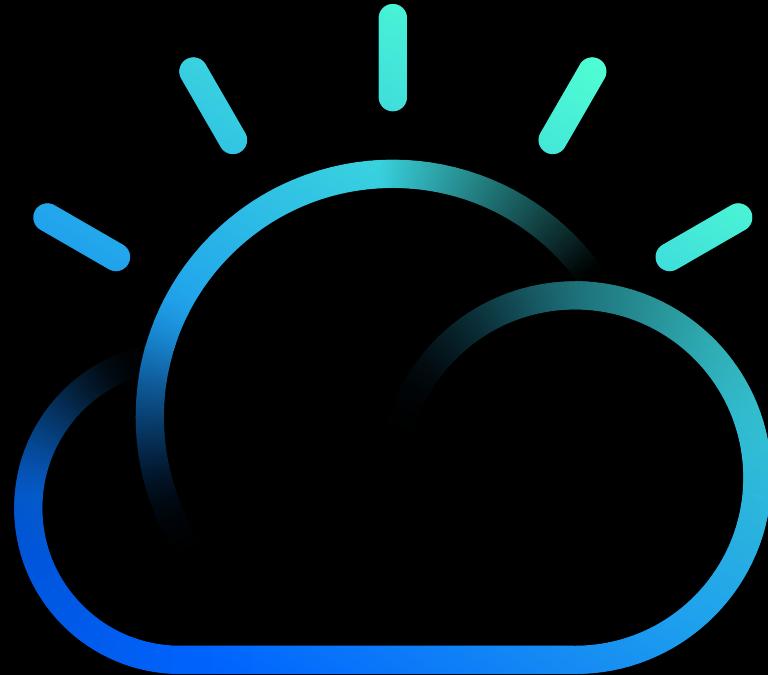


IBM Cloud Container Platforms



Ishani Pandey
Developer Advocate - IBM

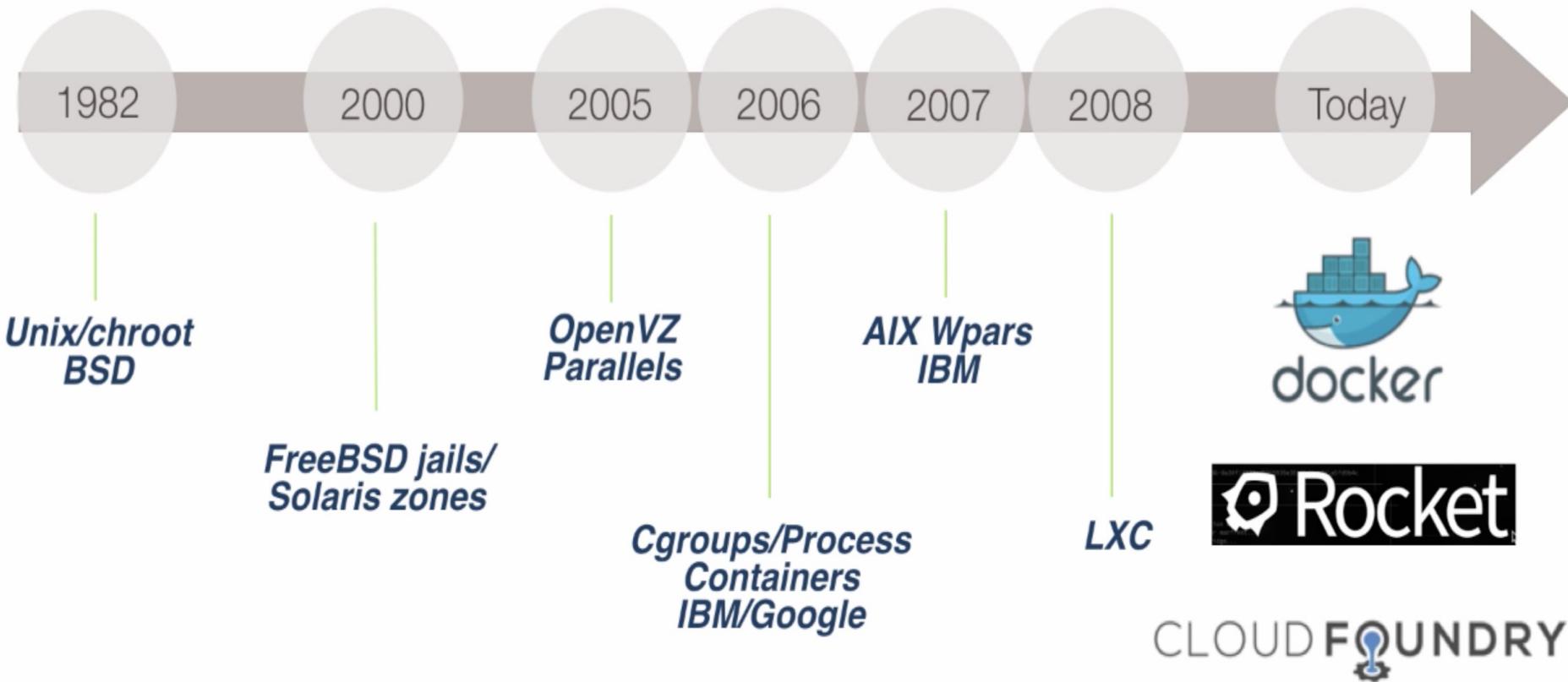
Recap

- Introduction to the IBM Cloud
 - What is IBM Cloud
 - What is built into the IBM Cloud Platform
 - Advantages of IBM Cloud
 - Accessing the IBM Public Cloud
 - Where is IBM Cloud
 - IBM Cloud Account types
- Compute Options in IBM Cloud
 - Virtual Server Offerings
 - Virtual Servers Comparison
 - Cloud Foundry
 - Containers
 - IBM Cloud Functions
 - Serverless

Agenda

- Container History Lesson
- Intro to
- Docker
- Container Orchestration
- IBM Cloud Kubernetes Service
- IBM Cloud Container registry
- Red Hat OpenShift
- Lab

Container History Lesson



Intro to Docker

— *Enabling application development efficiency, making deployment more efficient, eliminating vendor ‘lock-in’ with true portability*



- Open Software
