



LUNATECH
RESEARCH

**Play! Framework:
To infinity and beyond**

Nicolas Leroux • Nicolas Martignole • 21 Octobre 2011

Nicolas Leroux

- Senior solution architect and Technical Director at Lunatech in Rotterdam, the Netherlands
- Joined Lunatech Research in 2001
- Early adopter of Java EE technology - EJB, JBoss Seam, Play
- Expert around the Java EE stack
- Play framework core developer
- RivieraJUG and JBoss User Group
- 2010 presentations included JavaOne, J-Fall, JavaZone, ParisJUG



LUNATECH
RESEARCH

Nicolas Martignole

- Freelancer, based in Paris, member of the Paris JUG
- Famous blog <http://www.touilleur-express.fr/>
- Job board for Geek developed with Play! Framework
- Play framework evangelist and committer



LUNATECH
RESEARCH

“ Play is a web framework

Grails	Wicket
Struts	Tapestry
Spring Roo	Spring MVC
GWT	Vaadin
Lift	JSF
	Flex

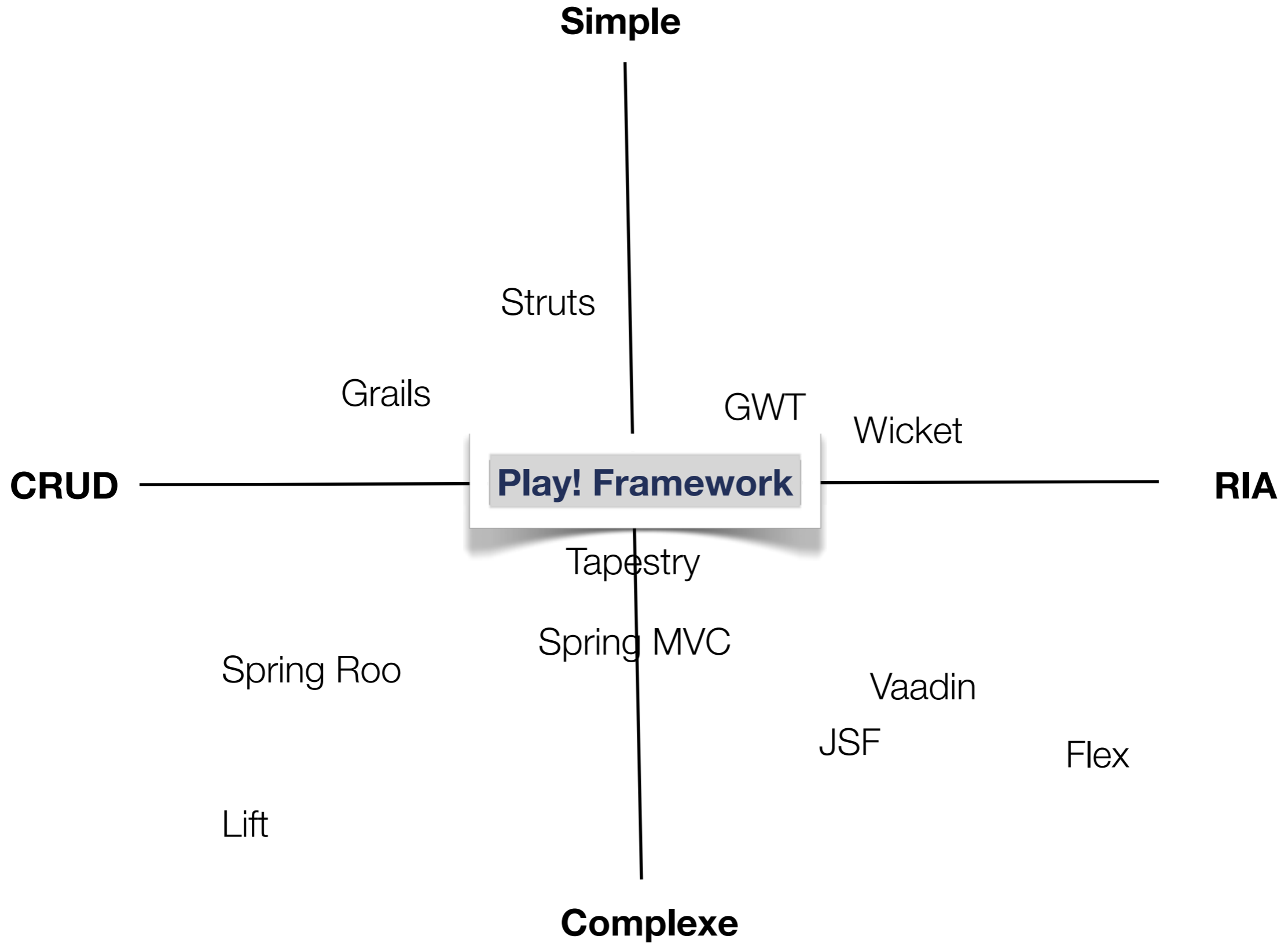
Simple

CRUD

Play! Framework

RIA

Complexe



Jeune

Lift
Spring Roo

Play! Framework

Grails

GWT 2

Tapestry

Vaadin

Flex

Peu risqué

Risqué

Wicket

JSF

Spring MVC

Struts

Mature

About Play! framework

- Founded by Guillaume Bort in 2008
- 379,181+ downloads
- 3056+ members
- 60+ e-mails per day
- Trends++
- 100 modules and growing



“ Play is made by web developers
for web developers

“Are you a web developer?”

Part of our daily job



You need laser vision...



