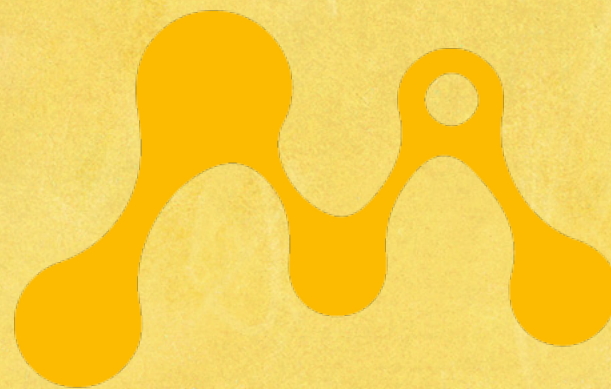




Building Robust Applications with the MicroProfile APIs



Michael P. Redlich



Who's Mike?

- BS in CS from **RUTGERS**
THE STATE UNIVERSITY OF NEW JERSEY
- “Petrochemical Research Organization”
- InfoQ Java Queue News Editor
- Garden State Java User Group
- Jakarta EE Ambassadors





Objectives

- What is MicroProfile?
- Meet the MicroProfile APIs
- Live Coding (yea!)
- MicroProfile Resources



What is MicroProfile?

What is MicroProfile?



- A full suite of APIs for optimizing enterprise Java in a microservices architecture
- A collaboration of Java EE/Jakarta EE vendors

MicroProfile Working Group



Ajug

IBM®

Tomitribe

 Jelastic

 redhat.



ORACLE

 payara®



A Concept is Born

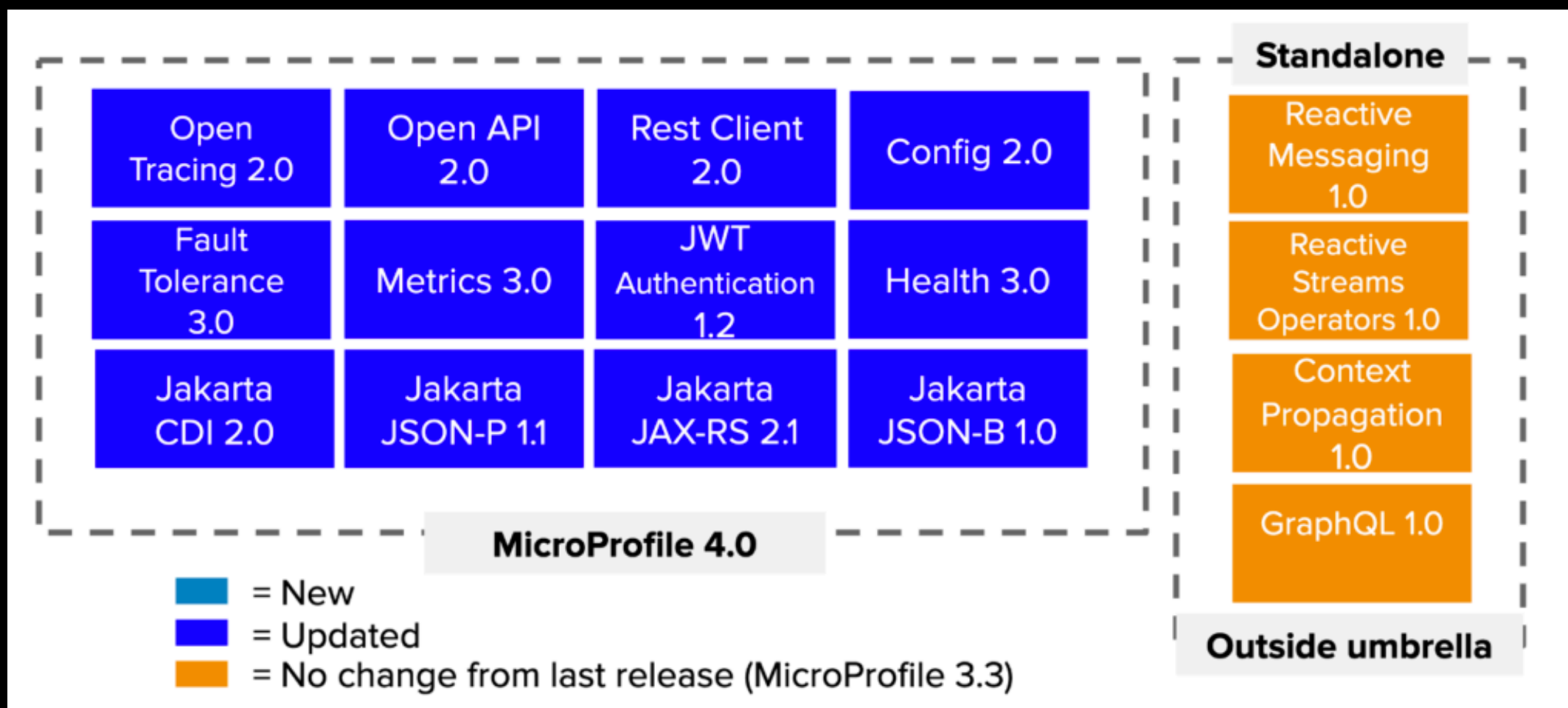
- MicroProfile introduced June 27, 2016 at Red Hat's DevNation conference featuring:
 - Mark Little (Red Hat)
 - Alasdair Nottingham (IBM)
 - Theresa Nguyen (Tomitribe)
 - Mike Croft (Payara)
 - Martijn Verburg (London Java Community)



