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GWT

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Agenda

Intro
Devenv Setup
Project Setup
Design
Further Topics
Conclusion

Intro

Who are you?

0	GW… what?
1	
2	Hello World should be possible
3	
4	
5	played around with GWT a little
6	
7	
8	used GWT in projects
9	
10	I am GWT and I'm just here to verify those 3 guys

What's GWT?

Google Web Toolkit

Compiles Java to JavaScript

§ Enables debugging of Ajax code

§ Use Java tools (Eclipse, JUnit, FindBugs, …)

Current version: 1.7.1

§ Supports IE 8, Firefox 3.5, Safari 4

§ Using a 1.6 JRE
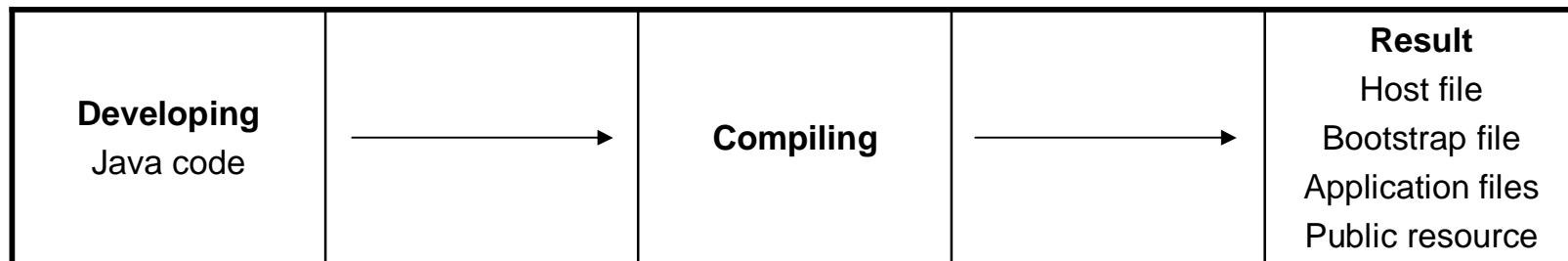
GWT 2.0 should arrive soon

Apache 2.0 open source license

How does it work?

Write GUI in Java

While developing/debugging everything runs in JVM

After compiling: 100% HTML, CSS, JavaScript

Developing Java code	→	**Compiling**	→	**Result** Host file Bootstrap file Application files Public resource

Hosted mode vs. Web mode

Hosted mode

§ During development

§ Byte code in JVM

§ Debugging functionality

Web mode

§ Application compiled into JavaScript, CSS and HTML

§ Has nothing to do with Java any more

§ GWT 2.0: hosted mode in browser and make it work from across the network
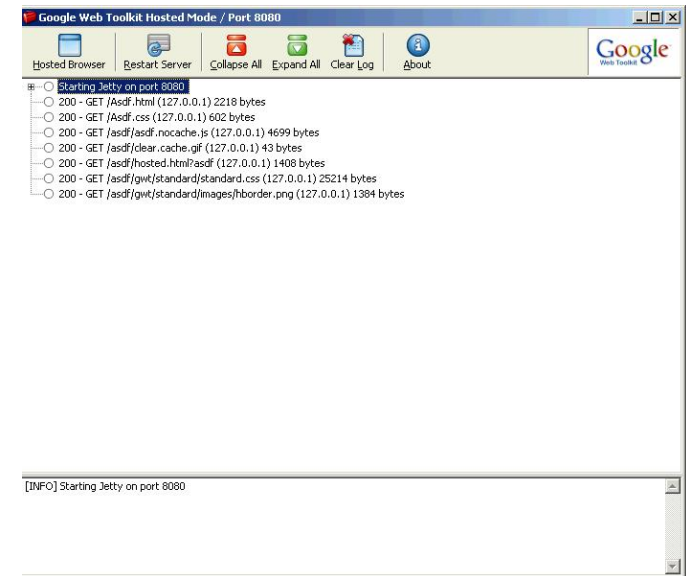
Java code

Server side

   § As GWT is about the client

     è no restrictions

Client side

   § GWT supports a subset of the Java runtime library:

      § java.lang

      § java.lang.annotation

      § java.util

      § java.io

      § java.sql

   § http://code.google.com/webtoolkit/doc/1.6/RefJreEmulation.html

Devenv Setup

Setup

Without eclipse

- § (install Java SDK)
- § (install Apache Ant)
- § Download and unzip Google Web Toolkit
  - § No installer

With eclipse

- § (install Java SDK)
- § (install Eclipse)
- § Install Google Plugin for Eclipse
  http://code.google.com/eclipse/