... to spot the error

```
13:07:55,796 ERROR [[PersonServlet]] Servlet.service() for servlet
PersonServlet threw exception
javax.ejb.EJBException: null; CausedByException is:
    null
    at org.jboss.ejb3.tx.Ejb3TxPolicy.handleExceptionInOurTx(Ejb3TxPolicy.java:46)
    at org.jboss.aspects.tx.TxPolicy.invokeInOurTx(TxPolicy.java:70)
    at org.jboss.aspects.tx.TxInterceptor$Required.invoke(TxInterceptor.java:134)
    at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
    at org.jboss.aspects.tx.TxPropagationInterceptor.invoke(TxPropagationInterceptor.java:61)
    at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
    at org.jboss.ejb3.stateless.StatelessInstanceInterceptor.invoke(StatelessInstanceInterceptor.java:39)
    at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
    at org.jboss.aspects.security.AuthenticationInterceptor.invoke(AuthenticationInterceptor.java:63)
    at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
    at org.jboss.ejb3.ENCPropagationInterceptor.invoke(ENCPropagationInterceptor.java:32)
    at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
    at org.jboss.ejb3.asynchronous.AsynchronousInterceptor.invoke(AsynchronousInterceptor.java:91)
    at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
    at org.jboss.ejb3.stateless.StatelessContainer.dynamicInvoke(StatelessContainer.java:189)
    at org.jboss.aop.Dispatcher.invoke(Dispatcher.java:107)
    at org.jboss.ejb3.remoting.IsLocalInterceptor.invoke(IsLocalInterceptor.java:37)
    at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
    at org.jboss.ejb3.stateless.StatelessRemoteProxy.invoke(StatelessRemoteProxy.java:88)
    at $Proxy76.getAllPeople(Unknown Source)
    at uk.co.mediaport.web.PersonServlet.showTelephones(PersonServlet.java:54)
    at uk.co.mediaport.web.PersonServlet.doPost(PersonServlet.java:45)
    at uk.co.mediaport.web.PersonServlet.doGet(PersonServlet.java:34)
    at javax.servlet.http.HttpServlet.service(HttpServlet.java:697)
    at javax.servlet.http.HttpServlet.service(HttpServlet.java:810)
    at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:252)
    at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:173)
    at org.jboss.web.tomcat.filters.ReplyHeaderFilter.doFilter(ReplyHeaderFilter.java:81)
    at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:202)
    at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:173)
    at org.apache.catalina.core.StandardWrapperValve.invoke(StandardWrapperValve.java:213)
    at org.apache.catalina.core.StandardContextValve.invoke(StandardContextValve.java:178)
    at org.jboss.web.tomcat.security.CustomPrincipalValve.invoke(CustomPrincipalValve.java:39)
    at org.jboss.web.tomcat.security.SecurityAssociationValve.invoke(SecurityAssociationValve.java:159)
    at org.jboss.web.tomcat.security.JaccContextValve.invoke(JaccContextValve.java:59)
```

```
at org.apache.catalina.core.StandardHostValve.invoke(StandardHostValve.java:126)
