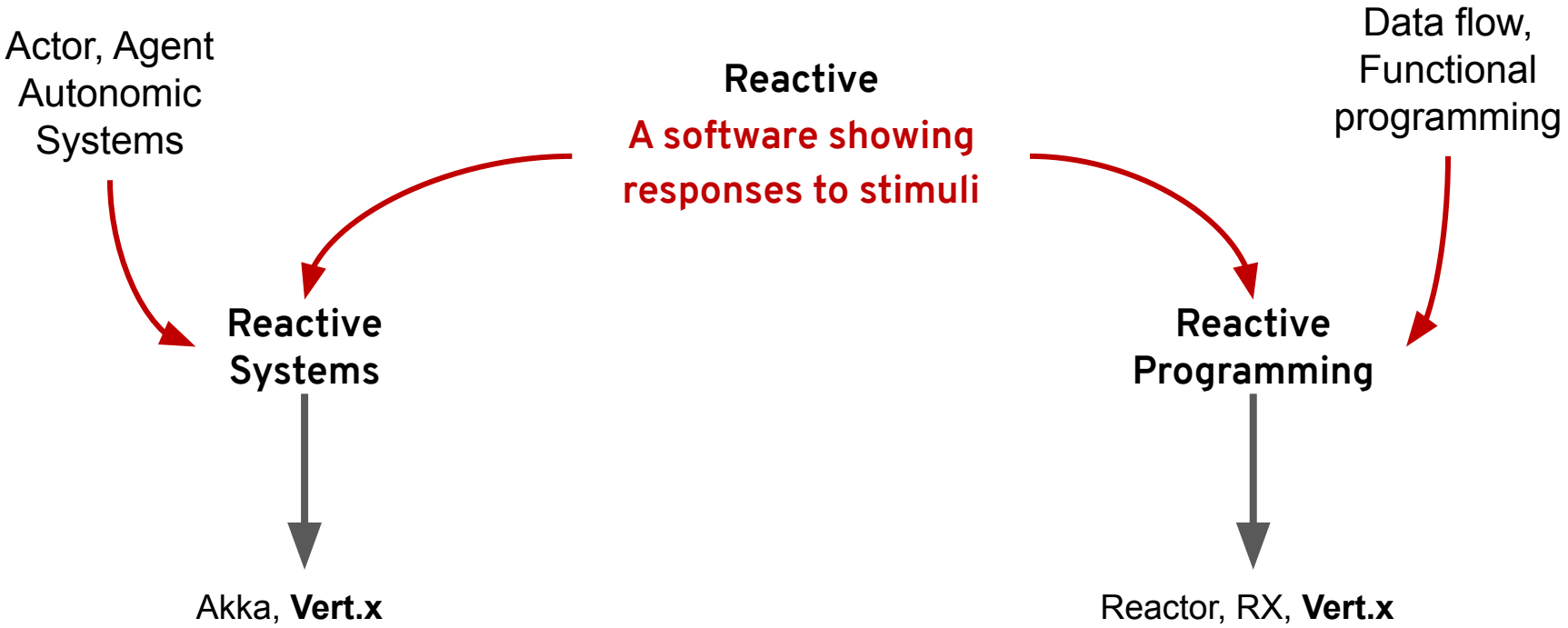
Monoliths to microservices: App Transformation

