



MicroProfile:

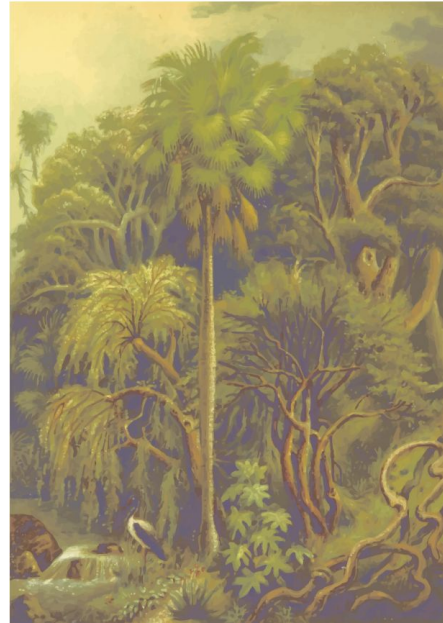
A Quest for a lightweight and reactive Enterprise Java Platform



Ondro Mihályi, Payara

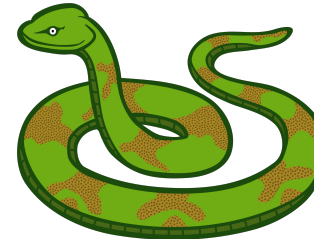
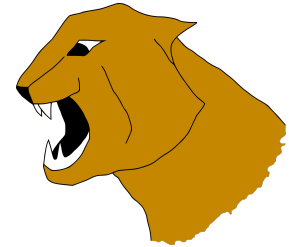
 @omihalyi

