Open Liberty

Cloud-native Java microservices with MicroProfile

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Good morning! Guten Morgen!

Setting Context

- Building Cloud Native Microservices
- A Cloud Native App Server
- A Better JVM for Cloud
- Time to Code!

Building Microservices

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Why are you here?

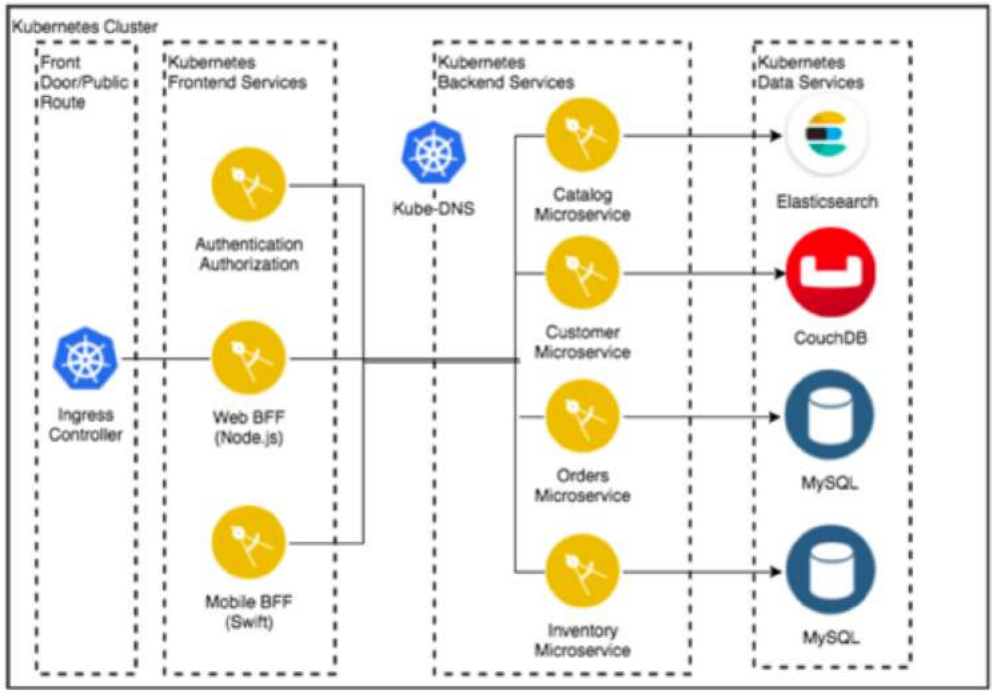
Open Liberty

“Be like NetFlix” -- ¯_(ツ)_/¯ ?

Why are you here?

- Benefits of Microservices
  - Scalability
  - Independent Deploy-ability
  - Agile
  - DevOps
  - etc

Transformation



Cloud Native?

- 12 Factor Apps
  - Benefits
  - Concerns
  - Complications

Microservices?