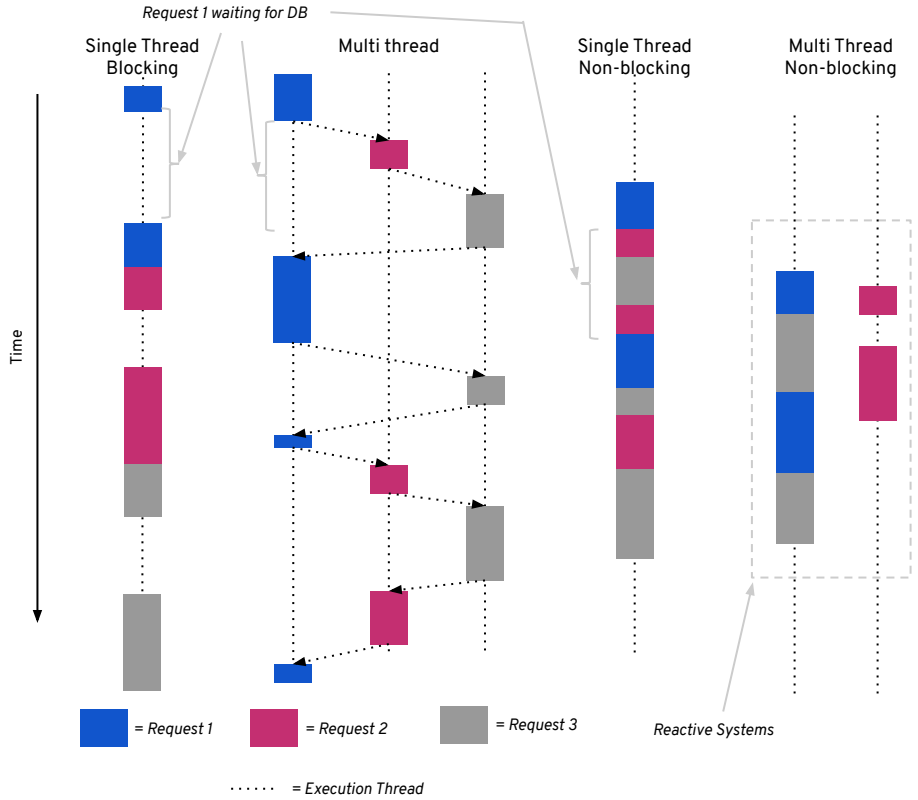
Hands-on Technical Workshop

Reactive microservices

The 2 faces of reactive



Execution model (single core)



Blocking

- Example: CGI, early versions of server side JavaScript.
- Can only scale horizontally

Multi thread

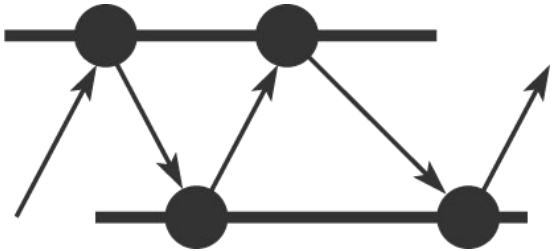
- Example: Java EE, Tomcat, Spring (non reactive)
- Scales horizontally and vertically

Non blocking

- Example: NodeJS, Eclipse Vert.x, Akka, Spring reactive
- Scales horizontally and vertically

Eclipse Vert.x

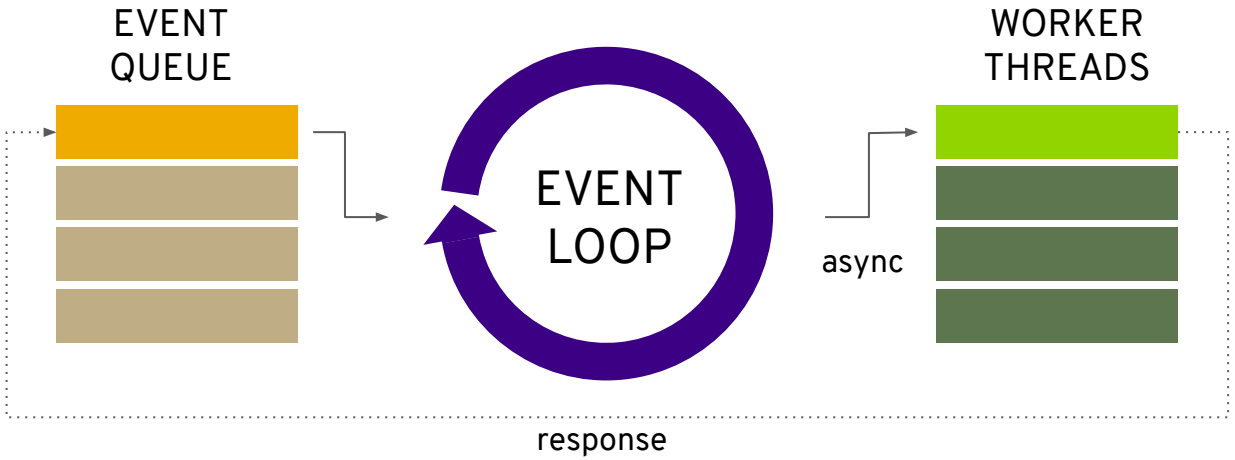
Vert.x is a toolkit to build distributed and reactive systems