Enterprise Jungle

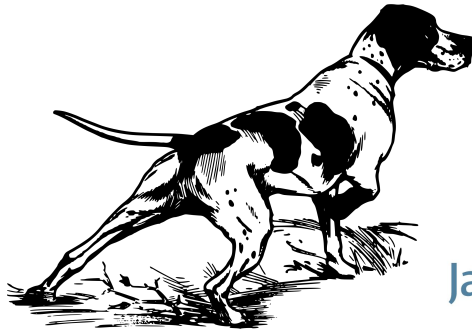


Database

SOAP
services



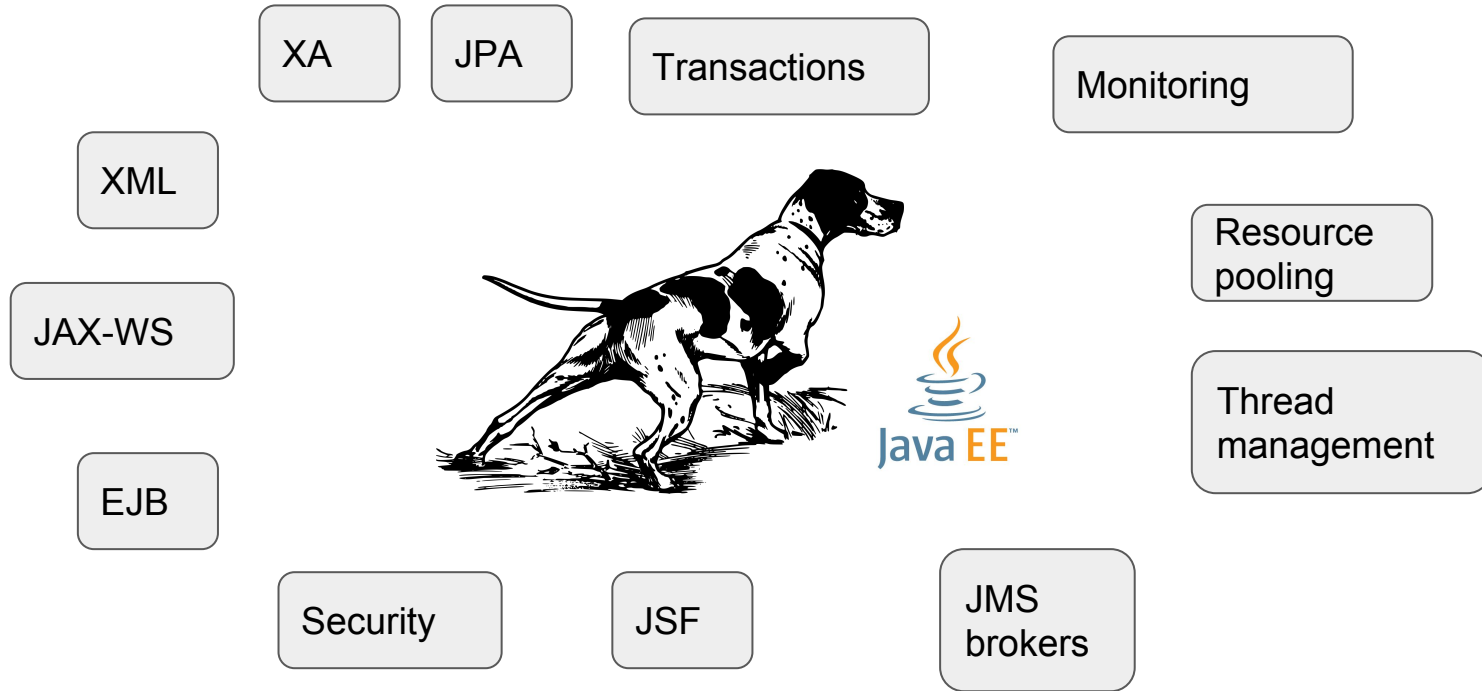
ACID
transactions



Let's feed it with lots of healthy food...



All the healthy food we can get ...



And even healthier food ...

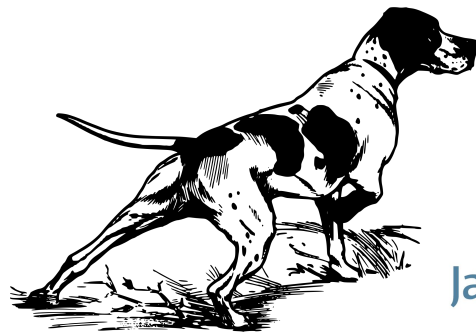
JAX-RS

CDI

JSON

Asynchronous

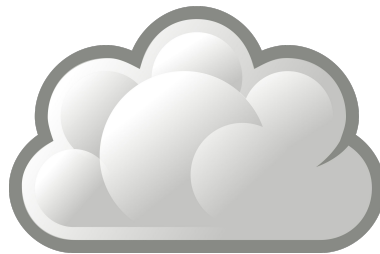
Simplified
Security



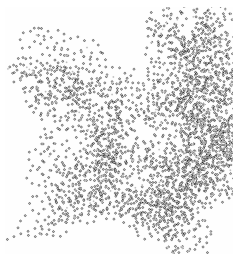
Fundamental Shifts in Computing

Cloud

- Reduce time to market
- Address unpredictable loads
- Pay as you go
- Containerization



Microservices



- Deliver new features more quickly
- Smaller, more agile teams
- Deliver business features as discrete services
- Scale services independently

Big Data ?

Anything else?

Cloud ?

Reactive ?

Docker ?

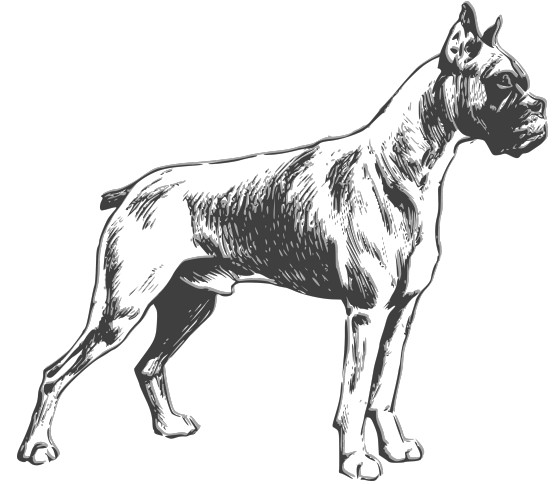
Microservices ?



No, thanks.
I'd rather my
juicy CORBA

We need something better

Java EE ++



Or rather a diet ...

