CLOUD NATIVE DEVELOPMENT

Charles Moulliard

May 17th - Riviera Dev

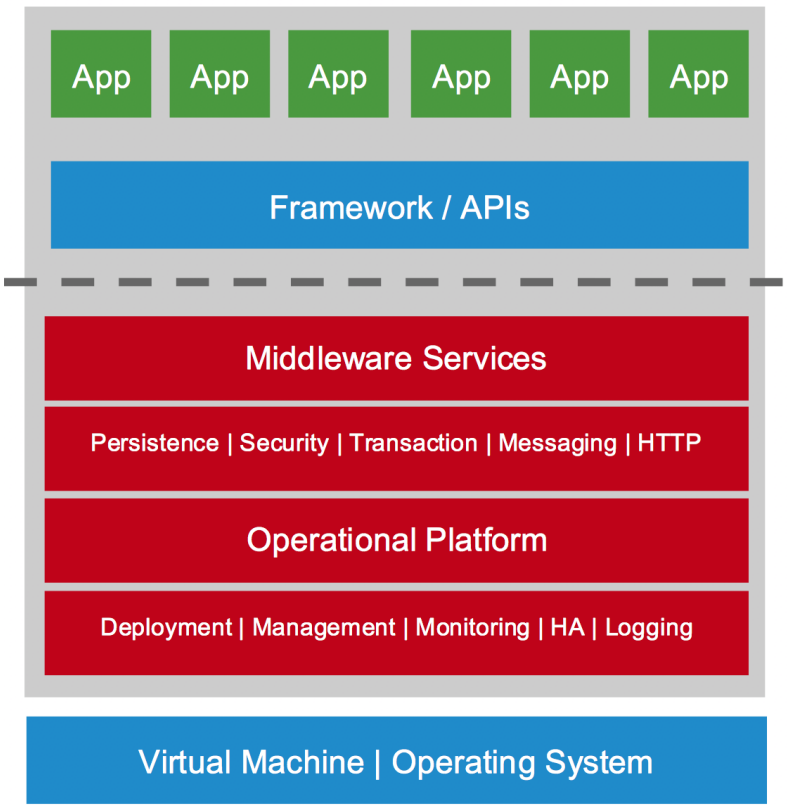
WHO

- Charles Moulliard
- Software Engineer Manager
- Technology evangelist
- Twitter: @cmoulliard
- Email: cmoulliard@redhat.com

AGENDA

- Cloud Native Development
- Principles
- What do **I** expect as **C**oder
- Demo time

