JakartaEE and the road ahead
An ASF View

Mark Struberg,
RISE GmbH,
Apache Software Foundation,
INSO TU Wien
About me

- Mark Struberg
- 25 years in the industry
- Apache Software Foundation member
- struberg [at] apache.org
- RISE GmbH employee
- TU-Wien / INSO researcher
- Committer / PMC for Apache OpenWebBeans, MyFaces, TomEE, Maven, OpenJPA, BVal, Isis, DeltaSpike, JBoss Arquillian, ...
- Java JCP Expert Group member and spec lead
- MicroProfile Spec Author
- Twitter: @struberg
Agenda

- History of JavaEE
- JakartaEE HowTo?
- What about MicroProfile
- ASF involvement
- ASF projects
- Modern EE stacks @ASF
JakartaEE
The History of JavaEE

- **1998 - First Specifications, e.g. EJB1**
- **2003 - Spring Framework**
- **2006 - JavaEE 5**
  - first really usable release
- **2009 - JavaEE 6**
  - really usable, CDI-1.0, JAX-RS, Interceptors, etc
- **2013 - JavaEE 7**
  - 'Cloud Release wannabe' (aka Rohrkrepierer)
- **2017 - JavaEE 8**
  - JSON-P-1.1, JSON-B-1.0
  - smallish updates, mainly community driven
JakartaEE

- late 2017 Oracle decided moving JavaEE to OSS
- Hosted by the Eclipse Foundation
- 'Jakarta' mark sponsored by the ASF
- Next planned release is Jakarta EE9
  - EE8 plus minor fixes
Governance Model of JakartaEE

- Eclipse EE4J project
- Charter not yet final afaik
- 4 committees:
  - Steering Committee
  - Specification Committee
  - Marketing Committee
  - Enterprise Requirements Committee
- Plus the single projects (specs) -> real work done
- A seat on the Committees requires to be a 'Strategic Member' -> big $$ per year
JakartaEE benefits

- **OSS governance (sort of...)**
- **Open TCKs, available under permissive license!**
  - some Eclipse people say it will *not* be free of charge to use the official 'licensed' sticker though!
  - They are not yet fully open sourced, work in progress afaik.
- **Free to contribute and join for individuals**
  - The ASF will not have a seat on the table though :(  
  - Required to join EF as Committer Member
- **More open IP flaw**
  - Under the JCP, IP did by default flow to Oracle
JakartaEE how to contribute

- https://jakarta.ee
- Hosted on GitHub
  - https://github.com/eclipse-ee4j/
  - Repos are mixture of RI and specs :(
- Most discussions still on http://javaee.groups.io
- Some mailing lists already got moved to EF:
  - https://accounts.eclipse.org/mailing-list
  - in practice there are tons of back-channel discussions :(
MicroProfile
MicroProfile History

- Started as independent effort in 2016
- **Goal: introduce modern concepts to JavaEE**
  - Oracle was blocking EE8 progress back then
  - 'cloud native done right'
- **Subset Java EE Profile for MicroServices**
  - CDI-1.2, JAX-RS-2.0, JSON-P-1.0
  - plus own specs added over time
- **Moved to the Eclipse Foundation in 2017**
  - but all parts are Apache License v2.0!
- **Main participants: JBoss, IBM, Payara, ASF individuals, some JUGs**
MicroProfile How to get Involved

- **Community hangouts every 2 weeks plus weekly topic hangouts**
  - See Calendar at https://projects.eclipse.org/projects/technology.microprofile

- **Main communication via google groups:**
  - https://groups.google.com/forum/#!forum/microprofile
• it's complicated ...