Java EE — —



- Flexible
- Small disk and memory consumption
- Fast start-up times
- Simple installation and usage

Java EE on a diet already

 WildFly Swarm - build app from fractions

 Payara Micro - app server as a runnable JAR

 TomEE - embeddable app server built on Tomcat

 WebSphere Liberty - generate server subset

Payara Micro payara.fish/payara_micro

- Executable JAR (<60MB)
 - Java EE, JCache, CDI event bus
- Automatic clustering and replication
- Package app as executable JAR

```
java -jar payara.jar --deploy app.war
```

or with the maven plugin:

```
mvn payara-micro:start
```

Payara Micro payara.fish/payara_micro

- Executable JAR (<60MB)
 - Java EE, JCache, CDI event bus
- Automatic clustering and replication
- Package app as executable JAR

```
java -jar payara.jar --deploy app.war  
--outputUberJar app.jar
```

```
java -jar app.jar --port 80
```


DEMO

PathFinder web app with a REST endpoint in 3 flavors



spring
boot

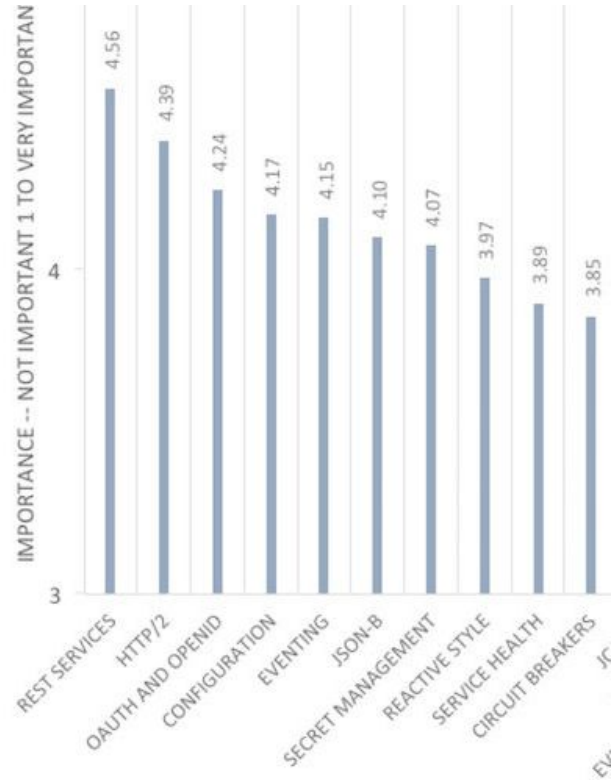
After the diet applied...

	WildFly Swarm	Payara Micro	Spring Boot
File size	105 MB	56 MB	22 MB
Heap size (after GC)	28 MB	30 MB	29 MB
Boot time	12 s	14 s (10 s --noCluster)	7 s