at org.apache.catalina.valves.ErrorReportValve.invoke(ErrorReportValve.java:105)
at org.apache.catalina.core.StandardEngineValve.invoke(StandardEngineValve.java:107)
at org.apache.catalina.connector.CoyoteAdapter.service(CoyoteAdapter.java:148)
at org.apache.coyote.http11.Http11Processor.process(Http11Processor.java:856)
at org.apache.coyote.http11.Http11Protocol$Http11ConnectionHandler.processConnection(Http11Protocol.java:744)
at org.apache.tomcat.util.net.PoolTcpEndpoint.processSocket(PoolTcpEndpoint.java:527)
at org.apache.tomcat.util.net.MasterSlaveWorkerThread.run(MasterSlaveWorkerThread.java:112)
at java.lang.Thread.run(Thread.java:595)
java.lang.NullPointerException
at uk.co.mediaport.core.PeopleBean.getAllPeople(PeopleBean.java:33)
at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
at java.lang.reflect.Method.invoke(Method.java:585)
at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:109)
at org.jboss.ejb3.AllowedOperationsInterceptor.invoke(AllowedOperationsInterceptor.java:32)
at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
at org.jboss.aspects.tx.TxPolicy.invokeInOurTx(TxPolicy.java:66)
at org.jboss.aspects.tx.TxInterceptor$Required.invoke(TxInterceptor.java:134)
at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
at org.jboss.aspects.tx.TxPropagationInterceptor.invoke(TxPropagationInterceptor.java:61)
at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
at org.jboss.ejb3.stateless.StatelessInstanceInterceptor.invoke(StatelessInstanceInterceptor.java:39)
at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
at org.jboss.aspects.security.AuthenticationInterceptor.invoke(AuthenticationInterceptor.java:63)
at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
at org.jboss.ejb3.ENCPropagationInterceptor.invoke(ENCPropagationInterceptor.java:32)
at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
at org.jboss.ejb3.asynchronous.AsynchronousInterceptor.invoke(AsynchronousInterceptor.java:91)
at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
at org.jboss.ejb3.stateless.StatelessContainer.dynamicInvoke(StatelessContainer.java:189)
at org.jboss.aop.Dispatcher.invoke(Dispatcher.java:107)
at org.jboss.ejb3.remoting.IsLocalInterceptor.invoke(IsLocalInterceptor.java:37)
at org.jboss.aop.joinpoint.MethodInvocation.invokeNext(MethodInvocation.java:98)
at org.jboss.ejb3.stateless.StatelessRemoteProxy.invoke(StatelessRemoteProxy.java:88)
at $Proxy76.getAllPeople(Unknown Source)
at uk.co.mediaport.web.PersonServlet.showTelephones(PersonServlet.java:54)
at uk.co.mediaport.web.PersonServlet.doPost(PersonServlet.java:45)
at uk.co.mediaport.web.PersonServlet.doGet(PersonServlet.java:34)
at javax.servlet.http.HttpServlet.service(HttpServlet.java:697)
at javax.servlet.http.HttpServlet.service(HttpServlet.java:810)
at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:252)
at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:173)
at org.jboss.web.tomcat.filters.ReplyHeaderFilter.doFilter(ReplyHeaderFilter.java:81)
```

Incredible force...