• MP considers itself *not* as standards body
• MP is a place where innovation happens
• JavaEE is the place for standardisation
MicroProfile Config

- Main ideas taken from Apache DeltaSpike
- ASF even gets proper credits via NOTICE ;)
- Baseline for ConfigJSR (JSR-382)
- Spec:
  - https://github.com/eclipse/microprofile-config
- Impl: Apache geronimo-config:
  - https://svn.apache.org/repos/asf/geronimo/components/config/trunk/
  - mailto:dev@geronimo.apache.org
• hack hack...
Other MicroProfile specs @ASF

- mp-rest-client in Apache CXF
- geronimo-metrics
  - https://gitbox.apache.org/repos/asf/geronimo-metrics.git
- geronimo-opentracing
  - https://gitbox.apache.org/repos/asf/geronimo-opentracing.git
- microprofile-jwt-auth has even 2 impls @ASF
  - geronimo-jwt as a common base
  - tomee-jwt with deep integration in Apache TomEE
- microprofile-fault-tolerance
  - geronimo-safeguard
- microprofile-openapi
Apache Java EE Parts
Servlets: Apache Tomcat

- 55% market share overall
- Alternatives: Undertow, Eclipse Jetty
- Non-HTTP:
  - Socket Servers: Apache MINA, JBoss Netty
  - Messaging
Apache MyFaces: JSF

- **https://myfaces.apache.org**
- **Server Side Rendering**
  - Alternative: Java Script based rendering on the client. Angular, React, Vue.js
  - Alternative: Apache Wicket, Apache Struts2, Vaadin
- **Well suited for form driven apps**
  - rock solid data lifecycle
- **JSF Apps run since 10++ years**
  - and are still maintainable...
Apache CXF: JAX-RS and JAX-WS

- https://cxf.apache.org
- JAR-RS-2.1
- JAX-WS-2.0
Apache Johnzon: JSON-P

- https://johnzon.apache.org
- JSON-P implementation (JSR-353, JSR-374)
- Spec available at
- **Generate and Read JSON (JSON-P)**
  - Stream API
  - JsonValue based API
- **JsonPointer support**
- **JsonPatch, JsonMergePatch support**
Apache Johnzon: JSON-B

- JSON-B (JSR-367) implementation
- transfer Java Objects <-> JSON (JSON-B)
  - Similar to JAX-B, but better ;)


• hack hack...
Apache OpenWebBeans: CDI

- [https://openwebbeans.apache.org](https://openwebbeans.apache.org)
- **CDI: Contexts and Dependency Injection for Java.**
  - Core DI specification for Java
  - Typesafe Dependency Injection
  - Interceptors, Events, Decorators, ...
  - Extensible through CDI-Extensions

- **OWB is**

- **CDI is the core of every modern JavaEE server!**
  - a fast and small CDI-2.0 container
  - Modular built, core only 650kB
Apache OpenWebBeans: basics

- [https://openwebbeans.apache.org](https://openwebbeans.apache.org)
- A fast and small CDI-2.0 container
- Modular built, core only 650kB

CDI: Contexts and Dependency Injection for Java.
- Core DI specification for Java
- Interceptors, Events, Decorators, ...
- Extensible through CDI-Extensions

- **The core of every modern JavaEE server!**
Apache Geronimo

- **Attention: NOT the Geronimo Server!**
  - that one is retired and EOL...
- **Many useful EE components**
  - geronimo-specs
  - xBean
  - geronimo-config
  - transaction manager
  - javamail
  - various MicroProfile specification implementations
Apache Meecrowave

- Subproject of Apache OpenWebBeans
- https://openwebbeans.apache.org/meecrowave/
- MicroProfile-2.0 baseline server:
  - Servlet-4.0 (Tomcat)
  - CDI-2.0 (OpenWebBeans)
  - JAX-RS-2.1 (CXF)
  - JSONP-1.1, JSONB-1.0 (Johnzon)
  - + log4j2
- ...all that in only 9 MB...
Apache Meecrowave

• hack hack ...
Other Apache EE projects

- **Apache OpenJPA**
  - https://openjpa.apache.org
  - still alive ;) , very stable implementation

- **Apache BVAL**
  - https://bval.apache.org
  - Bean Validation 2.0 implementation almost finished

- **Apache BatchEE**
  - JSR-352 JBatch implementation
Apache TomEE

- https://tomee.apache.org
- Web Profile Server
- Full Profile Server
- Small and Fast
- Based on Apache Tomcat
  - lightweight like Tomcat
  - full featured like commercial servers
Questions?