developers.redhat.com

RED HAT®
DEVELOPER
PROGRAM

KubeBoot

Spring Boot deployment on Kubernetes has never been so easy

Who am I ?

ksampath@hotmail.com

kameshsampath

@kamesh_sampath

Kamesh Sampath

Director of Developer Experience at Red Hat

- Open Source Contributor
  - OpenWhisk
  - Eclipse Che
  - Spring Cloud Functioons
  - Creator vert.x-maven-plugin → https://vmp.fabric8.io/
  - Contributor fabric8 platform → https://fabric8.io/

RED HAT® DEVELOPER PROGRAM

What is a microservice ?

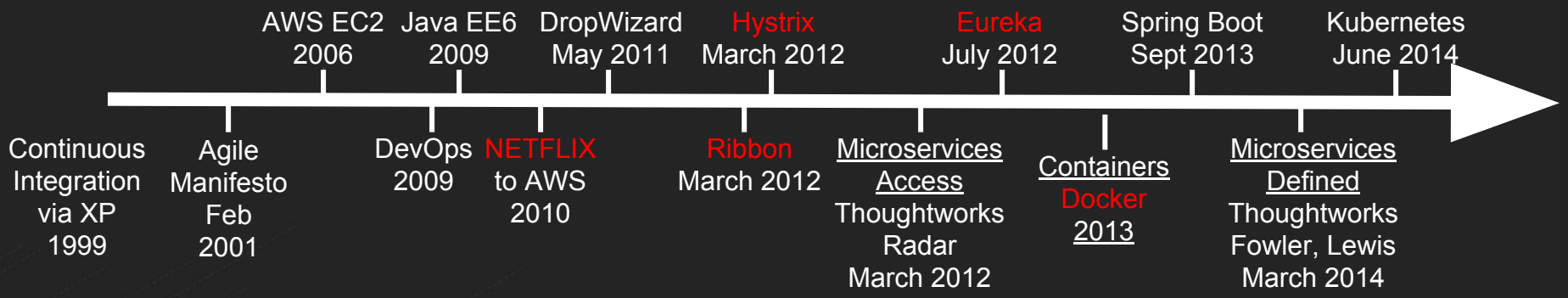
The microservice architectural style is an approach to developing a single application as a suite of small services, each running in its own process and communicating with lightweight mechanisms, often an HTTP resource API.

These services are built around business capabilities and independently deployable by fully automated deployment machinery. There is a bare minimum of centralized management of these services, which may be written in different programming languages and use different data storage technologies.

