

RED HAT FORUMS

DA JAVAEE A CLOUD NATIVE JAVA

Supersonic, subatomics, Quarkus

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6699



apiVersion: redhat/v2

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annotations:

specialist: openshift, jboss eap, amq, bpm

labels:

sports: football, horse riding

spec:

replicas: 1

containers:

- image: redhat.io/maurino:latest

6699



apiVersion: redhat/v2

kind: Software engineering Manager

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annotations:

specialist: WildFly, MicroProfile, jboss eap

labels:

sports: running, climbing, fitness

spec:

replicas: 1

containers:

- image: redhat.io/maeste:latest

The reports of my death are greatly exaggerated



- Still a de-facto language for enterprise developers*
- Large skills base (7-10 million Java devs.)**
- Large and Increasingly diverse ecosystem
 - Amazon, Fujitsu, Google, IBM, Microsoft, Netflix, Oracle, Pivotal, Red Hat, ...

Sources:

*Tiobe Index : <https://www.tiobe.com/tiobe-index/>

* IEEE Spectrum : <https://spectrum.ieee.org/static/interactive-the-top-programming-languages-2018>

!** SlashData - 7.6 million active Java developers (State of Developer Nation, 16th Edition, Q4 2018)

Don't panic

- Large, resilient community
- Many tried and trusted technologies
- Not dependent on a single vendor
- The innovation continues
- New leaders emerging
 - OpenJDK Supporters
 - Eclipse MicroProfile ecosystem
 - Cloud providers



Enterprise Java – Opportunities and Challenges

- Java EE? Jakarta EE? MicroProfile? Customer confusion!
 - Provide a pathway to adopt new architecture
 - Enable millions of Java developers to become truly cloud-native
- Our problems are not the same as they were 10 years ago
 - We can't expect the same solutions to make sense!
 - Containers are small and primarily immutable
 - JVMs no longer shared across apps

Jakarta EE Technical Vision

As the future of Cloud Native Java, Jakarta EE will:

- Help developers create portable cloud native applications
- Deliver faster innovation

To support this vision we will value:

- Open standards
- A community-based specification process, building on the experience of real world deployments and developers
- Adopting Java innovations from open source communities like Eclipse MicroProfile into new versions of the platform



JAKARTA EE

Jakarta EE Working Group Founding Members

Strategic Members



Participating Members



JBoss EAP remains Red Hat's Premier Java EE (Jakarta EE) compatible implementation

Java EE specification		Community project		Product
Java EE 6	→	JBoss AS 7	→	JBoss EAP 6
Java EE 7	→	WildFly 8,9,10 / 11	→	JBoss EAP 7 / 7.1
Java EE 8	→	WildFly 12,13,14,15	→	JBoss EAP 7.2
Jakarta EE 8	→	WildFly 16,17,18	→	JBoss EAP 7.3
(Jakarta EE 9) MicroProfile.last	→	WildFly 19,20,21	→	JBoss EAP 7.4

- Jakarta EE 8 is equal to Java EE 8
- Jakarta EE 9 cloud native and may include MicroProfile as well.

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JBoss EAP will continue to evolve ...

