

# Java EE 7

## Soup to Nuts



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- More annotated POJOs
- Less boilerplate code
- Cohesive integrated platform

- WebSockets
- JSON
- Servlet 3.1 NIO
- REST

- Batch
- Concurrency
- Simplified JMS

# Top 10 features

- WebSocket client/server endpoints
- Batch Applications
- JSON Processing
- Concurrency Utilities
- Simplified JMS API
- Transactions in POJO
- JAX-RS Client API
- Default Resources
- More annotated POJOs
- Faces Flow

# Compliant Application Servers

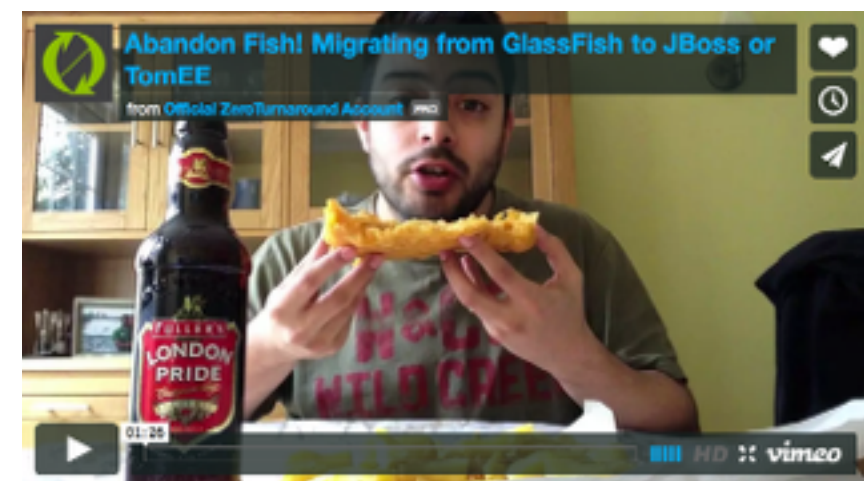


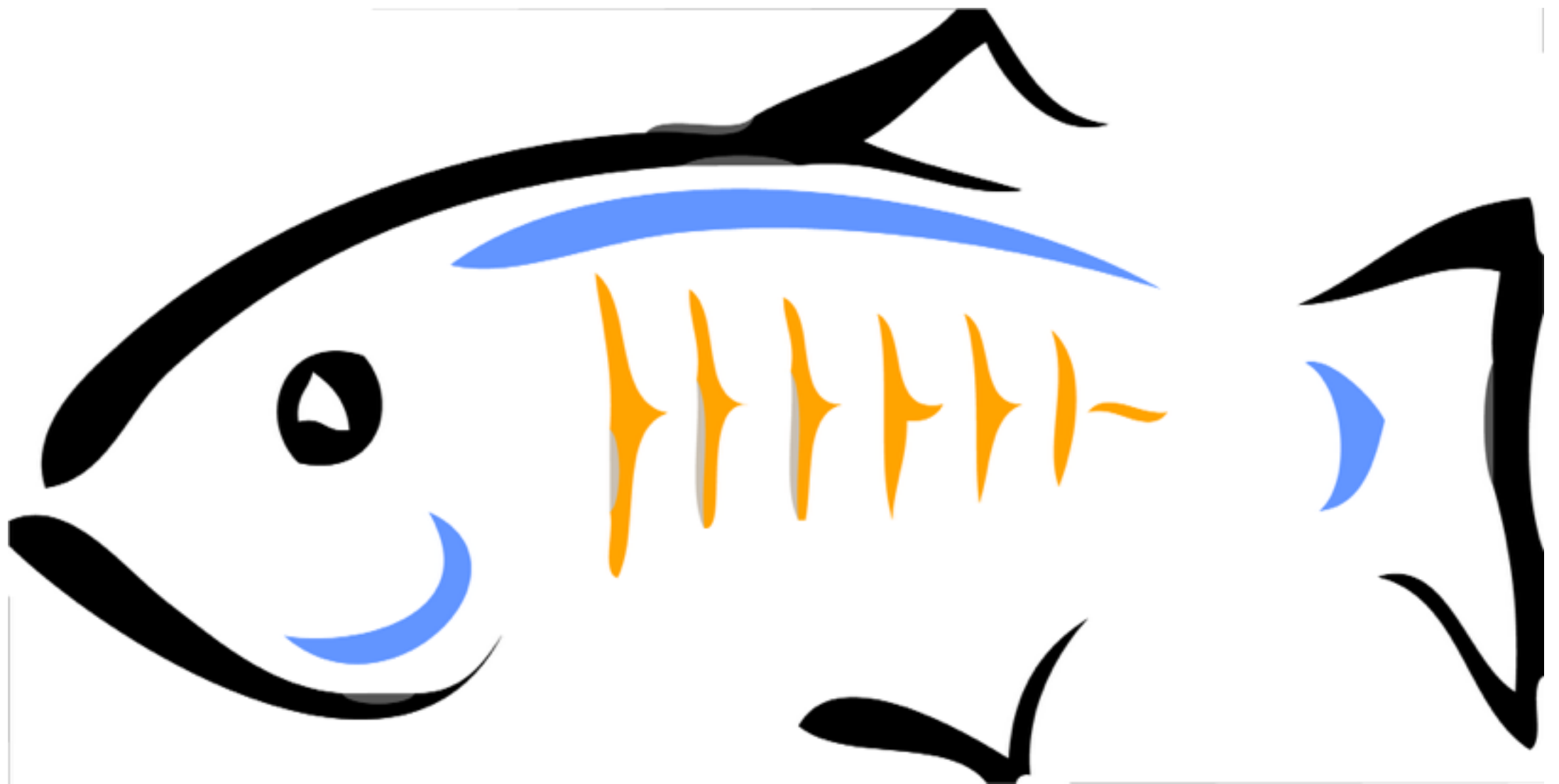
- GlassFish 4.x
- WildFly 8.x
- JEUS 8
- On the way ...
  - JBoss EAP, WebLogic, Liberty Profile