- **Asynchronous Non-Blocking development model**
- Simplified concurrency (**event loop**)
- Reactive microservice, Web applications, IOT
- Ideal high-volume, low-latency applications
- Un-opinionated
- Understands clustering in its core architecture
- Polyglot - including Java, JavaScript, Groovy, Ruby, Ceylon, Scala and Kotlin

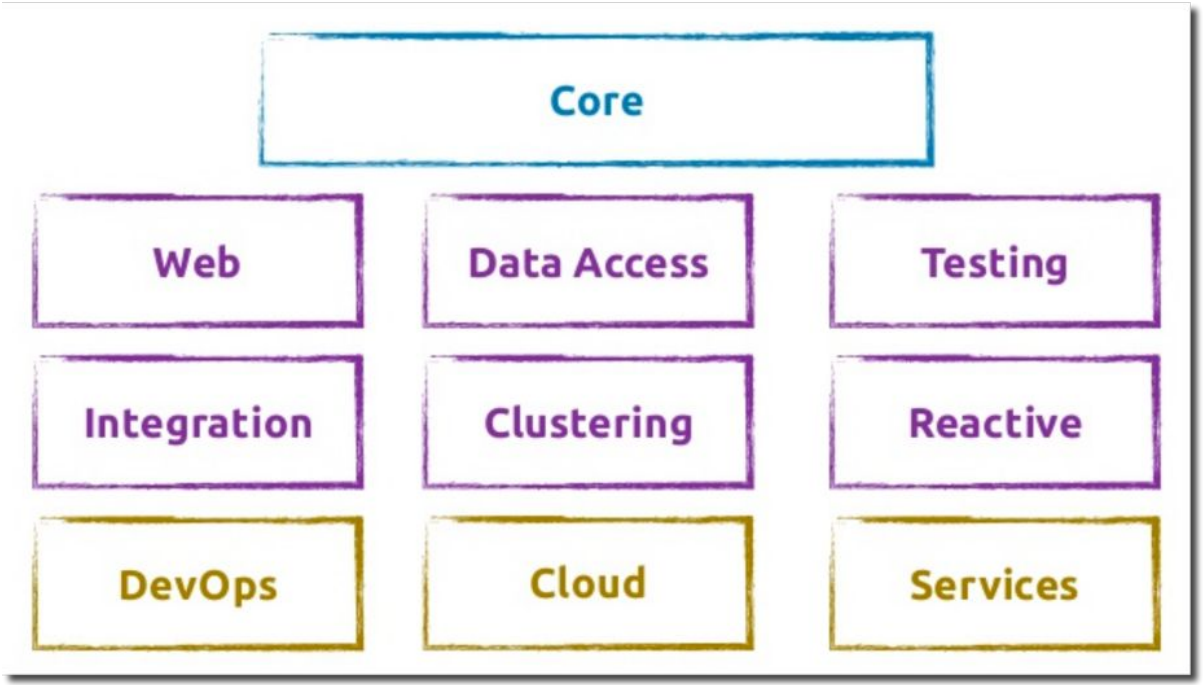
Home - http://www.vertx.io

Vert.x event loop



Handle Thousands of Requests With Few Threads

Vert.x ecosystem



Lab 4: Reactive microservices with Eclipse Vert.x

- Explore Vert.x Maven project
- Create an API gateway
- Run Vert.x locally
- Deploy Vert.x on OpenShift

