

# Red Hat OpenShift

The platform for big ideas

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Presenter's Name

Title

A top-down photograph of a light-colored wooden desk. On the desk are several items: a white laptop on the left, an open spiral notebook with a pen next to it, a small potted cactus, a power strip with multiple outlets, a black wallet, a white smartphone, a black smartphone, a white coffee cup with a lid, a black keyboard, and a clipboard with a document titled "Contract". Two pairs of hands are clasped together in the center of the desk. One person is wearing a white long-sleeved shirt and a silver watch. The other person is wearing a striped shirt and a green and black watch.

... so you want to do  
containers and Kubernetes?

# YOUR DIFFERENTIATION DEPENDS ON YOUR ABILITY TO DELIVER APPLICATIONS FASTER

Cloud-native  
Applications



AI & Machine  
Learning



Blockchain



Internet of Things



Innovation  
Culture



CONTAINERS, KUBERNETES, MICROSERVICES & DEVOPS ARE KEY INGREDIENTS

# KUBERNETES DONE RIGHT IS HARD



- Templating
  - Validation
  - OS Setup
- 
- Identity & Security Access
  - App Monitoring & Alerts
  - Storage & Persistence
  - Egress, Ingress & Integration
  - Host Container Images
  - Build/Deploy Methodology

- Platform Monitoring & Alerts
- Metering & Chargeback
- Platform Security Hardening
- Image Hardening
- Security Certifications
- Network Policy
- Disaster Recovery
- Resource Segmentation

- 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%

A red circular icon containing a white warning triangle symbol.

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

# THE KUBERNETES NEWS YOU DON'T WANT



- K8s dashboard exposed
- AWS environment with telemetry data compromised
- Tesla's infrastructure was used for crypto mining



- No security on K8s dashboard
- IT infrastructure credentials exposed
- Enabled access to a large part of Weight Watchers' network



- K8S and etcd bug introduced to servers during update
- New features and changes deployed cause failures
- Restart backend components leading to full platform outage