# GlassFish



- Reference Implementation (Jun 2013)
- No commercial support from Oracle, users encouraged to move to WebLogic
  - Commercial support from LodgON and C2B2
  - <http://zeroturnaround.com/rebellabs/abandon-fish-migrating-from-glassfish-to-jboss-or-tomee/>
- 4.1 released (Sep 2014)
- 5.0 aligned with Java EE 8





- Always on the bleeding edge
- Powerful CLI and REST
- Modular, lightweight, ~fast
- Module versioning
- Enterprise OSGi
- NetBeans co-bundle

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- No real OSS community
- Untested clustering
- No commercial support/adoption
- No upgrade path
- Slow releases
- No PaaS, Jelastic/v3

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- Showcase of EE development
- Oracle not willing to monetize?
- Lodgon and C2B2 offering commercial support

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- No vision beyond RI
- WildFly and JBoss EAP
- TomEE
- Tomcat
- Liberty Profile

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# WildFly



- Compliance achieved in 8.0 (Feb 2014)
- Commercial support coming in JBoss Enterprise Application Platform (EAP) 7
- 8.1 released (May 2014), 9.0 later this year
- EAP 7 next year





- Commercially backed by Red Hat (JBoss EAP)
- Defined OSS process, contributions are easy (github)
- Modular, lightweight, fast
- Powerful CLI, REST, Java API
- Active community members
- Lot of docs, 3rd-party books, articles
- High performance web container
- Reduced port usage

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- Need explicit migration to JBoss EAP
- Migration issues from AS 7

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- Admin console delinked from internal model
- Integrated NoSQL
- Co-bundle with NetBeans or Eclipse
- Intelligent Management

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- WebSphere ND
- WebLogic Server
- Tomcat

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# JEUS



- Developer Preview available
- Final coming in 2014
- Roadmap ?

Preparing to install...  
Extracting the installation resources from the installer archive...  
Configuring the installer for this system's environment...

Launching installer...

Preparing CONSOLE Mode Installation...

```
=====
JEUS8.0                (created with InstallAnywhere by Macrovision)
=====
```

The installer cannot run on your configuration. It will now quit.