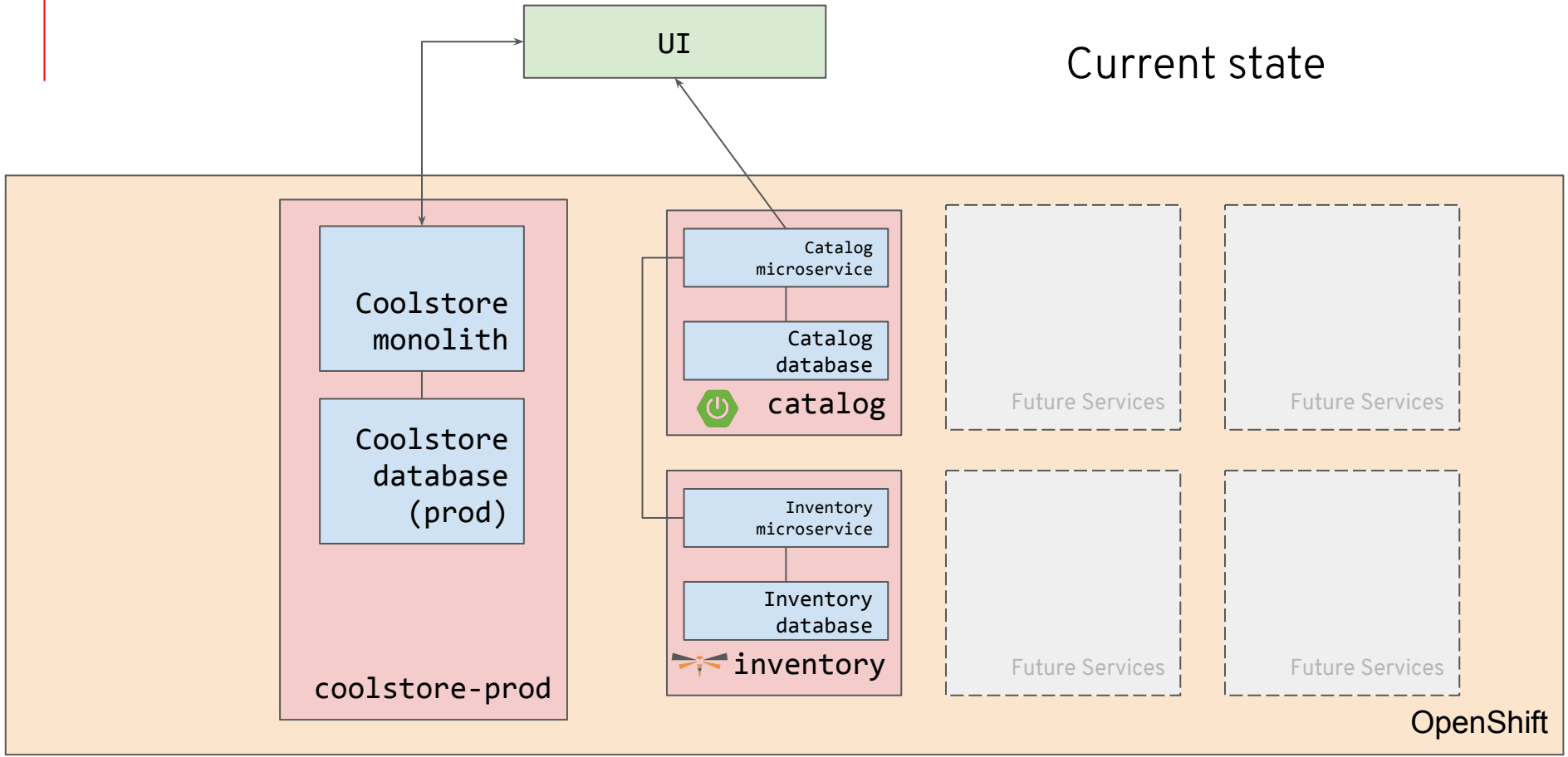
Lab: Reactive microservices with Eclipse Vert.x

