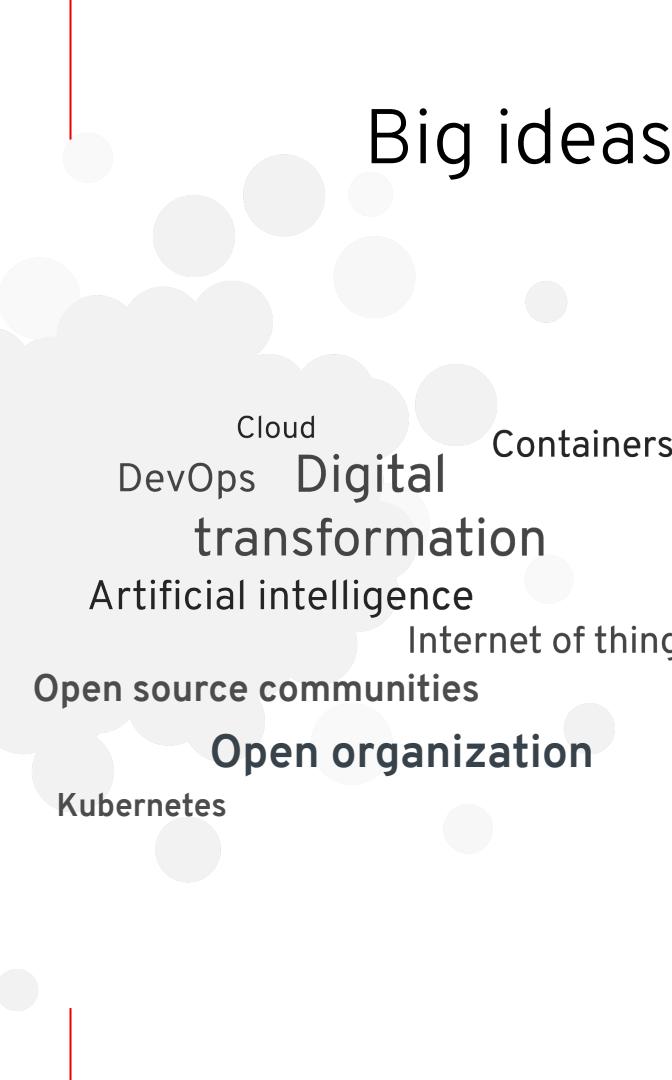




# Red Hat OpenShift

The Kubernetes platform  
for big ideas

# Big ideas drive business innovation



Cloud  
DevOps    **Digital transformation**    Containers

Artificial intelligence  
Internet of things

Open source communities

**Open organization**

Kubernetes

**Business innovation is all around us.**

Every organization in every geography and in every industry can innovate and create more customer value and differentiation with open source technologies and an open culture.