Martin Fowler

RED HAT DEVELOPERS

Short History of Microservices



NETFLIX | OSS

RED HAT DEVELOPERS

My Microservice App

RED HAT DEVELOPERS

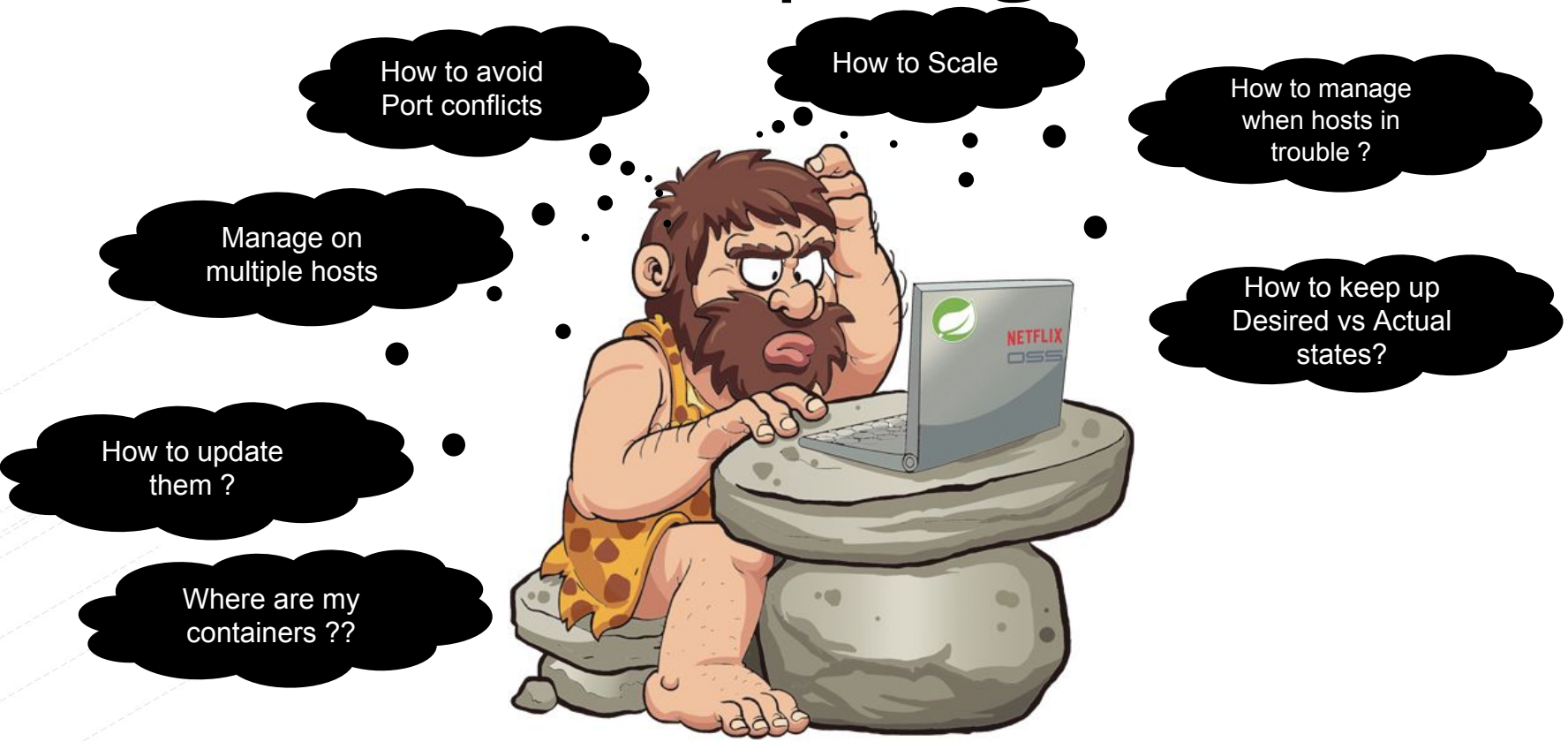
Java Microservices Platform circa 2014

Config Server

NETFLIX Ribbon

HYSTRIX
DEFEND YOUR APP

Caveman's Spring Boot



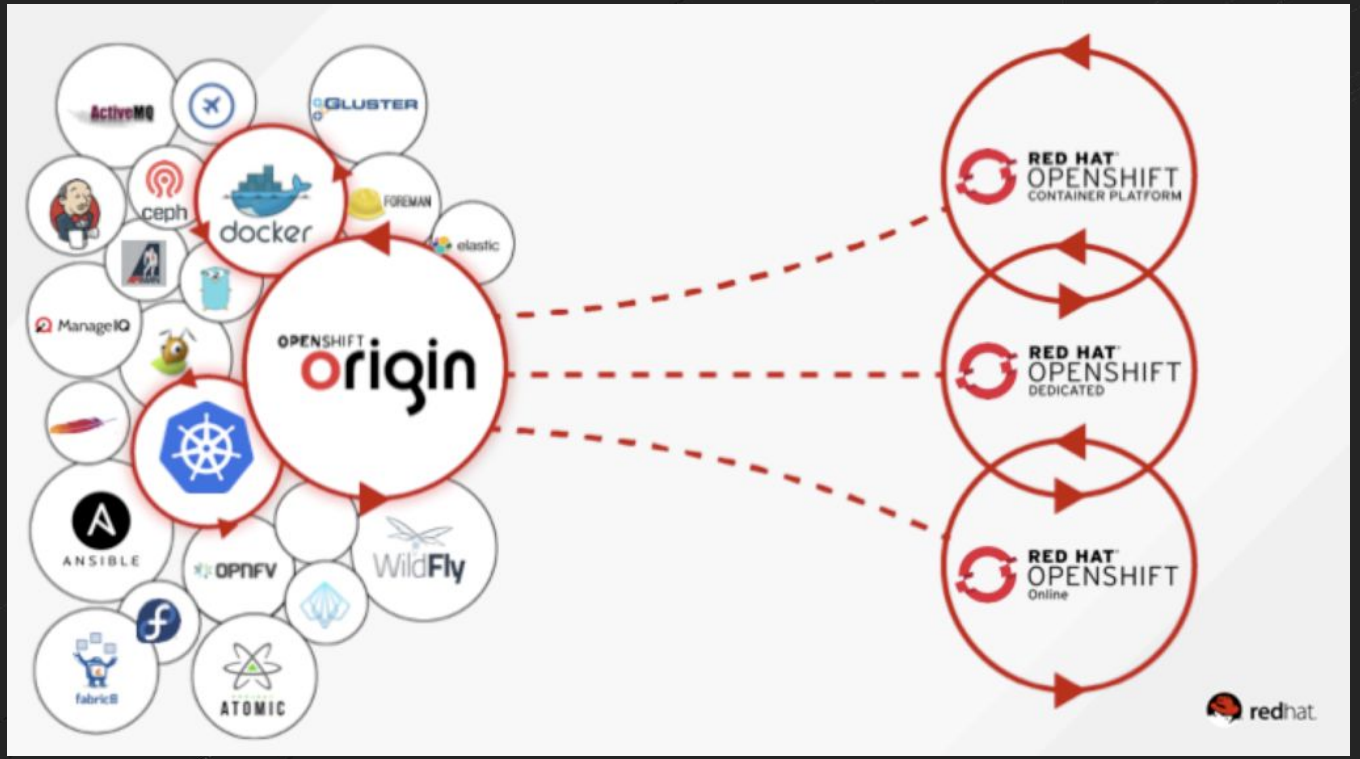
FLINTSTONES™
Jetsons™
TIMEWARP
Hanna-Barbera

Meet Kubernetes

- Greek for “Helmsman,” also the root of the word “Governor” (from latin: gubernator)
- Container orchestrator
- Supports multiple cloud and bare-metal environments
- Inspired by Google’s experience with containers
- Open source, written in Go
- Manage applications, not machines