Unnecessary  
Costs



Increased  
Risk



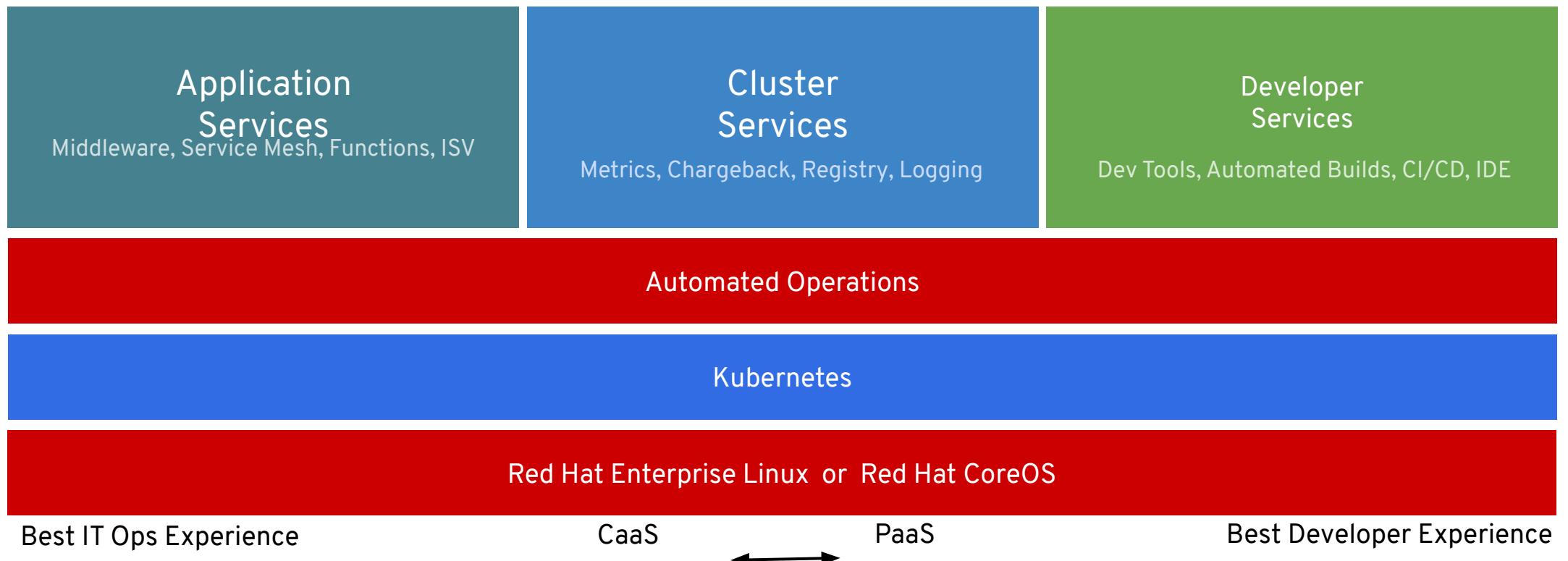
Unrealized  
Value

# OPENSIFT IS KUBERNETES FOR THE ENTERPRISE



Security fixes  
100s of defect and performance fixes  
200+ validated integrations  
Middleware integrations  
(container images, storage, networking, cloud services, etc)  
9 year enterprise lifecycle management  
Certified Kubernetes

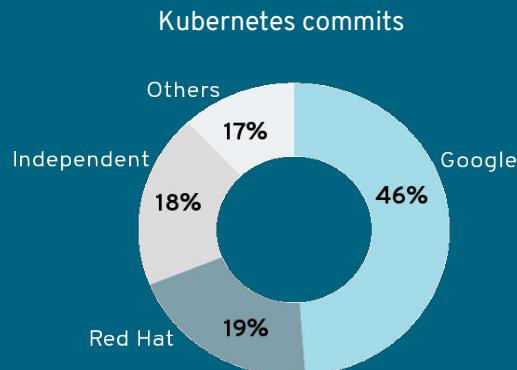
# REFERENCE ARCHITECTURE FOR ENTERPRISE KUBERNETES



# WHY IS RED HAT THE BEST CHOICE?

## THE FOUR Cs

### CODE



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

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

### CUSTOMERS



Most reference customers running in production.

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

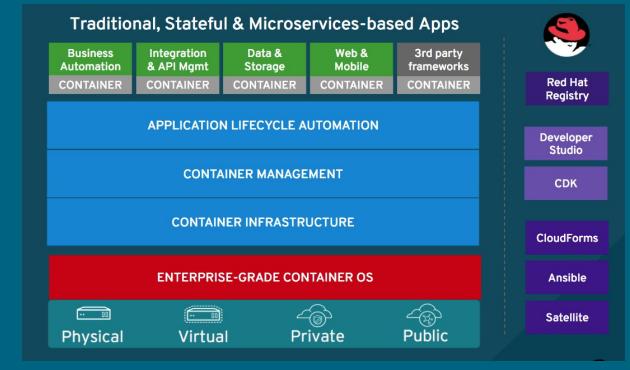
### CLOUD



Strong partnerships with cloud providers, ISVs, CCSPs.

We have an extensive container catalog of certified partner images.

### COMPREHENSIVE



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.