... to link all those together



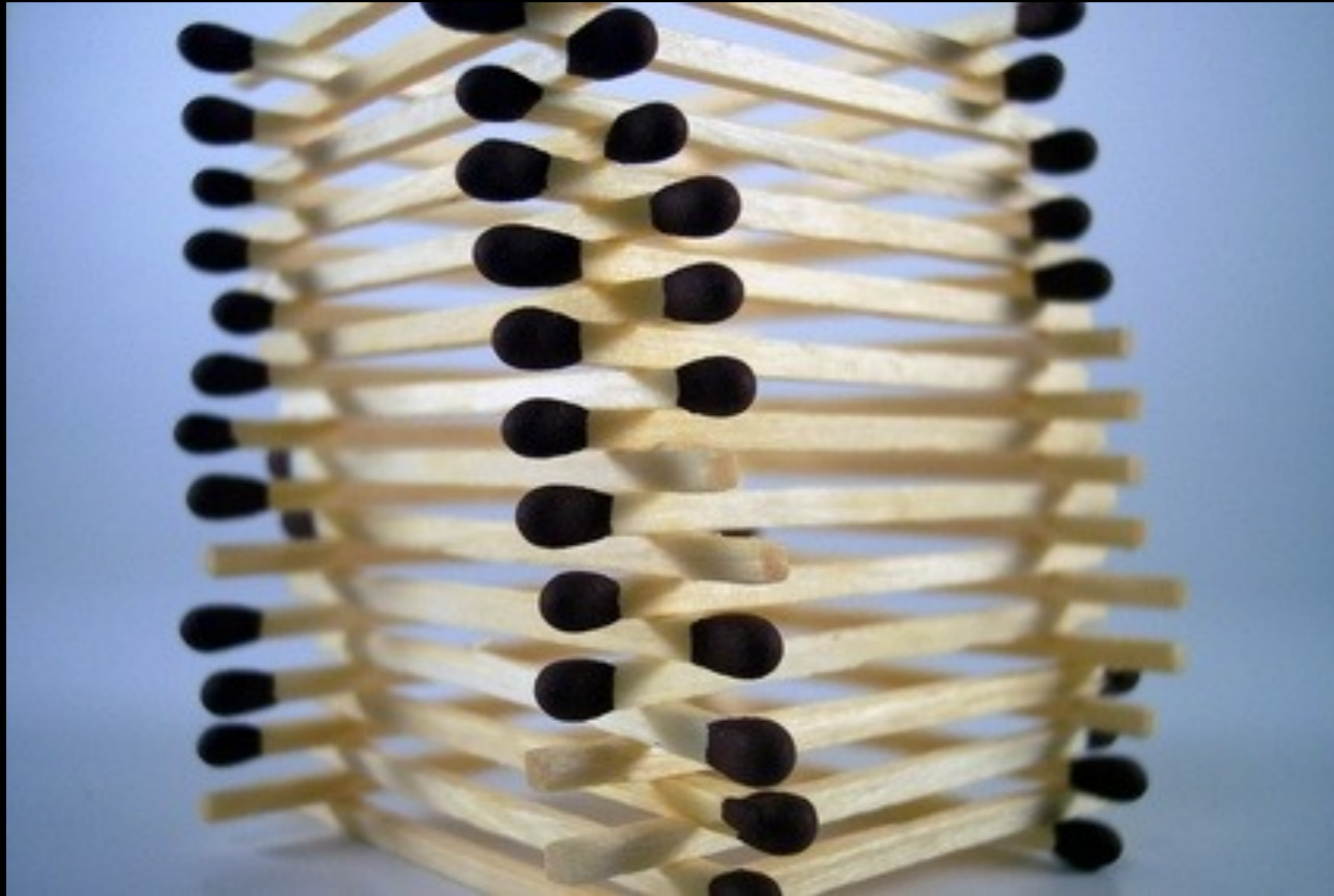
Sometimes you need to fight hard to get them working together



Sometimes, there is only one solution



And pray that it all works out!




You need incredible speed to build the web app



Typical Java web app. We can do better...