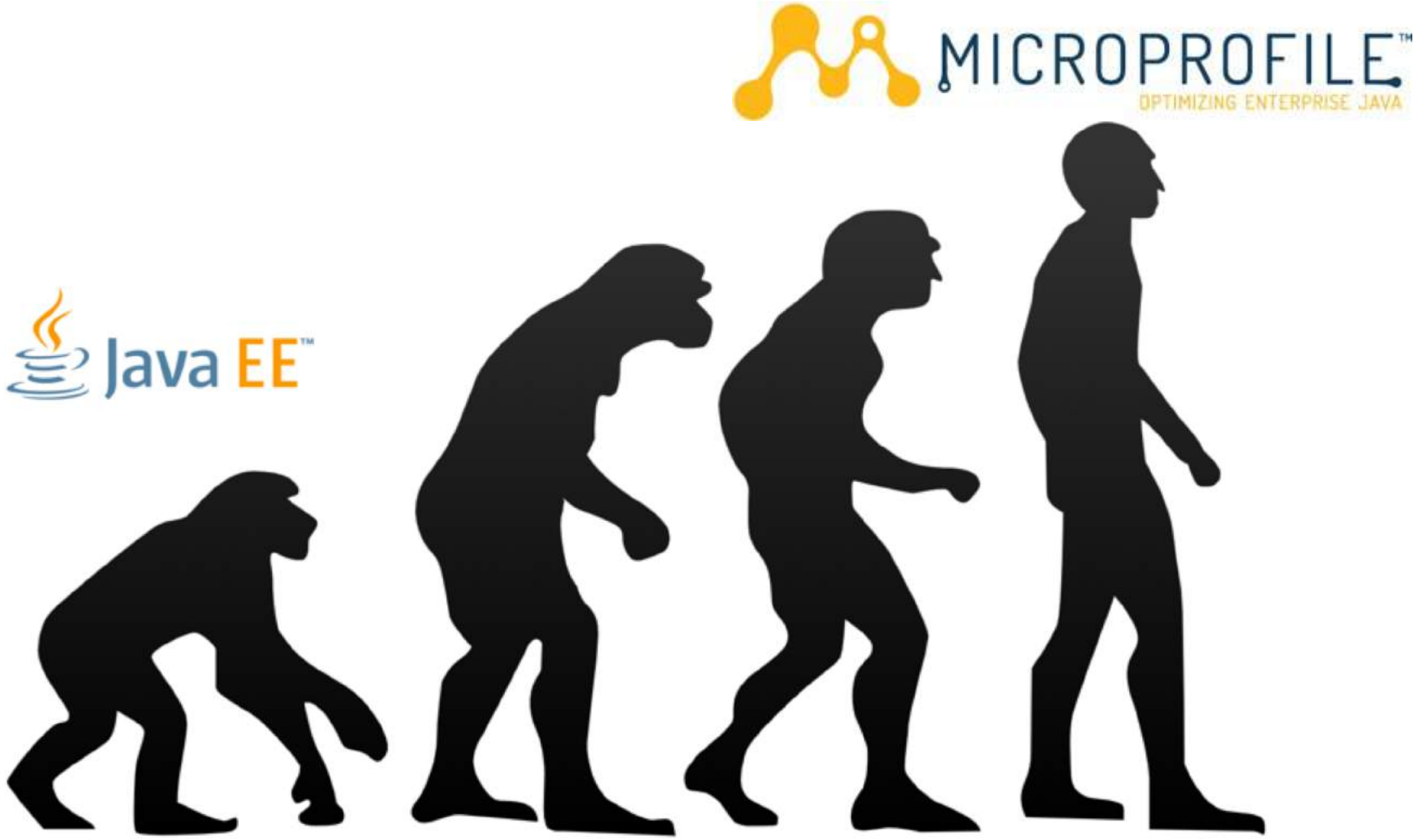
Open Liberty

- Secure, fault tolerant, configurable, monitorable, etc
  - Benefits
  - Concerns
  - Complications

Transformation = Culture!

- Tools & Practices
- Processes & Procedures
- Remember the Agile Manifesto? :)