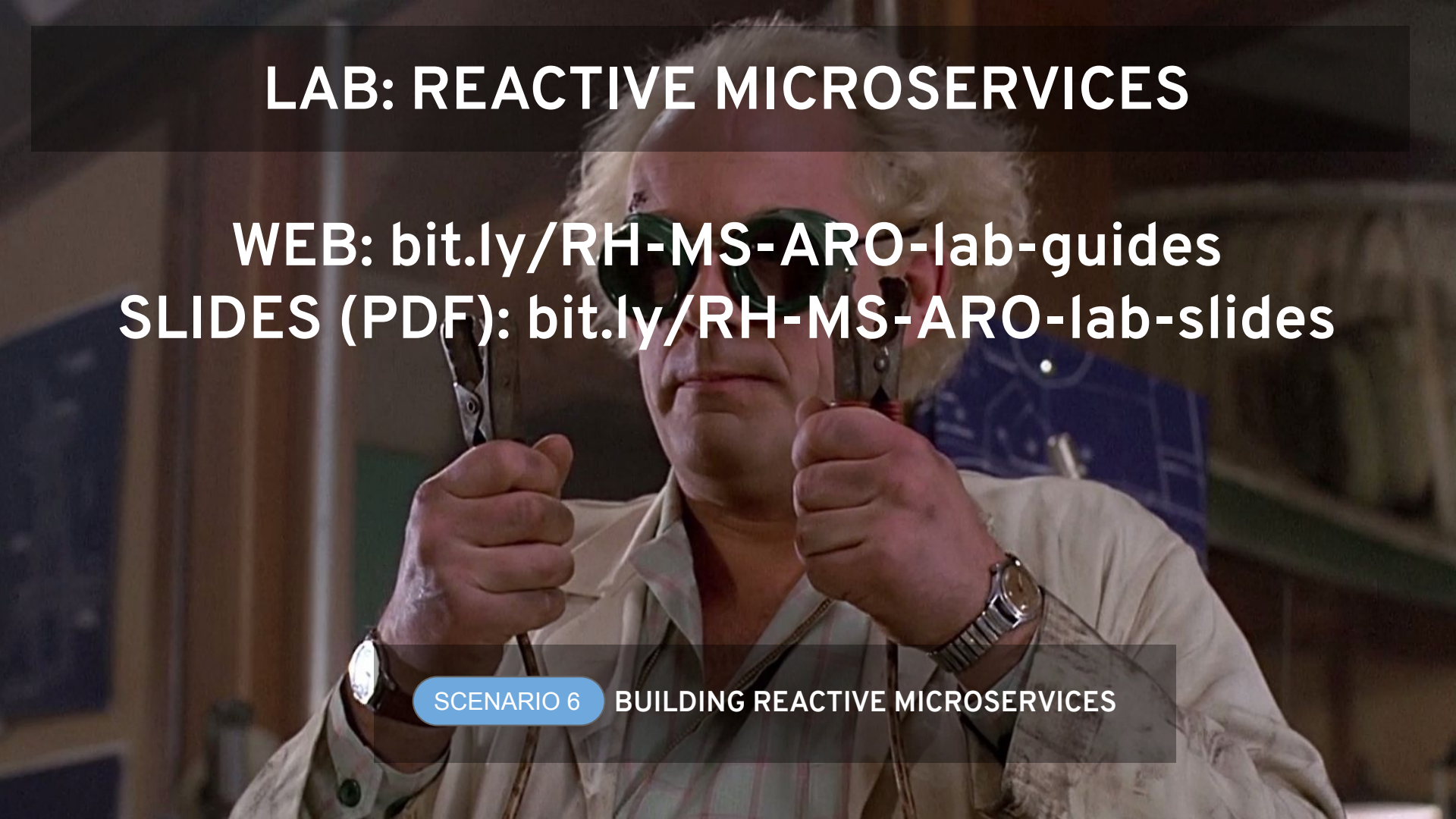
Goal for lab

In this lab you will learn:

- How Event-based architectures supercharge microservice apps
- Use cases for reactive applications
- Develop microservices using Eclipse Vert.x
- Interact with other microservices without blocking
- Learn the basics of Reactive programming