Hello World

Without Eclipse

§ `webAppCreator --out MyApplication`
`ch.netcetera.MyApplication`

§ `ant hosted` (Hosted mode) or `ant build` (Web mode)

With Eclipse

§ Demo!
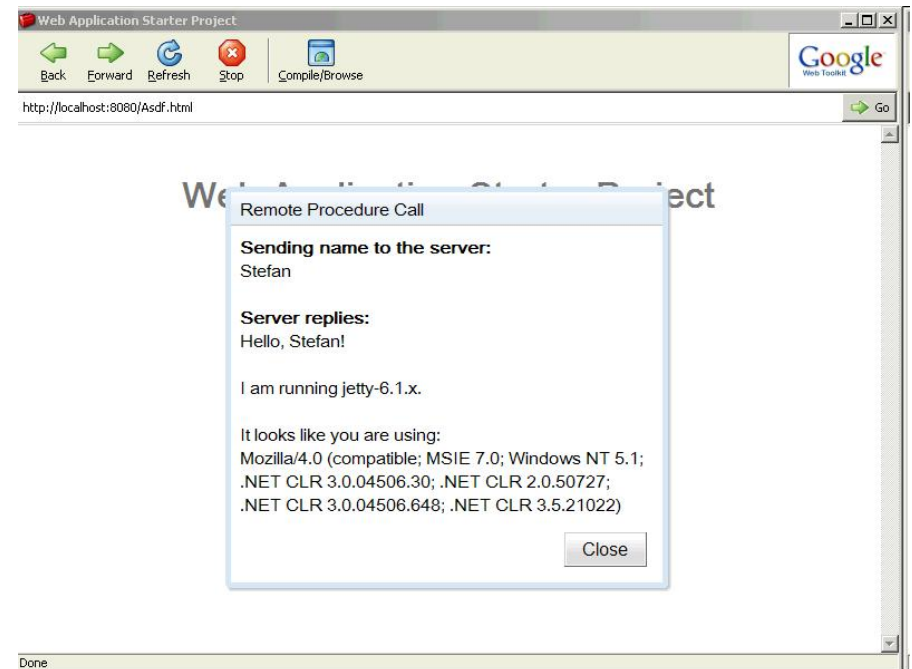
Project Setup

GWT & Maven

GWT works well with Maven2

- But not with m2eclipse-Plugin

gwt-maven-plugin:

- http://mojo.codehaus.org/gwt-maven-plugin/

```
Example pom:
<plugin>
 <groupId>org.codehaus.mojo</groupId>
 <artifactId>gwt-maven-plugin</artifactId>
 <configuration><module>ch.netcetera.webis8.extGWTGui</module></configuration>
 <executions><execution>
   <configuration><extraJvmArgs>-Xmx256M -Xss256k</extraJvmArgs></configuration>
   <goals><goal>compile</goal></goals>
 </execution></executions>
</plugin>
```

Testing 1

Server-side: „normal" JUnit-Tests

Client-side: GWTTestCase extends junit.framework.TestCase

Front-end / end-to-end: Selenium

- http://seleniumhq.org/
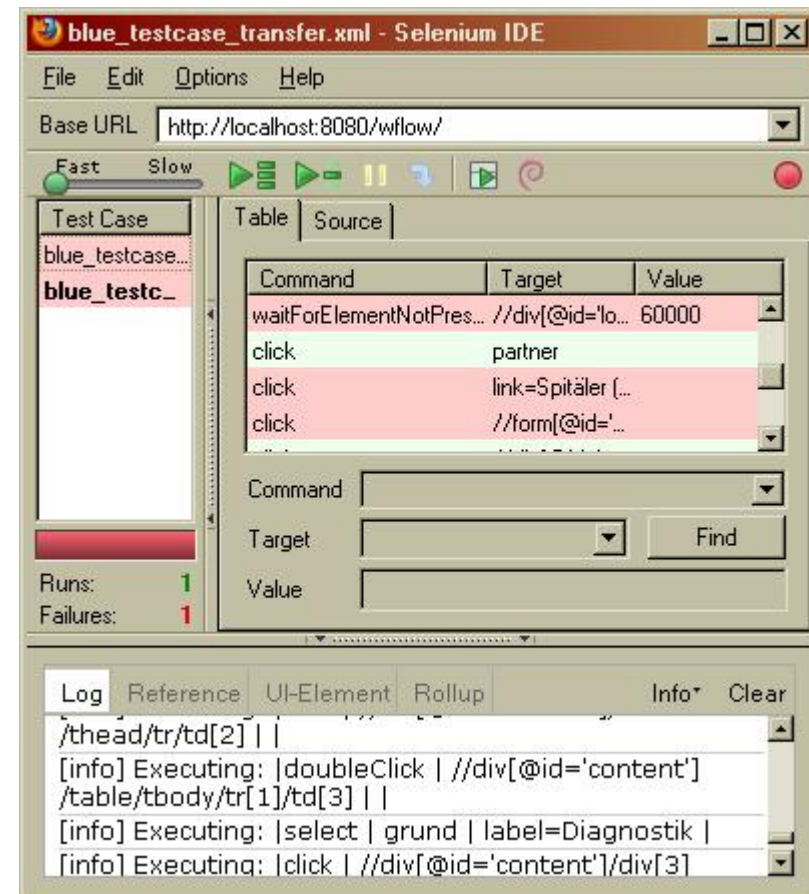
Demo (partly powered by Selenium)