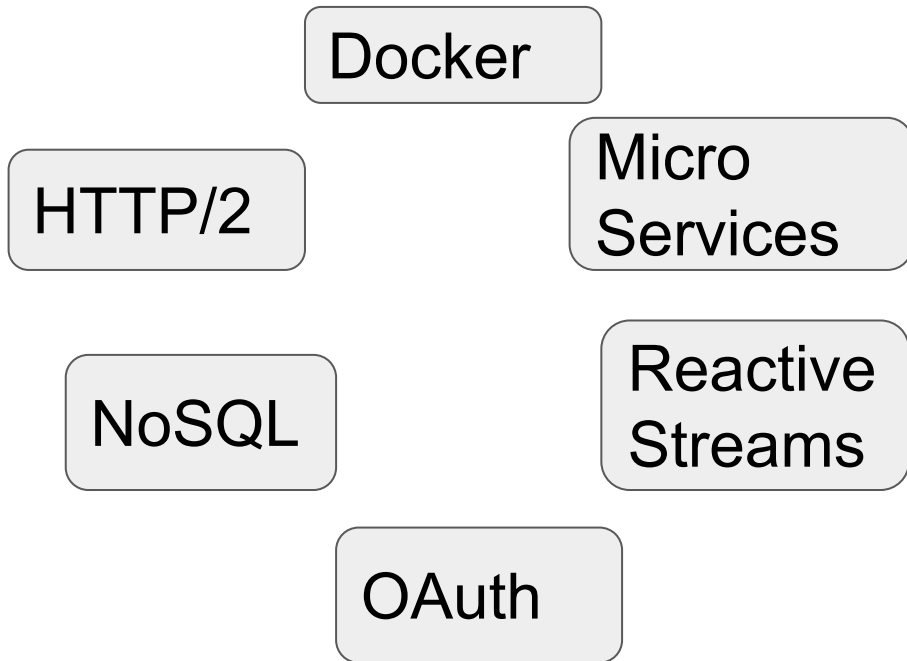
Java EE is about standards

Can it provide solutions?

- REST (4.56)
- OAuth (4.24), Secrets (4.07)
- **Configuration (4.17)**
- Reactive (3.97)
- **Service Health (3.89)**
- **Circuit Breakers (3.85)**



Things have changed...



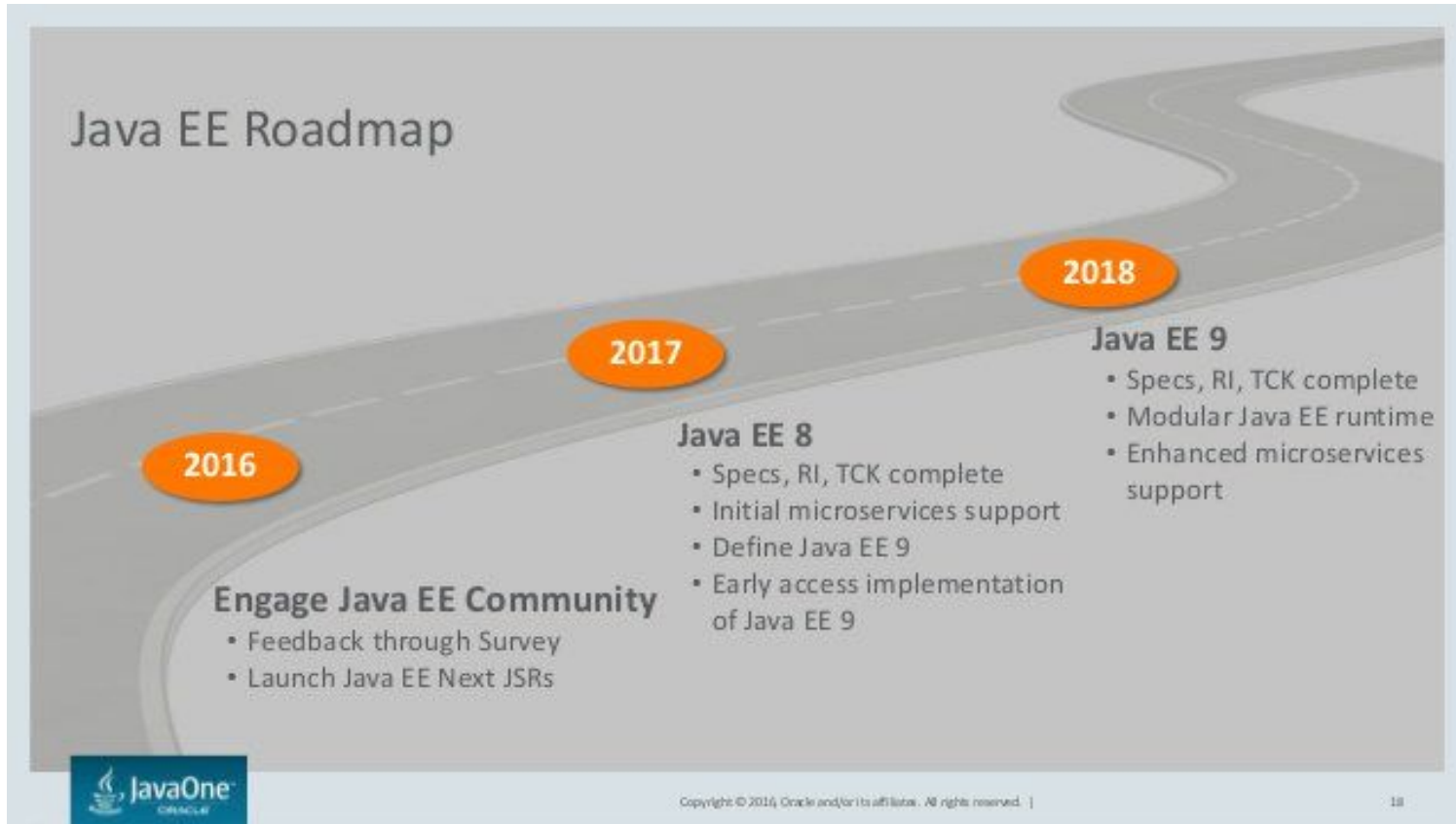
Java EE needs to
adapt
or be replaced in
many cases

