



# Spring Boot Apps on Kubernetes

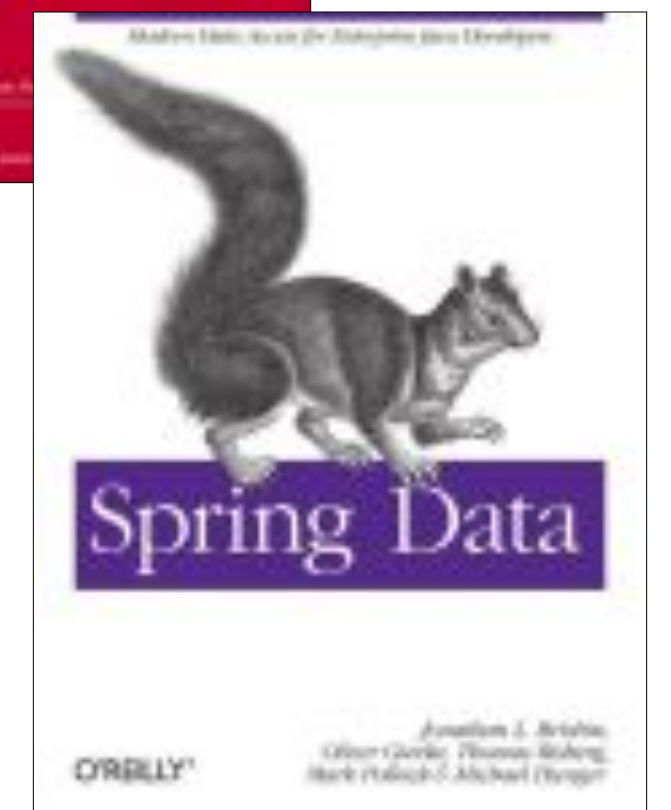


Thomas Risberg  
Pivotal  
@trisberg

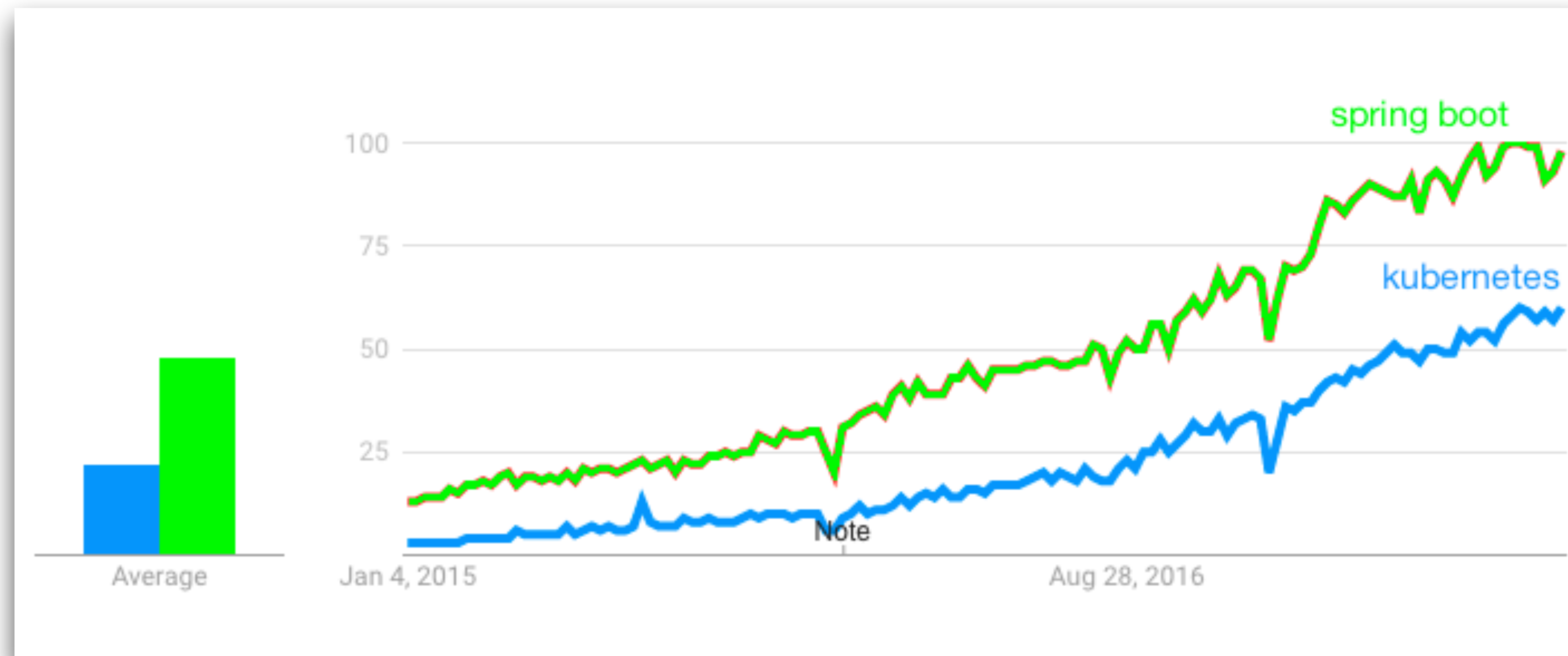
# About me

## Thomas Risberg (@trisberg)

- Member of the Spring engineering team at Pivotal
- Contributing to *Spring Cloud Data Flow*, *Spring Cloud Deployer for Kubernetes* projects
- Joined the Spring Framework open source project in 2003 working on JDBC support
- co-author of “Professional Java Development with Spring Framework” from Wrox 2005 and “Spring Data” book from O'Reilly 2012



