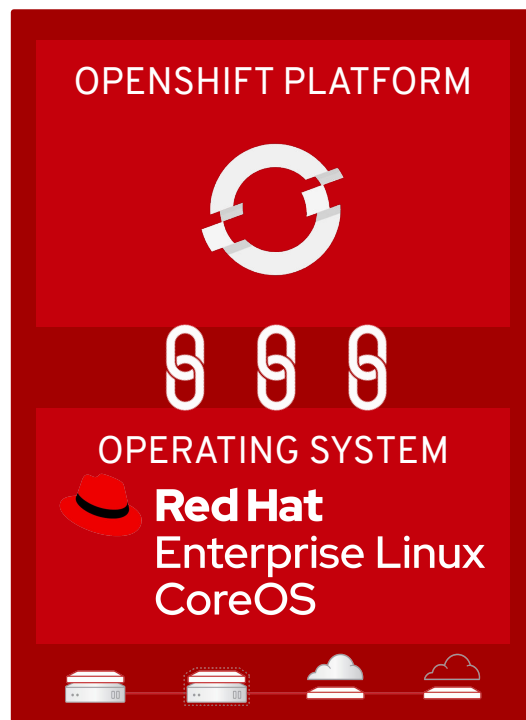
Bare metal, VMware vSphere, Red Hat Virtualization, Red Hat OpenStack Platform,
Amazon Web Services, Microsoft Azure, Google, IBM Cloud

Full-stack automated install

OPENSHIFT 3 & 4

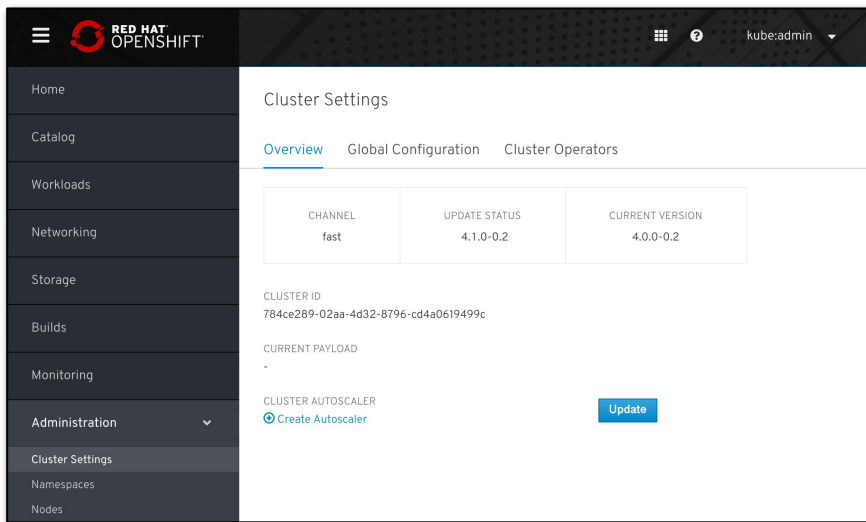


OPENSHIFT 4 (only)



Over the Air (OTA) Updates

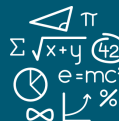
- OpenShift retrieves the list of available updates
- Admin selects the target version
- OpenShift is updated over the air
- Auto-update support