We need heroes here!



- Companies
 - JSR Expert Group members
 - Java User Groups
 - Individual developers
- Supporting development and adoption of Java EE
 - Lobbying vendors to fulfill their commitments
 - Finding ways of process & collaboration improvements

Oracle revised Java EE plans at JavaOne



Oracle revised plans again in 2017

- Java EE 8 the last version governed by Oracle
- Plans to [transfer Java EE](#) to the Eclipse Foundation
- Possibly with a different name

Meanwhile vendors & community cooperate





Optimizing Enterprise Java for a Microservices Architecture

- [MicroProfile.io](https://microprofile.io)
- MicroProfile Discussion Forum (bit.ly/MicroProfileForum)
- MicroProfile Examples (<https://github.com/eclipse/microprofile-conference>)

MicroProfile Release Philosophy

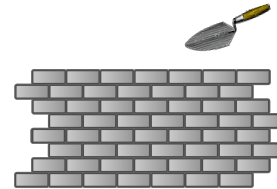
Release 1.0



Rapidly iterate
and innovate



Build
consensus

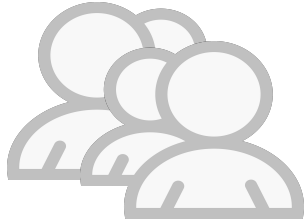


Standardize



Sept 2016