THE APPSERVER 2000-2014



Java™ COMPATIBLE ENTERPRISE EDITION

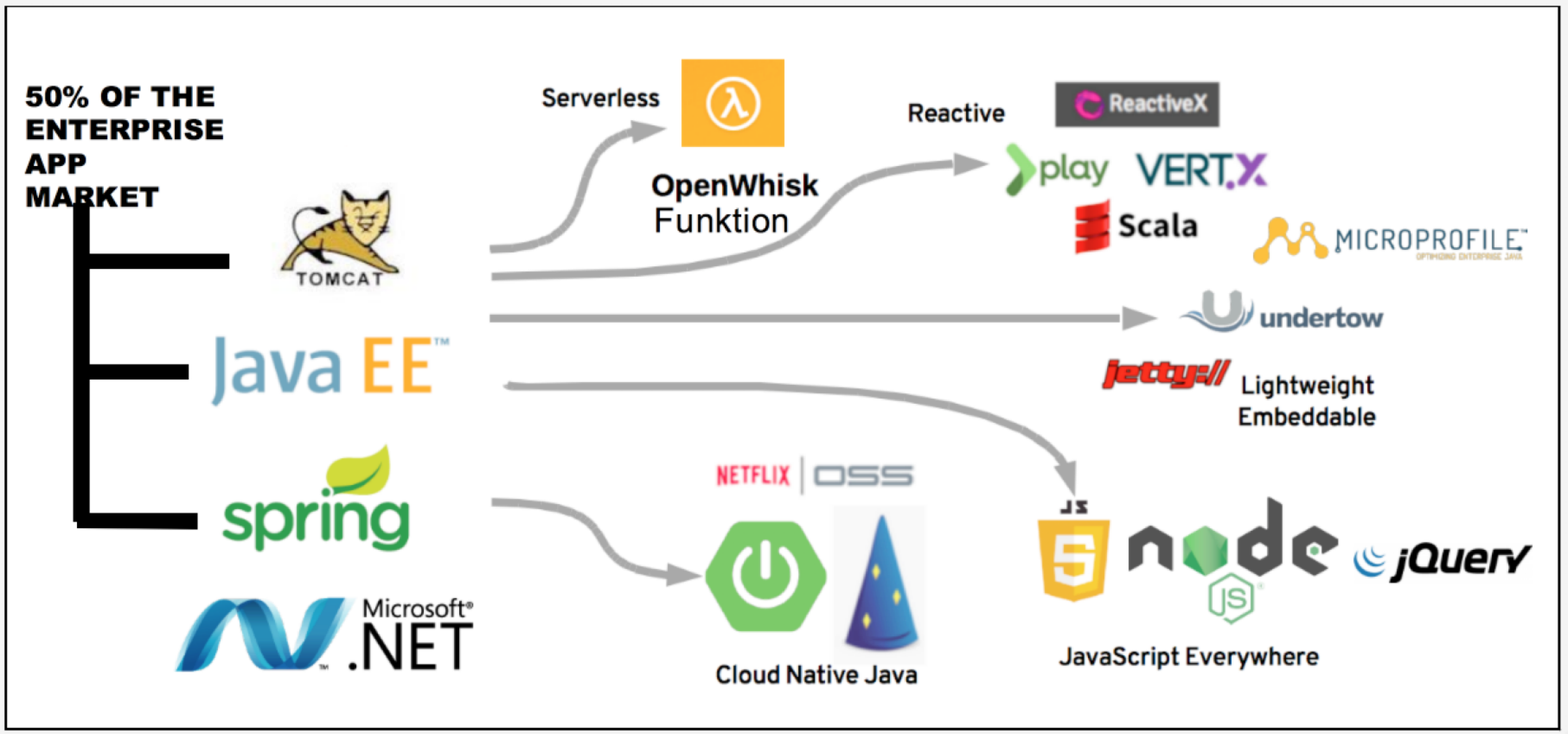
spring by Pivotal

JBoss® by Red Hat

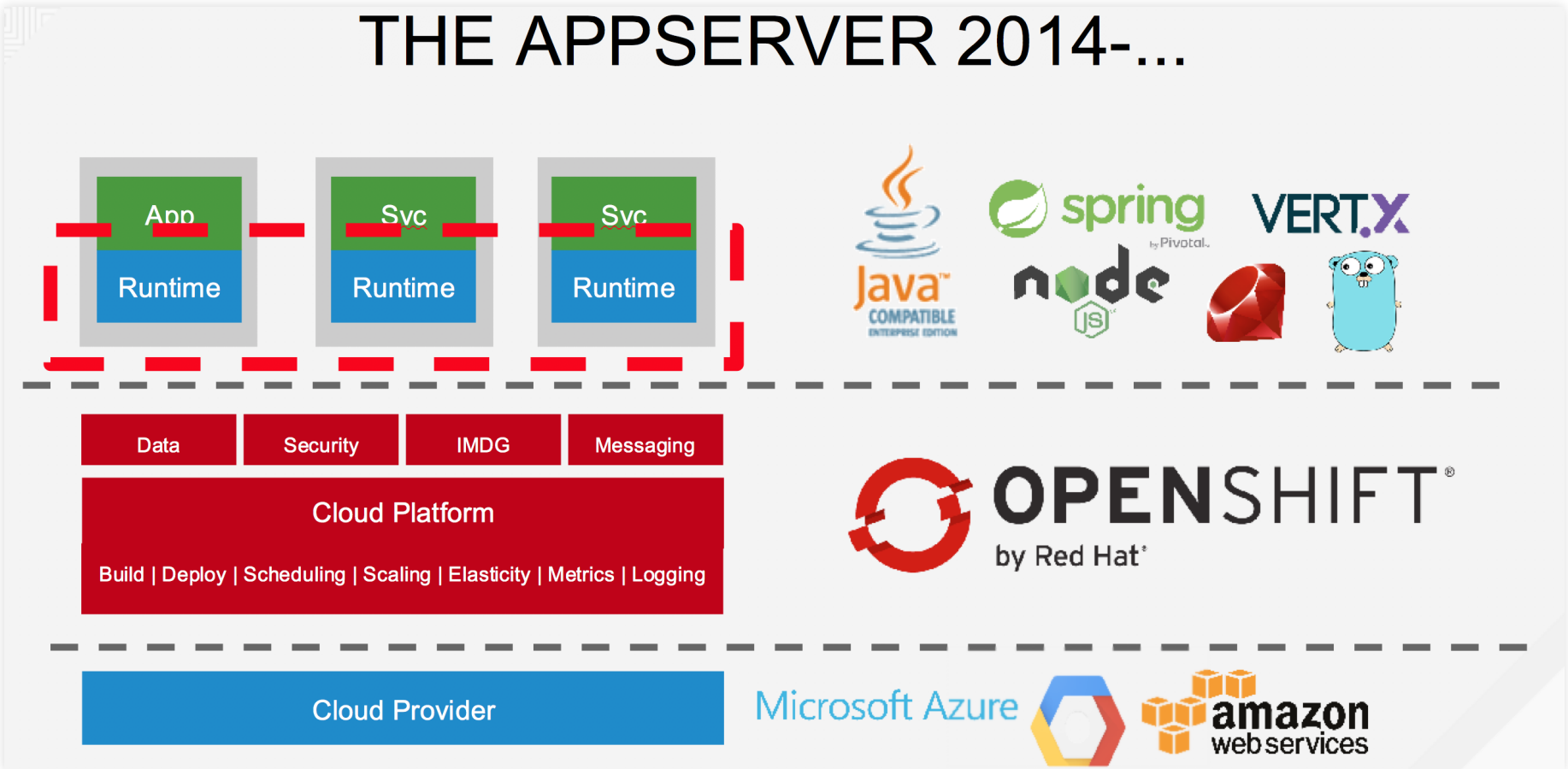
ORACLE®

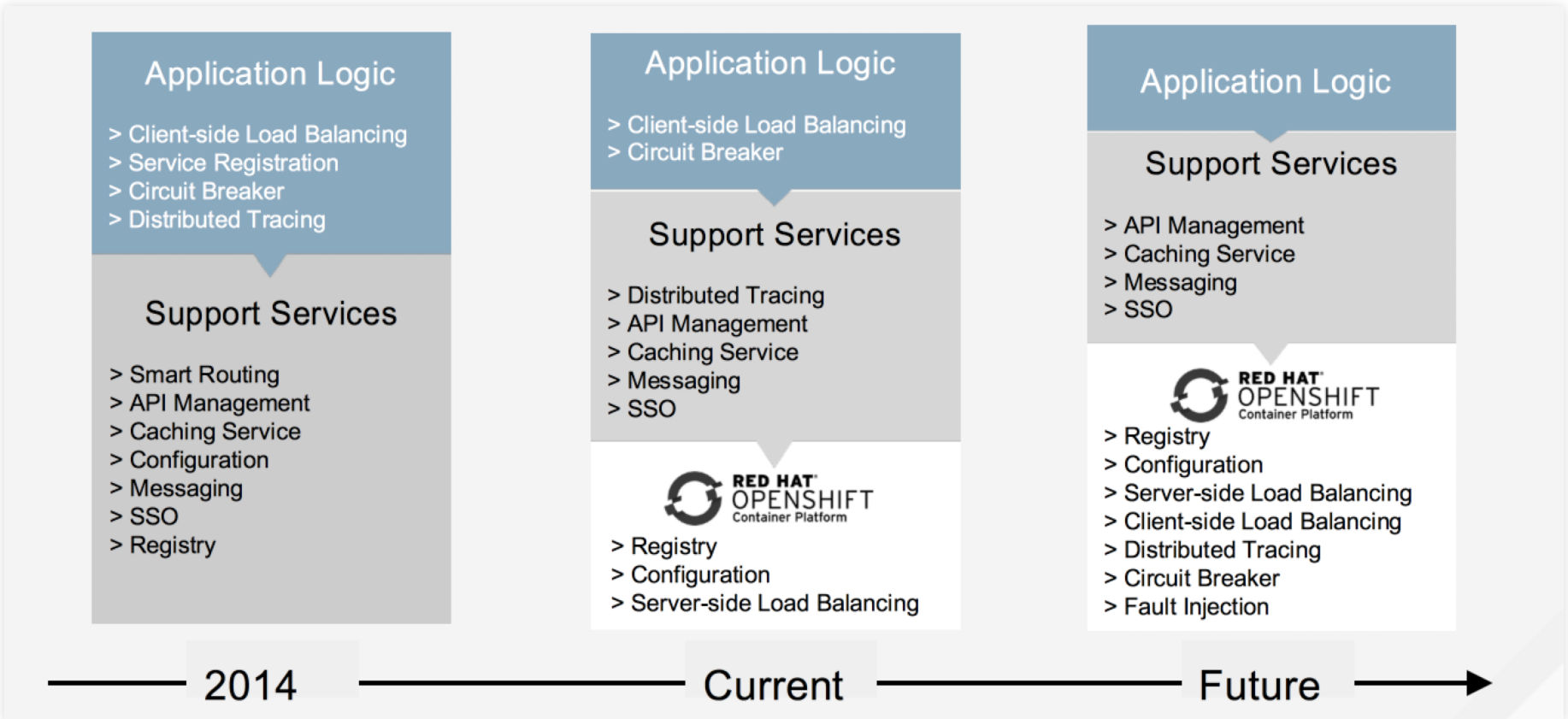
WebSphere® software

WHAT CHANGED ...


50% OF THE ENTERPRISE APP MARKET
TOMCAT
Java EE
spring
Microsoft .NET
Serverless
OpenWhisk
Funktion
Reactive
ReactiveX
play
VERT.X
Scala
MICROPROFILE
undertow
jetty
Lightweight
Embeddable
NETFLIX OSS
Cloud Native Java
node
jQuery
JavaScript Everywhere

THE APPSERVER 2014-...