ELVIS wordservice-5 Inloggen

 Gelieve eerst in te loggen

Inloggen

Log in met uw gebruikersnaam en wachtwoord

Gebruikersnaam

Wachtwoord



Internationalization is
often part of your job



Also part of your job

- Asynchronous jobs
- URL routing
- Testing
- File upload
- PDF generation
- Validation
- Dependency management
- Persistence



Being superman is hard work for little recognition



And you might really end up like him



“ You should not need to be
Superman to create a web application
(obvious conclusion)

“ This is exactly what the
Play framework focuses on
(the real conclusion)

“ Thank you!

“ Play focuses on creating simplicity

“ Play is stateless... like the web

“ Any changes to the application are automatically reloaded when you hit your browser’s ‘reload’ button

(yes any changes: DB, Controller, views, etc...)

<http://www.myapp.com/WarRootDirectory1/ServletsOnAMoFoPlane?sessionId=x81ndj38avngjLOLdxpanewq&action=NextPage&Mykel=Alvis&entityId=1299124&processName=UnladenSwallowComputation&role=peon&date=03%2F01%2F1999&flagSettings=01010001110110&returnPage=%2FServletThatRing>

URLs for perfectionists

- e.g. <http://www.myapp.com/items/323>
 - Read it
 - Bookmark it
 - Tweet it

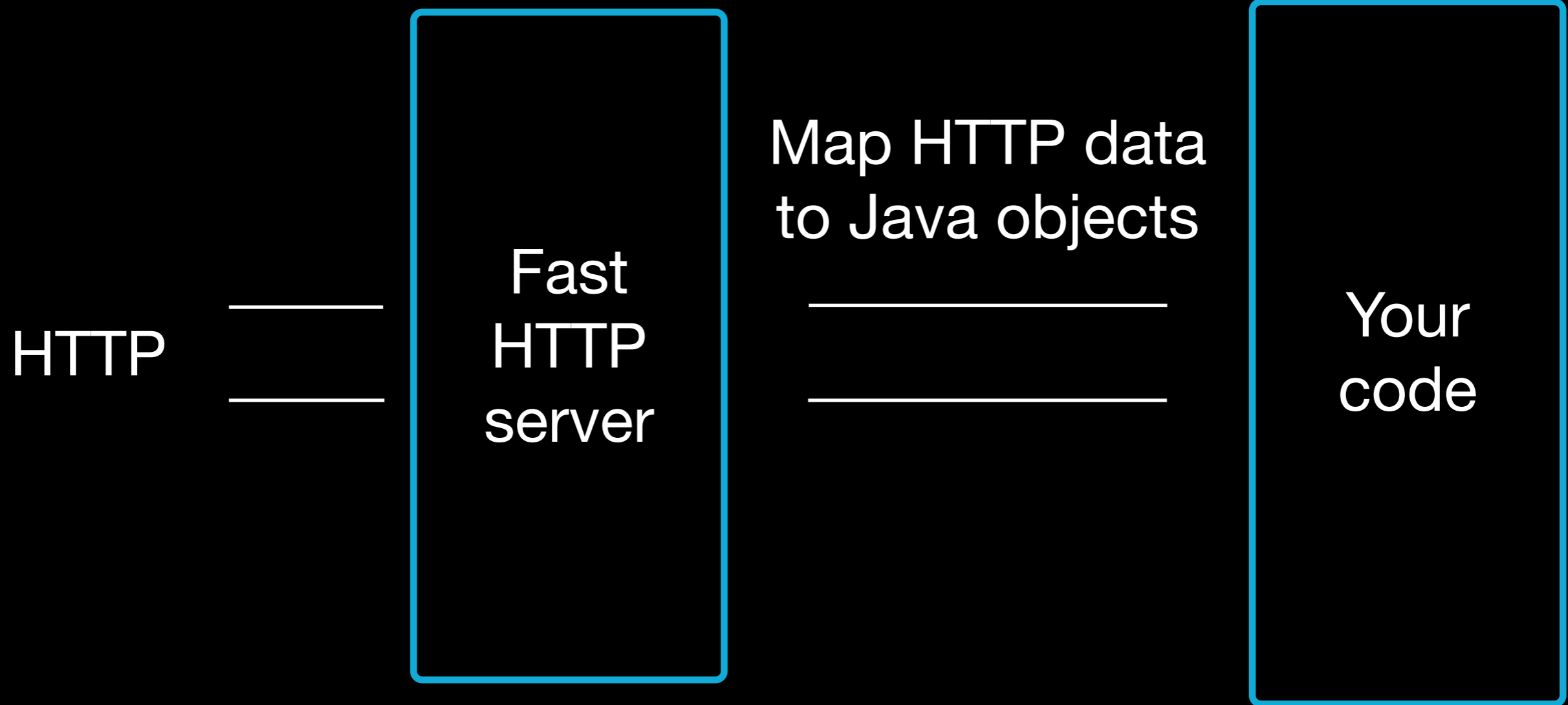


So you can be RESTful

- URLs are important.
 - Fully realise the meaning of HTTP as a protocol not just a transport layer.
 - Take care of side effects & idempotence.
 - Hypermedia as the engine of application state (no server side navigation state).



Play is not Servlet based



HTTP parameter binding

`http://www.myapp.com/items/{id}`

HTTP parameter binding

`http://www.myapp.com/items/{id}`

`GET /items/{id} Application.show`

HTTP parameter binding

`http://www.myapp.com/items/{id}`

`GET /items/{id} Application.show`

```
public static show(String id) {  
    Item item = Item.findById(id);  
    render(item);  
}
```

HTTP parameter binding

`http://www.myapp.com/items/{id}`

`GET /items/{id} Application.show`

```
public static show(String id) {  
    Item item = Item.findById(id);  
    render(item);  
}
```

`<div>Item : ${item.name}</div>`

HTTP parameter binding