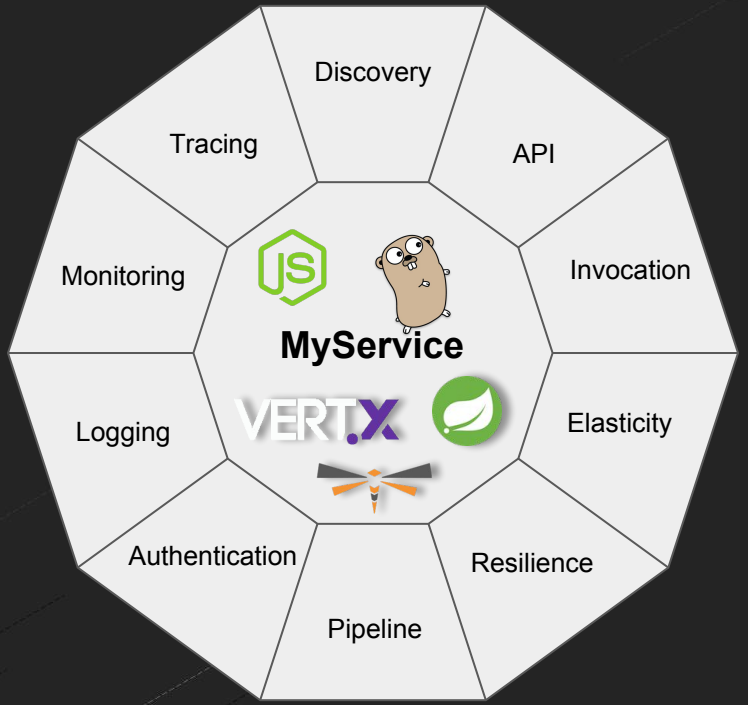
RED HAT DEVELOPERS

OpenShift is Enterprise Kubernetes



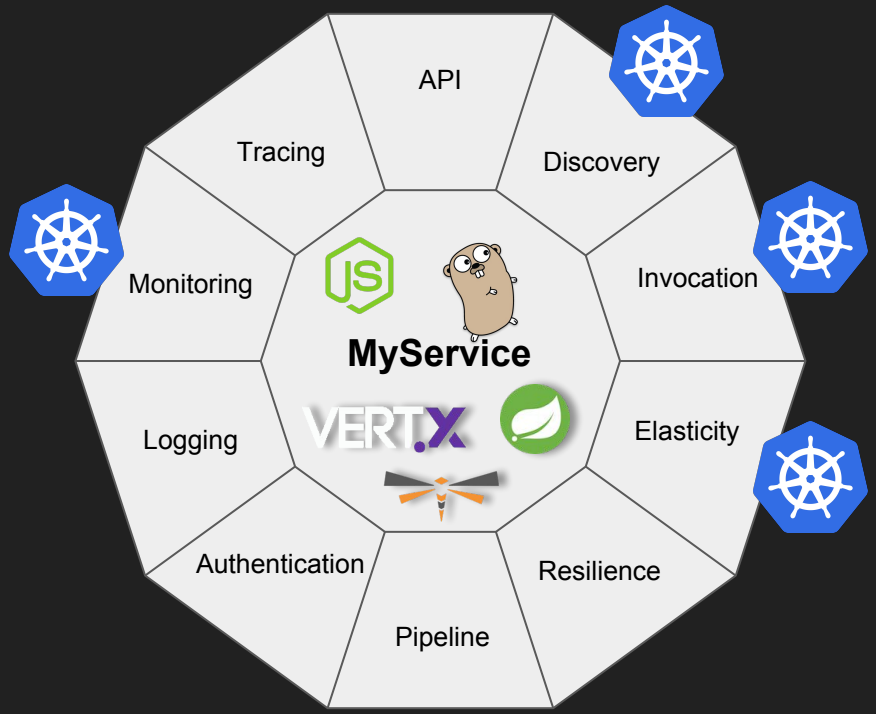
RED HAT DEVELOPERS

Microservices'ilities

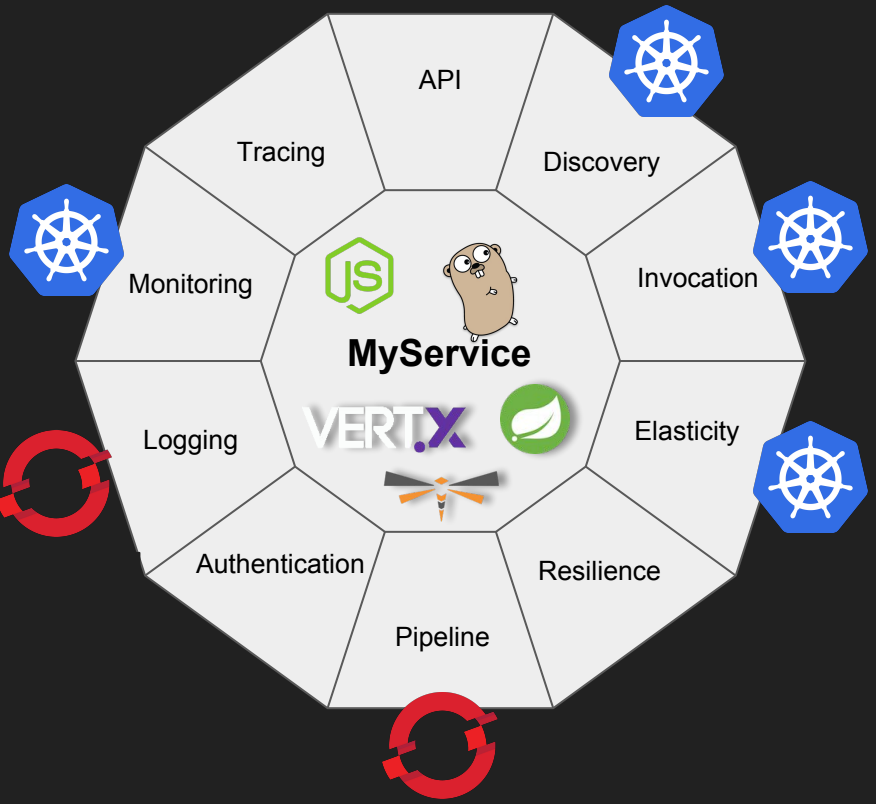


RED HAT DEVELOPERS

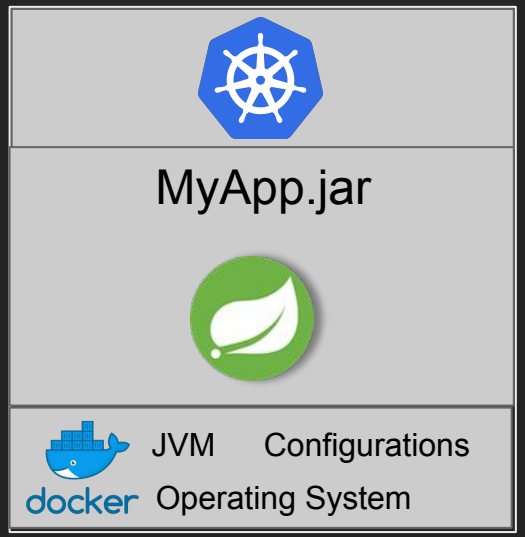
Microservices'ilities + Kubernetes



Microservices'ilities + OpenShift

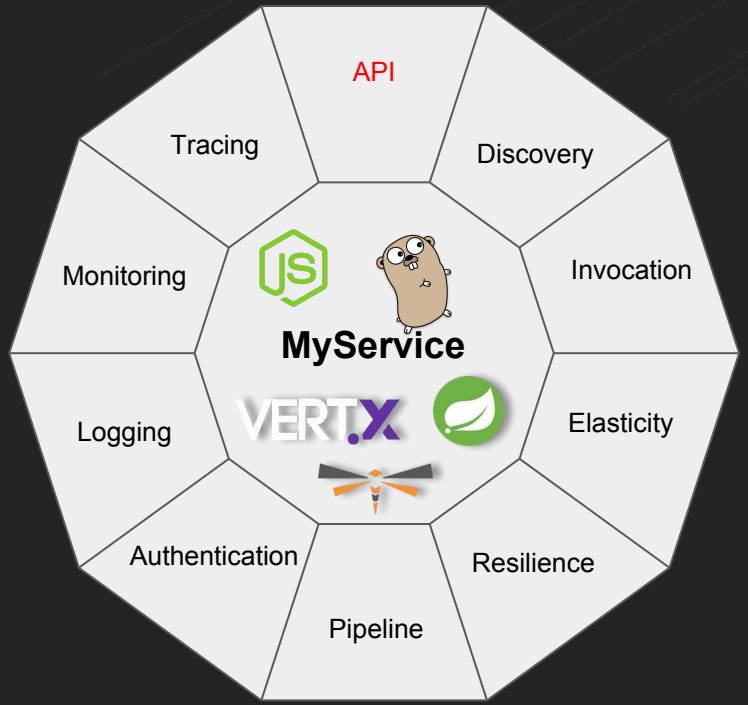


My Boot is Kube Awesome



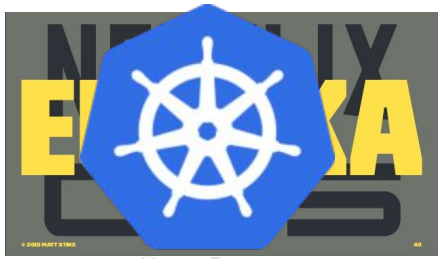
RED HAT DEVELOPERS

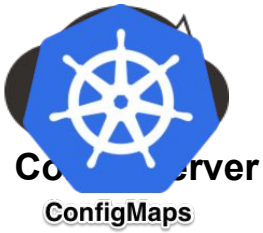
Demo

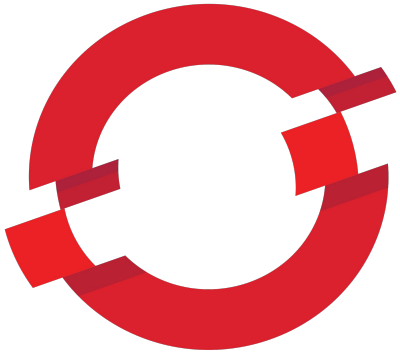


RED HAT DEVELOPERS

Better Spring Boot Microservices Platform circa 2016







OPENSHIFT

Spring Cloud Kubernetes

- Service Discovery

  Spring Discovery Client using Kubernetes Service Discovery

- ConfigMap Property Source

  How to use Kubernetes ConfigMap as Spring Property source

- Zipkin Service Discovery

  Using Zipkin with Kubernetes for distributed tracing

RED HAT DEVELOPERS

How to add to My Project?

Spring Cloud Kubernetes Discovery

```
<dependency>
    <groupId>org.springframework.cloud</groupId>
    <artifactId>spring-cloud-kubernetes-discovery</artifactId>
     <version>0.2.0.RELEASE</version>
</dependency>
```