# Two Hot Technologies



Based on: <https://trends.google.com/trends/explore?q=kubernetes,spring%20boot>



# Press/Analysts

**RedMonk**  
the developer-focus

Videos Research Events

## CHARTING STACKS

### Language Framework Popularity: A Look at Java, June 2017

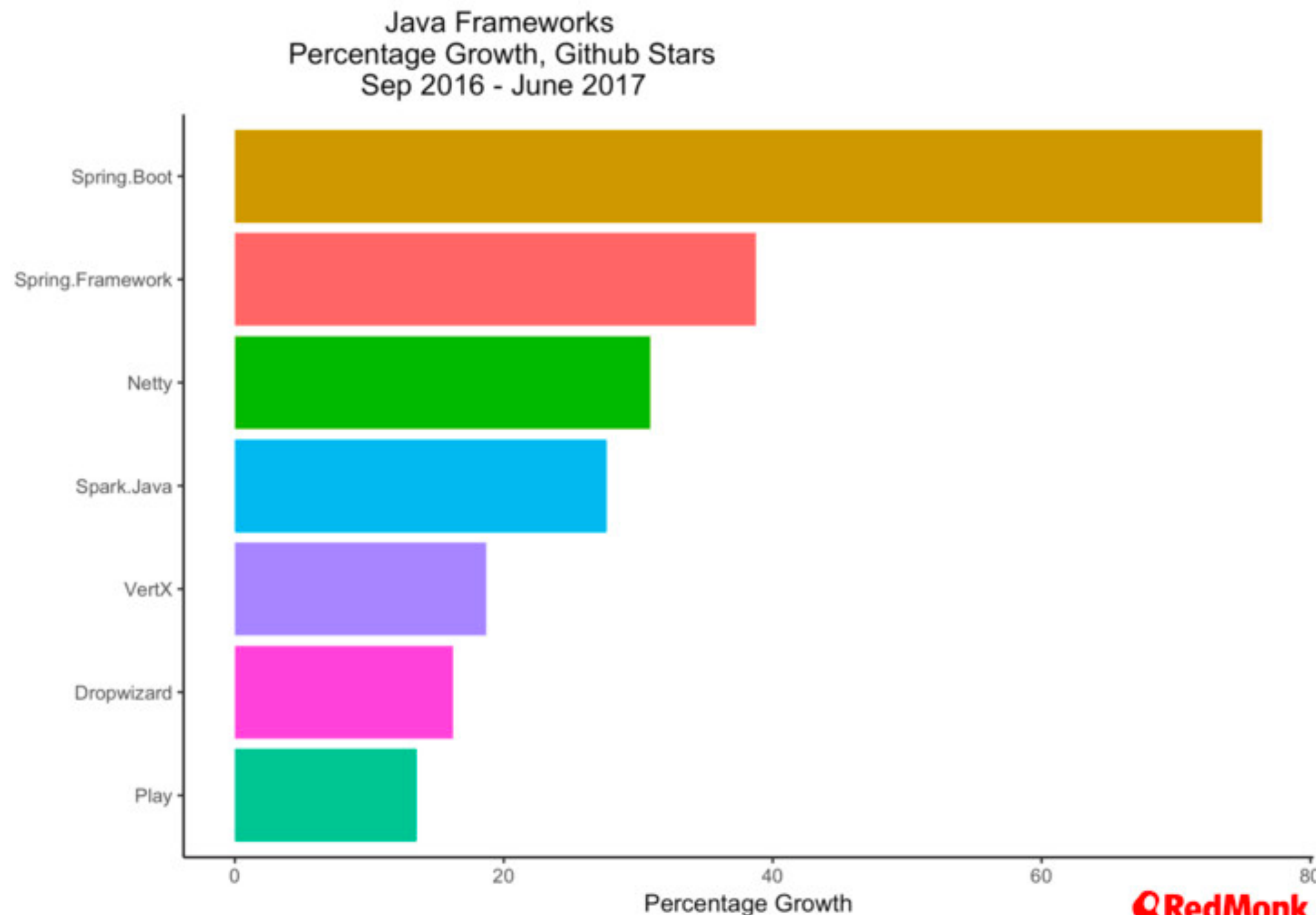
By [fryan](#) | June 22, 2017



TL; DR: Spring Boot is growing at an exponential rate and is set to become the most popular Java Framework soon. Spring Framework and Netty continue to grow strongly

Framework: 'a basic structure'

TL; DR: Spring Boot is growing at an exponential rate and is set to become the most popular Java Framework soon. Spring Framework and Netty continue to grow strongly



[techcrunch.com](https://techcrunch.com)

## Kubernetes gains momentum as big-name vendors flock to Cloud Native Computing Foundation

Ron Miller

3-4 minutes



Like a train gaining speed as it leaves the station, the [Cloud Native Computing Foundation](#) is quickly gathering momentum, attracting some of the biggest names in tech. In the last month and a half alone [AWS](#), [Oracle](#), [Microsoft](#), [VMware](#) and [Pivotal](#) have all joined.

# What is Spring Boot?

*Spring Boot* takes an opinionated view of building production-ready Spring applications. Spring Boot favors convention over configuration and is designed to get you up and running as quickly as possible.

<http://projects.spring.io/spring-boot/>

# Pair-programming with Spring Team





# What is Kubernetes?

*Kubernetes* is an open-source system for automating deployment, scaling, and management of containerized applications.

It groups containers that make up an application into logical units for easy management and discovery.

<https://kubernetes.io/>

# Pairing with Google SRE Team?

*Kubernetes builds upon 15 years of experience of running production workloads at Google, combined with best-of-breed ideas and practices from the community.*



# Running Apps on Minikube

- Build Docker image

```
eval $(minikube docker-env)
docker build -t trisberg/hello:0.0.1 .
```

- Using `kubectl` command line - run app

```
kubectl run hello --image trisberg/hello:0.0.1 --port=8080
```

- Expose the app port

```
kubectl expose deployment hello --type=NodePort
```

# Demo

## **Simple Hello Spring Boot/Kubernetes app deployment**

- ▶ <https://github.com/trisberg/boot-k8s/blob/master/demo-hello.adoc>

# Spring Cloud / Netflix OSS

- Spring Cloud Config
- Service Discovery
  - Netflix Eureka
  - Consul
- Load balancing / routing
  - Netflix Ribbon & Zuul
- Circuit Breakers
  - Netflix Hystrix