 - Launched March 2013
 - 3.0+ billion downloads of Docker images
- Open Contribution
 - 4300+ contributors
 - #2 most popular project
 - 200+ community meet-up groups in 58 countries
- Open Design
 - Contributors include IBM, RedHat, Google, Microsoft, VMware, AWS, Rackspace, and others
- Open Governance
 - 12 member governance advisory board selected by the community

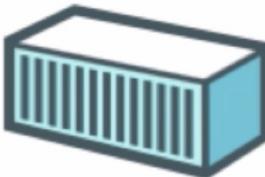


Docker Mission

Docker is an **open platform** for building distributed applications for **developers** and **system administrators**



Build



Ship



Run



ubuntu



MySQL



node



CentOS



CentOS



redis



nginx



Any App



vmware



Google Compute Engine



Windows Azure



openstack



IBM Cloud



amazon
web services

Anywhere



Everyone's container journey starts with one container....

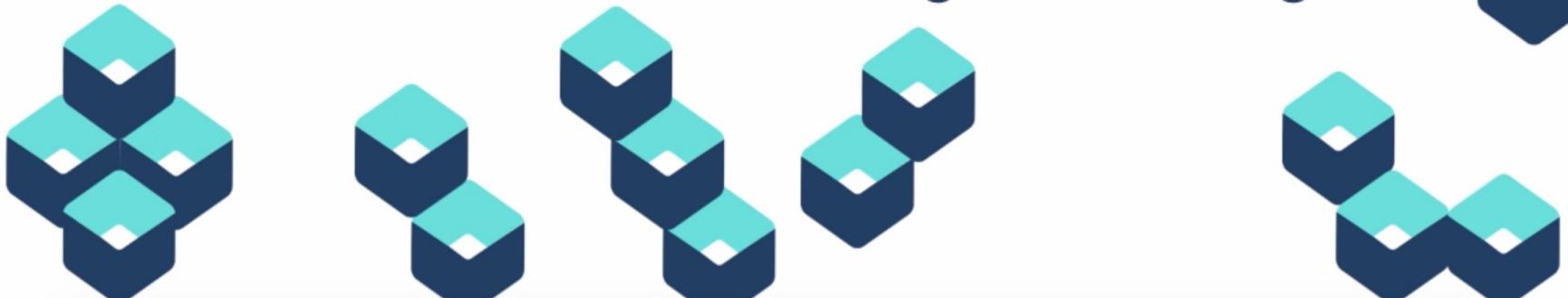


At first the growth is easy to handle....