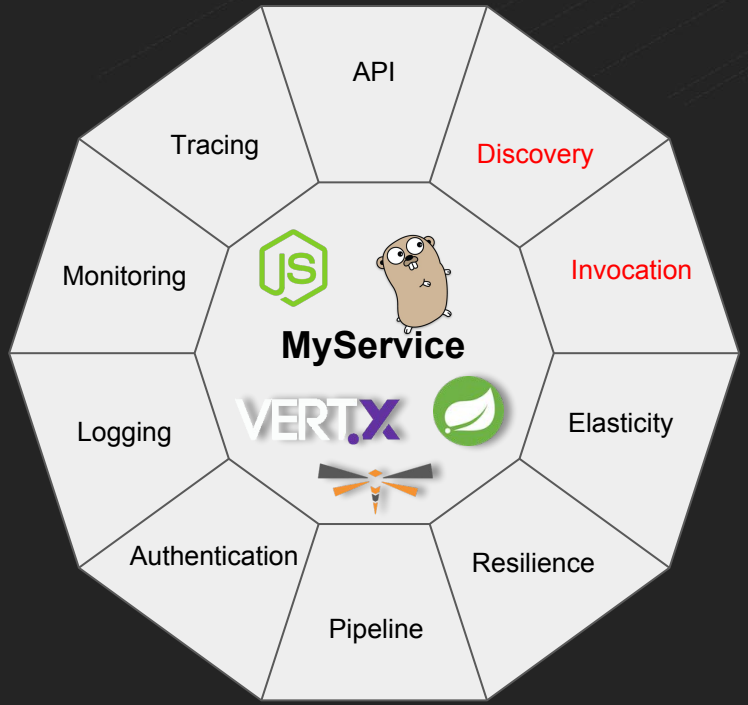
Spring Cloud Kubernetes Config

```
<dependency>
    <groupId>org.springframework.cloud</groupId>
    <artifactId>spring-cloud-kubernetes-config</artifactId>
     <version>0.2.0.RELEASE</version>
</dependency>
```

Spring Cloud Kubernetes Zipkin

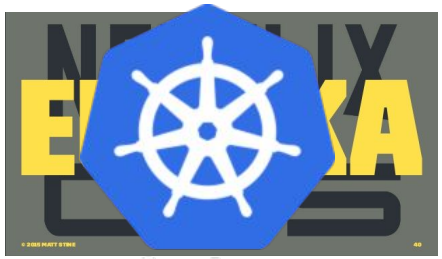
```
<dependency>
    <groupId>org.springframework.cloud</groupId>
    <artifactId>spring-cloud-kubernetes-config</artifactId>
     <version>0.2.0.RELEASE</version>
</dependency>
```

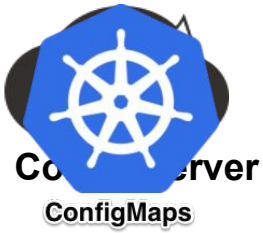
Demo

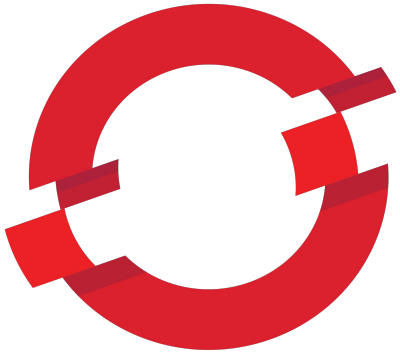


RED HAT DEVELOPERS

Better Spring Boot Microservices Platform circa 2017





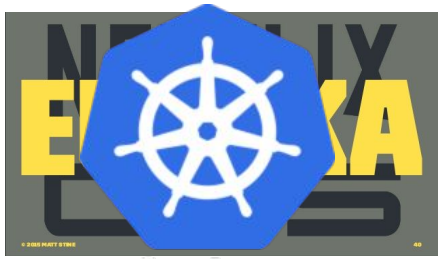


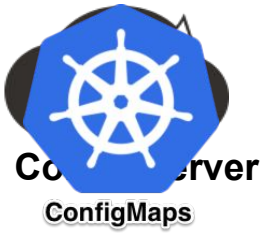
OPENSHIFT

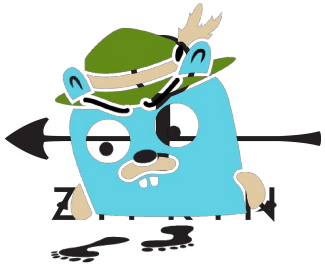
NETFLIX OSS
Zuul

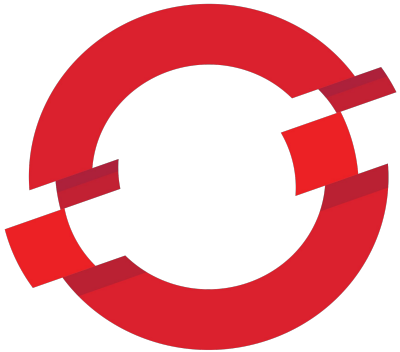
HYSTRIX
DEFEND YOUR APP

Better Spring Boot Microservices Platform circa 2018









OPENSHIFT

Microservice Architecture - Principles

Canary Release

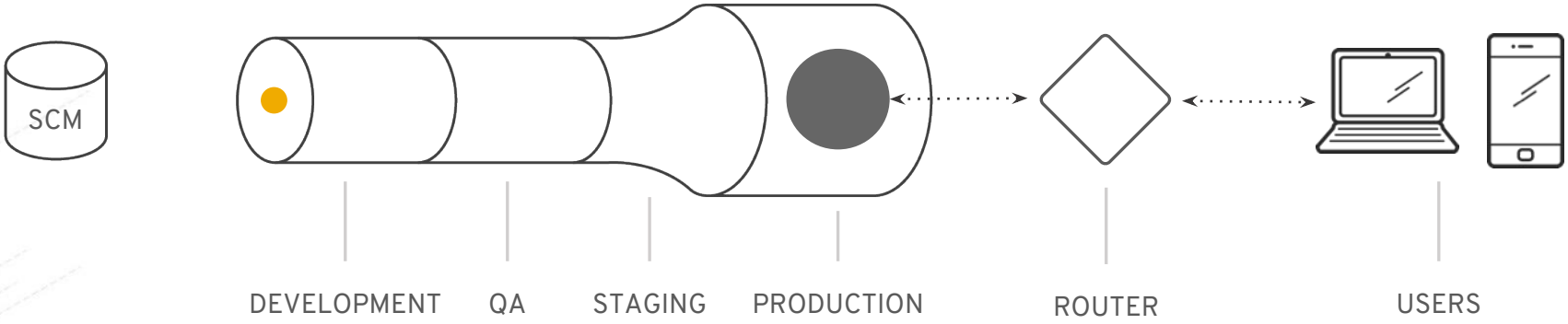
Canary release is a technique to reduce the risk of introducing a new software version in production by slowly rolling out the change to a small subset of users before rolling it out to the entire infrastructure and making it available to everybody.