# The Kubernetes platform for developers



# Developers want to be **productive** and have choice

Choice of architectures

Choice of programming languages

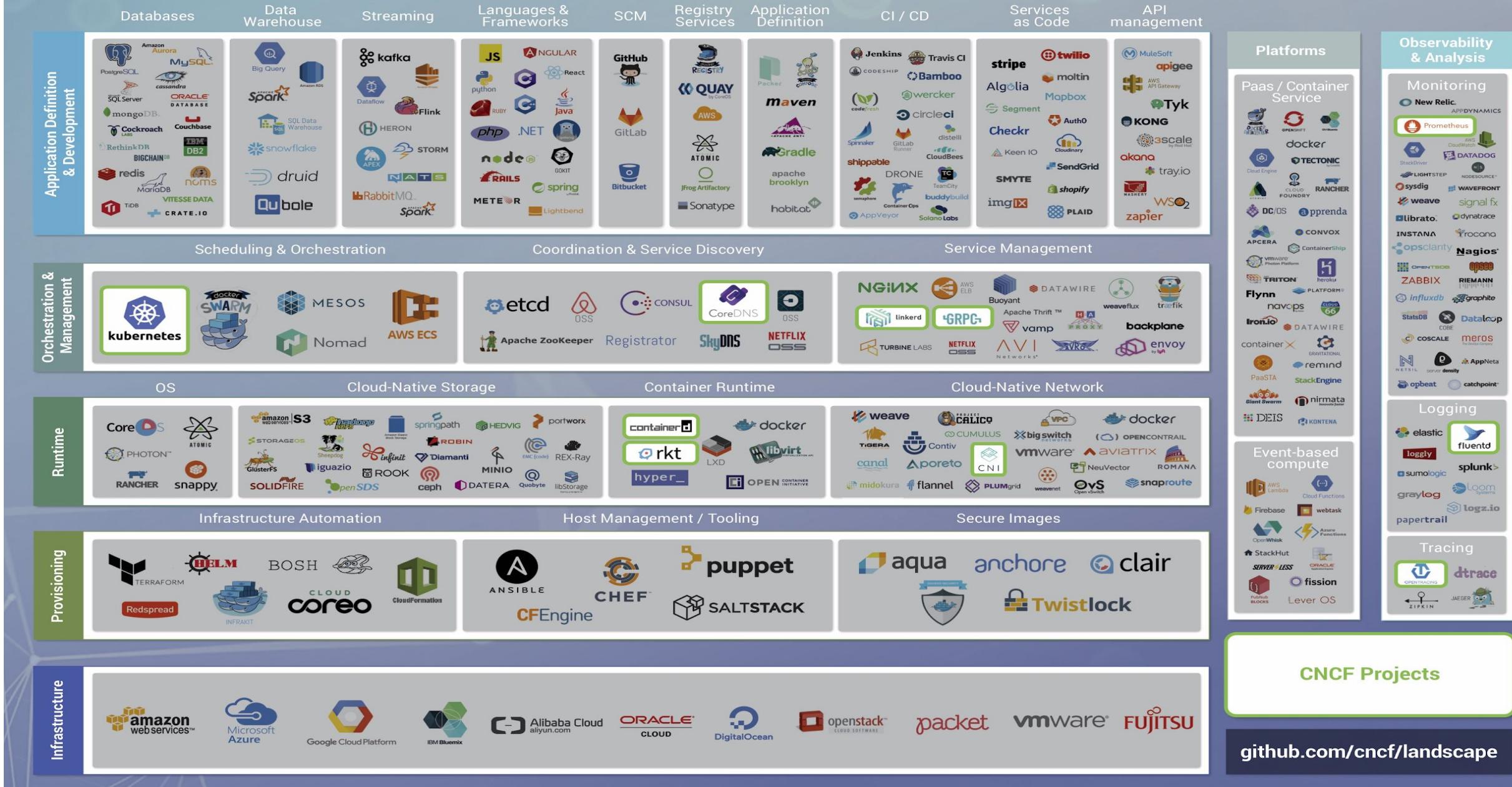
Choice of databases

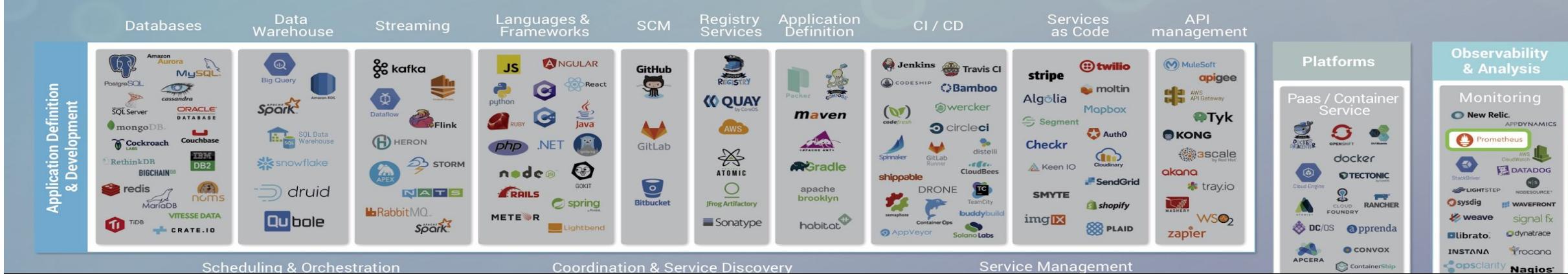
Choice of application services

Choice of development tools

Choice of build and deploy workflows

They don't want to have to worry about the infrastructure.