- **Java EE 7 compliance**
- **Strong in Korea?**

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- **Could not install Developer Preview on Mac OSX**
- **No IDE integration**
- **Verbose CLI tools, no defaults**
- **Limited forum support**
- **Poor docs**

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*Web Application Server*

- **One of the first ones to achieve compliance**

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- **WildFly and JBoss EAP**
- **TomEE**

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# Components

| Component                           | JSR | GlassFish      | WildFly       | JEUS           |
|-------------------------------------|-----|----------------|---------------|----------------|
| Java API for WebSocket              | 356 | RI/Tyrus       | Undertow      | Internal       |
| Java API for JSON Processing        | 353 | RI             | RI*           | ??             |
| Concurrency Utilities for Java EE   | 236 | RI             | RI*           | Internal       |
| Batch Application for Java Platform | 352 | RI             | JBeret        | RI*            |
| Java API for RESTful Web Services   | 339 | RI/Jersey      | RESTEasy      | RI*            |
| Java Message Service                | 343 | RI/OpenMQ      | HornetQ       | JORAM          |
| Context and Dependency Injection    | 346 | RI*            | RI/Weld       | RI*            |
| Bean Validation                     | 349 | RI*            | RI/Hibernate  | RI*            |
| Java Persistence API                | 338 | RI/EclipseLink | Hibernate     | RI*            |
| Java Connector Architecture         | 322 | RI/OpenMQ      | HornetQ       | Internal       |
| Java Transaction API                | 907 | Internal       | Narayana      | JOTM           |
| JavaServer Faces                    | 344 | RI/Mojarra     | RI*           | RI* + MyFaces  |
| Expression Language                 | 341 | RI             | RI*           | RI*            |
| Servlet                             | 340 | RI/Internal    | Undertow      | Tomcat + Jetty |
| Enterprise JavaBeans                | 345 | RI/Internal    | Internal      | EasyBeans      |
| Java API for XML-based Web Services | 224 | RI/Metro       | JBossWS       | ??             |
|                                     |     | <b>108 MB</b>  | <b>124 MB</b> | <b>153 MB</b>  |

<http://arjan-tijms.blogspot.com/2014/05/implementation-components-used-by.html>

# NetBeans



- Pleasant experience OOTB
- Java, HTML5, PHP, C/C++, ...
- Comprehensive Java EE 7 support
- Support for GlassFish, WildFly





# **NetBeans**

- Pleasant experience OOTB
- Wizards for WebSocket, JAX-RS, JPA, CDI, EJB, Bean Validation, JSF, ...
- No plugin hunting
- Maven
- Tight integration, ease-of-use working with GlassFish team

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- Better integration with Mozilla, IE, Safari as with Chrome

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- Concerns around commitment from Oracle
- Multiple IDEs from Oracle
- Low usage

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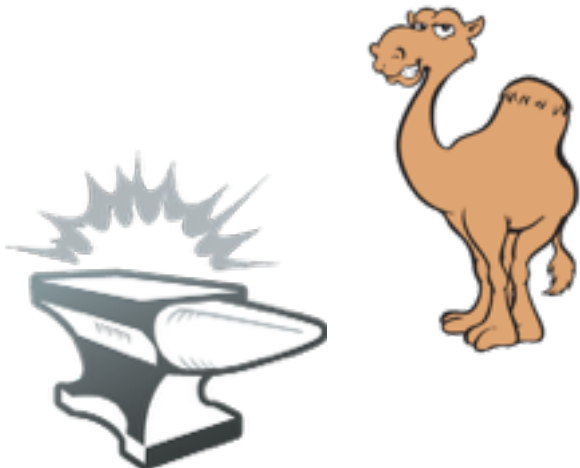
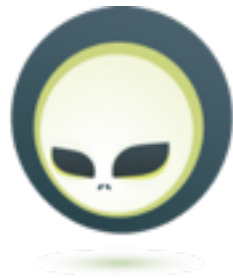
- IntelliJ
- Eclipse

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# JBoss Tools



- Eclipse plugins for JBoss technology





JBoss Tools



- **Wide Eclipse base**
- **Required plugins are packaged**
- **Mature JAX-RS 2.0 and CDI 1.1 support - wizard, content assist, validation, navigation**
- **Wide range of application servers**
- **Fast and incremental server deployment**

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- **Issues within base Eclipse**
- **Maven**
- **Workspace and preferences are not easily shareable**

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- **Expand Java EE 6 and 7 integration**
- **Eclipse Orion integration**
- **Provide WildFly co-bundle**

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- **NetBeans**
- **IntelliJ**
- **Lack of OSS contributions**

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# IntelliJ



- Java, Scala, Groovy, and polyglot IDE
- Java EE 7 support in 13.1 (commercial version only)
- Android, Gradle, Maven
- Develop with pleasure