But soon it is overwhelming... chaos reigns

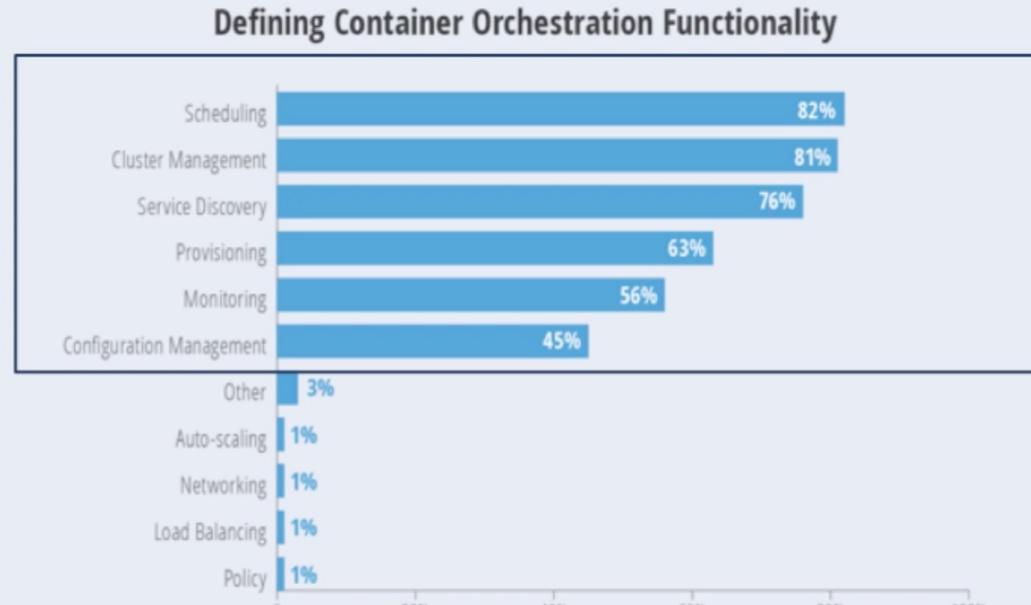




Regain control with Kubernetes



Container Orchestration =
Scheduling, Cluster Mgmt,
and Discovery



Source: The New Stack Survey, March 2016. What functionality do you expect to be in a product described as a container orchestration tool? Select all that apply. n=307.