- Bluecare

Testing 2 (Selenium)

Problems with Selenium

- Async Problem:

à Wait until eg. loading.gif disappears

- Problem with click-simulation

à Set timeout to .5s and catch Exception

- Change happens

à Add IDs to buttons etc.

```
Selenium:
<tr>
  <td>waitForElementPresent</td>
  <td>//div[@id='loading']</td>
  <td>60000</td>
</tr>
<tr>
  <td>waitForElementNotPresent</td>
  <td>//div[@id='loading']</td>
  <td>60000</td>
</tr>
```

```java
Java version:
/** Wait a little for the completion of an
asynchronous call. */
private void waitALittle() {
  try {
    Thread.sleep(500);
  } catch (final InterruptedException e) {
    // nevermind, just continue
  }
}
```

Continuous Integration

Nothing special here

GWT works well with Hudson (thanks to Maven)

Design

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Browser-Issues

Mostly, it's not GWT,

It's (browser-specific) CSS

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Widgets

If you can choose:

just take offical GWT widgets
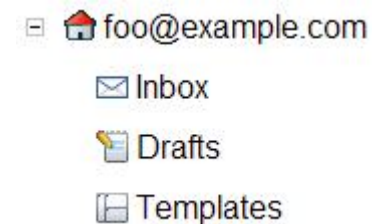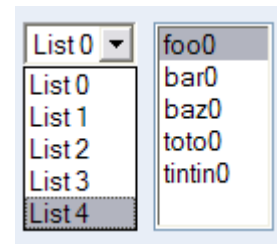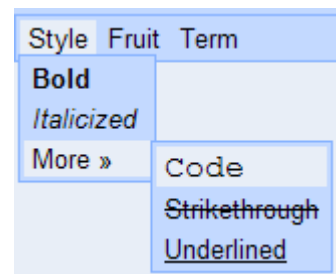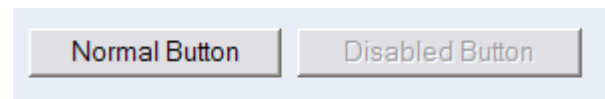
Corporate Design

If not:

Look for a capable designer ...

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Collaboration with designer

... and let <u>him</u> do the work.

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External GUI libraries (extgwt,...)

(Mostly) convenient

http://www.extjs.com/products/gxt/
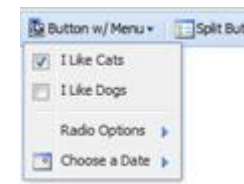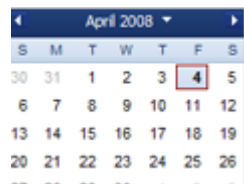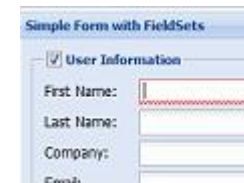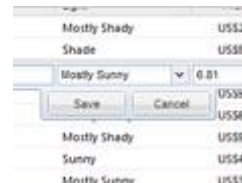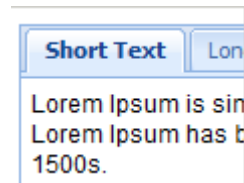
Further Topics

l18n

Adequate

```
hello=Hello Jugs
i18n=Internationalization
sayHelloTo=Hi {0}
...
```

```
String hello();
String i18n();
String sayHelloTo(String name);
```

Performance

Depends on you!

Security

Be careful:

Think about evil people

Conclusion

Is GWT ready for the real world?