# THE CLOUD-NATIVE APP DEV CHALLENGE



# THE POWER OF THE OPENSHIFT ECOSYSTEM

## RED HAT PORTFOLIO

Optimized for Containers

RED HAT<sup>®</sup>  
OPENSHIFT  
Application Runtimes

RED HAT JBOSS<sup>®</sup>  
WEB SERVER

RED HAT JBOSS<sup>®</sup>  
ENTERPRISE  
APPLICATION PLATFORM

RED HAT<sup>®</sup>  
DATA GRID

RED HAT<sup>®</sup>  
AMQ

RED HAT<sup>®</sup>  
FUSE

RED HAT<sup>®</sup>  
MOBILE

RED HAT<sup>®</sup>  
ANSIBLE<sup>®</sup>  
Engine

RED HAT<sup>®</sup>  
QUAY  
CONTAINER  
REGISTRY

RED HAT<sup>®</sup>  
DECISION  
MANAGER

RED HAT<sup>®</sup>  
PROCESS AUTOMATION  
MANAGER

RED HAT<sup>®</sup> 3SCALE<sup>®</sup>  
API MANAGEMENT

RED HAT<sup>®</sup>  
OPENSHIFT  
Container Storage

## THIRD-PARTY ISV

Red Hat Container Catalog (100s certified)