Current state





LAB: REACTIVE MICROSERVICES

WEB: bit.ly/RH-MS-ARO-lab-guides
SLIDES (PDF): bit.ly/RH-MS-ARO-lab-slides

SCENARIO 6 BUILDING REACTIVE MICROSERVICES

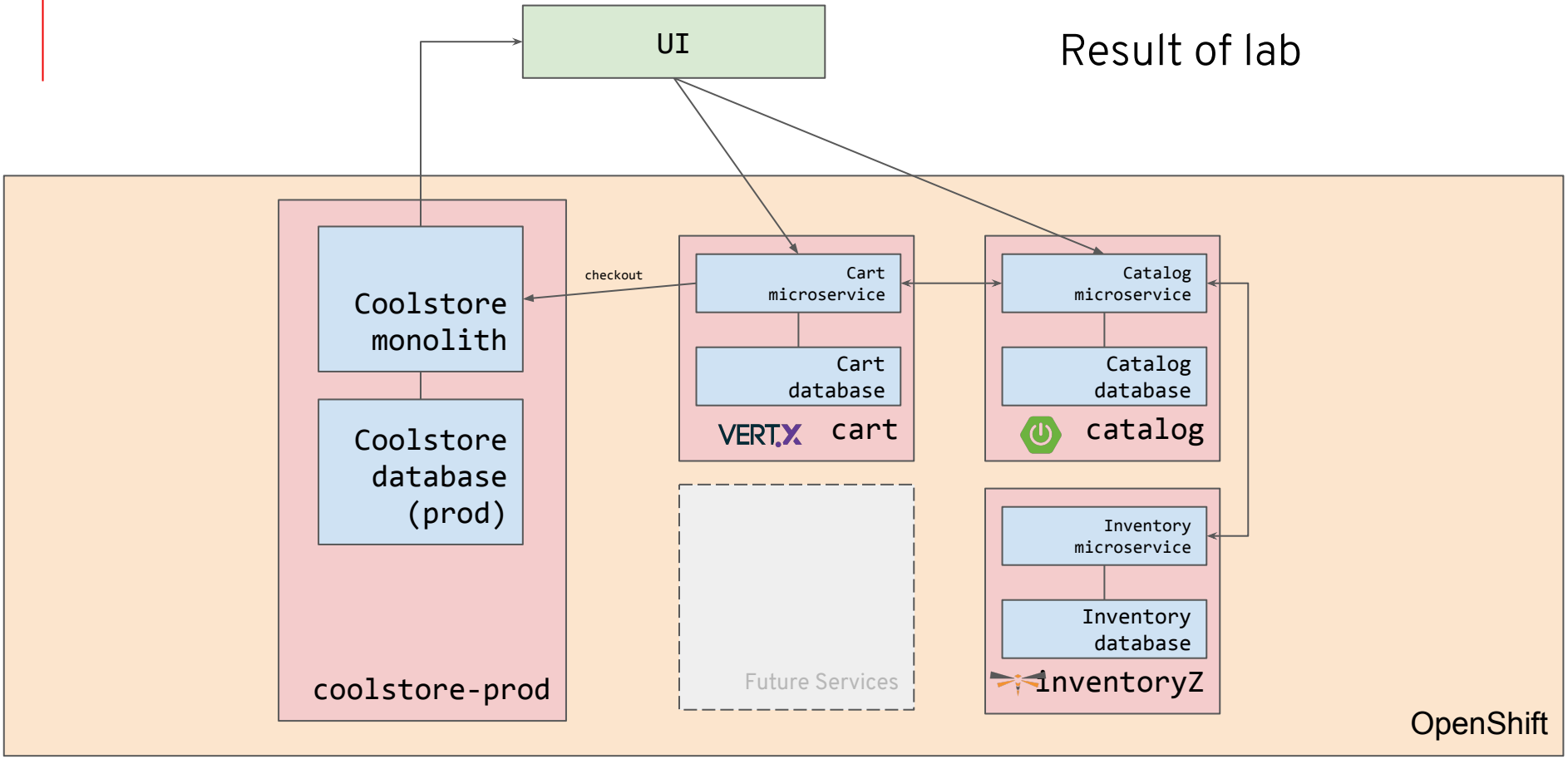
Wrap-up and discussion

Result of lab

In this lab you learned how to:

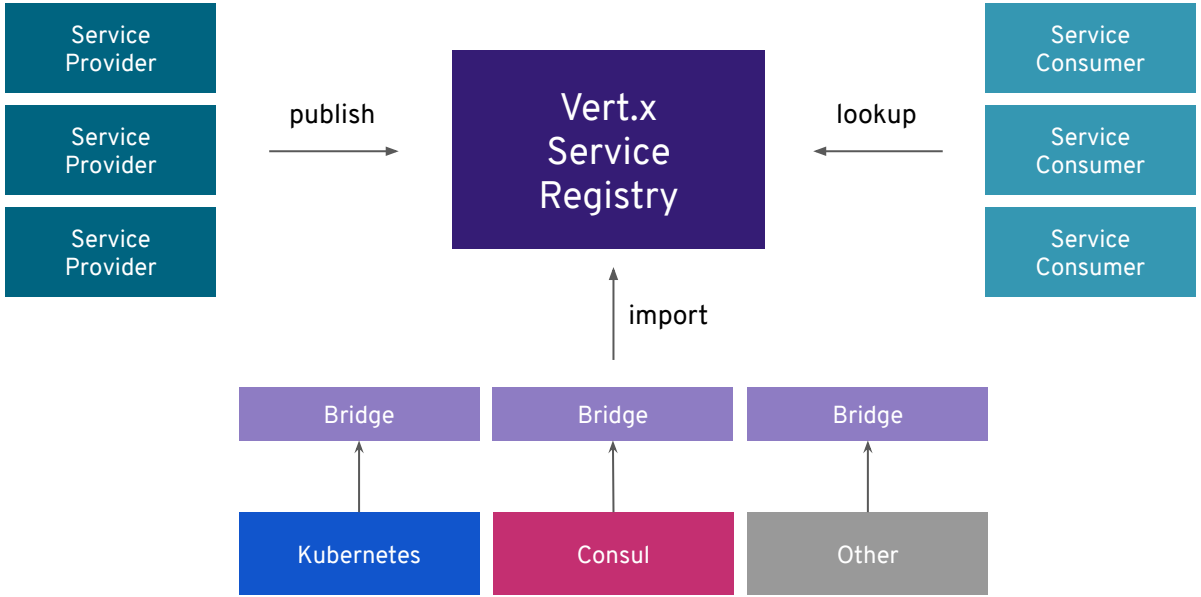
- Build reactive web application that are non-blocking
- Asynchronously call out to external service using Callbacks, Handlers and Futures
- Deploy the application to OpenShift