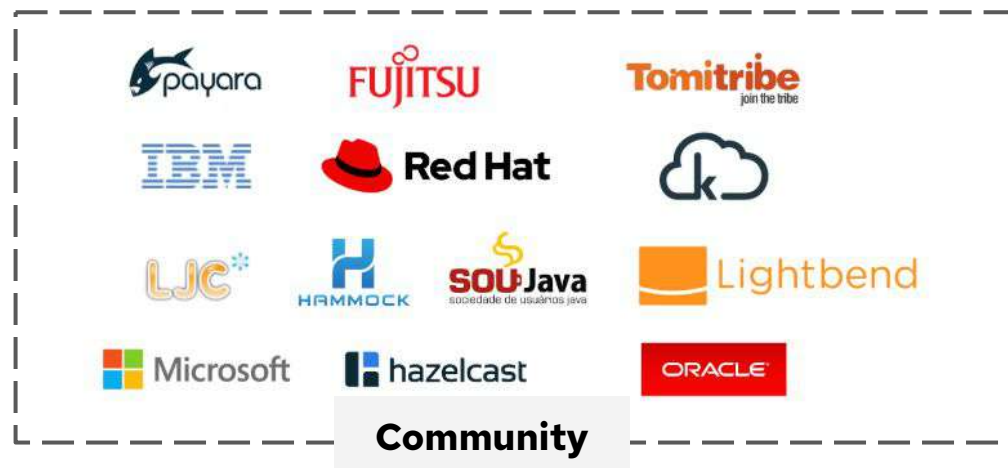
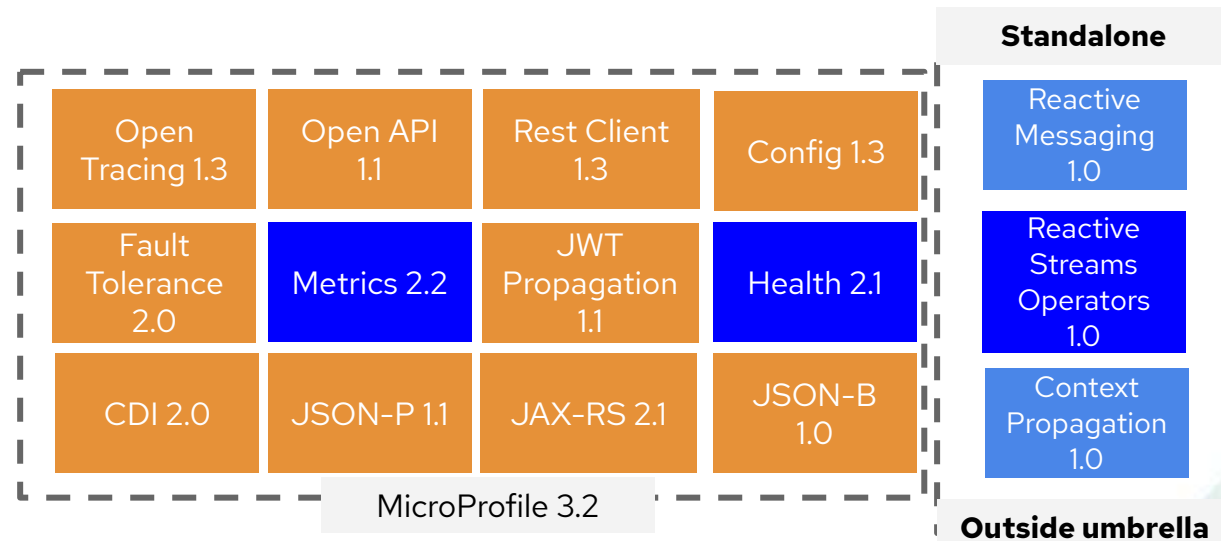
- Subset of MicroProfile APIs already present
- Full support of MicroProfile.last from next version
- OpenShift Observability and Diagnosis - Kiali (istio) integration
- Ability to run CLI as part of S2I build
- EAP OpenShift Operator Phase I
- Ability to trim features to provide customization for EAP and its image's footprint

What is Eclipse MicroProfile?

- Eclipse MicroProfile is an open-source community specification for Enterprise Java microservices
- A community of individuals, organizations, and vendors collaborating within an open source (Eclipse) project to bring microservices to the Enterprise Java community

Eclipse MicroProfile

- Open Source community specifications for Enterprise Java microservices
- 11 releases in 3 years
- 5 specifications in the pipeline





Optimizing Jakarta EE for a Microservices Architecture

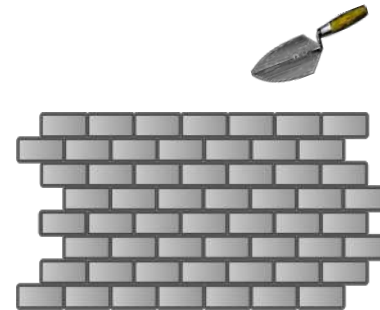
Release 2.0



Rapidly iterate
and innovate



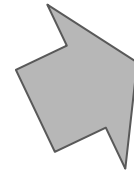
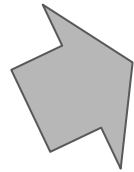
Build
consensus



Standardize



Accelerating Adoption of Microservices



MicroProfile 1.0



MicroProfile 2.1



MicroProfile 3.2



MicroProfile 2.0



MicroProfile 3.0



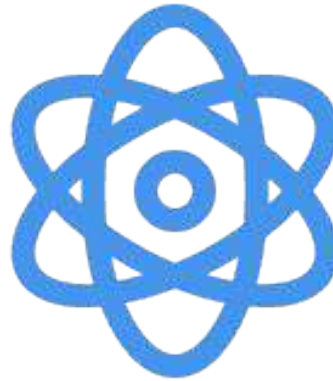
Time

We Need:

A stack to write Java apps



Cloud Native,

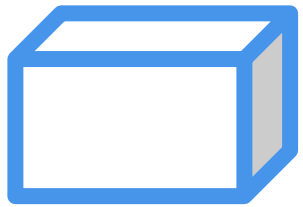


Microservices,



Serverless

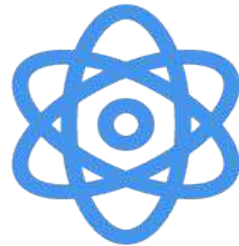
Common Deployment Platform



Monolith



Cloud Native



Microservices



Serverless



Event-Driven
Architecture



kubernetes



Istio

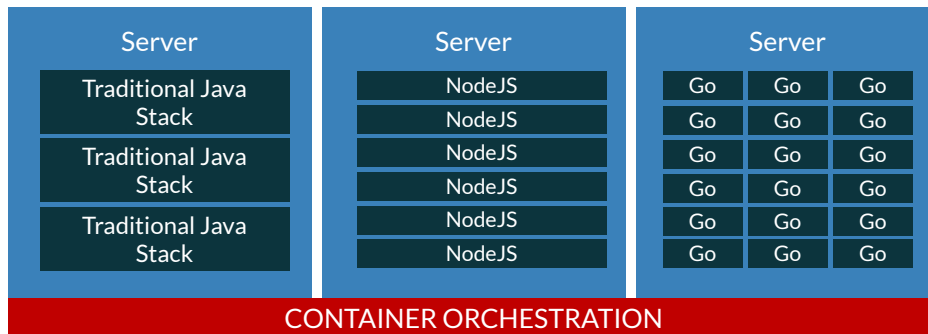


Knative

But Java was born well before Cloud and Containers...