Meet the MicroProfile APIs



MicroProfile 4.0



Released December 2020



Contexts and Dependency Injection

- Manages the lifecycle of stateful components through type-safe injection into client objects
- Introduced in MicroProfile 1.0
- Based on Jakarta Contexts and Dependency Injection (CDI)
- Current version: 2.0

Java API for JSON Processing (JSON-P)



- Processes JSON messages that produce and consume streamed JSON text in binding with Java objects
- Introduced in MicroProfile 1.0
- Based on Jakarta JSON Processing
- Current version: 1.1

Java API for RESTful Web Services (JAX-RS)



- Provides support for creating web services as defined by the Representational State Transfer (REST) architectural pattern
- Introduced in MicroProfile 1.0
- Based on Jakarta RESTful Web Services
- Current version: 2.1



Config

- Externalizes configuration from microservices
- Based on JSR 382
- Current version: 2.0



Fault Tolerance

- Leverages strategies to guide the execution and result of business logic upon some failure within the application
- Current version: 3.0



Metrics

- Provides a unified way to export monitoring data (telemetry)
- Current version: 3.0



JWT Propagation

- Provides application callers with the ability to authenticate themselves using a JWT token
- Current version: 1.2



Health

- Evaluates the health of a computing node and replace it, if necessary
- Current version: 3.0



Open Tracing

- Allows easier tracing of the flow of a request across service boundaries in a microservices environment
- Based on the Open Tracing Specification
- Current version: 2.0



Open API

- Provides a unified API for the Open API specification
- Current version: 2.0



Rest Client

- A type-safe approach to invoke RESTful services over HTTP
- Current version: 2.0

Java API for JSON Binding (JSON-B)



- A standard binding layer for converting Java objects to/from JSON messages
- Based on Jakarta JSON Binding
- Current version: 1.0



Reactive Streams Operators

- A set of operators to create new reactive streams to process and consume data
- Standalone API
- Current version: 2.0



Reactive Messaging

- Provides asynchronous messaging support for Reactive Streams Operators
- Standalone API
- Current version: 2.0



Reactive Context Propagation

- A set of APIs for propagating contexts across units of work that are thread agnostic
- Standalone API
- Current version: 1.2



GraphQL

- Enables developers to build portable GraphQL-based applications
- Standalone API
- Current version: 1.1



Let's Get Started!





MicroProfile Starter

- Generates a basic MicroProfile application with your choice of APIs
- Same concept as Spring Initializr



Demo



MicroProfile Resources

- <https://microprofile.io>
- <https://microprofile.io/blog>
- <https://microprofile.io/projects>
- <https://start.microprofile.io>



Further Reading

Culture & Methods

Observability

APM

Dev

microprofile

micronaut

microprofile

micropro 1.0

microprofile 1.0

microprofile 1.3

microservices

MICHAEL

QCon

Software Dev Conference

New York Jun 15-19, 2020

Munich Oct 19-21, 2020

SF Nov 16-20, 2020

Software Trends 2020



Acknowledgements

- MicroProfile Community
- MicroProfile Working Group



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Thanks!