An Evolution



Eclipse MicroProfile

Optimizing Enterprise Java
for a Microservices Architecture

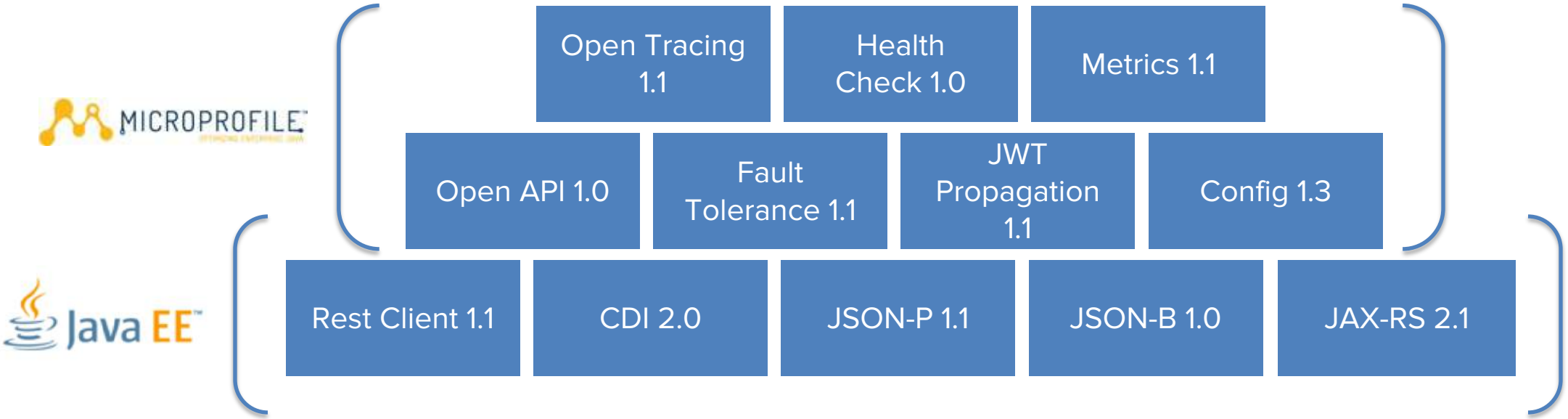
IBM
LJC
redhat
Tomitribe
payara
SOUJava
hazelcast
FUJITSU
kumuluzEE
Hammock
ORACLE
Lightbend
Microsoft

Open Liberty

How MicroProfile Helps You

- Industry standard, vendor agonostic
- Best practice patterns & solutions
- Multi-vendor support

Eclipse MicroProfile



microprofile.io

A Cloud Native App Server

Open Liberty

Open Liberty

An IBM Open Source Project

Jump on board and work at lightspeed

Build cloud-native apps and microservices while running only what you need. Open Liberty is the most flexible server runtime available to Java™ developers in this solar system. Here's why.

Download (120 MB)

View more downloads

Launch a sample app

Open Liberty is fast and composable, but don't take our word for it - try it out!

```
git clone https://github.com/OpenLiberty/sample-getting-started.git

cd sample-getting-started
```

Design Goals

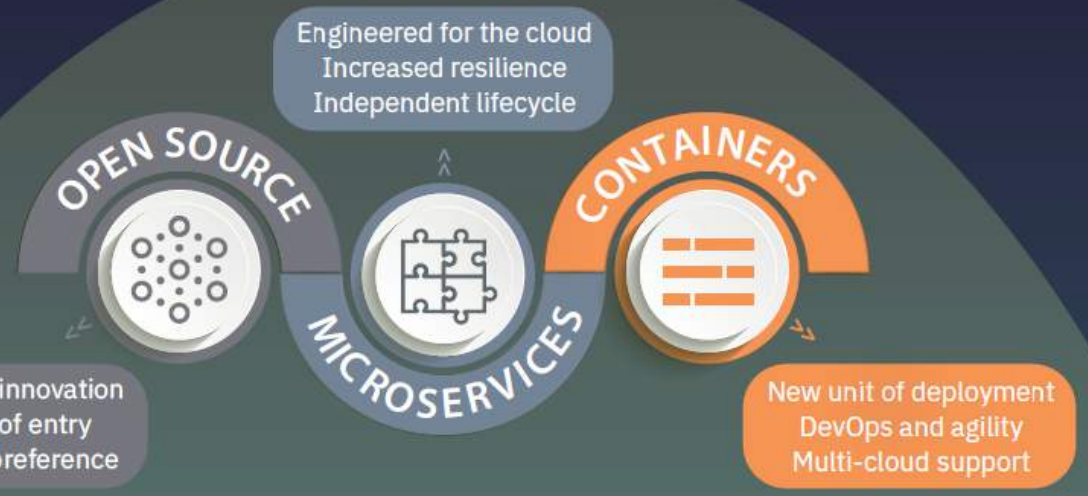
- Efficient
- Simple to use
- Consistency
- Just enough Application Server
- Very good for virtualized environments
- End of migration
- Agile Ready