THE NEW STACK

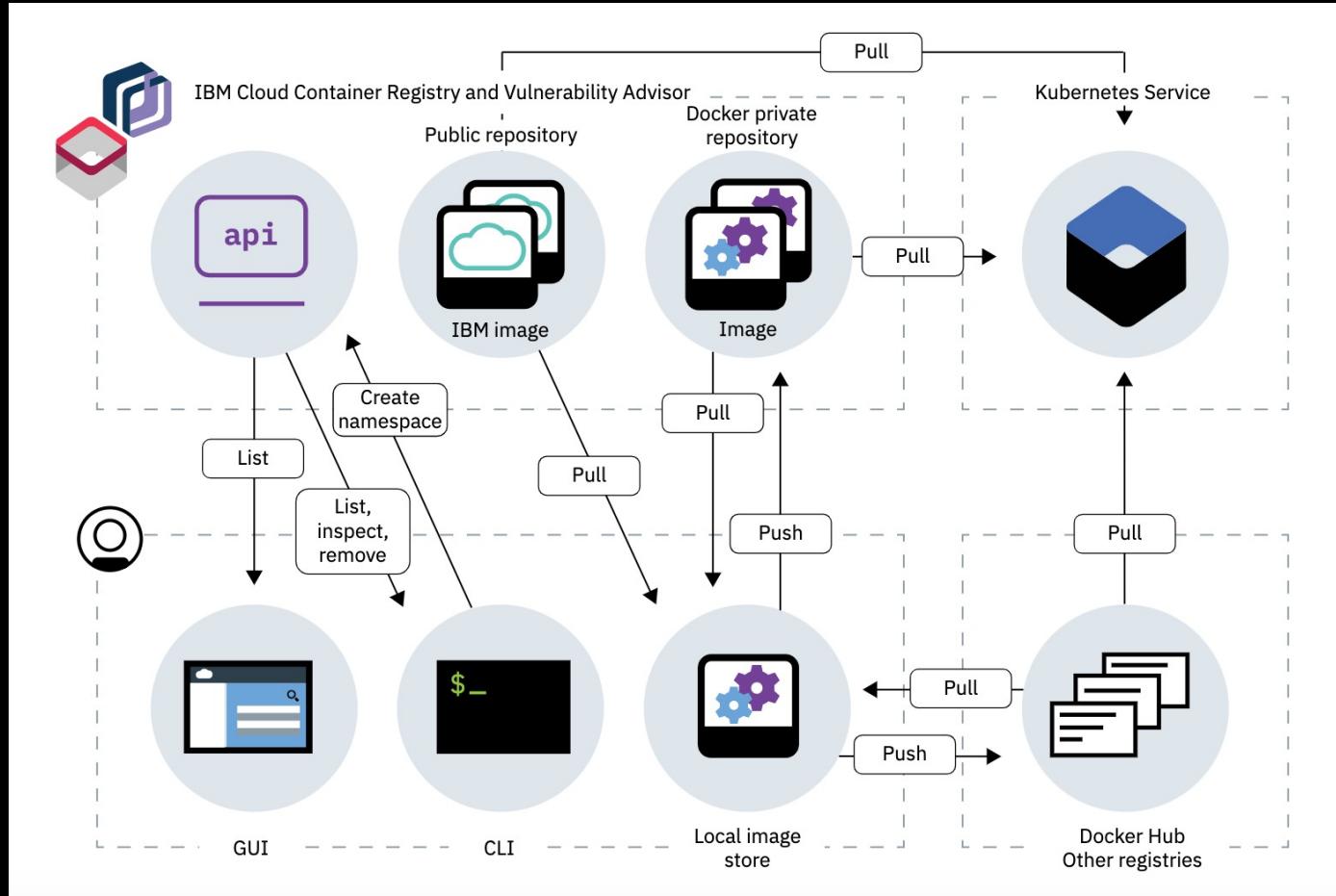
Figure 3: Only 45 percent of respondents consider configuration management to be part of a container orchestration product.

What is Kubernetes?



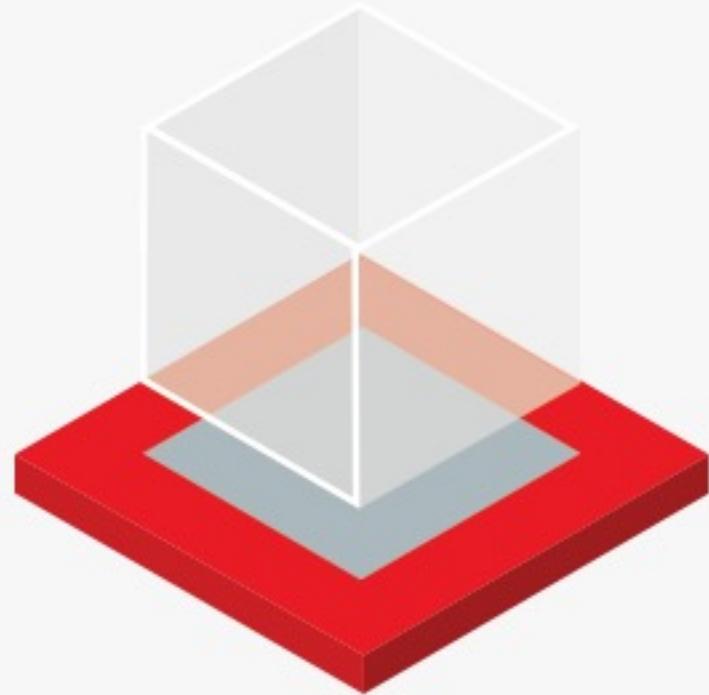
- Container orchestrator
- Runs and manages containers
- Supports multiple cloud and bare-metal environments
- Inspired and informed by Google's experiences and internal systems
- 100% Open source, written in Go
- Manage applications, not machines
- Rich ecosystem of plug-ins for scheduling, storage, networking