POST /items/save

Application.save

HTTP parameter binding

POST /items/save Application.save

```
public void save(Item item) {  
    item.save();  
    show(item.id);  
}
```

HTTP parameter binding

POST /items/save Application.save

```
public void save(Item item) {  
    item.save();  
    show(item.id);  
}
```

```
<form action="@{Application.save}" >  
    <input type="hidden" name="item.id" value="$  
{item.id}">  
    <input type="text" name="item.name" />  
</form>
```

HTTP parameter binding

POST /items/save Application.save

```
public void save(Item item) {  
    item.save();  
    show(item.id);  
}
```

```
<form action="@{Application.save}" >  
    <input type="hidden" name="item.id" value="$  
{item.id}">  
    <input type="text" name="item.name" />  
</form>
```

Clear error reporting

Application error

http://localhost:9000/

Java compilation error

The file /app/controllers/Application.java could not be compiled. Error raised is : **Syntax error, insert ";" to complete BlockStatements**

In /app/controllers/Application.java (around line 12)

```
8:
9: public class Application extends Controller {
10:
11:     public static void index() {
12:         render()
13:     }
14:
15: }
```

This exception has been logged with id 5pmmm6494



Excellent documentation

Documentation

Welcome to the Play framework documentation. This documentation is intended for the **1.2 release** and may significantly differ from previous framework versions' documentation.

Check the [version 1.2 release notes](#).

Getting started

Your first steps with Play and your first 5 minutes of fun.

1. [Play framework overview](#)
2. [Watch the screencast](#)
3. [Five cool things you can do with Play](#)
4. [Usability - details matter as much as features](#)
5. [Frequently Asked Questions](#)
6. [Installation guide](#)
7. [Setting-up your preferred IDE](#)
8. [Your first application — the 'Hello World' tutorial](#)
9. [Sample applications](#)

Tutorial — Play guide, a real world app step-by-step

Learn Play by coding 'Yet Another Blog Engine', from start to finish. Each chapter will be a chance to learn one more cool Play feature.

