Functional microservices with JavaEE

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GuateJUG

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About

- SW Developer/Engineer/Architect
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Zen = Stakeholders don't call you, unless it's your birthday

- Productivity
- HR Availability
- Stability and predictability
- Scalability
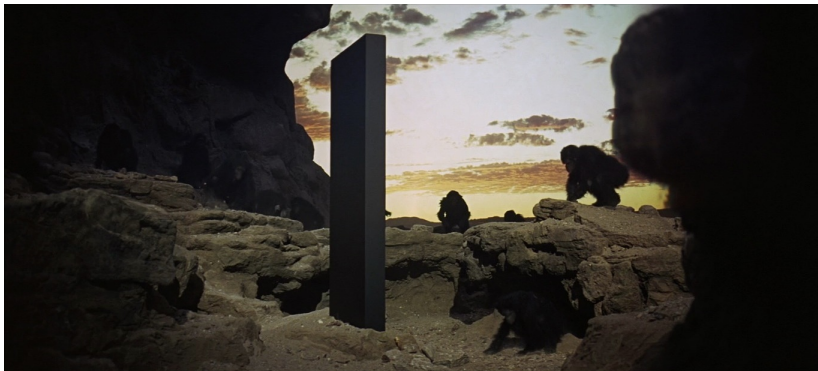- **Money**

Some sprints ago I had "birthdays" on daily basis

Please Víctor help us to do Microservices

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Please Víctor help us to choose a **well known language**, with a **well known framework**, for achieving great **stability**, spending the **least money**, and take advantage of our **existing codebase**.
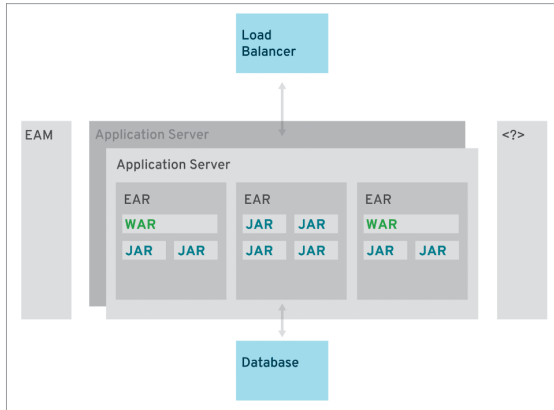
Lesson 1: Microservices are a mindset revolution
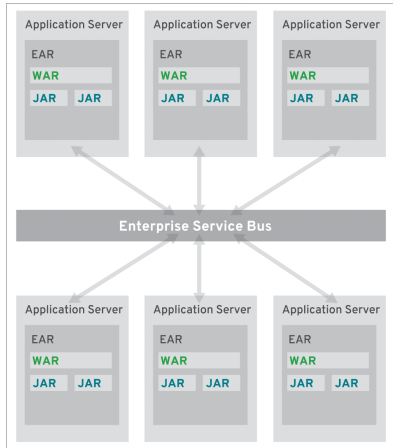
Figure 1: Regular monolith - Credits: Markus Eisele

Figure 2: ESB - Credits: Markus Eisele

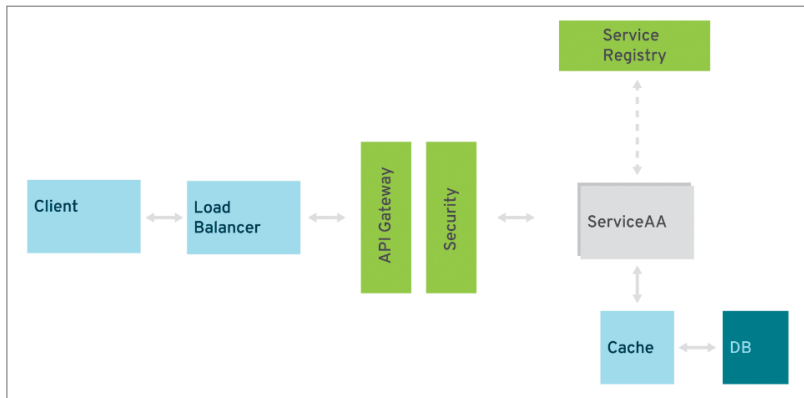**Figure 3:** Microservices - Credits: Markus Eisele