Biggest Issues of Java in Containers

Application Density



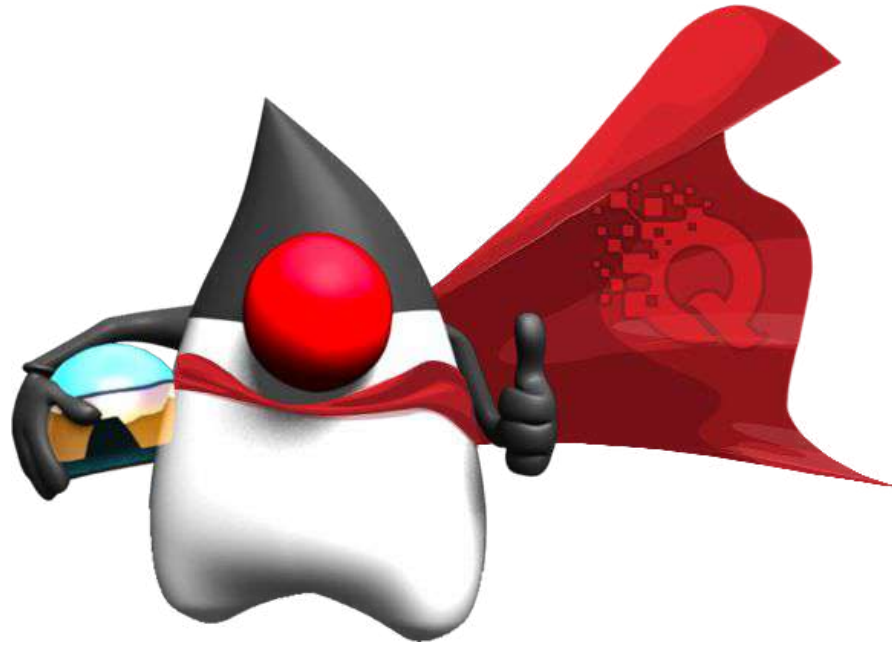
Startup Overhead



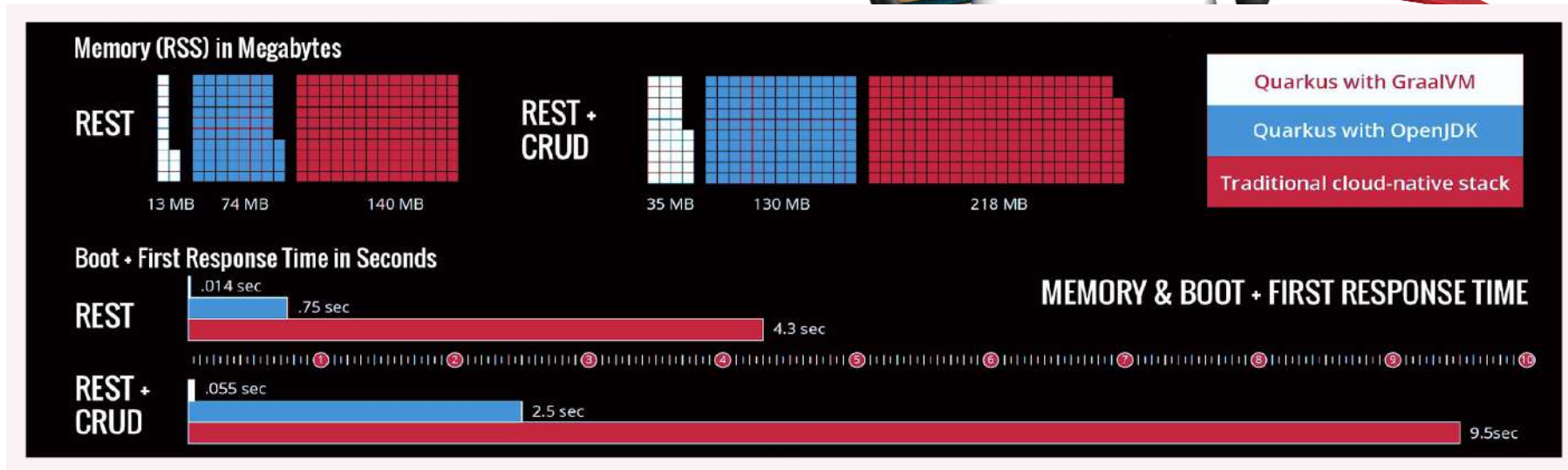
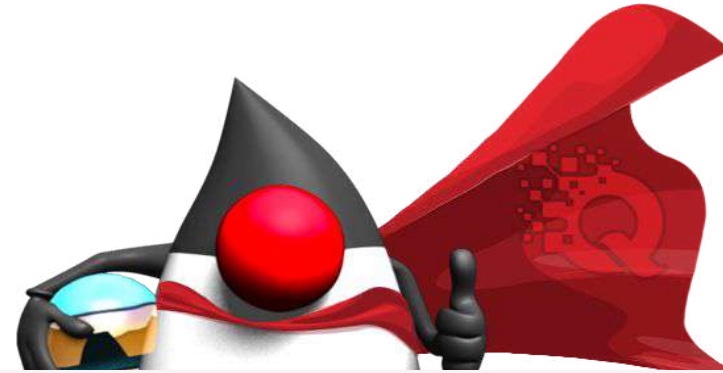
- Classloading
- JIT
- Framework Initialization (not jvm related)
 - Classpath scanning
 - Annotation Processing
 - etc

Meet Quarkus

Supersonic java



Quarkus reduces memory utilization and improves startup time



Best of Breed Frameworks & Standards



VERT.x

Eclipse Vert.x



Eclipse MicroProfile



Spring Compas



Hibernate



RESTEasy



Apache Camel



Kubernetes



OpenShift



Jaeger



Prometheus



Apache Kafka

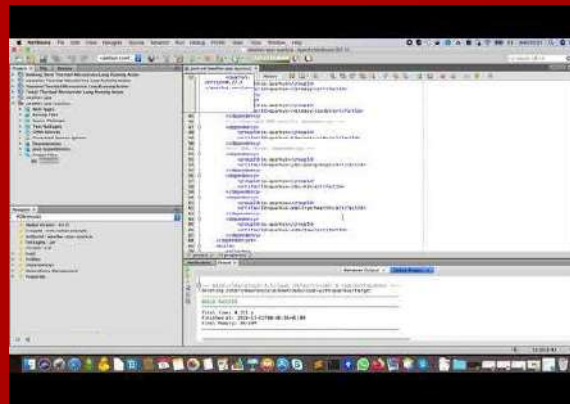


Netty

DEMO



[Weather Application - Source Code](#)



Thorntail



Thorntail core is based on SmallRye project that it's the reference implementation for WildFly MicroProfile and Quarkus MicroProfile

Thorntail reaching the end of life ... MicroProfile is live and kicking

Red Hat OpenShift Application Runtimes						
			Full Support		Maintenance Support	
Family	GA	Life Cycle	Start	End	Start	End
WildFly Swarm 7.x and Thorntail 2.x	Nov 2017	Limited	Nov 2017	Nov 2020	N/A	N/A

[1] https://access.redhat.com/support/policy/updates/jboss_notes

[2] <https://thorntail.io/posts/thorntail-community-announcement-on-quarkus/>

All changes, nothing is changing

- Brownfield evolution to cloud ready architecture
- Jakarta EE Web or Full Profile

- Microservice utilities API needed in hybrid cloud infrastructures
- Faster evolution

- Greenfield scenario: cloud native architecture and microservices
- Unifies Imperative and Reactive



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QUARKUS

It's just the
beginning ...



~~The End~~