Result of lab



Eclipse Vert.x offers much more

Service discovery



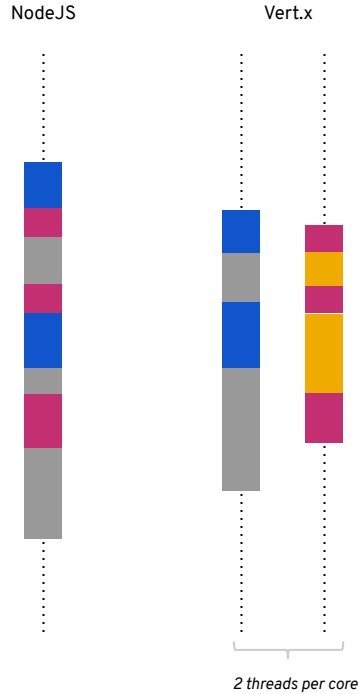
Vert.x vs. Node.js

Vert.x

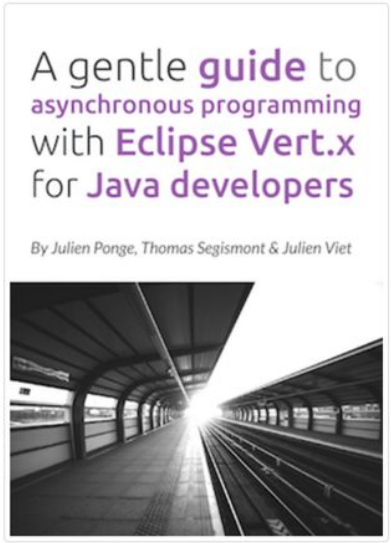
- Multi-threaded
- Polyglot (Java, JavaScript, Scala, and more)
- Supports reactive programming using RxJava, RxJS, etc

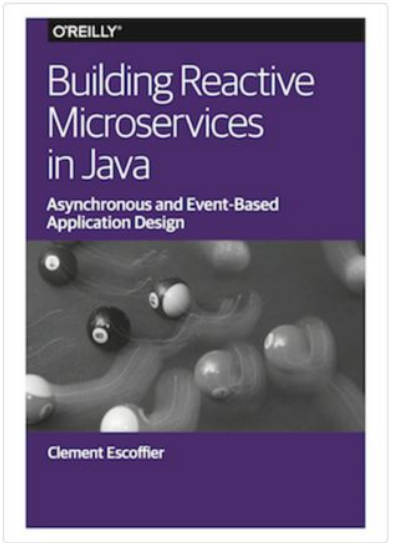
NodeJS

- Single threaded
- JavaScript only
- Support reactive programming using RxJS



Free e-books





http://vertx.io/docs/

Thank you

LinkedIn: linkedin.com/company/red-hat

YouTube: youtube.com/user/RedHatVideos

Facebook: facebook.com/redhatinc

Twitter: twitter.com/RedHatNews

Google+: plus.google.com/+RedHat

LinkedIn: linkedin.com/company/microsoft/

YouTube: youtube.com/user/MSCloudOS

Facebook: facebook.com/microsoftazure/

Twitter: twitter.com/azure

Azure Friday: channel9.msdn.com/Shows/Azure-Friday

Azure | Channel 9: channel9.msdn.com/Blogs/Azure