1. [Starting up the project](#)
2. [A first iteration of the data model](#)
3. [Building the first screen](#)
4. [The comments page](#)
5. [Setting up a Captcha](#)
6. [Add tagging support](#)
7. [A basic admin area using CRUD](#)
8. [Adding authentication](#)



Play master-d863a94

Browse

- [Table of contents](#)
- [Next: Installation guide](#)

Contents

1. [Getting started](#)
2. [Tutorial — Play guide, a real world app step-by-step](#)
3. [The essential documentation](#)
 - [Main concepts](#)
 - [HTTP routing](#)
 - [Controllers](#)
 - [The template engine](#)
 - [HTTP form data validation](#)
 - [The domain object model](#)
 - [JPA persistence](#)
 - [Play libs](#)
 - [Asynchronous jobs](#)
 - [Asynchronous programming with HTTP](#)
 - [Ajax requests](#)
 - [Internationalization](#)
 - [Cache](#)
 - [Sending e-mail](#)
 - [Testing the application](#)
 - [Security Guide](#)
 - [Modules and the module repository](#)
 - [Dependency management](#)
 - [Managing your database evolutions](#)
 - [Logging configuration](#)



LUNATECH
RESEARCH

Play is full stack

- Development & production NIO server
- Incremental compiler
- MVC stack with a template system
- Persistence engine
- Complete test runner
- Powerful web services client
- Asynchronous task management
- Extension point through modules
- Dependency management
- Validation
- Websocket support
- Asynchronous features



Play is extendable

- Scala module
 - PDF module
 - Excel module
 - MongoDB
 - Cobertura
 - CoffeeScript
 - elasticsearch
 - 100 modules and counting
- Cloud ready
 - Heroku
 - Cloudbees
 - Google App Engine
 - Playapps



Tests runner

Select the tests to run, then click [Start] and pray

Start !

3 tests to run ([Bookmark this link to save this configuration](#)) - [Unselect all](#)

| There is 1 unit test,

+ **BasicTest**

| 1 functional test,

- **ApplicationTest**

testThatIndexPageWorks

Failure, Response status expected:<200> but was:<302>

14
ms

In /test/ApplicationTest.java, line 12 :
assertIsOk(response);

| and 1 selenium test,

~ **Application**

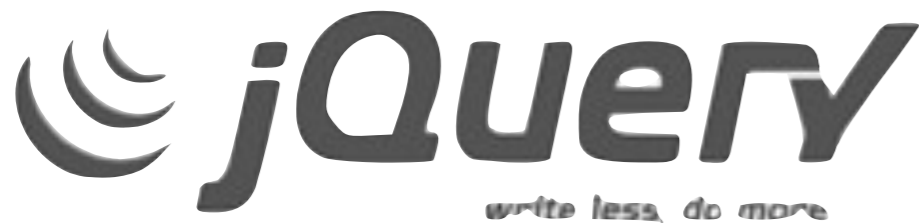


Not for the javascript haters

- It only manages the server side. Use any client technologies you want (but favour HTML5).



Sencha



JQTOUCH



“ Let’s code an application!

Live coding demo...