Application Logic
> Client-side Load Balancing
> Service Registration
> Circuit Breaker
> Distributed Tracing
Support Services
> Smart Routing
> API Management
> Caching Service
> Configuration
> Messaging
> SSO
> Registry
2014
Application Logic
> Client-side Load Balancing
> Circuit Breaker
Support Services
> Distributed Tracing
> API Management
> Caching Service
> Messaging
> SSO
RED HAT OPENSHIFT Container Platform
> Registry
> Configuration
> Server-side Load Balancing
Current
Application Logic
Support Services
> API Management
> Caching Service
> Messaging
> SSO
RED HAT OPENSHIFT Container Platform
> Registry
> Configuration
> Server-side Load Balancing
> Client-side Load Balancing
> Distributed Tracing
> Circuit Breaker
> Fault Injection
Future

IT GOALS

- Speed to develop
- Agility to deliver new features
- Increase margin (cost)
- Maximise infrastructure/tools

DEFINITION

“Cloud-native is an approach to **build** and **run** applications that can **leverage** the capabilities of the cloud platform”

PRINCIPLE - 1

- **Adopt Linux Container**
- unit of packaging
- executable
- portable

PRINCIPLE - 2

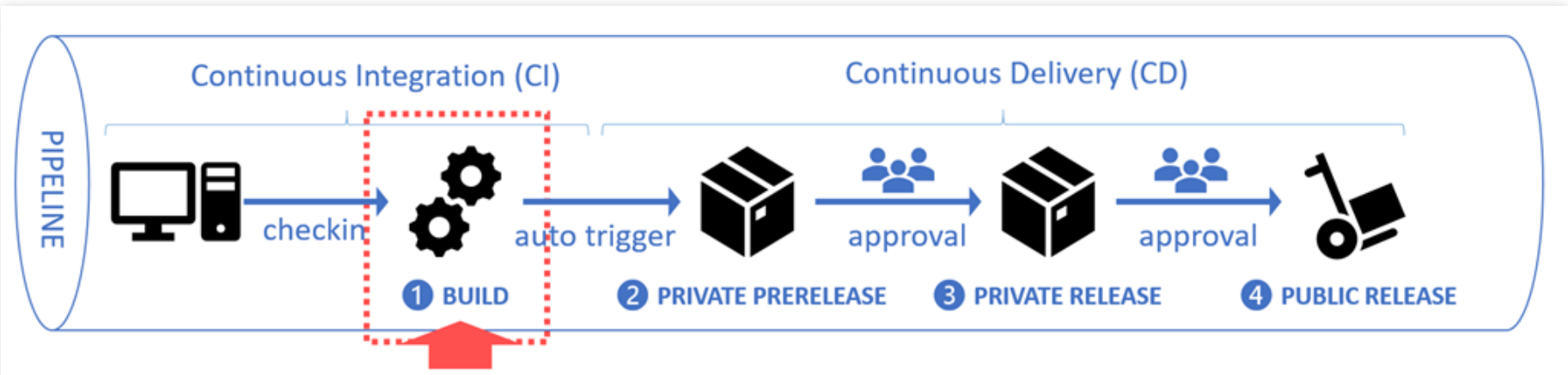
- Design **MicroService** based Architecture
- Isolation
- Health Check
- Circuit Breaker
- Scalability

PRINCIPLE - 3

- Use Cloud **Native features**
- Access provisioned **MicroServices**
- RBAC & Security
- Consume Services from **Catalog**
- Routing, ACL, A/B testing