# Creating value depends on your ability to deliver applications faster

Cloud-native  
applications



AI & machine  
learning



Analytics



Internet of  
Things

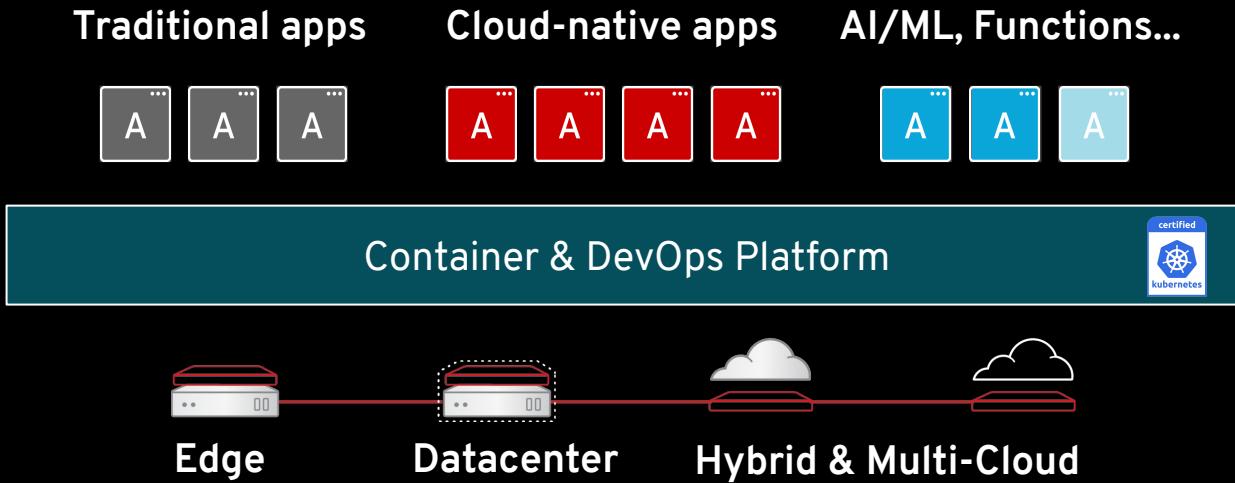


Innovation  
culture



Containers, Kubernetes, and hybrid cloud are key ingredients.  
OpenShift is the best platform to deliver container-based applications.

# With OpenShift you can deliver all your applications in a whole new way



“”

We provide a 5-hour head start in treating sepsis. And in the hands of clinicians, 5 hours saves lives.

—  
**Dr. Edmund Jackson**  
VP & Chief Data  
Scientist  
**HCA Healthcare**



**HCA Healthcare**  
Using data insights to save lives

# More than 1,000 Red Hat OpenShift customers



MODERNIZE APPS



BBVA KOHLS



AMADEUS



MULTI-CLOUD



MOBILE



BIG DATA | ANALYTICS

ExxonMobil



AI | ML

SMARTBOW



IOT



# Why customers choose Red Hat OpenShift

Trusted enterprise Kubernetes

Cloud-like experience everywhere

Empowering developers to innovate

Open source innovation

# CONTAINER CHALLENGES

## Container security

Image scanning, patching, and compliance

## Day 2 management

Installations, upgrades, and maintenance  
Integration of existing enterprise technology

## Application delivery

Monitoring, metering, and management  
Integration of existing developer tools



## Trusted enterprise Kubernetes

Continuous security, world-class support and services, and deep expertise to confidently run any application

## A cloud-like experience, everywhere

Full-stack automated operations on a consistent foundation across on-premises or hybrid cloud infrastructure

## Empowerment for developers to innovate

Ability to get applications to production sooner with a wide range of technologies and streamlined workflows