Source: https://martinfowler.com/bliki/CanaryRelease.html

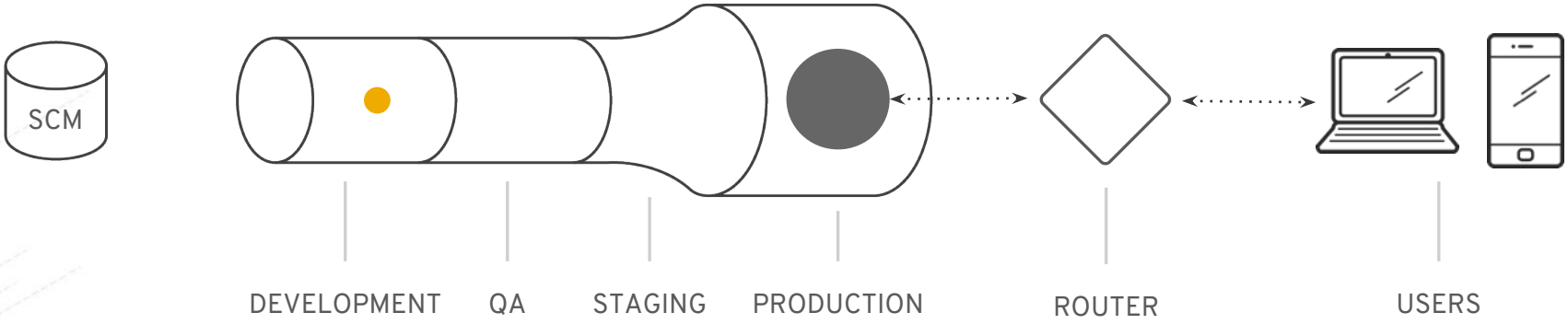
RED HAT DEVELOPERS

RED HAT DEVELOPERS

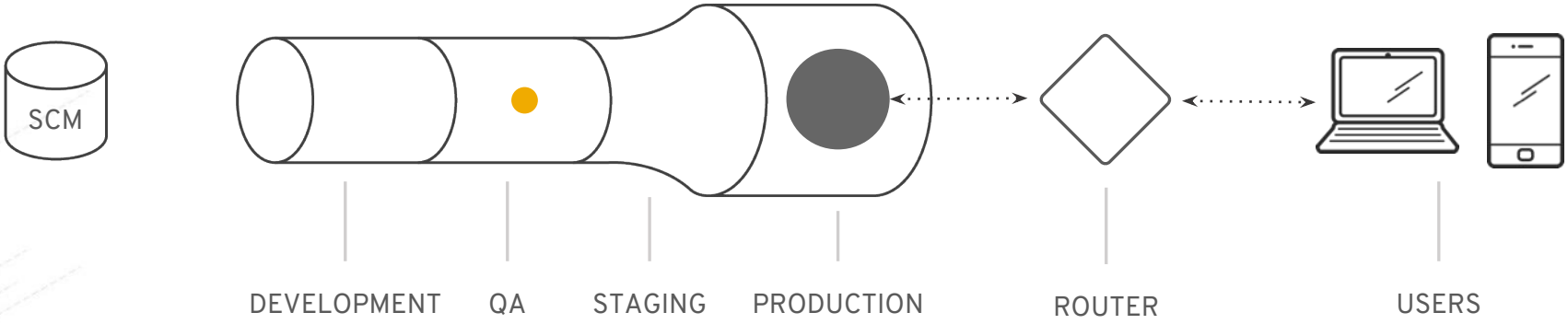
Canary Deployment



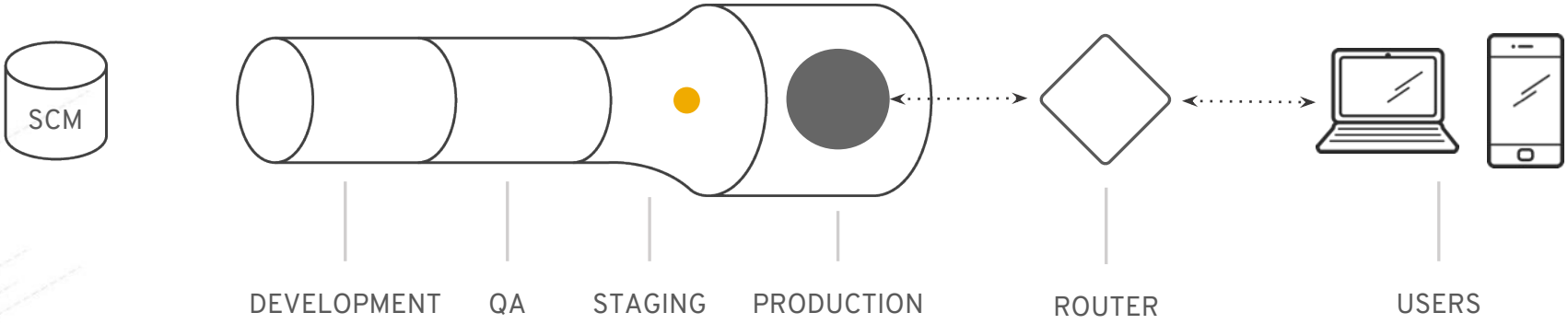
Canary Deployment



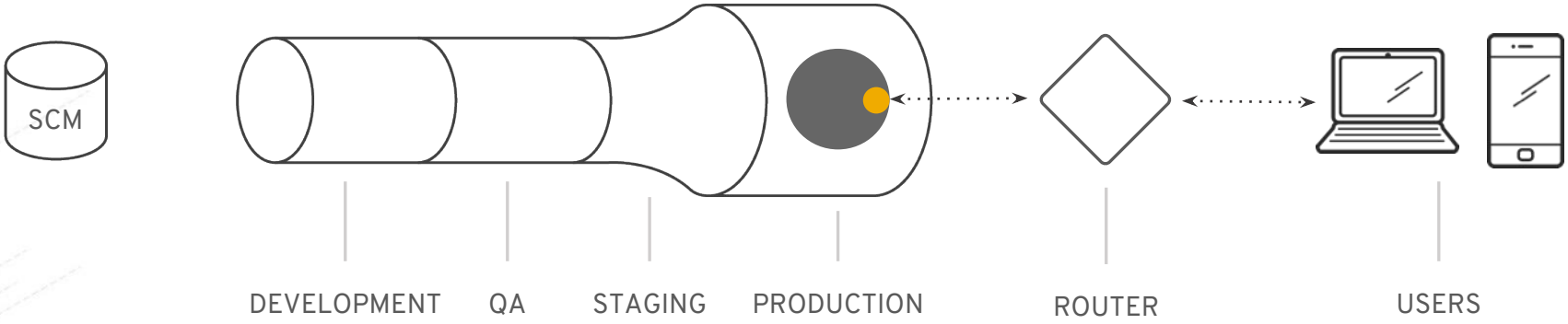
Canary Deployment



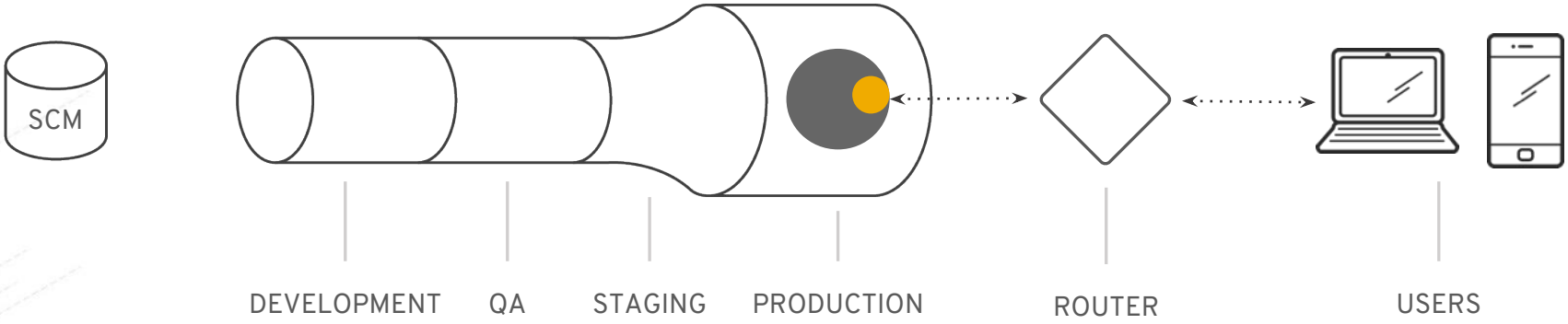
Canary Deployment



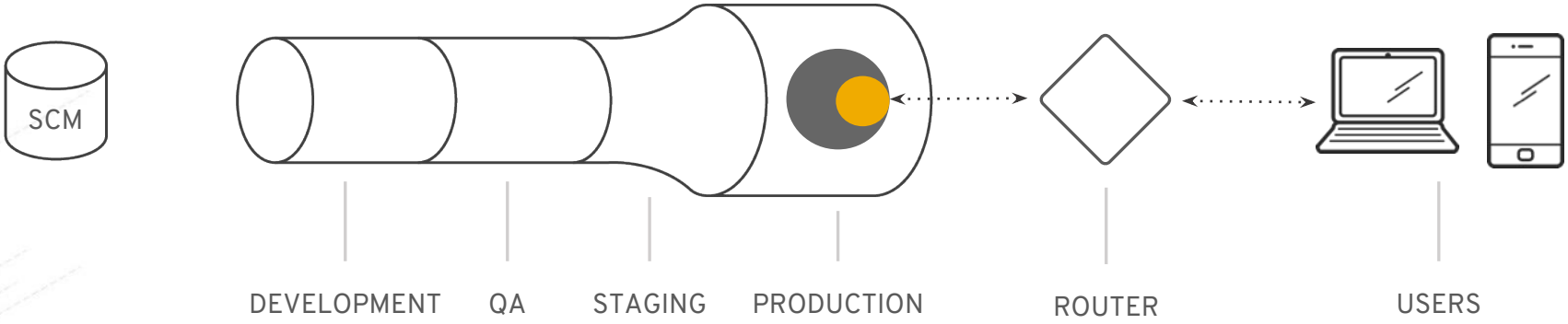