PRINCIPLE - 4

- **DevOps** : CI/CD pipelines to automate the build/deployment process



WHAT DO I EXPECT AS CODER

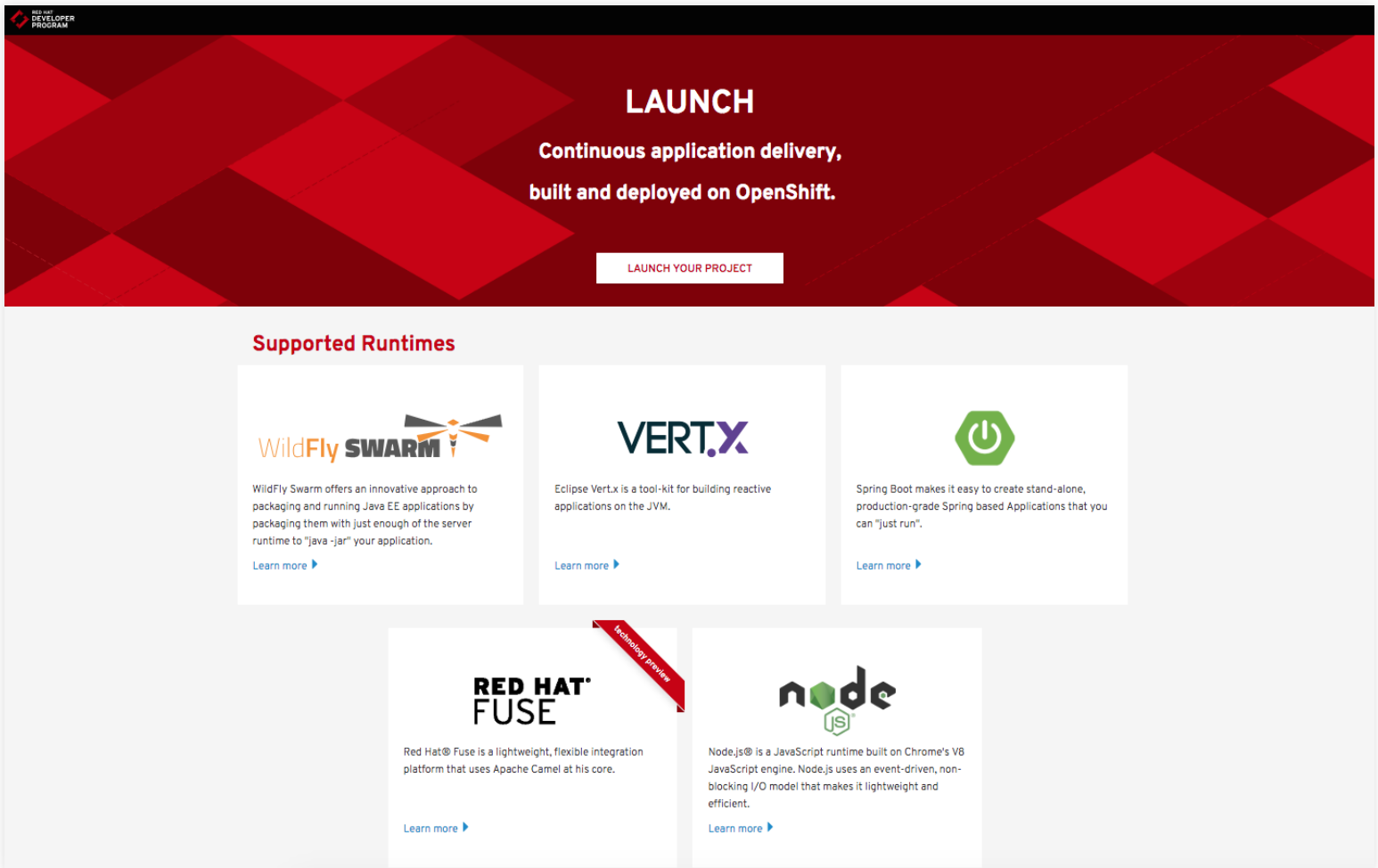
TOOL - MANAGE

```
dabou@dabou ~ oc -h
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.

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
```

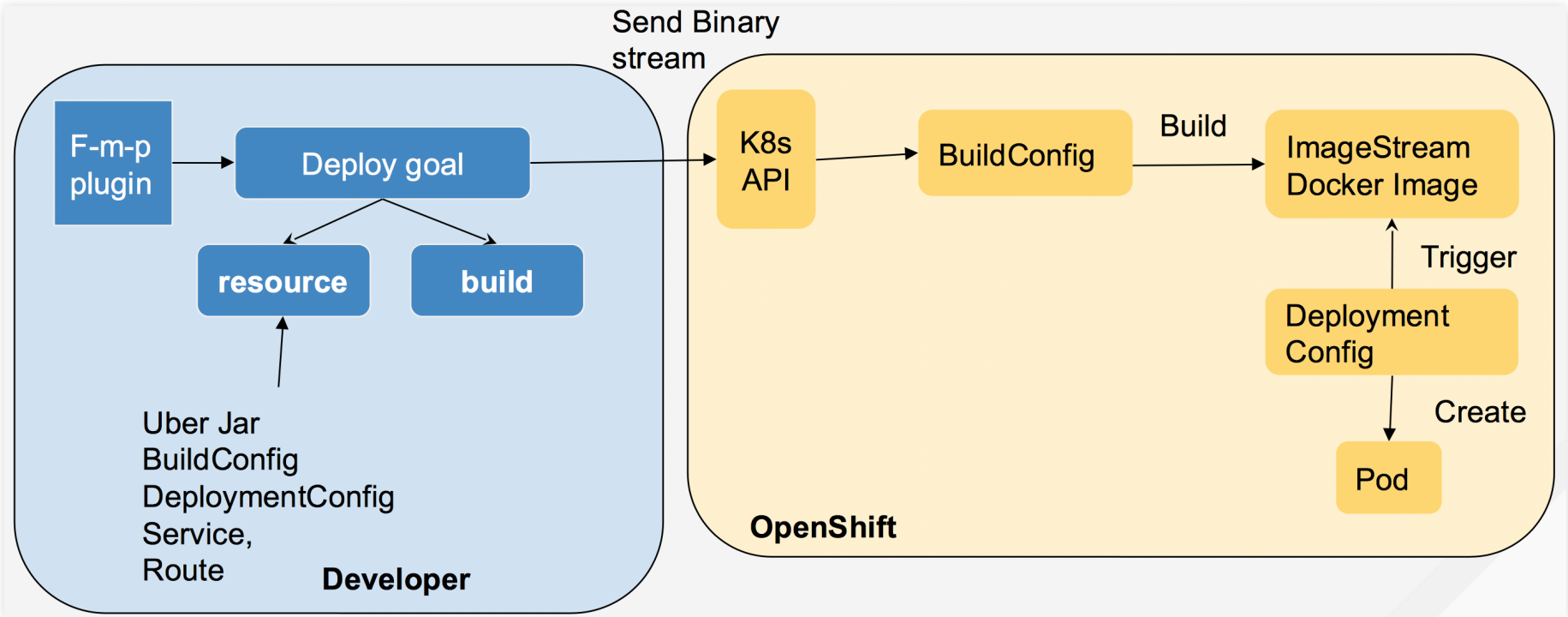
BUILD - DEPLOY

```
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
```