- Good Java EE support
- Refactoring of JPQL
- Sophisticated Job XML authoring
- JSF 2.2 contracts and flows
- Navigation through CDI beans (with alternatives, decorators, etc)
- Maven integration
- Supports most app servers
- Good community

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- Java EE features are only in paid Ultimate Edition
- Free for academia

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- Better integration with other app servers

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- NetBeans and Eclipse for better app server integration

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# Forge

- WORAI for Java EE (using Maven)
  - Aids in automation of repetitive tasks
  - Generation of boilerplate code
  - In-built support for Java EE 6 and 7
- Extensible by design
- Test-driven development
- Offers productivity to beginners and experts alike



- CLI-driven, IDE integration
- Support for Java EE 6 and 7
- Extensible
- Can be scripted, automate repetitive tasks
- Test-driven development
- Eclipse and IntelliJ plugin

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- Documentation for adding extensions

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- NetBeans plugin
- NetBeans wizards based upon Forge

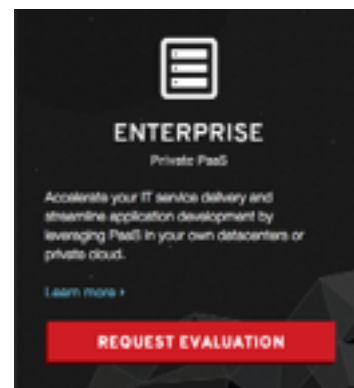
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- Addon maintenance
- Specialization only for Java EE
- Lack of investment in new addons to cater to market demand

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# OpenShift

- OpenShift Origin, Online, Enterprise
- Pluggable cartridges
- Multiple languages, databases, app servers
- Gears: small, medium, large
  - FREE account: 3 gears (1 GB disk, 0.5 GB RAM)
- Linux namespace and control groups





**OPENSIFT**



- Polyglot - language, datastore, app server
- One throat to choke - community or commercial
- Pluggable cartridges
- Cool website
- Auto scaling in free plan
- Hybrid solution
- Only Java EE 7 offering

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- Ecosystem

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- xPaaS

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- Lack of PaaS leadership
- AWS Beanstalk
- CloudFoundry

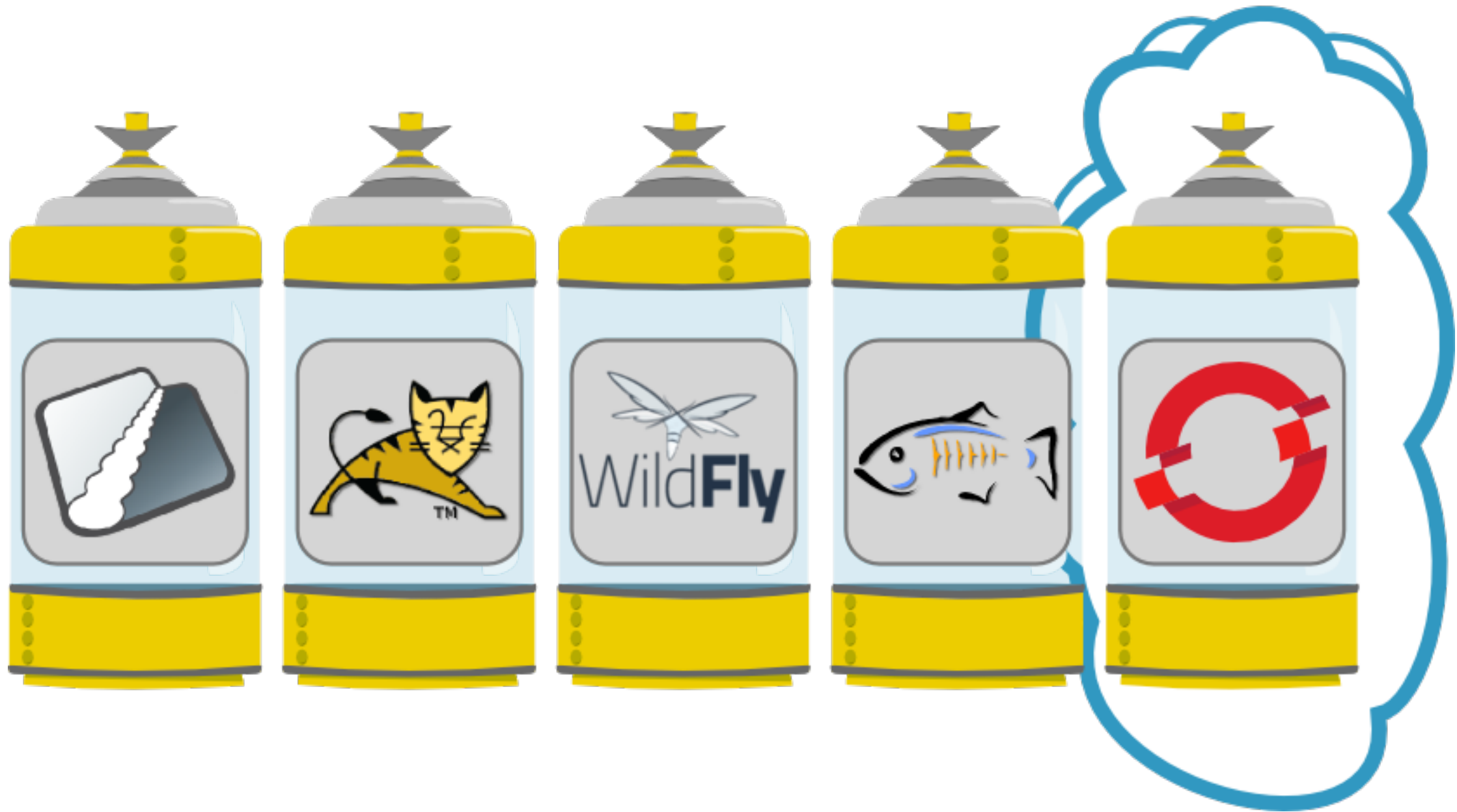
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# Arquillian