Bridging Community and Standards



Broad Collaboration

Encouraged
Experimentation

Fail Fast

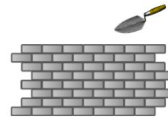
Rapid Innovation



Rapidly iterate
and innovate



Build
consensus



Choice

Application
Portability

Backwards
Compatibility

Reduced Risk



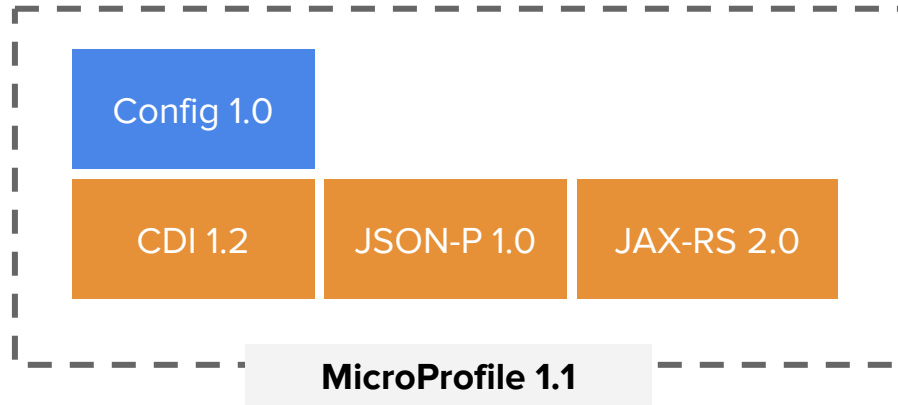
MicroProfile 1.1

August 8, 2017

MicroProfile 1.2

End of September, 2017

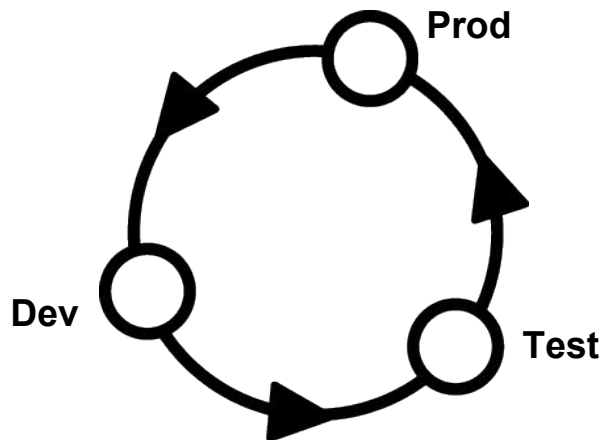
Eclipse MicroProfile 1.1 (Aug, 2017)



- = New
- = No change from last release

Configuration 1.0

Applications need to be configured based on a running environment. It must be possible to modify configuration data from outside an application so that the application itself does not need to be repackaged

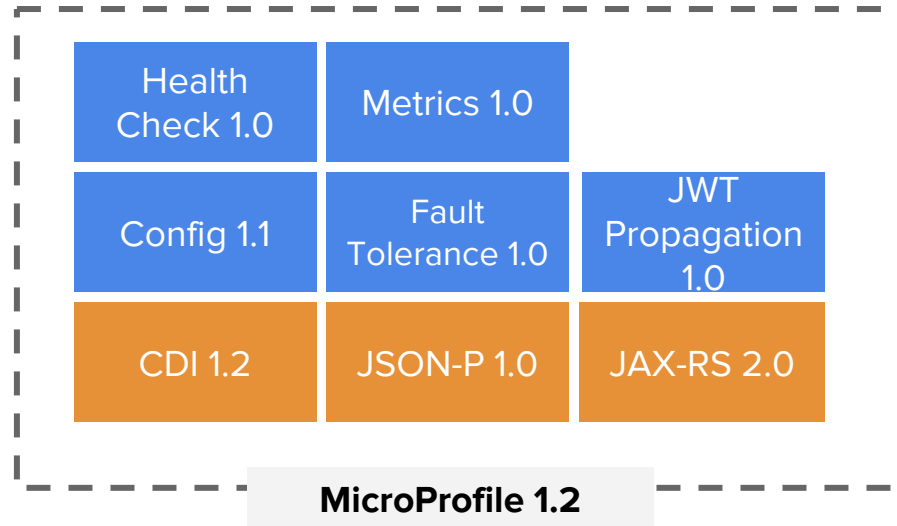


```
@Inject
@ConfigProperty(name = "myservice.url")
URL myService;

@Inject
Config config;

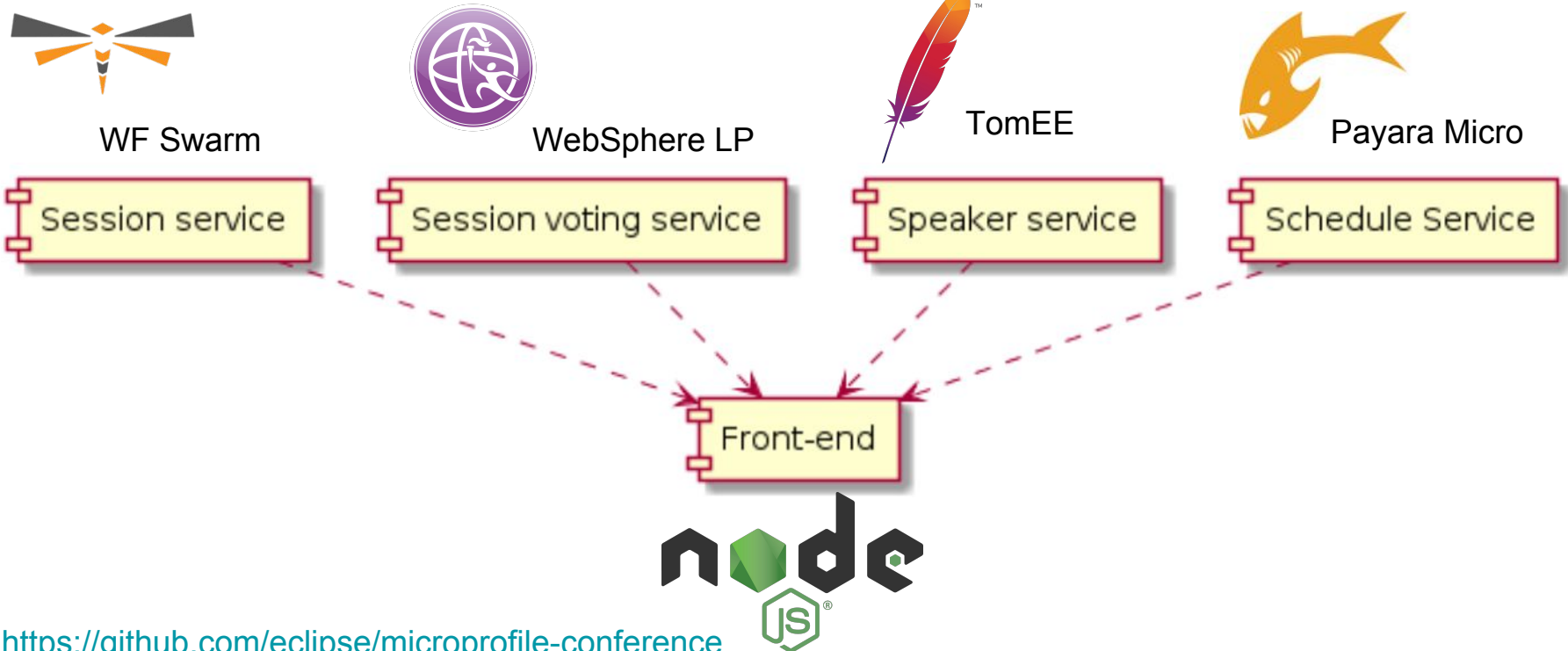
myService = config
    .getValue("myservice.url", URL.class)
```