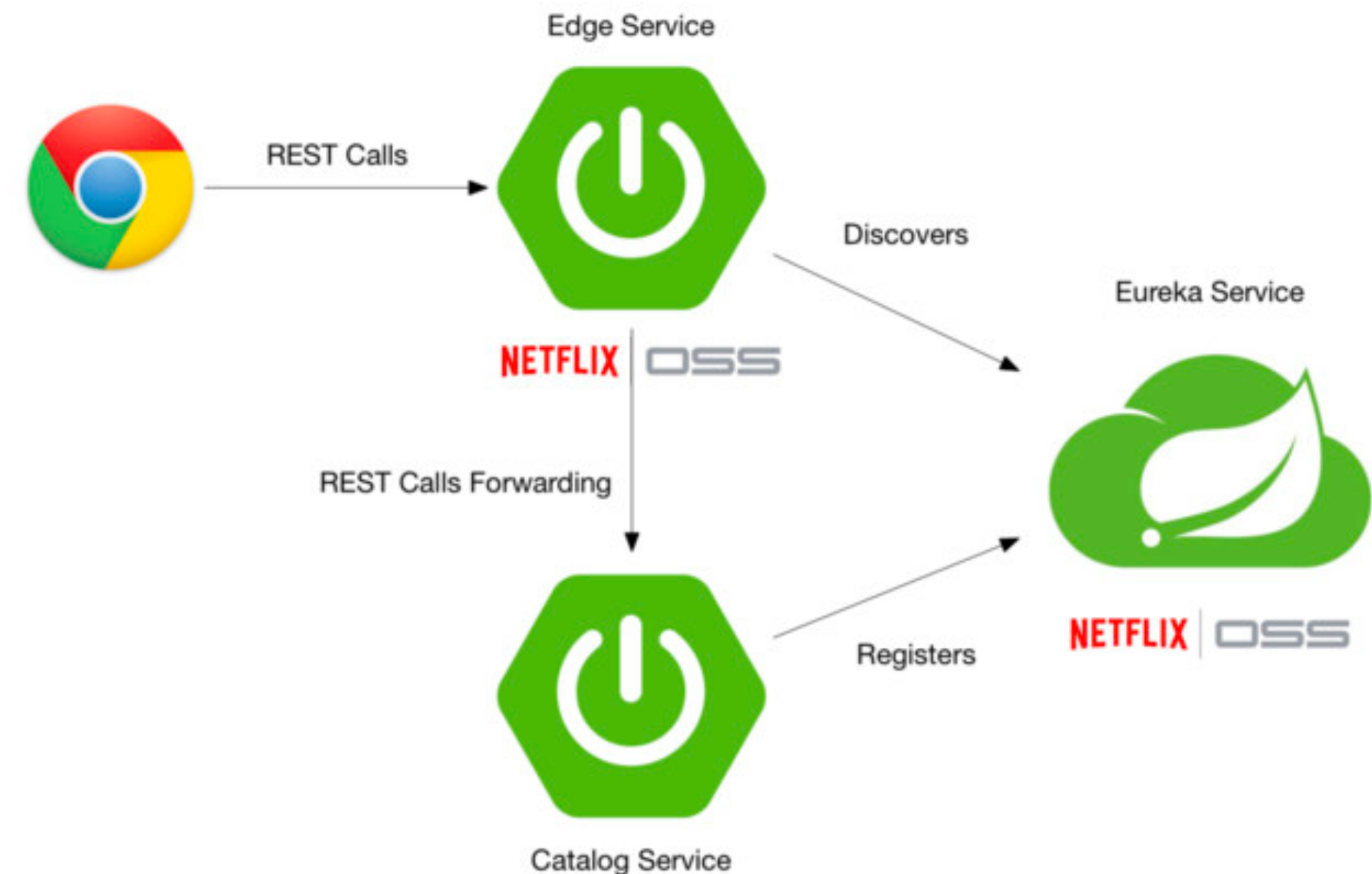