Canary Deployment



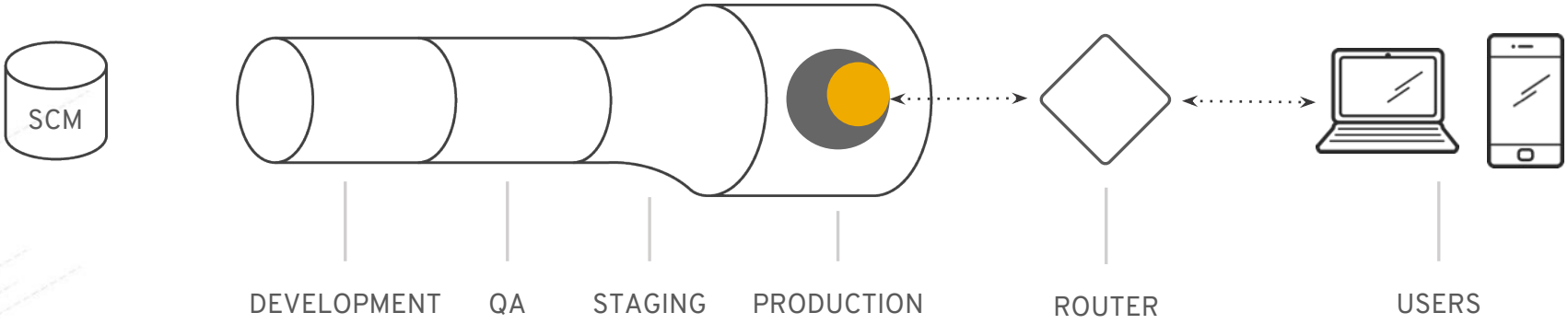
Canary Deployment



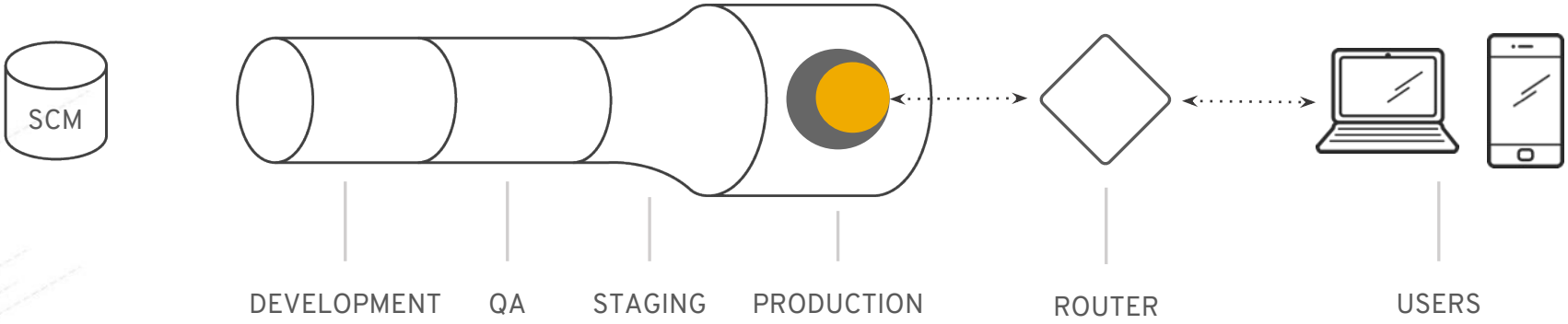
Canary Deployment



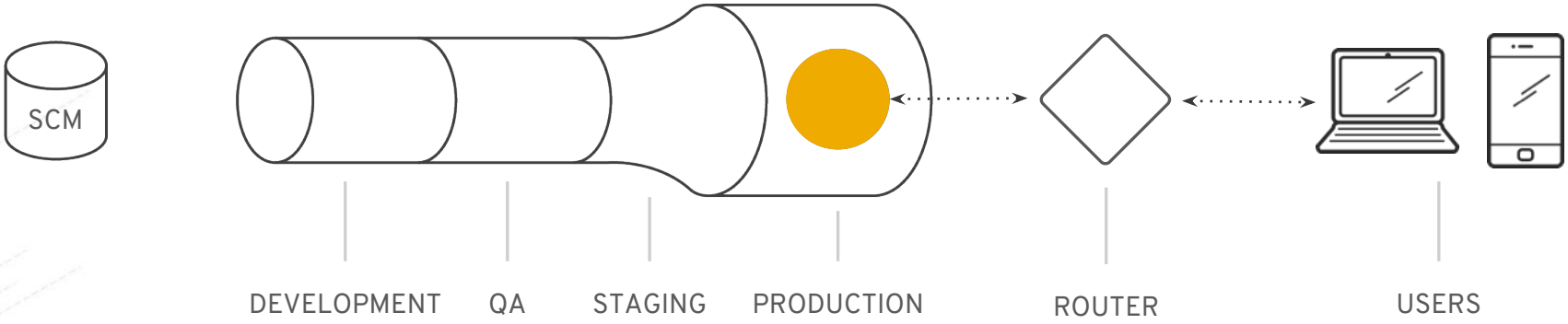
Canary Deployment



Canary Deployment



Canary Deployment



Demo

RED HAT DEVELOPERS

Summary

@kamesh_sampath

- Minishift and Minikube
- Fabric8 Maven Plugin
- Eureka & Ribbon not required with Kubernetes
- Demos
  - bit.ly/springboot-on-openshift
  - Spring Cloud Brewery Application Migration
    - bit.ly/green-cloud-demo
    - bit.ly/green-cloud-demo-sources
  - Stateful Canary leveraging Infinispan
    - bit.ly/popdemo
- Open Containers Initiative
  - Runtime Spec - http://cri-o.io/
  - Image Spec - https://github.com/opencontainers/image-spec

RED HAT DEVELOPERS

developers.redhat.com

RED HAT®
DEVELOPER
PROGRAM

KubeBoot

Spring Boot deployment on Kubernetes has never been so easy