Eclipse MicroProfile 1.2 (Sep, 2017)



- = New
- = No change from last release

DEMO ARCHITECTURE



The MicroProfile demo in numbers














Vendor	Service	JAR size	Heap	Starts in
WebSphere LP	Session Voting	36 MB	30 MB	8 sec.
WildFly Swarm	Session	93 MB	37 MB	11 sec.
Payara Micro	Session Schedule	33 MB	27 MB	8 sec.
TomEE	Speaker	35 MB	30 MB	7 sec.

The nature of MicroProfile

- Sand-box Approach to Open Contribution
- High Cadence Release Philosophy
- Transparency at all Stages
 - Public forum & chat, github, Eclipse foundation, Apache License
- CDI Centric Programming Model

Join the Discussion!

<https://groups.google.com/forum/#!forum/microprofile>

★  Discuss Eclipse Foundation proposal (6) 📄	38 posts	209 views
★  Evolution Process: Exemplary walkthrough and Q&A	40	145
★  Should all services run on all vendor platforms (3)	3	9
★  What problems do we want MicroProfile to solve? (3)	12	112
★  Messaging beyond JMS	11	110
★  SCS vs. Microservice	7	51
★  Devovx BE	16	80
★  How to create a new repository on microprofile.io	19	98
★  request logCorrelation between servers (1)	17	115
★  Enabled waffle.io for microprofile-conference	7	54
★  Getting the conference app to 1.0.0 (i.e. A defacto RI for uProfile 1.0)	11	53
★  Uploading binary data in MicroProfile 1.0	3	29
★  JWT Token definition for Interoperability	10	58

Or even submit your idea as a PR in the sandbox project!

<https://github.com/eclipse/microprofile-sandbox>

The quest continues...

- **MicroProfile** as a platform to cooperate faster
 - feed JCP with proposals
- Future Java EE targeting cloud and microservices
 - under community-friendly **Eclipse Foundation**
- **JavaEE Guardians** to lobby for the community

Join the adventure!