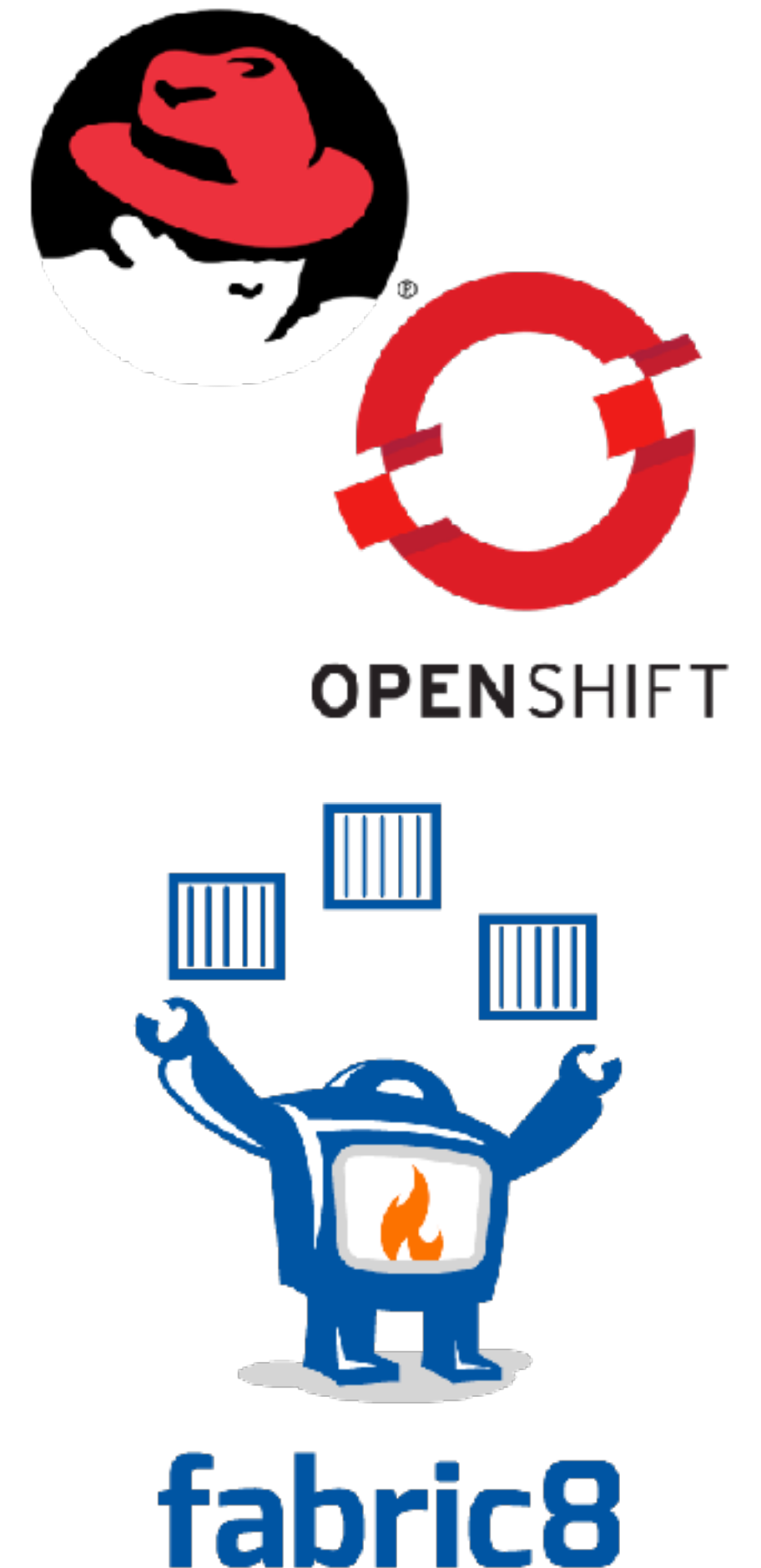


