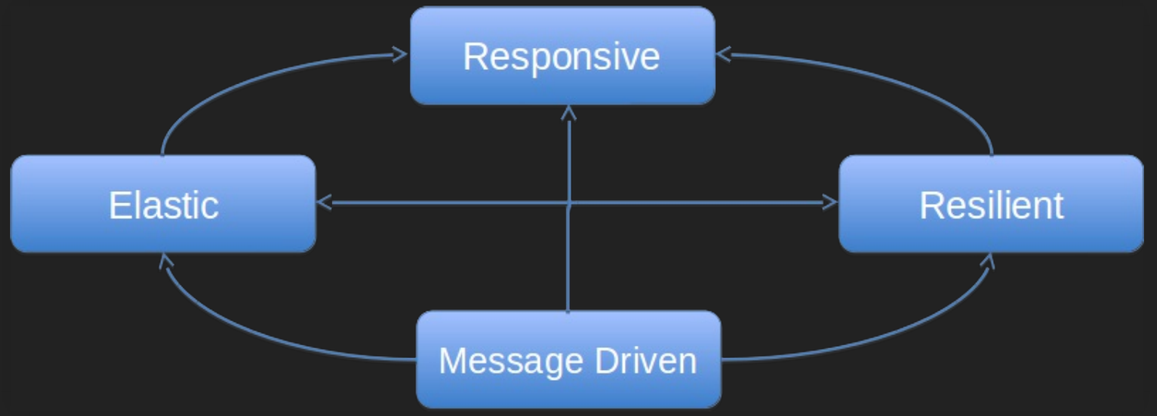
BE REACTIVE AND MICRO WITH A MICROPROFILE STACK

Ondrej Mihályi

@omihalyi

WHAT DO WE WANT?



payara

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WHY DO WE WANT IT?

- there should be a *PROBLEM* to solve

BETTER USER EXPERIENCE

- updates when ready, reduced waiting
- errors raised ASAP
- users can react faster
- avoids unnecessary user retries

HANDLE HIGH LOADS

- utilize resources at maximum (CPU)
- threads aren't wasted by blocking
- avoid blocking of new requests

HANDLE MASSIVE LOADS

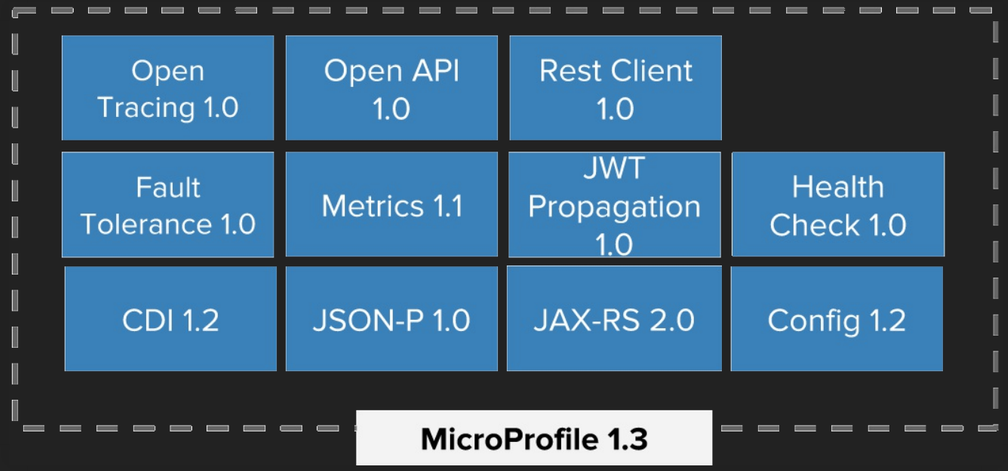
- scale to more nodes
- messaging to distribute the load

DON'T FORGET ABOUT FAILURES

- fail fast and avoid waste
- make sure failures are handled
- failures happen a lot more in distributed systems

WHAT IS MICROPROFILE?