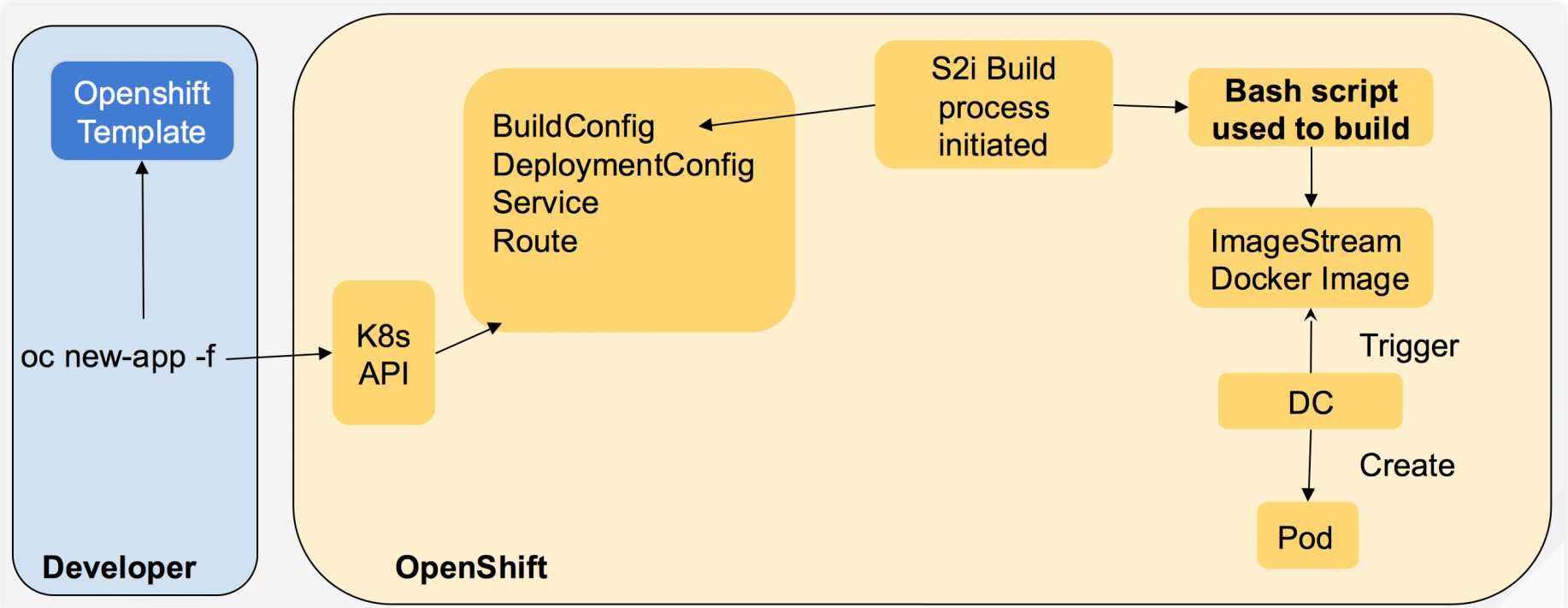
TOOLBOX


RED HAT DEVELOPER PROGRAM
LAUNCH
Continuous application delivery,
built and deployed on OpenShift.
LAUNCH YOUR PROJECT
Supported Runtimes
WildFly SWARM
WildFly Swarm offers an innovative approach to packaging and running Java EE applications by packaging them with just enough of the server runtime to "java -jar" your application.
Learn more
VERT.X
Eclipse Vert.x is a tool-kit for building reactive applications on the JVM.
Learn more
Spring Boot makes it easy to create stand-alone, production-grade Spring based Applications that you can "just run".
Learn more
technology preview
RED HAT FUSE
Red Hat® Fuse is a lightweight, flexible integration platform that uses Apache Camel at his core.
Learn more
node
Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient.
Learn more