# Trusted enterprise Kubernetes

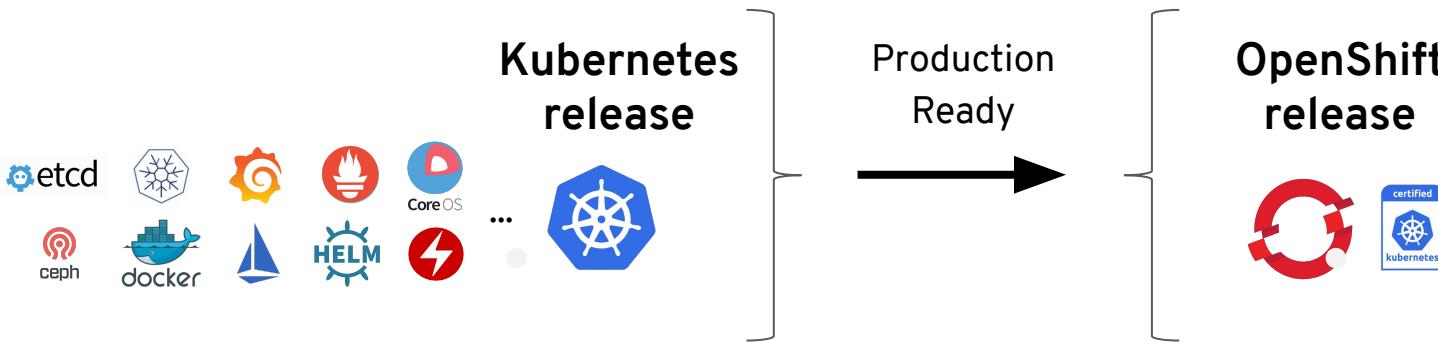


Trusted host, content,  
platform

Full-stack automated  
installation

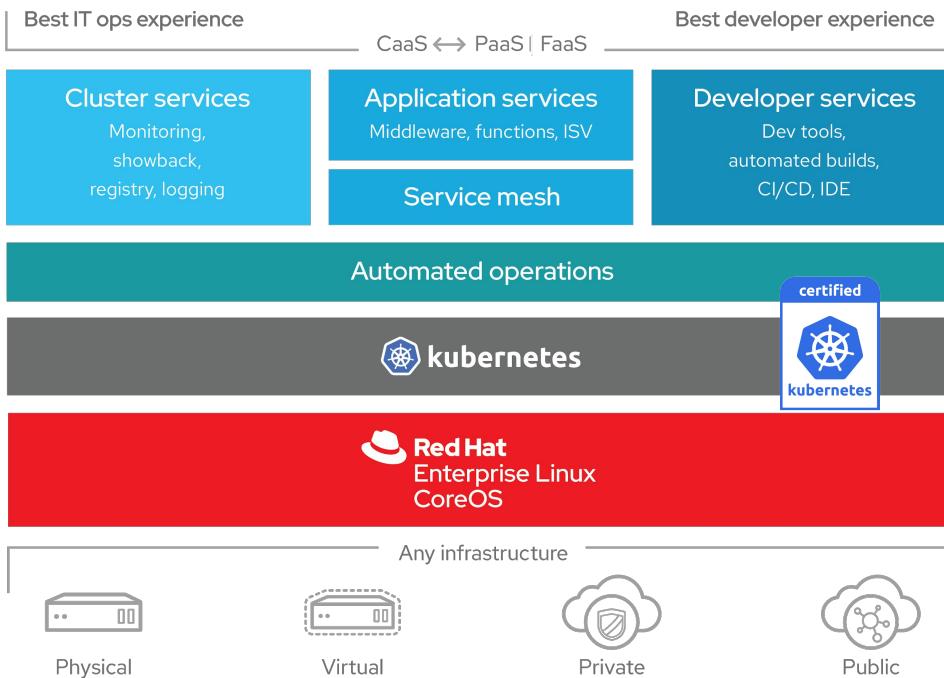
Seamless updates

# OpenShift is trusted enterprise Kubernetes



- Hundreds of defect and performance fixes
- 200+ validated integrations
- Certified container ecosystem
- 9-year enterprise life-cycle management
- Red Hat is a leading Kubernetes contributor since day 1

# OpenShift 4 - A smarter Kubernetes platform



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

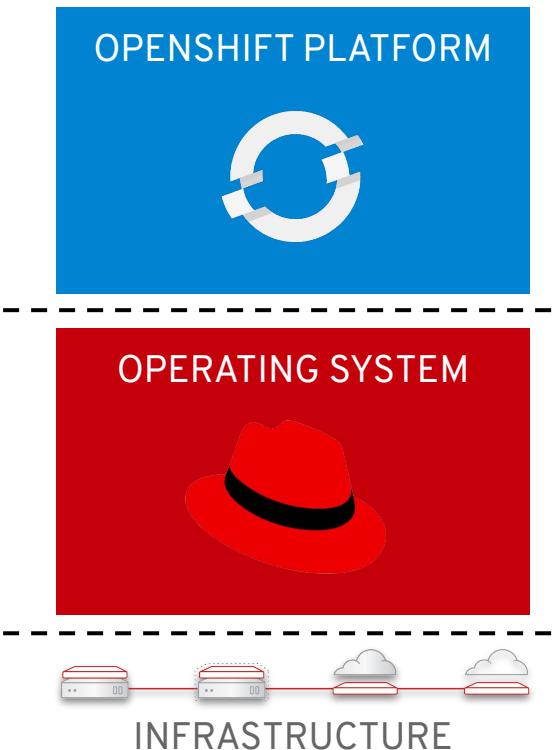
**Seamless Kubernetes deployment** to any cloud or on-premises environment