## CLOUD SERVICES

Open Service Broker



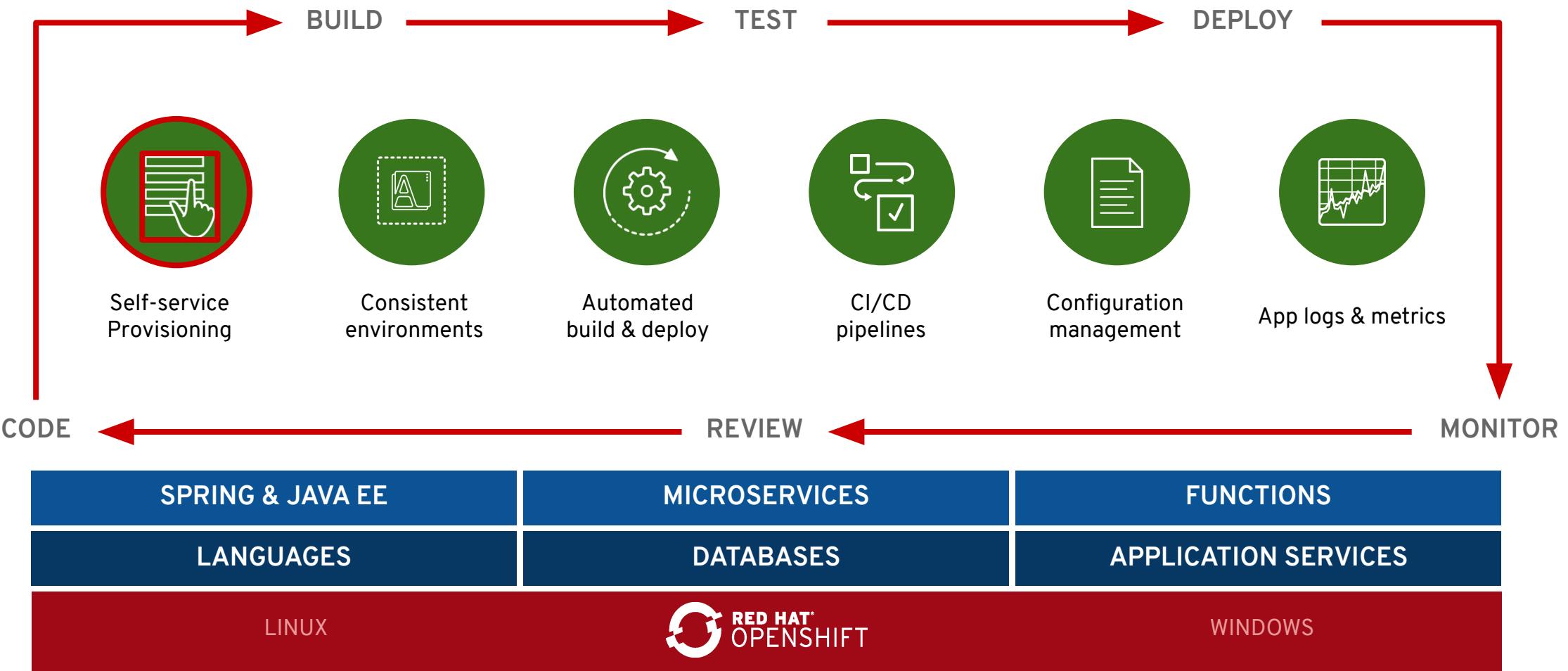
Microsoft Azure



## RED HAT ENTERPRISE LINUX ECOSYSTEM

Hardware, Virtualization, Cloud and Service Provider Certifications

# HOW OPENSHIFT ENABLES DEVELOPER PRODUCTIVITY





**“Team went from dev to prod in 2 months on OpenShift, and nobody in IT Ops knew. The friction was removed.”**

Simon Cashmore, Head of Middleware PM  
Barclays

An aerial photograph of a large shipping port, likely Singapore's Port of Singapore Authority (PSA) terminal. The image shows numerous shipping containers in various colors (red, blue, white, green) stacked in organized rows. Large yellow gantry cranes are positioned between the stacks, some with containers on them. The port is situated next to a body of water, with a few ships visible in the distance. The overall scene represents a hub of global trade and logistics.

# The Kubernetes platform for IT Operations



# IT Operations needs **secure, efficient and controlled processes**

Automated provisioning  
Automated installations  
Automated security scanning  
Automated upgrades  
Automated backups

And it needs to integrate with  
what you already have.

# AUTOMATED CONTAINER OPERATIONS

Fully automated day-1 and day-2 operations

INSTALL

DEPLOY

HARDEN

OPERATE

## AUTOMATED OPERATIONS

Infra provisioning

Full-stack deployment

Secure defaults

Multi-cluster 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

# A CONSISTENT CONTAINER APPLICATION PLATFORM

FROM YOUR DATACENTER TO THE CLOUD



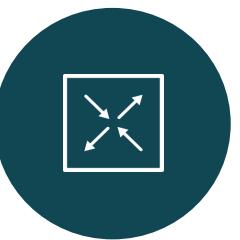
Automated  
operations



Multi-tenant



Secure by  
default



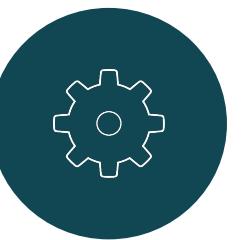
Network  
traffic control



Over-the-air  
updates



Monitoring  
& chargeback



Pluggable  
architecture



BARE METAL, VSphere, RHV, OPENSTACK, AWS, AZURE, GOOGLE

# COMPREHENSIVE CONTAINER SECURITY



**CONTROL**  
Application Security



**DEFEND**  
Infrastructure



**EXTEND**

Container Content	CI/CD Pipeline
Container Registry	Deployment Policies
Container Platform	Container Host Multi-tenancy
Network Isolation	Storage
Audit & Logging	API Management
Security Ecosystem	

# KUBERNETES OPERATOR FRAMEWORK

AN INNOVATIVE, MORE EFFICIENT WAY TO MANAGE CONTAINERIZED  
APPLICATIONS AT SCALE

## AUTOMATED LIFECYCLE MANAGEMENT



Operators codify operational knowledge and workflows to  
automate lifecycle management of containerized applications  
with Kubernetes

# THE INDUSTRY IS ALIGNING BEHIND THE KUBERNETES OPERATOR FRAMEWORK



60+ Certified ISV Operators in Red Hat Early Access Program

OperatorHub.io

Contribute ▾

# Welcome to OperatorHub.io

OperatorHub.io is a new home for the Kubernetes community to share Operators. Find an existing Operator or list your own today.

CATEGORIES

59 ITEMS

VIEW SORT A-Z

AI/Machine Learning

Application Runtime

Big Data

Cloud Provider

Database

Developer Tools

Integration & Delivery

Logging & Tracing

Monitoring

Networking

OpenShift Optional

Security

Storage

Streaming & Messaging

PROVIDER

Amazon Web Services (1)

Aqua Security (1)

AtlasMap (1)

Banzai Cloud (3)

CNCF (2)

Show 43 more

akka

Akka Cluster Operator  
provided by Lightbend, Inc.

Run Akka Cluster applications on OpenShift.

Apache Spark Operator

provided by radanalytics.io

An operator for managing the Apache Spark clusters and intelligent applications that

Aqua Security Operator

provided by Aqua Security, Inc.

The Aqua Security Operator runs within Kubernetes cluster and provides a means to

AtlasMap Operator

provided by AtlasMap

AtlasMap is a data mapping solution with an interactive web based user interface, t

AWS Service Operator

provided by Amazon Web Services, Inc.