IBM Cloud Container Registry





Red Hat
OpenShift

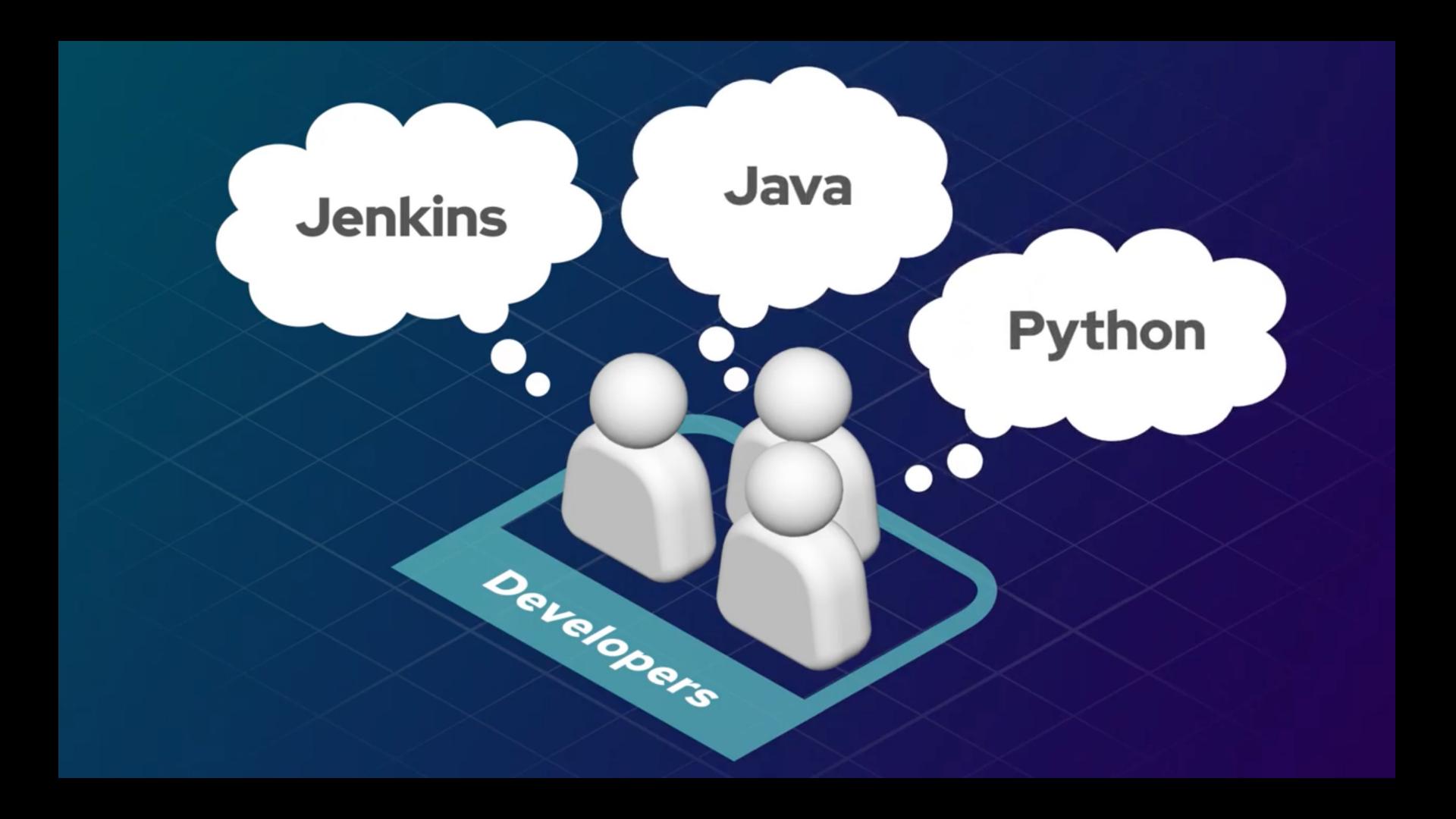


OPENSOURCE

KUBERNETES







A graphic illustration set against a dark blue background with a light blue grid. In the center, three white 3D-style human figures are standing on a teal-colored rectangular platform. The platform has the word "Developers" written in white cursive text. Above each developer is a white thought bubble containing a piece of software-related text: "Jenkins" on the left, "Java" in the middle, and "Python" on the right. Small white thought bubbles also float between the main bubbles.