“ Features are nice, but they should empower not distract

Play philosophy

- Simple to start with, easy to learn



Play philosophy

- Little by little, assemble simple pieces



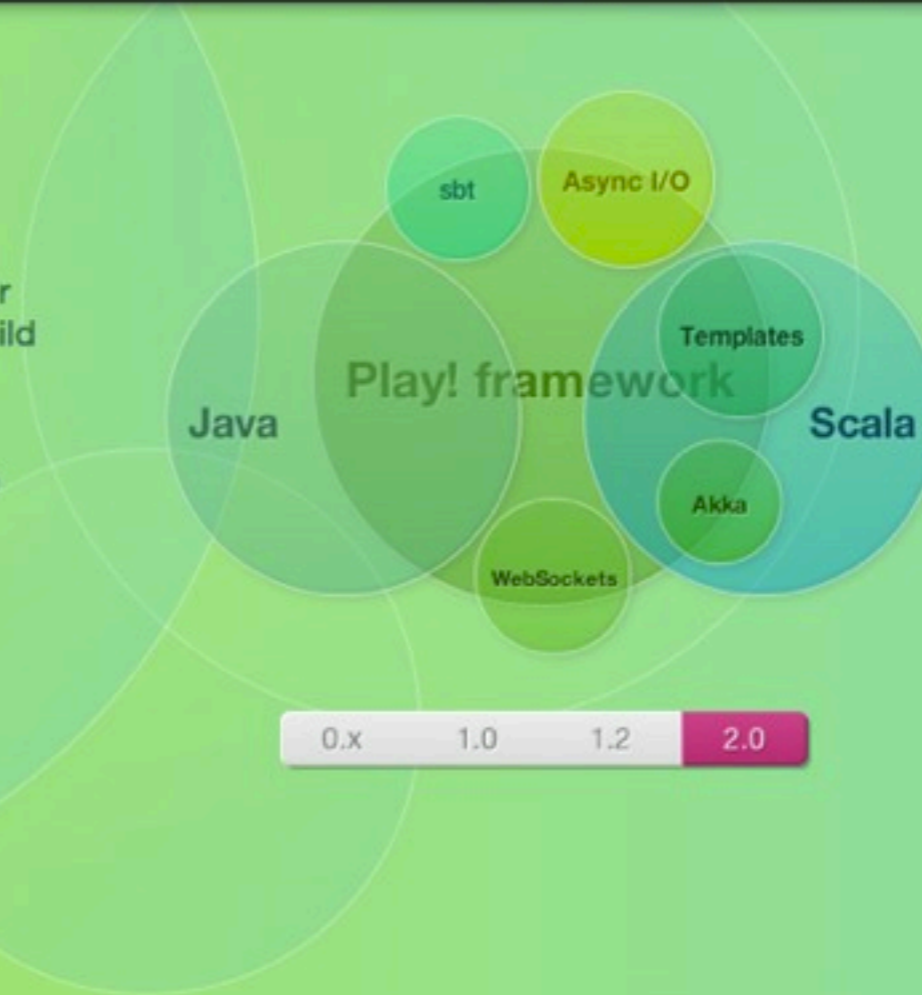
- Build awesome web applications



Working on Play 2.0

It's time to move on! We are working on the next major version of Play framework, integrating a brand new build system and awesome asynchronous features all with native Java and Scala support.

Play 2.0 is still under heavy development and APIs are likely to change, but you can already have a look and download the preview version.

[Download Play-2.0-preview](#)[Check the source on Github](#)

Introducing Play 2.0 by Guillaume Bort, Play project's lead developer.

Since 2007, we have been working on making Java web application development easier. Play started as an internal project at Zenexity and was heavily influenced by our way of doing web projects: focusing on developer productivity, respecting Web architecture, and using from the start a fresh approach to packaging conventions - breaking so-called JEE best practices where it made sense.

In 2009, we decided to share these ideas with the community as an open source project. The immediate feedback was extremely positive and the project gained a lot of traction. Today - after two years of active development - Play has several versions, an active community of 3,000 people, with a growing number of applications running in production all over the globe.

Opening a project to the world certainly means more feedback, but

have worked to fix all of these kind of issues, as well as to integrate new features to support a wider range of scenarios. As the project has grown, we have learned a lot from our community and from our own experience - using Play in more and more complex and varied projects.

In the meantime, technology and the Web have continued to evolve. The Web has become the central point of all applications. HTML, CSS and Javascript technologies have evolved quickly - making it almost impossible for a server-side framework to follow. The whole Web architecture is fast moving towards real-time, and the emerging requirements of today's project profiles mean SQL no longer works as the exclusive datastore technology. At the programming language level we've witnessed some monumental

@NicolasLeroux

nicolas.leroux@lunatech.com

@nmartignole

nicolas@martignole.net

www.lunatech.com

@PlayFramework

www.playframework.org



LUNATECH