The AWS Service Operator allows you to manage AWS

Camel K Operator

provided by The Apache Software Foundation

Apache Camel K is a lightweight integration

CockroachDB

provided by Helm Community

CockroachDB Operator based on the CockroachDB helm chart

Community Jaeger Operator

provided by CNCF

Provides tracing, monitoring and troubleshooting microservices-based

Banzai Cloud

CNCF

Red Hat

# MORE THAN JUST A KUBERNETES PLATFORM

## RED HAT® QUAY CONTAINER REGISTRY

Enterprise image registry with geo-replication, time machine and security scanning

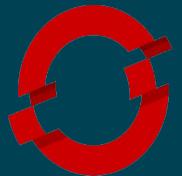
## RED HAT® OPENSHIFT Container Storage

Container-optimized software-defined storage on OpenShift

## CONTAINER-NATIVE VIRTUALIZATION

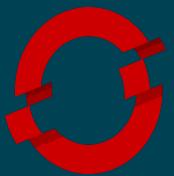
Single workflow for containers and virtual machines running on OpenShift

# ONE PLATFORM FLEXIBLE CONSUMPTION MODELS



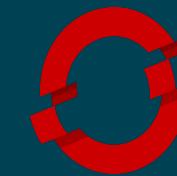
**RED HAT®  
OPENSHIFT**  
Online

SaaS offering to build, deploy,  
and scale container  
applications in the cloud



**RED HAT®  
OPENSHIFT**  
Dedicated

Managed service offering on  
your choice of AWS, Azure or  
Google



**RED HAT®  
OPENSHIFT**  
Container Platform

Manage your own secure,  
enterprise-grade Kubernetes  
platform



# WORKLOADS ON OPENSHIFT



Product Manager: Tushar Katarki



## CHALLENGE

Install scalable data routing and storage

With Red Hat OpenShift Container Platform, Smartbow can now **handle an extra 3TB of data** in a single week.

## SOLUTION

Smartbow deployed a cloud computing solution that could adapt flexibly to unique customer needs, offer 24x7 real-time data availability, and meet high security and quality standards.

## WHY RED HAT

Smartbow chose Red Hat OpenShift because it integrates all the components and resources needed to support its agile work at enterprise scale.

## RESULTS

- Gained scalability to accommodate rapid global growth in customers and data
- Increased development speed and efficiency with re-use of modular components
- Established support for continuous, iterative work on innovative services



*“Our new approach is to try, fail, and learn fast. Red Hat OpenShift allows us to try new things easily, make adjustments, and move on to the next idea.”*

**DAVID ANDLINGER**  
HEAD OF INFORMATION AND COMMUNICATIONS TECHNOLOGY  
SMARTBOW



# Lufthansa Technik

Anticipates significant reductions in MRO costs for participating airlines—equating to **millions of euros per airline**

## CHALLENGE

Improve airlines' technical operations

## SOLUTION

Lufthansa Technik built and operated AVIATAR using a hybrid cloud infrastructure based on enterprise open source software from Red Hat.

## WHY RED HAT

Lufthansa Technik needed a flexible, scalable environment that could run multiple applications using a shared repository of industry data.

## RESULTS

- Faster application workflows
- Greater flexibility through improved integration between internal infrastructure and third-party solutions
- Anticipates significant savings for participating airlines on maintenance, repair, and overhaul (MRO)



# Lufthansa Technik

*“Relying on open source from Red Hat gave us the opportunity to increase speed and development, because behind open source technology there’s always a big community evolving the product very fast compared to proprietary technology.”*

**TOBIAS MOHR**

HEAD OF TECHNOLOGY AND INFRASTRUCTURE, AVIATAR  
LUFTHANSA TECHNIK



“New applications that once took over a week are now up and running after just a few hours.”

## CHALLENGE

Keep up with demanding competition and evolving automotive industry

## SOLUTION

Porsche Informatik established a private cloud to evolve from focusing on distributor-based solutions to customer-focused solutions.

## WHY RED HAT

“We use Red Hat OpenShift because it is one of the best enterprise solutions when it comes to authorization, authentication, logging, and metrics.” –Christian Koberl, software architect, and Johannes Grumbock, infrastructure architect, Porsche Informatik

## RESULTS

- Increased application development and deployment speed
- Enhanced continuous integration and delivery (CI/CD) pipeline
- Improved efficiency, resulting in financial savings



*"New applications that once took over a week are now up and running after just a few hours."*

**CHRISTIAN KOBERL AND JOHANNES GRUMBOCK**  
SOFTWARE AND INFRASTRUCTURE ARCHITECTS  
PORSCHE INFORMATIK GmbH

# Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.



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