Jenkins

Java

Python

Developers

Platform as a Service

Build and Run Applications on Containers

OpenShift is Open Source





OpenShift(User Experience, PaaS, Market Place)



kubernetes

Kubernetes (Orchestration)



docker

Docker (Container API)



Administrator

Home

Dashboards

Projects

Search

Explore

Events

Operators

Workloads

Serverless

Networking

Storage

Builds

Projects

Create Project

Filter by name...



Name	Status	Requester	Labels	
PR 172	✓ Active	IAM#ispandey@in.ibm.com	No labels	⋮
PR 173	✓ Active	IAM#ispandey@in.ibm.com	No labels	⋮
PR 174	✓ Active	IAM#ispandey@in.ibm.com	No labels	⋮
PR 175	✓ Active	IAM#ispandey@in.ibm.com	No labels	⋮
PR 17thmay	✓ Active	IAM#ispandey@in.ibm.com	No labels	⋮
PR calico-system	✓ Active	No requester	name=calico-system openshift.io/run-level=0	⋮
PR cp4a	✓ Active	IAM#ispandey@in.ibm.com	No labels	⋮
PR default	✓ Active	No requester	No labels	⋮

Developer

Project: [REDACTED]

+Add

Topology

Builds

Pipelines

Advanced

Project Details

Project Access

Metrics

Search

Events

Dashboard

Overview

YAML

Workloads

Role Bindings

Details

[View all](#)

Name



Requester

IAM#ispandey@in.ibm.com

Labels

No labels

Status

Active



No project messages

Inventory

[1 Deployment](#)

5 Pods

0 PVCs

2 Services

2 Routes

Utilization

1 Hour ▾



Activity

[View events](#)

Ongoing

There are no ongoing activities.

Recent Events

[Pause](#)

There are no recent events.

Deployment

1 pod

Name
github-com

Namespace
NS

Labels
app=github-com app.kubernetes.io/component=github-com
app.kubernetes.io/instance=github-com app.kubernetes.io/name=python
app.kubernetes.io/part-of=github-com-app app.openshift.io/runtime=python
app.openshift.io/runtime-version=3.6

Pod Selector
app=github-com

Node Selector
No selector

Tolerations
0 Tolerations

Annotations

Update Strategy
RollingUpdate

Max Unavailable
25% of 1 pod

Max Surge
25% greater than 1 pod

Progress Deadline Seconds
600 seconds

Min Ready Seconds
Not Configured

Pods > github-com-59c85c68f9-zjjh2 > Container Details

github-com Running

Container Overview

State
Running

ID
cri-o://c69e4d2f7b3f492bb2ae8209ebd40604f63b
6e699d765f33b0b2c089a012ee82

Restarts
0

Resource Requests
-

Resource Limits
-

Lifecycle Hooks
-

Readiness Probe
-

Image Details

Image
image-registry.openshift-image-registry.svc:5000/in
osys/github-com@sha256:4ccd22713ec08a792025b
06e2aed62d0cb9390a06137c997ed77163575ba2db
3

Image Version/Tag
-

Command
-

Args
-

Pull Policy
Always Pull

Network

Node
10.113.110.58

Pod IP
172.30.173.155

OpenShift CLI

> OC

OpenShift Client

This client helps you develop, build, deploy, and run your applications on any OpenShift or Kubernetes compatible platform. It also includes the administrative commands for managing a cluster under the 'adm' subcommand.

To create a new application, login to your server and then run new-app:

```
oc login https://mycluster.mycompany.com
oc new-app centos/ruby-22-centos7~https://github.com/openshift/ruby-ex.git
oc logs -f bc/ruby-ex
```