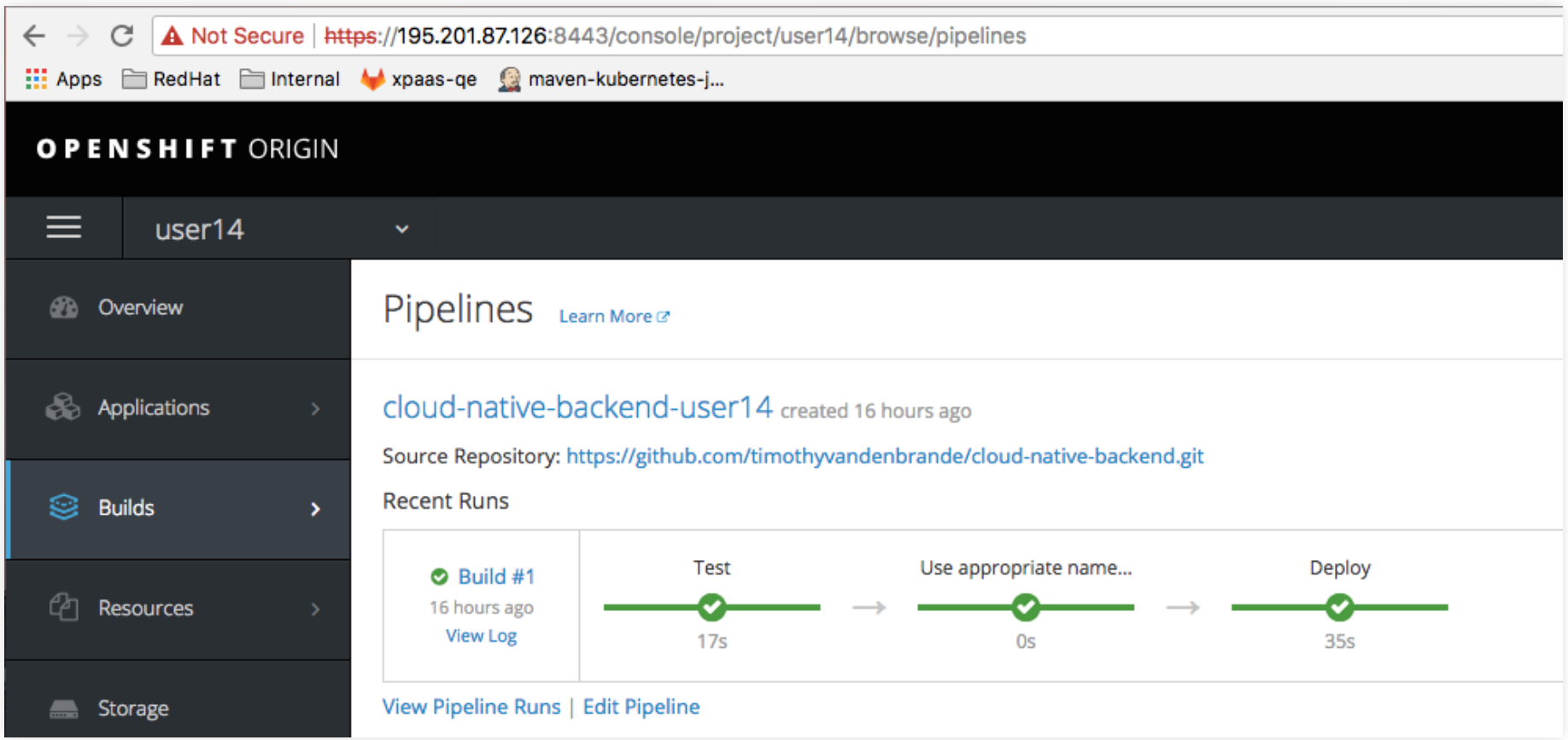
AUTOMATE - LOCAL



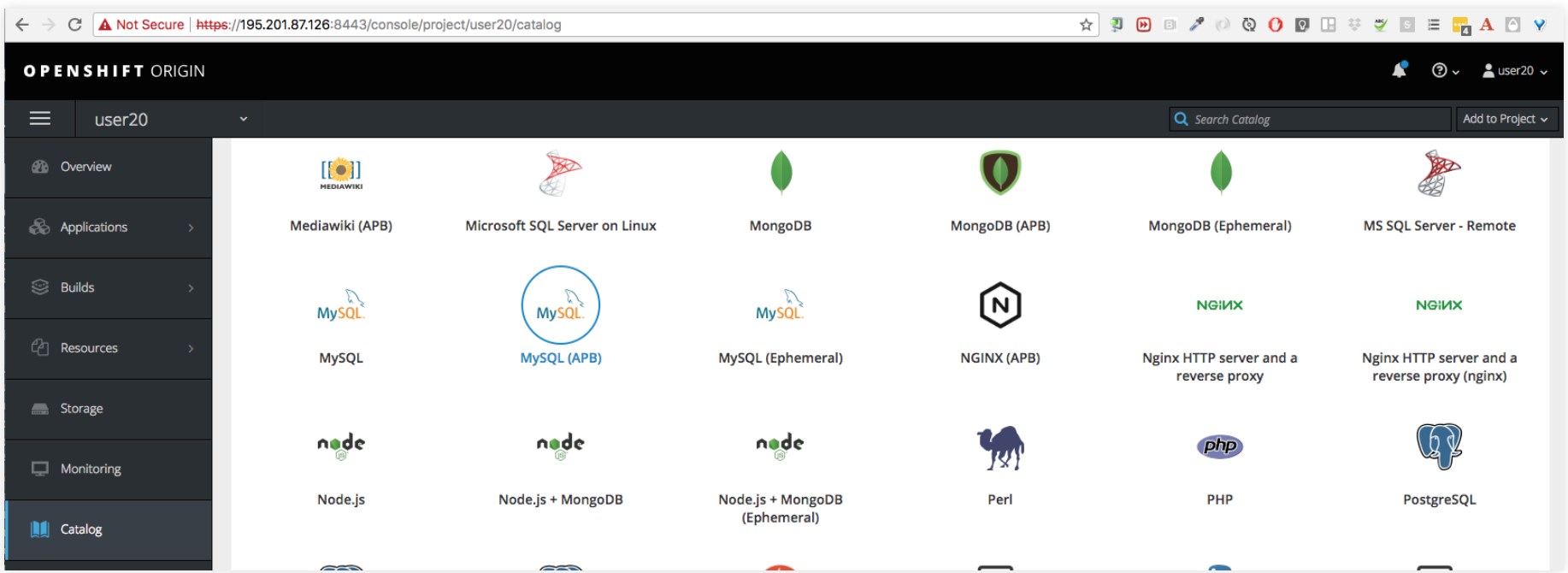
AUTOMATE - TEMPLATE



AUTOMATE - JENKINS



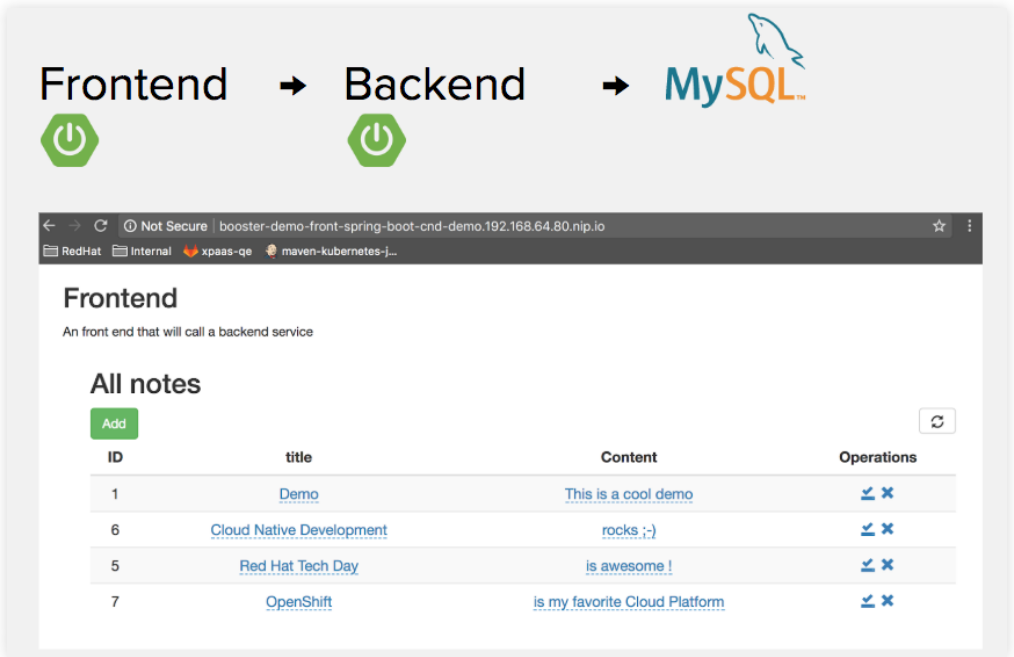
SERVICE CATALOG



WHAT'S ELSE

- Security and Keycloak (OAuth2,…)
- Metrics (Prometheus, Actuator)
- Remote Debugging
- Integration testing (Arquillian)
- Logging (Jaeger)
- Routing/ACL/CircuitBreaker … (Google Istio)

DEMO



https://github.com/snowdrop/cloud-native-lab