**Autoscaling** of cloud resources

**One-click updates** for platform, services, and applications

# 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

The screenshot shows the 'Cluster Settings' page in the Red Hat OpenShift web interface. The left sidebar has a dark theme with white text and includes links for Home, Catalog, Workloads, Networking, Storage, Builds, Monitoring, Administration (with sub-links for Cluster Settings, Namespaces, and Nodes), and a user dropdown for 'kube:admin'. The main content area is titled 'Cluster Settings' and has tabs for Overview (which is selected), Global Configuration, and Cluster Operators. Under the Overview tab, there is a table with three columns: CHANNEL (set to 'fast'), UPDATE STATUS (4.1.0-0.2), and CURRENT VERSION (4.0.0-0.2). Below the table, it shows the CLUSTER ID (784ce289-02aa-4d32-8796-cd4a0619499c) and CURRENT PAYLOAD (empty). At the bottom, there is a section for CLUSTER AUTOSCALER with a 'Create Autoscaler' button and a blue 'Update' button.

# Comprehensive container security



## CONTROL

Application  
security

Container content

CI/CD pipeline

Container registry

Deployment policies



## DEFEND

Infrastructure

Container platform

Container host multi-tenancy

Network isolation

Storage

Audit & logging

API management



## EXTEND

Security ecosystem

“”

We can localize clusters in different markets if we need to and therefore serve our customers on a worldwide scale.