Open Liberty

A lightweight open source server runtime ideal for building Java™ microservices and cloud-native apps

- Easy to consume
- Deploy on any cloud for Java™
- Seamlessly transition to WebSphere

https://openliberty.io/



Java™ EE8
for seamless integration with existing WAS investment

MicroProfile™
for building microservices and cloud-native apps

Eclipse License
for community contributions and ecosystem integration

Docker
for ease of inclusion in a DevOps build pipeline

Support Upgrade
easily upgrade to WebSphere Liberty for fee-based support

A Better JVM For Cloud

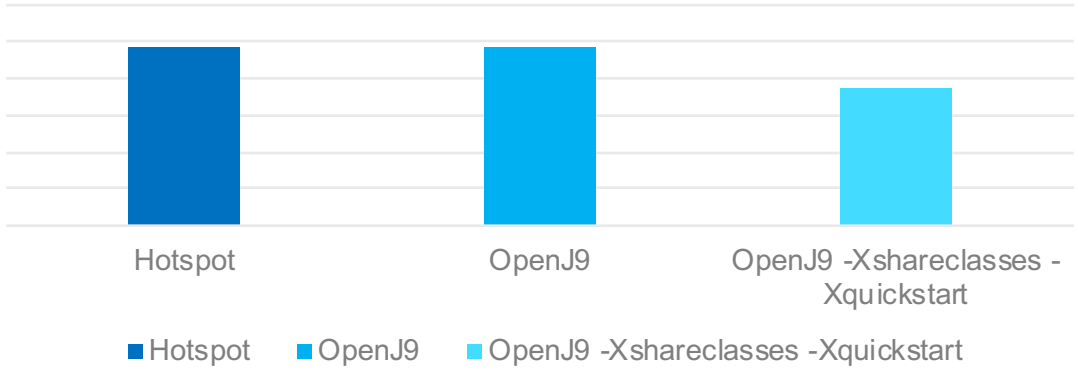
Open Liberty

Cloud Costs

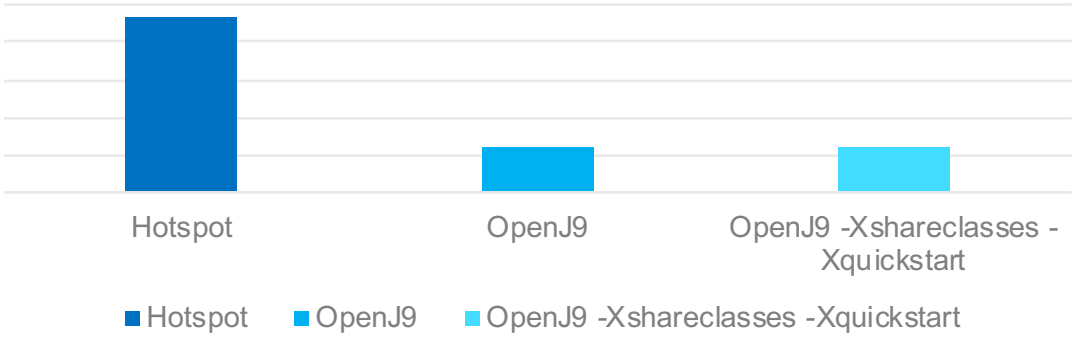
- In The Cloud…
  More Resources = More $$$
- Small Footprint & Faster Start-up
  = Less $$$
- More Throughput
  = Less $$$
- OpenJDK with **Eclipse OpenJ9** – perfect for cloud