Kubernetes-native day 2 management



Flexible app
architectures



No reinvention
of core concepts



Uniform deploy
and debug



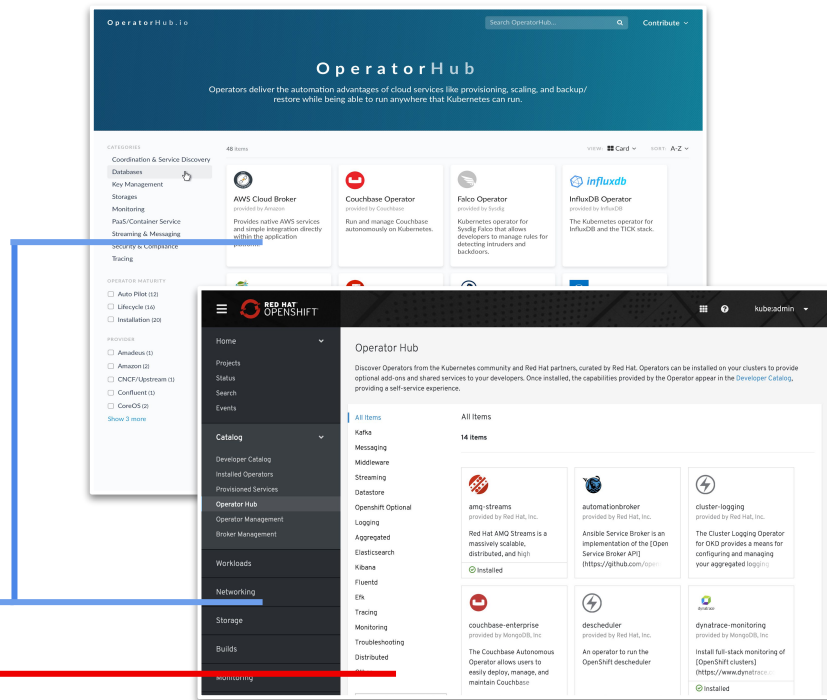
Truly hybrid

Operators codify operational knowledge and workflows to automate life-cycle management of containerized applications with Kubernetes

OperatorHub and certified Operators

- OperatorHub.io launched by Red Hat, AWS, Microsoft and Google
- OpenShift Operator Certification
- OperatorHub integrated into OpenShift 4

COMMUNITY OPERATORS
OPENSHIFT CERTIFIED OPERATORS



Full control for administrators

The screenshot displays the Red Hat OpenShift Container Platform interface. On the left is a dark sidebar with navigation links: Home, Catalog (expanded), OperatorHub (selected), Operator Management, Workloads (expanded), and various workload types like Pods, Deployments, etc. The main content area shows the 'OperatorHub' page with a 'Project: all projects' dropdown and a list of categories on the left (AI/Machine Learning, Application Monitoring, Big Data, Database, Developer Tools, Integration & Delivery, Logging & Tracing, Monitoring, Networking, OpenShift Optional, Security, Storage, Streaming & Messaging, Other). The 'All Items' section shows a grid of operators. The 'AMQ Streams' operator is highlighted, showing its icon, name, provider (Red Hat, Inc.), description, and an 'Installed' status. The 'Automation Broker Operator' is also visible. A modal window titled 'Create Operator Subscription' is open on the right. It contains the following options:

- Installation Mode ***
 - ☒ All namespaces on the cluster (default)
Operator will be available in all namespaces.
 - ☐ A specific namespace on the cluster
Operator will be available in a single namespace only.
- Update Channel ***
 - ☒ preview
- Approval Strategy ***
 - ☒ Automatic
 - ☐ Manual

At the bottom of the modal are 'Subscribe' and 'Cancel' buttons.

Self-service for developers

Red Hat OpenShift Container Platform

Project: production-api-backend

amqstreams.v1.0 > Kafka Details

production-api-kafka

Overview | YAML | **Resources**

NAME	TYPE	STATUS
production-api-kafka-clients-ca	Secret	Created
production-api-kafka-clients-ca-cert	Secret	Created
production-api-kafka-cluster-ca	Secret	Created
production-api-kafka-cluster-ca-cert	Secret	Created
production-api-kafka-cluster-operator-certs	Secret	Created
production-api-kafka-entity-operator	Deployment	Created
production-api-kafka-entity-operator-6d499d47db	ReplicaSet	Created
production-api-kafka-entity-operator-6d499d47db-82xll	Pod	Running

MongoDB Replica Set

Provided by MongoDB, Inc.

Create MongoDB Replica Set Deployment

PROVIDER: MongoDB, Inc.

CREATED AT: Apr 29, 2:50 pm

This resource is provided by MongoDB, a Kubernetes Operator enable

Documentation

<https://docs.opsmanager.mongodb.com/current/tutorial/install-k8s->

```
apiVersion: mongodb.com/v1
kind: MongoDbReplicaSet
metadata:
  name: example
  namespace: production
spec:
  members: 3
  version: 4.0.2
  persistent: false
  project: example
  credentials: my-secret
```

Okay cool... show me.