---

**Dr. Alexander Lenk**  
Lead Architect Connected Vehicle, Digital Backend, Big Data, Blockchain  
**BMW Group**

**BMW**  
Connected Drive



# A cloud-like experience, everywhere



Operator Framework  
Operator Hub &  
ISV ecosystem  
Multicloud  
management

# 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

# Automated container operations

FULLY AUTOMATED DAY-1 AND DAY-2 OPERATIONS

INSTALL

DEPLOY

HARDEN

OPERATE

## AUTOMATED OPERATIONS

Infra provisioning

Full-stack deployment

Secure defaults

Multicloud aware

Embedded OS

On-premises and cloud

Network isolation

Monitoring and alerts

Unified experience

Audit and logs

Full-stack patch & upgrade

Signing and policies

Zero-downtime upgrades

Vulnerability scanning

# Kubernetes-native day 2 management



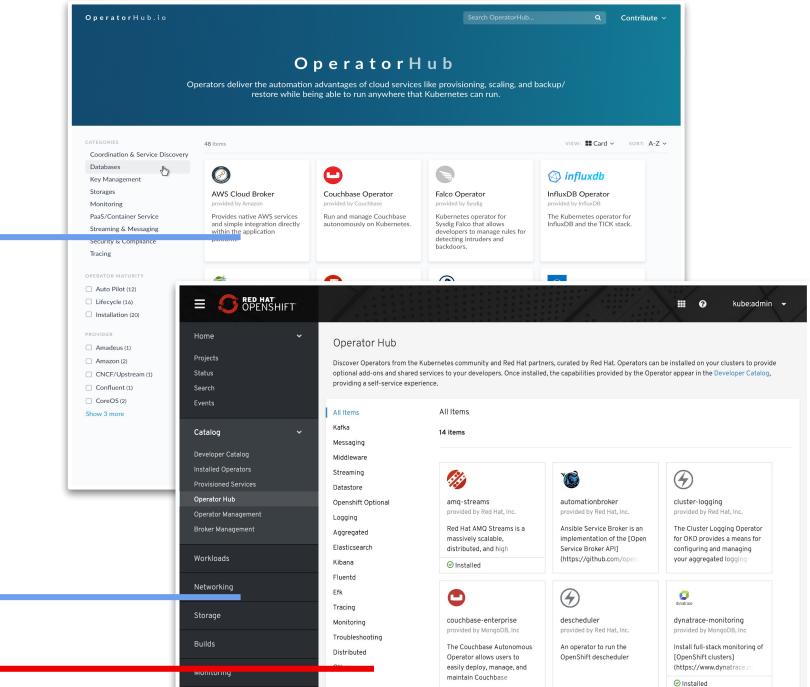
 A white icon consisting of four arrows pointing outwards from a central point, forming a cross shape.	Flexible app architectures	 A white icon containing mathematical symbols: a pi symbol, a square root of x+y, the number 42, a circle with a dot, the equation e=mc², infinity, and a percent sign.	No reinvention of core concepts
 A white icon showing a sequence of three boxes: a top box with a square arrow, a middle box with a checkmark, and a bottom box with a square arrow.	Uniform deploy and debug	 A white icon showing two overlapping circles, one solid and one dashed, representing a hybrid model.	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 shows the Red Hat OpenShift Container Platform interface. On the left, the navigation sidebar includes sections for Home, Catalog (with OperatorHub selected), Workloads, and other cluster management tools. The main content area displays the OperatorHub, listing various operators such as AMQ Streams, AppDynamics Cluster, Automation Broker Operator, and Camel-K Operator. A modal window titled "Create Operator Subscription" is open, prompting the user to select an installation mode (All namespaces on the cluster or a specific namespace), an update channel (preview), and an approval strategy (Automatic or Manual). The "Subscribe" button is at the bottom of the modal.

Project: all projects ▾

## OperatorHub

All Items 40 items

Category	Operator Name	Description	Status
AI/Machine Learning	AMQ Streams	Red Hat AMQ Streams is a massively scalable, distributed, and high performance message broker for enterprise messaging and streaming applications on Kubernetes and OpenShift clusters.	Installed
Application Monitoring	AppDynamics Cluster	End to end monitoring of your Java and .NET applications on Kubernetes and OpenShift clusters.	Community
Big Data	Automation Broker Operator	Apache Camel K is a serverless runtime for event processing and stream processing.	Community
Database	Camel-K Operator	Apache Camel K is a serverless runtime for event processing and stream processing.	Community
Developer Tools			
Integration & Delivery			
Logging & Tracing			
Monitoring			
Networking			
OpenShift Optional			
Security			
Storage			
Streaming & Messaging			
Other			