More Details

```
Usage:
  oc [flags]

Basic Commands:
  types      An introduction to concepts and types
  login      Log in to a server
  new-project Request a new project
  new-app    Create a new application
  status     Show an overview of the current project
  project    Switch to another project
  projects   Display existing projects
  explain    Documentation of resources
  cluster    Start and stop OpenShift cluster

Build and Deploy Commands:
  rollout    Manage a Kubernetes deployment or OpenShift deployment config
  rollback   Revert part of an application back to a previous deployment
  new-build  Create a new build configuration
  start-build Start a new build
  cancel-build Cancel running, pending, or new builds
  import-image Imports images from a Docker registry
  tag        Tag existing images into image streams

Application Management Commands:
  get        Display one or many resources
  describe  Show details of a specific resource or group of resources
  edit      Edit a resource on the server
  set       Commands that help set specific features on objects
  label     Update the labels on a resource
  annotate  Update the annotations on a resource
  expose    Expose a replicated application as a service or route
  delete   Delete one or more resources
  scale     Change the number of pods in a deployment
  autoscale Autoscale a deployment config, deployment, replication controller, or replica set
  secrets   Manage secrets
  serviceaccounts Manage service accounts in your project

Troubleshooting and Debugging Commands:
  logs      Print the logs for a resource
  rsh       Start a shell session in a pod
  rsync    Copy files between local filesystem and a pod
  port-forward Forward one or more local ports to a pod
  debug    Launch a new instance of a pod for debugging
  exec     Execute a command in a container
  proxy    Run a proxy to the Kubernetes API server
  attach   Attach to a running container
  run      Run a particular image on the cluster
```

OpenShift

HOSTED SERVICES



Red Hat OpenShift Dedicated

- Private, high-availability Red Hat OpenShift clusters hosted on Amazon Web Services
- Delivered as a hosted service and supported by Red Hat

✓ Supported by Red Hat

[Learn more](#)



Red Hat



- Highly available Red Hat OpenShift clusters hosted on Microsoft Azure
- Delivered as a hosted service jointly engineered, operated, and supported by Red Hat and Microsoft

✓ Supported by Red Hat and Microsoft

[Learn more](#)



Red Hat



- A flexible, fully-managed service of OpenShift on IBM's public cloud
- Delivered as a hosted service and supported by IBM

✓ Supported by Red Hat and IBM

[Learn more](#)

SELF-MANAGED



Red Hat OpenShift Container Platform

- A Kubernetes platform on your own infrastructure designed with security in mind
- Build, deploy and manage your container-based applications consistently across cloud and on-premises infrastructure

✓ Supported by Red Hat

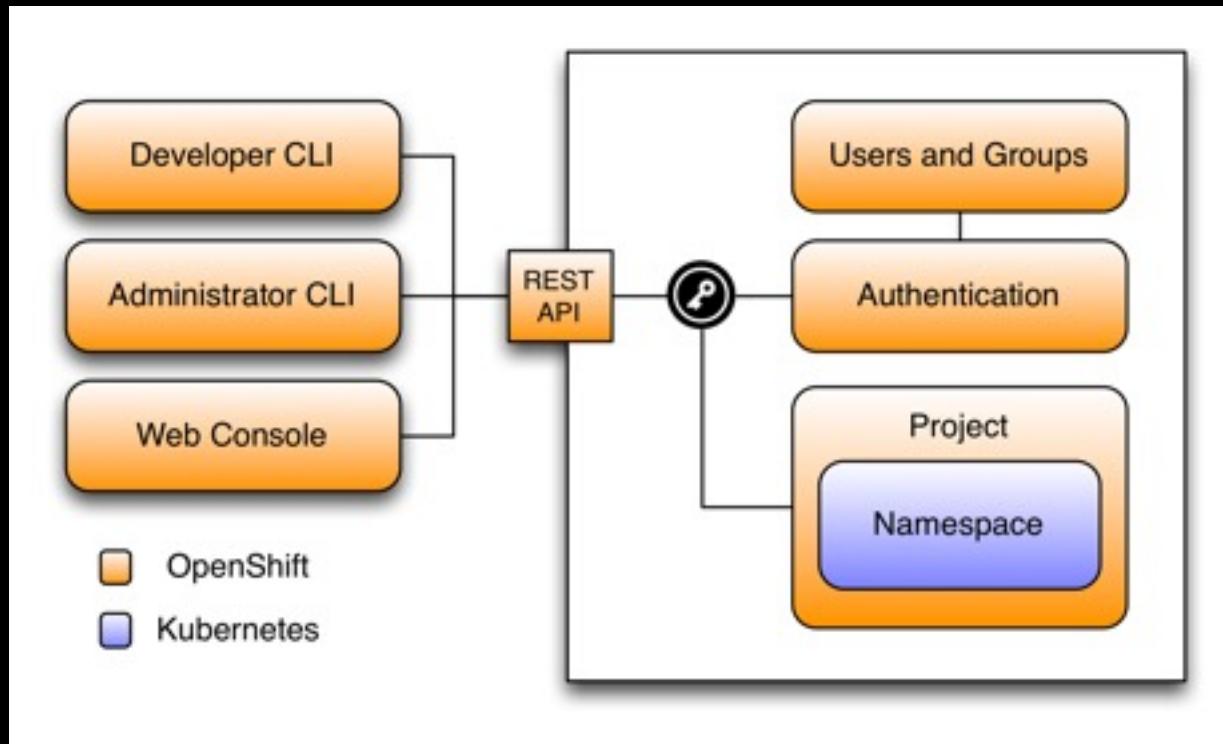
[Learn more](#)