Highly **extensible testing platform** for the JVM that enables to easily create **automated tests**



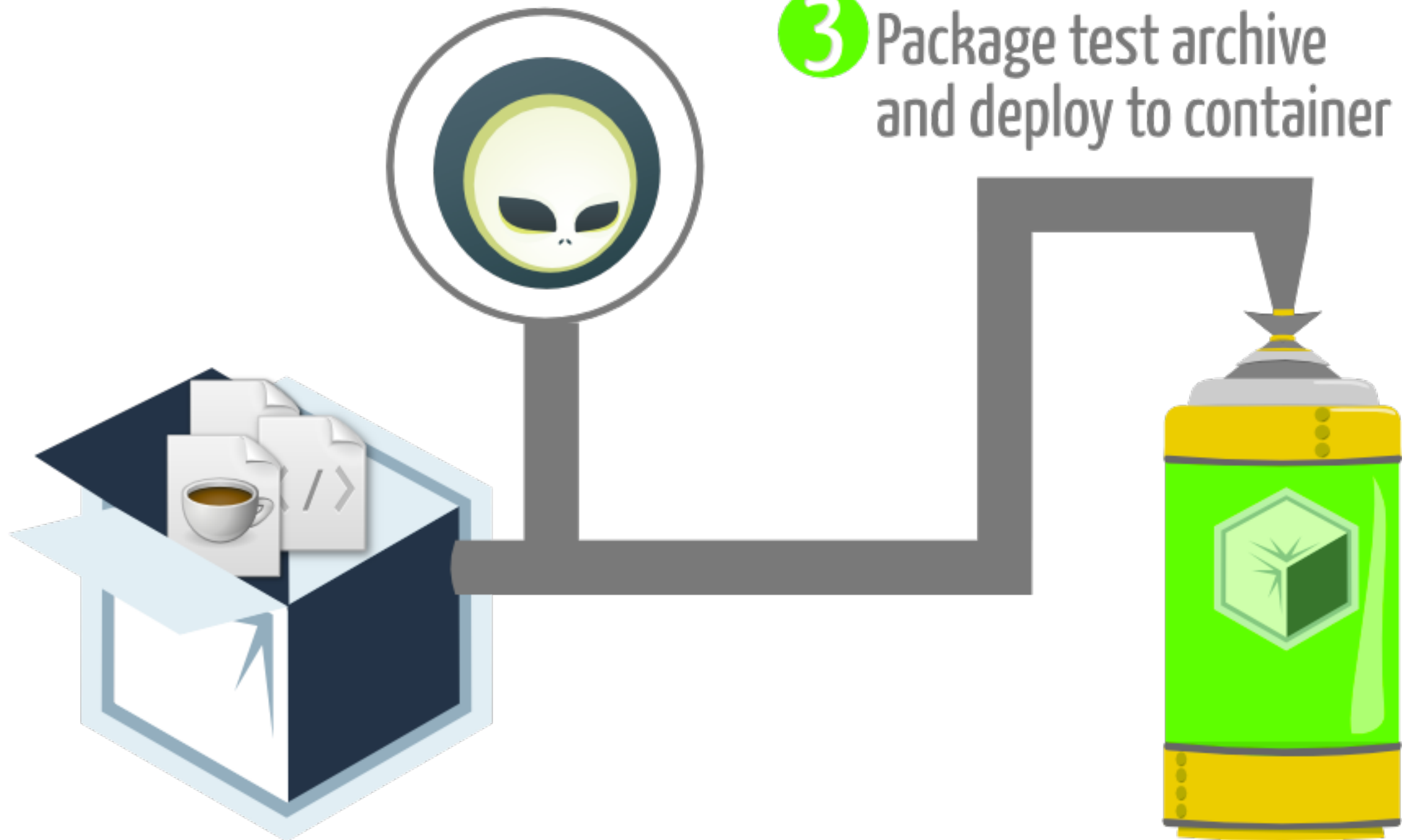
# 1 Select a container



## 2 Start or connect to a container

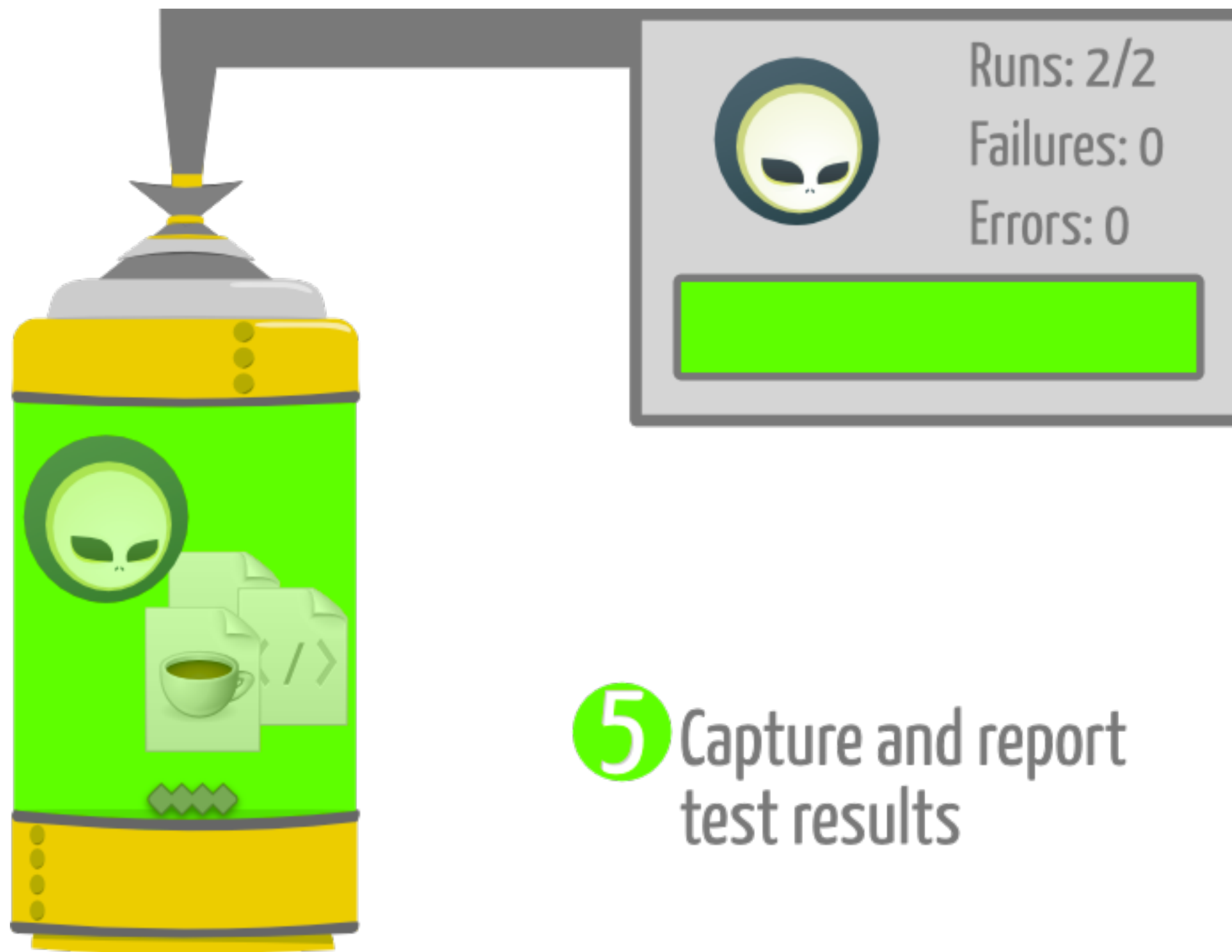


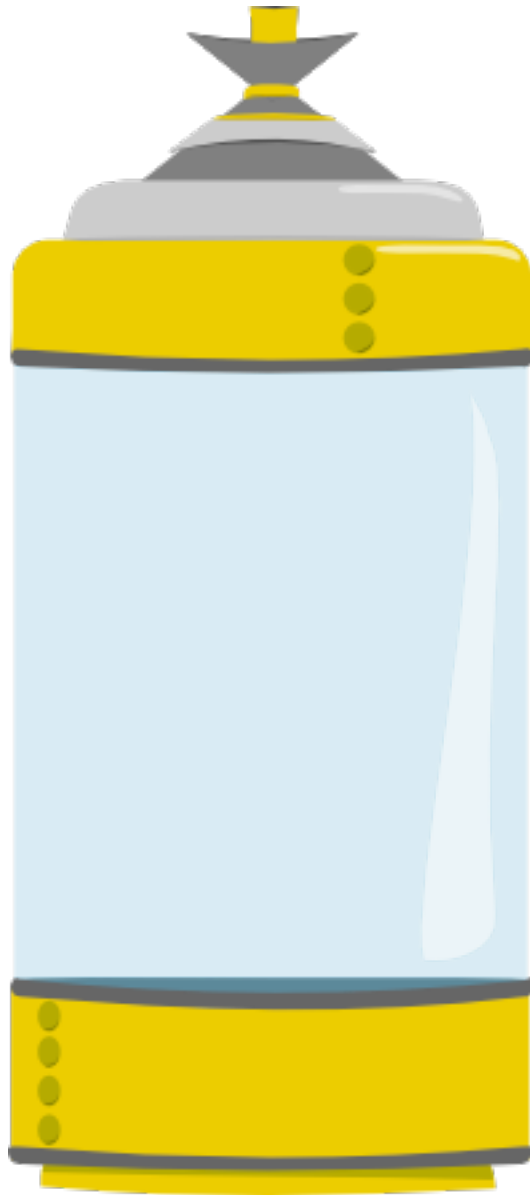
### 3 Package test archive and deploy to container





4 Run test in-container





**6** Undeploy test archive and stop or disconnect from container

# Getting Started with Arquillian

- Vanilla Java EE 7 application

```
mvn
```

```
archetype-generate
```

```
--batch-mode
```

```
-DarchetypeGroupId=org.codehaus.mojo.archetypes
```

```
-DarchetypeArtifactId=webapp-javaee7
```

```
-DgroupId=org.javaee7.sample
```

```
-DartifactId=javaee7-sample
```

```
-Dpackage=org.javaee7.sample
```



# Getting Started with Arquillian

- Testable Java EE 7 application

```
mvn
```

```
archetype:generate
```

```
--batch-mode
```

```
-DarchetypeGroupId=org.javaee-samples
```

```
-DarchetypeArtifactId=javaee7-arquillian-archetype
```

```
-DgroupId=org.samples.javaee7.arquillian
```

```
-DartifactId=arquillian
```

# Testable Java EE 7 App

- Generated profiles
  - wildfly-remote-arquillian
  - wildfly-managed-arquillian
  - glassfish-remote-arquillian
  - glassfish-embedded-arquillian