### Create Operator Subscription

Keep your service up to date by selecting a channel and approval

**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

**Subscribe** **Cancel**

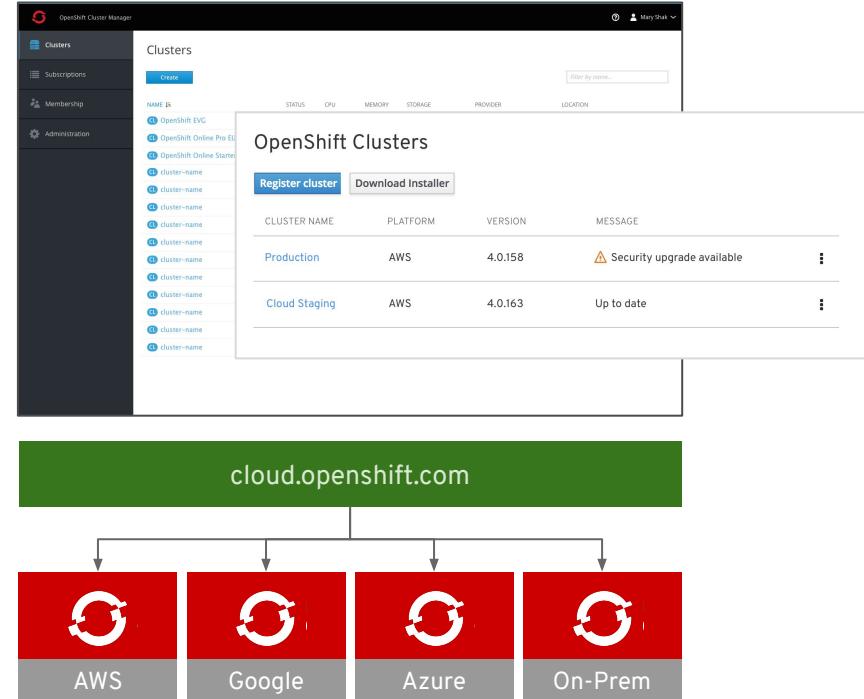
# Self-service for developers

The screenshot shows the Red Hat OpenShift web interface. On the left, the sidebar includes sections for Home, Projects, Status, Search, Events, Catalog (with sub-options like Developer Catalog, Installed Operators, OperatorHub, and Operator Management), and Workloads (with sub-options like Pods, Deployments, Deployment Configs, Stateful Sets, Secrets, Config Maps, Cron Jobs, Jobs, Daemon Sets, and Replica Sets). A tooltip is open over a MongoDB Replica Set resource in the Catalog section. The tooltip header is "MongoDB Replica Set" provided by MongoDB, Inc. It has a "Create" button and a detailed description: "MongoDB Replica Set Deployment. This resource is provided by MongoDB, a Kubernetes Operator enable Documentation. https://docs.opsmanager.mongodb.com/current/tutorial/install-k8s-". Below this, a large black box displays the YAML configuration for the MongoDB Replica Set:

```
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
```

# Unified Hybrid Cloud

- Cloud-based multicluster management
  - New clusters on AWS, Azure, Google, vSphere, OpenStack, and bare metal
  - Register existing clusters
  - Including OpenShift Dedicated
- Management operations
  - Install new clusters
  - View all registered clusters
  - Update clusters