Netcetera has several projects in production

Has its weaknesses

- Eg. missing libs on client-side
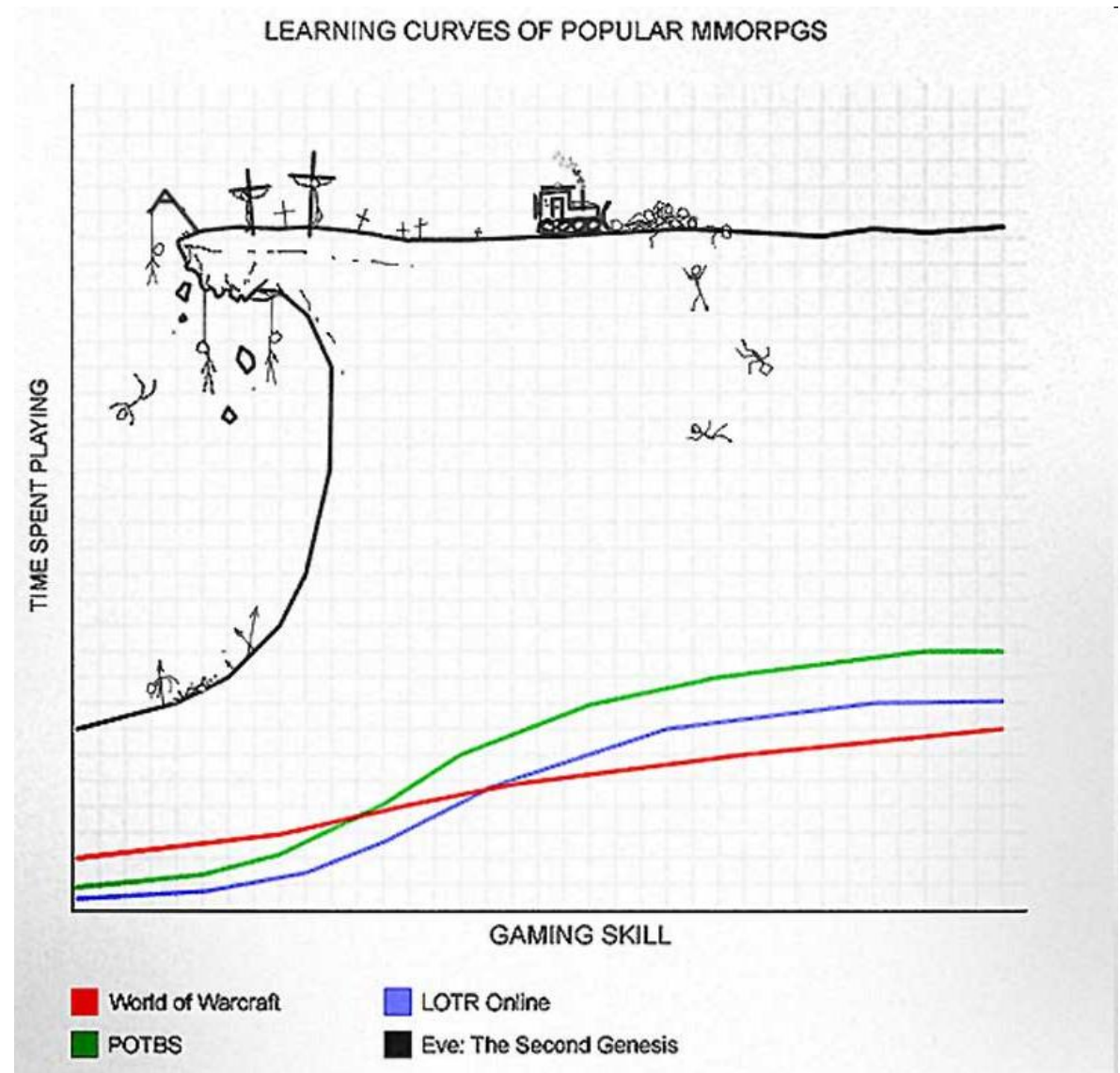
Not beta anymore

- We started with 1.4.10 - Current version 1.7.1 - 2.0 upcoming

Active community (and Google)

What's the learning curve?

Steep
- Similar to SWT/AWT
- No JavaScript

What are the alternatives (for Java-RIA-development)?

Hand-made AJAX

- Only if very little AJAX needed

Java Script Frameworks / Libraries

- jQuery / Prototype / YUI etc.

Other approaches:

- Server-Side Frameworks
    - Vaadin (uses GWT for presentation)
- Stuff that runs in own VM
    - Applets / JavaFX
    - Flex (based on Flash)

Where can I find more info?

Google:

http://code.google.com/webtoolkit

Good forum:

http://groups.google.com/group/Google-Web-Toolkit

Get started:

http://code.google.com/webtoolkit/gettingstarted.html

Google Plugin:

http://code.google.com/eclipse/

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Q/A

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