Image from: <https://www.slideshare.net/mraible/develop-hip-apis-and-apps-with-spring-boot-and-angular-connecttech-2017/16?src=clipshare>

# Spring Cloud for Kubernetes

- Fabric8 team created some integration libs  
    spring-cloud-kubernetes
- Now available in spring-cloud-incubator on GitHub





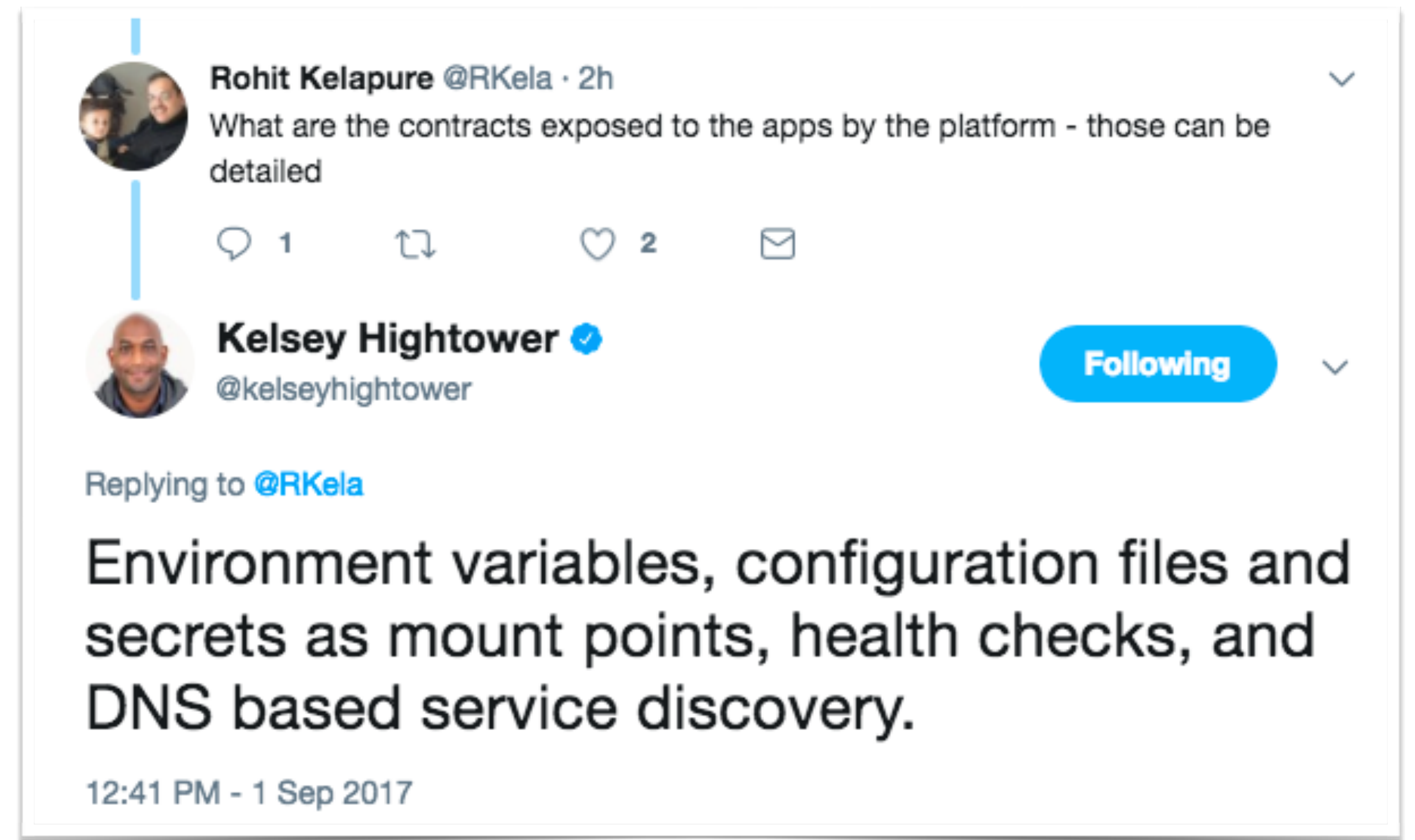
# Building Apps for Kubernetes



<https://twitter.com/kelseyhightower/status/903640408613306369>

# Contracts exposed to the apps by the platform

- Environment variables
- Configuration files
- Secrets as mount points
- Health checks
- DNS based service discovery



<https://twitter.com/kelseyhightower/status/903643916599046145>