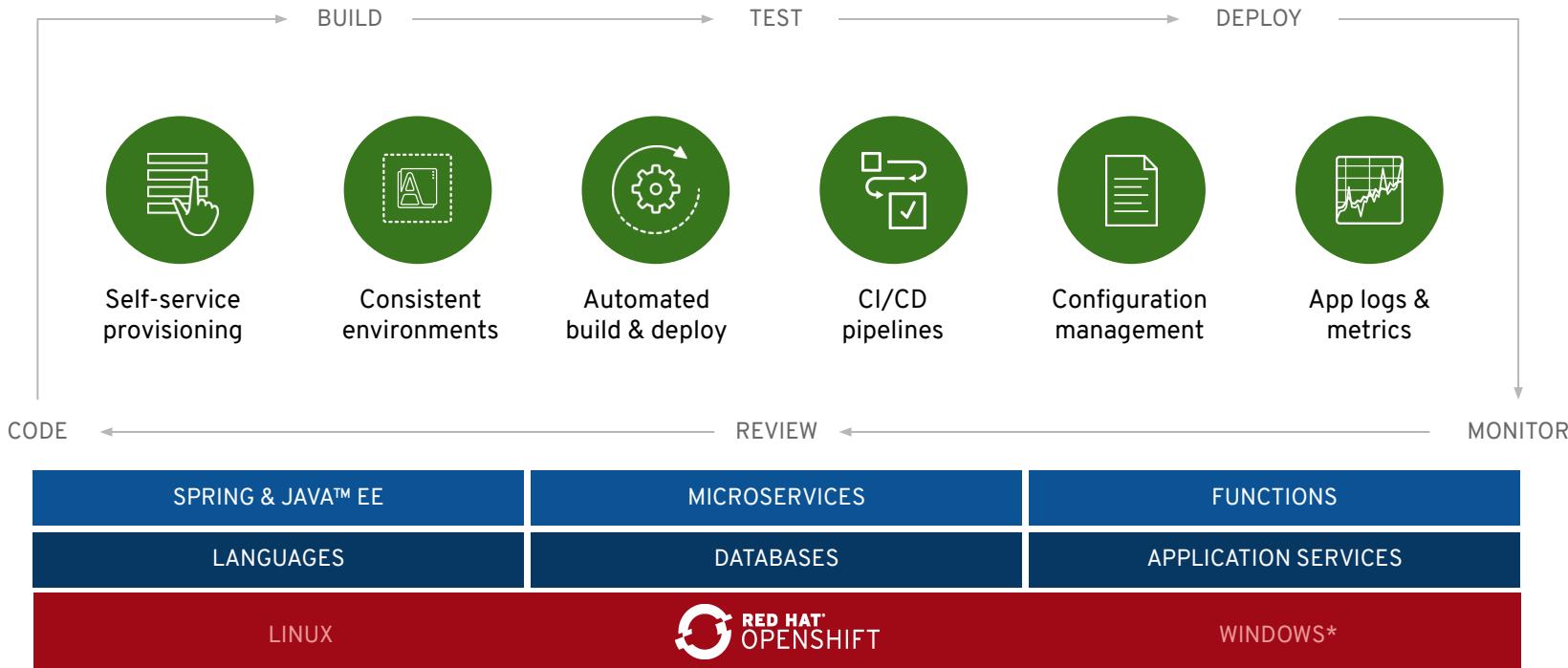


# Empowering developers to innovate



Service mesh  
Serverless  
Red Hat CodeReady  
Workspaces &  
developer tooling

# OpenShift enables developer productivity



\* coming soon



# Building next-gen applications

## OpenShift Service Mesh

- Integrated Service Mesh for enhanced security and network segmentation of microservices applications. Combines Istio, Kiali (UI), and Jaeger (Tracing) projects.

## OpenShift Serverless

- Integrated serverless, enabling scale-to-zero FaaS services and event sources - built on the Knative framework.
- Support for Azure Functions
- Integrated with Camel-k for rich set of initial event sources: HTTP, Kafka, AMQP



# Enabling greater developer productivity

## CodeReady Workspaces

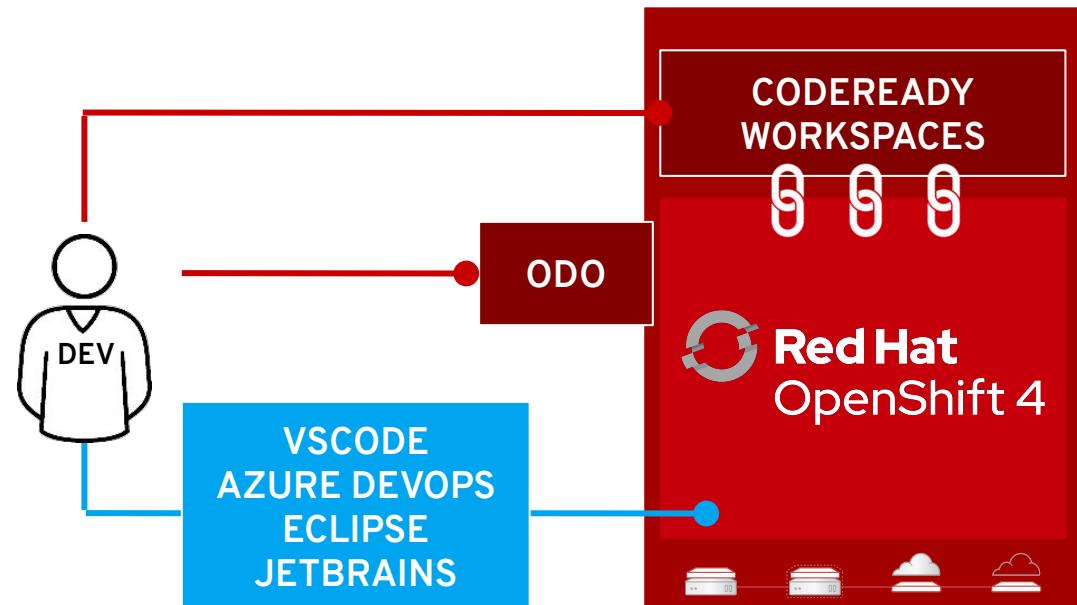
Web-Based IDE (Eclipse Che),  
Collaborative Development,  
integrated with CI/CD.