# Test on WildFly

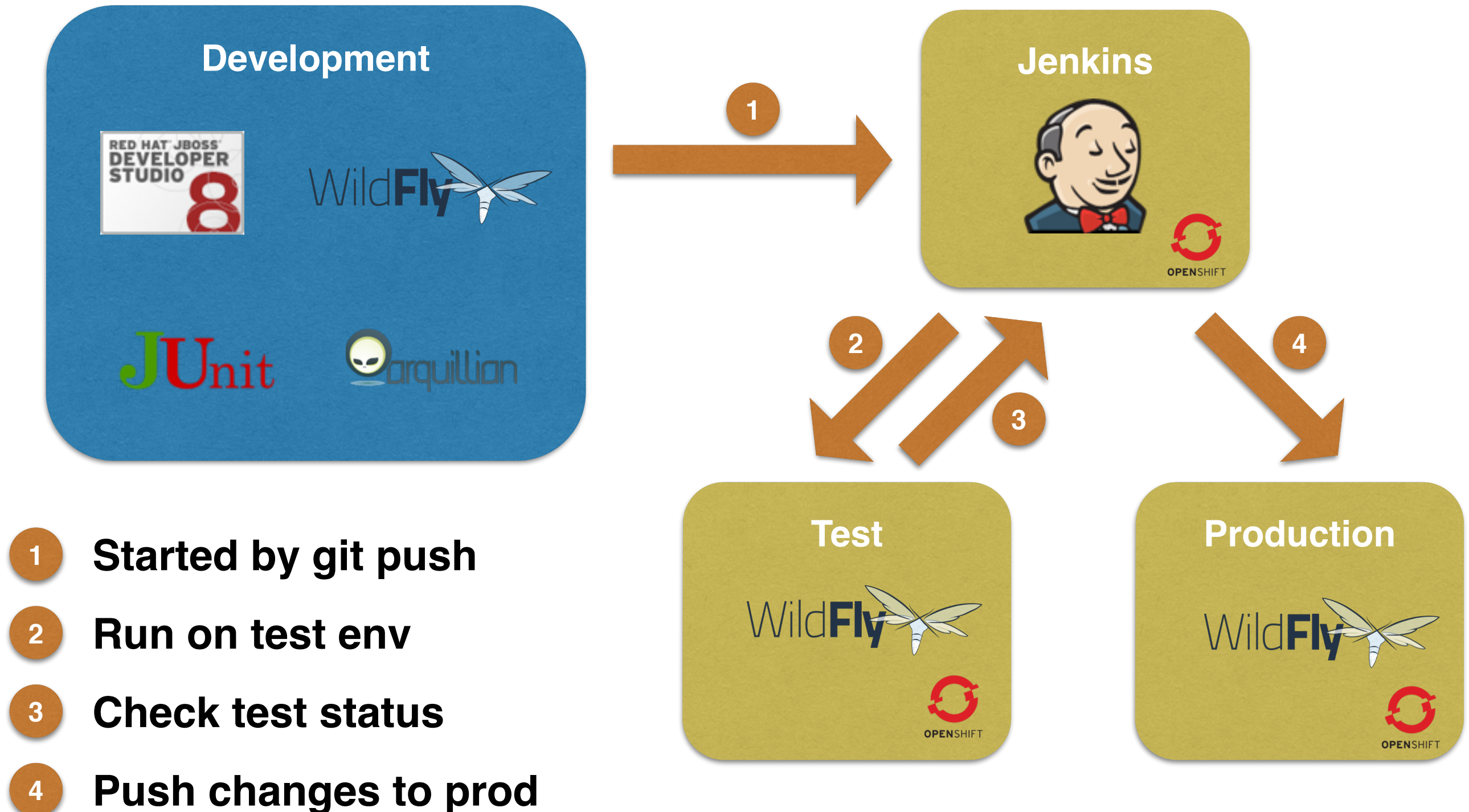
- Download WildFly 8.1 from [wildfly.org](http://wildfly.org)
- Unzip and start as `bin/standalone.sh`
- Run the test as:  
**`mvn test -Pwildfly-remote-arquillian`**

# Test on GlassFish

- Download GlassFish 4.1 from [glassfish.org](http://glassfish.org)
- Unzip and start as `bin/asadmin start-domain`
- Run the test as:  
**`mvn test -Pglassfish-remote-wildfly`**

- How to add Arquillian dependencies to an existing project

# Continuous Integration





# Acknowledgments

- John Yeary (@jyeary)
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