Adopt Eclipse OpenJ9

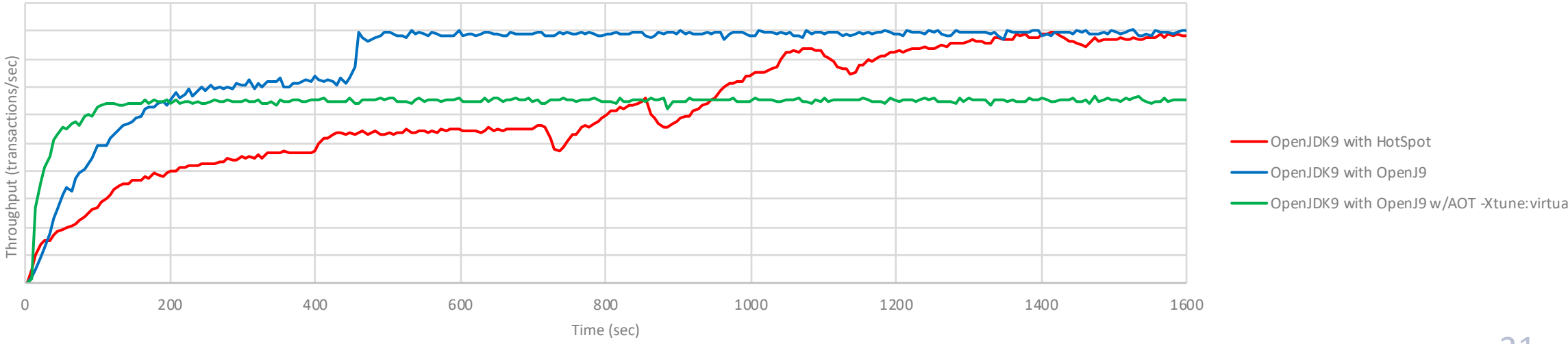
Startup time is **30% faster** with OpenJ9 –Xshareclasses -Xquickstart



Footprint is **60% smaller** with OpenJ9



Achieve peak throughput **70% faster** with OpenJ9



http://www.eclipse.org/openj9

https://adoptopenjdk.net/?variant=openjdk8-openj9

Summary

Open Liberty

- MicroProfile - Java APIs for cloud-native applications
  - Produce and consume REST services
  - Handle faults, security, configuration, APIs
  - Monitor health, metrics and trace request flows
- Open Liberty - Java platform for cloud-native applications
  - Open Source, Simple, Lightweight, Fast
  - Supports latest MicroProfile and Java EE API
  - Flexible package to suit your Microservices
- Eclopse OpenJ9 Liberty – Java virtual machine for OpenJDK
  - Smallest memory footprint, fastest startup & highest throughput

Time to Code!

Open Liberty

Docs Guides Reference

Docs > Guides

MicroProfile Guides

Guides

The quickest way to learn all things Open Liberty, and beyond!

Search all guides

Open Liberty Basics - Let's get started

4 guides

4 essentials

Deploying and packaging applications
Learn how to deploy and update an application on Open Liberty with Maven and Docker.
25 minutes

Building a web application with Gradle
Learn how to build and test a simple web application using Gradle and Open Liberty
15 minutes

Building a web application with Maven
Learn how to build and test a simple web application using Maven and Open Liberty
15 minutes

Using Docker containers to develop microservices
Learn how to containerize a microservice with Docker for iterative development
20 minutes

MicroProfile - Developing microservices with ease

14 guides

4 essentials

New to MicroProfile? Get an introduction here.

Creating a RESTful web service
Learn how to create a REST service with JAX-RS, JSON-P, and Open Liberty.

Injecting dependencies into microservices
Learn how to use Contexts and Dependency Injection to manage and inject dependencies into microservices.

Consuming RESTful services with template interfaces
Learn how to use MicroProfile Rest Client to invoke RESTful services over HTTP in a type-safe way.

Separating configuration from code in microservices
Learn how to perform static configuration injection using MicroProfile Config.

Useful links

- The tutorial - https://github.com/OpenLiberty/tutorial-microprofile
- Home - https://microprofile.io/
- Eclipse Home - https://eclipse.org/microprofile
- Forum - https://groups.google.com/forum/#!forum/microprofile
- Guides - https://openliberty.io/guides/?search=MicroProfile
- Java - http://www.eclipse.org/openj9/

Thank You!
&
Enjoy the lab!

https://github.com/OpenLiberty/tutorial-microprofile

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