## OpenShift ODO

Advanced developer CLI

## OpenShift Plugins

Integration plugins - VScode, Azure DevOps, Eclipse IDE, JetBrains





Lufthansa Technik

# The Kubernetes platform for your business

“The moment we have an idea, we can start building the product.”

Tobias Mohr, Head of Technology and Infrastructure, Lufthansa Technik

# Red Hat OpenShift business value



**531%**  
5-year ROI

**66%**

Faster development  
life cycle

**36%**

More applications  
per year

**8 MONTHS**

Payback  
period

**US\$1.29M**

Average annual  
benefits per  
100 developers

The Business Value of Red Hat OpenShift, IDC #US41845816, October 2017,  
<https://www.redhat.com/en/resources/The-Business-Value-of-Red-Hat-OpenShift>.

# MULTIPLE CONSUMPTION MODELS



**Red Hat**  
OpenShift  
Dedicated



**Red Hat**



Microsoft

Azure  
Red Hat  
OpenShift



**Red Hat**



Red Hat  
OpenShift  
on IBM  
Cloud



**Red Hat**  
OpenShift  
Container Platform

Managed service  
offering on AWS or  
GCP\*

Joint engineering,  
operation, and  
integrated support by  
Microsoft and Red Hat

Joint engineering and  
integrated support by IBM  
and Red Hat

Freedom to install  
on-premises or in the  
cloud to address your  
hybrid deployments

---

MANAGED CLOUD SERVICES

---

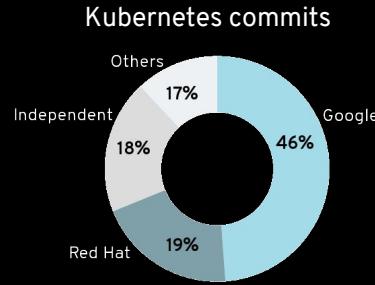
SELF-MANAGED

\*Coming Soon

# Why is Red Hat the best choice?

## THE 4 C's

### CODE



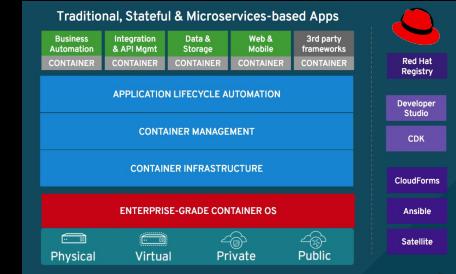
### CUSTOMERS



### CLOUD



### COMPREHENSIVE



Red Hat is a leading Kubernetes developer & contributor with Google<sup>1</sup>.

We make container development easy, reliable, & more secure.

1,000+ customers<sup>2</sup>

We have years of experience running OpenShift Online & OpenShift Dedicated services.

We have strong partnerships with cloud providers, ISVs, & CCSPs.

We have an extensive container catalog of certified partner images.

Our comprehensive portfolio of container products and services includes developer tools, security, application services, storage, & management.

Source: [1] Stackalytics, [Contribution by Companies](#). (Release: All, Project type: Kubernetes, Module: kubernetes, Metric: Commits)

Retrieved: March 2, 2018. [2] [More Than 1,000 Enterprises Across the Globe Adopt Red Hat OpenShift Container Platform to Power Business Applications](#)



# Thank You



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