Microservices

Advantages

- Small codebases
- Better software practices
- Fault tolerance
- Scalability

Disadvantages

- Tooling overhead
- Debugging
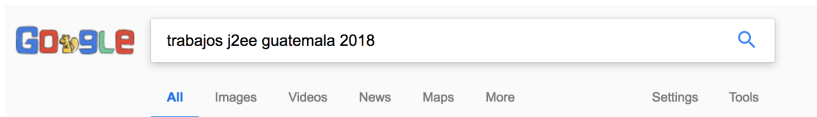- Distributed transactions
- Latency
- Dependency

Disadvantages

Hype Driven Development

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Lesson 2: Functional Microservices are not the same for everybody

POC from Sr. to Jr.

- Vert.x
- Spring Boot
- DropWizard
- Akka
- NodeJS . . .
- JavaEE

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Java Technologies: Java/**J2EE**/EJB, Java Frameworks Struts or Spring Tools: Eclipse Database: Oracle
OS: UNIX Server: Application Server WebLogic. Others: OSS / Service Fulfillment / Struts Roles &
Responsibilities: •Responsible for production support and development of Java applications.
•Responsible for the detail ...

Empleo de programador java - Acciontrabajo Guatemala - 2018
https://acciontrabajo.com.gt/empleo-de-programador-java-ebi ▾ Translate this page
Conocimientos en JAVA, JAVA SCRIPT, **JSP**, HTLM (Java, Swing, **J2EE**, XML,Neatbeans)
Conocimiento de WebSphere (Deseable), Conocimientos de bases de datos. Experiencia mínima de 1
año en desarrollo y deployment en **J2EE** y Java Experiencia en desarrollo de aplicaciones en entornos
Web. Se requiere ...

Empleo de programador java - Acciontrabajo Guatemala - 2018
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PROGRAMADOR JAVA Descripción: Capacidad de abstracción y experiencia en el manejo de las
siguientes tecnologías: Desarrollo de Java: FACES, JAVASCRIPT, OOP, MVC, SOAP, REST, JAX-RS,
WS, WSDL, HTTP, **EJB**, MDB. DBMS: MySQL, SQL SERVER, ORACLE, DB2 Análisis: UML Cliente:
HTML, Javascript ...

- From the top five universities at country only three teach Java properly

- The other two teach .NET

- Sillicon Valley off-shores take best developers

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Lesson 3: You don't need to be 100% "microservice compliant"

JavaEE is one of the most anti-hype frameworks

J2EE 1.2 (December 12, 1999)

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Implementation

- Iterative refactoring - Do it by waves
- Practical refactoring - Extract an already existing service
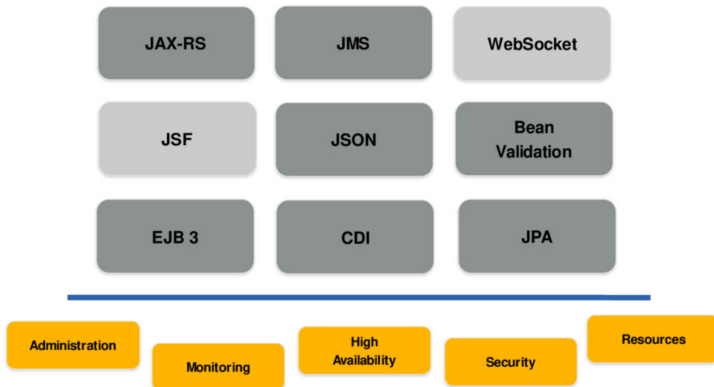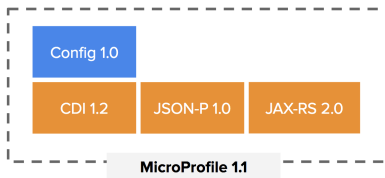- New services - New services talk to monolith

Figure 4: JavaEE technologies - Credits: Reza Rahman
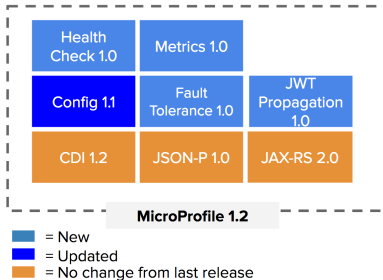
MicroProfile 1.0 (Sep, 2016)