- open-source specification for Java microservices (microprofile.io)



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REACTIVE SUPPORT IN MICROPROFILE

- Asynchronous REST (JAX-RS)
- CDI events
- easy Fault Tolerance
- Monitoring via Metrics

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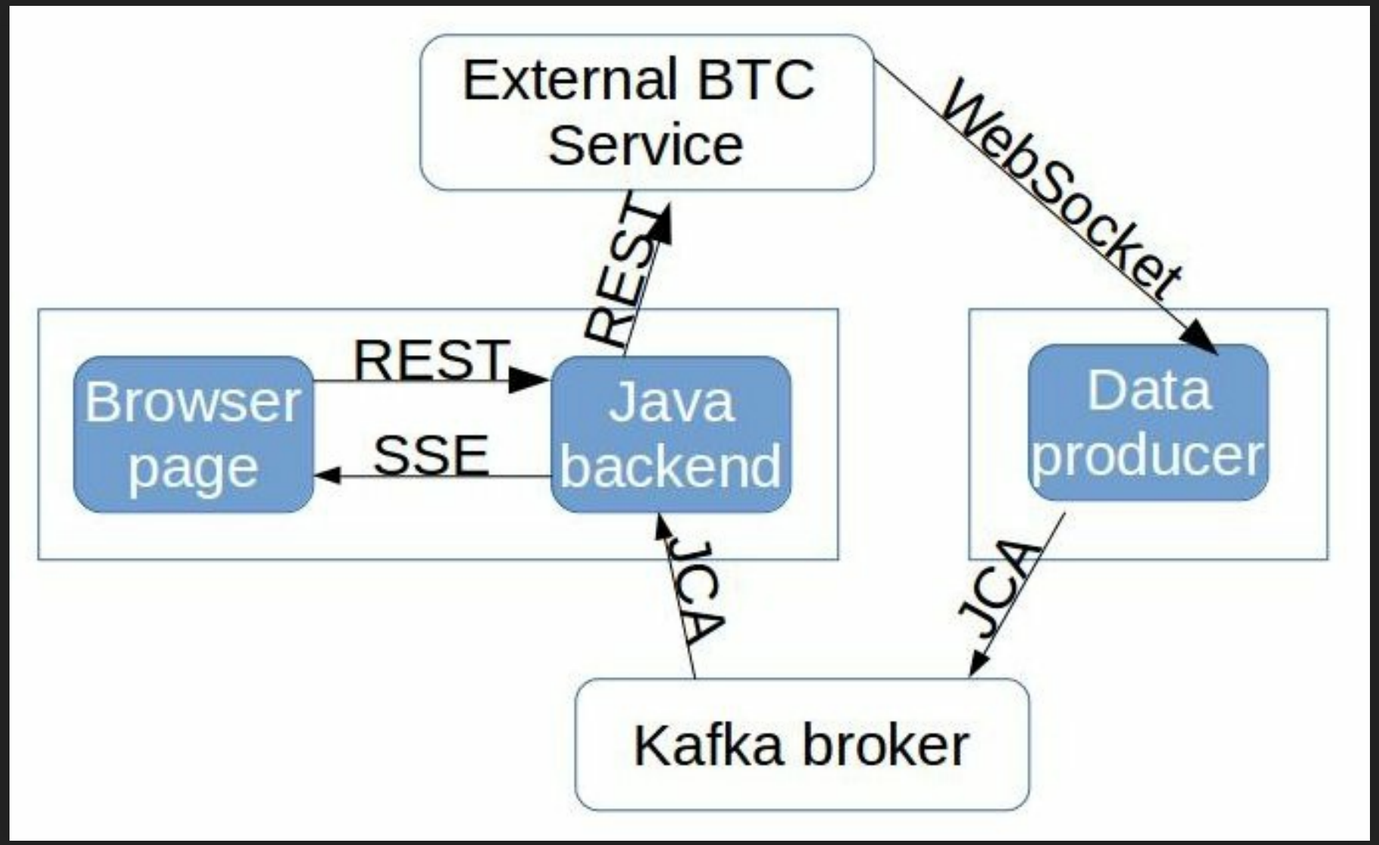
WE'LL ADD WHAT'S MISSING

- RxJava
  - handle callbacks and data streams
  - asynchronous Fault Tolerance
- React.js
  - easy updates on events

OUR DEMO APPLICATION



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DEMO

Source: https://github.com/OndrejM-demonstrations/Reactive-and-Micro-with-MicroProfile-and-Payara

WE'LL ADD MORE

- Java EE 8
  - reactive REST client (JAX-RS)
  - Server-Sent Events
- Kafka JCA connector
- Hazelcast
  - distributed cache and other structures
  - NoSQL distributed datastore

DEMO

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PAYARA SERVER

- MicroProfile, Java EE, Hazelcast, Cloud JCA Connectors, CDI event bus
- dynamic clustering (suitable for cloud)
- fast development
- admin console
- monitoring

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PAYARA MICRO

- APIs as in Server (except SOAP, remote EJB)
- most of features of the Server
- executable JAR, <70 MB
- easier to install and run apps
  - command line, maven plugin
- build uber JAR

WHAT TO AVOID

- relying on request scope
- relying on thread local
- using synchronous CDI interceptors
- Don't jump to reactive before needed

QUESTIONS?

- Thank you!

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