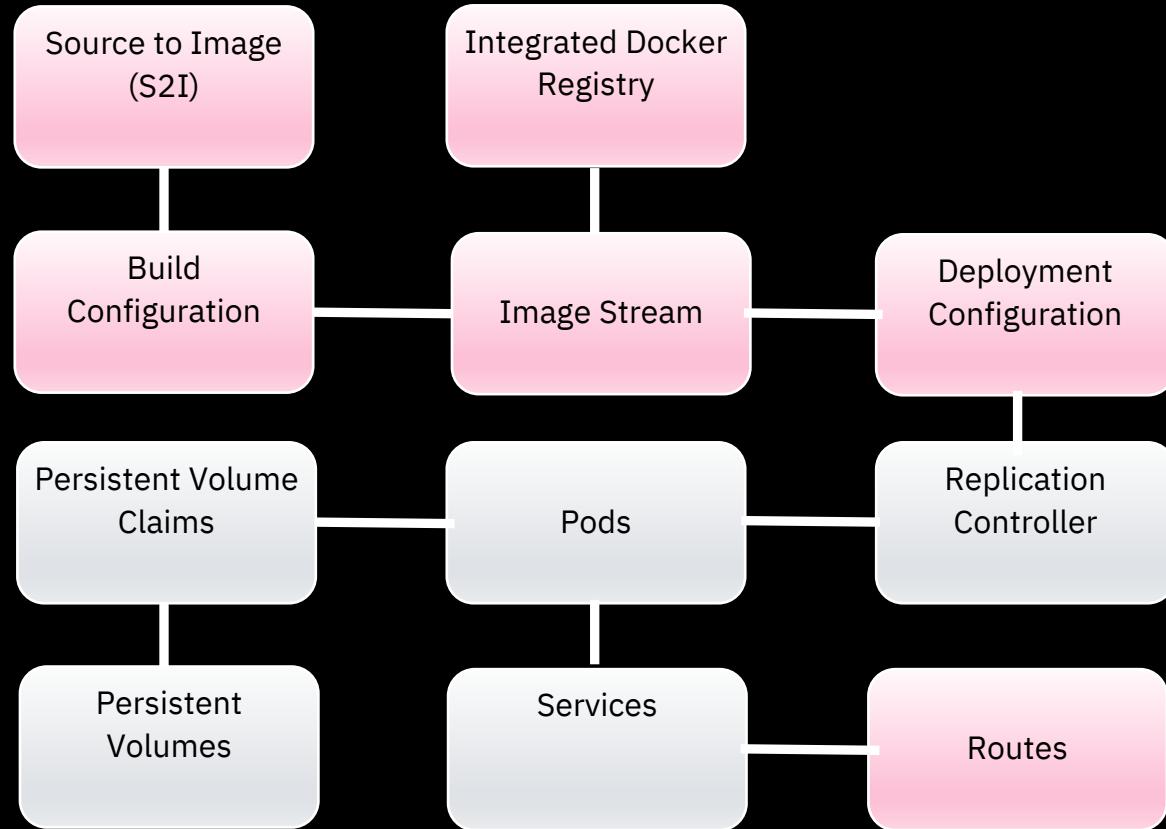


Get started developing and deploying in the public cloud

[Learn more](#)

Kubernetes Resources and OpenShift Projects





OPENSIFT



KUBERNETES

LAB TIME