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Eclipse MicroProfile 1.1 (Aug, 2017)

MICROPROFILE™
OPTIMIZING ENTERPRISE JAVA

| Config 1.0 |
| CDI 1.2 | JSON-P 1.0 | JAX-RS 2.0 |

MicroProfile 1.1

■ = New
■ = No change from last release

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Eclipse MicroProfile 1.2 (Sep, 2017)

MICROPROFILE™
OPTIMIZING ENTERPRISE JAVA

Health Check 1.0	Metrics 1.0	
Config 1.1	Fault Tolerance 1.0	JWT Propagation 1.0
CDI 1.2	JSON-P 1.0	JAX-RS 2.0

MicroProfile 1.2

■ = New
■ = Updated
■ = No change from last release

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- Wildfly Swarm
- KumuluzEE
- Open Liberty
- TomEE
- **Payara Micro**

Current target: Microprofile 1.2

- Microprofile 1.2
- JavaEE Web Profile
- JCache

New deployments

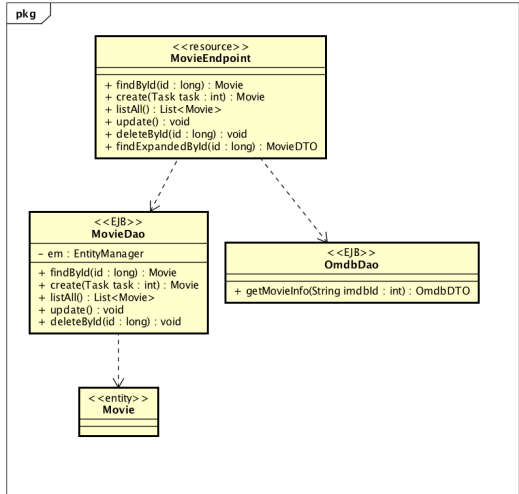- Micro JavaEE server (CLI)
- Uber-Jar/Fat-Jar

Demo

Java 8, JAX-RS, CDI, EJB, Microprofile

```
https://github.com/tuxtor/payara-demo
https://github.com/tuxtor/omdb-demo
```

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Granted

- EJB
- **JTA**
- JAX-RS
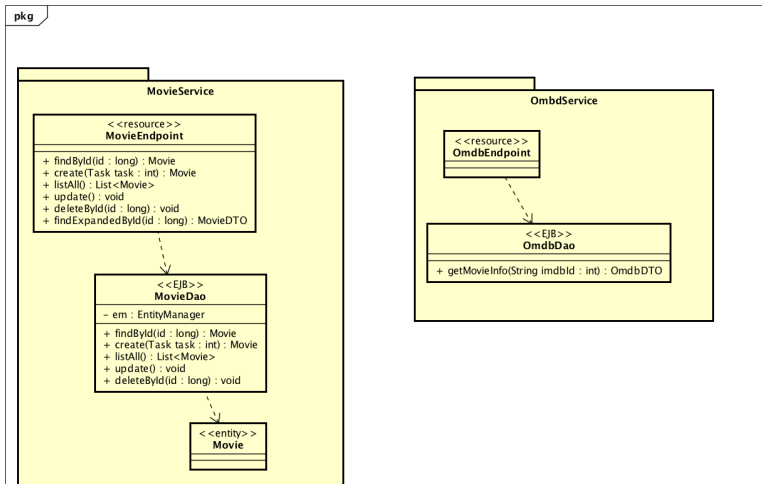- CDI

MicroProfile: JAX-RS, CDI (Per service), Config, Fault Tolerance
Implementation: EJB, JTA (Per service)
Todo: Location, Deployment, Orchestration, Balancing, Consistency, Patterns

```
@Inject
@ConfigProperty(name = "omdbservice.url")
String omdbDaemonServiceUrl;
```

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- Circuit Breaker

- Bulkhead

- Fallback

- Retry

- Timeout

```java
@GET
@Path("/{id:[a-z]*[0-9][0-9]*}")
@Fallback(fallbackMethod = "findByIdFallBack")
@Timeout(TIMEOUT)
public Response findById(@PathParam("id")
final String imdbId) {
...
}

public Response findByIdFallBack(@PathParam("id")
final String imdbId) {
...
}
```

Thank you

- me@vorozco.com
- http://vorozco.com
- http://github.com/tuxtor/slides

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