Web Frameworks of the Future
Flex, GWT, Rails and Grails
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Introductions

- Your experience with web applications?
- Have you heard of SOFEA or SOUI?
- Experience with Rails, Grails, GWT or Flex?
- What do you want to get from this session?
- Framework Experience:
  - Struts 1/2, Spring MVC, JSF, Stripes, Tapestry, Wicket, Django
Who is Matt Raible?

- Java Blogger since 2002
- Power user of Java Web Frameworks
- Author of Spring Live and Pro JSP 2.0
- Founder of AppFuse (http://appfuse.org)
- Member of Java EE 5, JSF 1.2 and Bean Validation Expert Groups
- Lead UI Architect at LinkedIn
- Father, Skier, Cyclist and Beer Connoisseur

http://www.linkedin.com/in/mraible
The Problem

“I've been Thinking in Java, now I'm Thinking in Flex.”
Bruce Eckel, Author, Thinking in Java

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webwork, Struts, Struts², tapestry, Rails, Spring 2.0, MyFaces, Gant, ZK™ Simply Rich, Stripes, Adobe, Wicket, Google Code, Google Web Toolkit, RIFE
How do you choose?
It’s not about including choices, it’s about eliminating them.
Session Agenda

- SOFEA and SOUI
- REST Backend
  - Rails
  - Grails
  - Comparison
- Rich Frontend
  - Flex
  - GWT
  - Comparison
- Conclusion and Q & A
SOFEA and SOUI

- **SOFEA** first introduced by Ganesh Prasad, Rajat Taneja and Vikrant Todankar in *Life above the Service Tier* on 10/12/2007.

- **SOUI** introduced by Nolan Wright and Jeff Haynie in early November 2007.

- SOFEA Authors have since formed the Thin Server Architecture Working Group.
  - [http://www.thinserverarchitecture.com](http://www.thinserverarchitecture.com)

- Nolan and Jeff developed Appcelerator.
  - [http://www.appcelerator.org](http://www.appcelerator.org)
SOFEA Principles

- Decouple the three orthogonal Presentation Tier processes of **Application Download**, **Presentation Flow** and **Data Interchange**. This is the foundational principle of SOFEA.

- Explore various Application Download options to exploit usefully contrary trade-offs around client footprint, startup time, offline capability and a number of security-related parameters.

- Presentation Flow must be driven by a client-side component and never by a server-side component.

- Data Interchange between the Presentation Tier and the Service Tier must not become the weakest link in the end-to-end application chain of data integrity.

- Model-View-Controller (MVC) is a good pattern to use to build the Presentation Tier.
**SOFEA (Service-Oriented Front-End Architecture)**

- **Presentation Flow (PF)**: Managed entirely by the client application
- **Application Download (AD)**: Not involved in Presentation Flow or Data Interchange
- **Application Container**: Native OS, browser, JVM, browser plugin, or other runtime
- **Data Interchange (DI)**: XML-formatted data, Client/Server and/or Peer-to-Peer styles
- **Service Interface**: SOAP, REST
Recommended Frameworks

- DHTML/AJAX frameworks for Modern Browsers
  - Largely hand-coded with third party JavaScript libraries
  - Google Web Toolkit (GWT, GWT-Ext)
  - TIBCO General Interface Builder
- XML Dialects for Advanced Browsers
  - XForms and XHTML 2.0
  - Mozilla XUL
  - Microsoft Silverlight/XAML
- Java frameworks
  - Java WebStart (with/without Spring Rich Client)
  - JavaFX
- Adobe Flash-based frameworks
  - Adobe Flex
  - OpenLaszlo
REST

```
«interface»

Resource
GET
PUT
POST
DELETE

/orders
GET - list all orders
PUT - unused
POST - add a new order
DELETE - unused

/orders/{id}
GET - get order details
PUT - update order
POST - add item
DELETE - cancel order

/customers
GET - list all customers
PUT - unused
POST - add new customer
DELETE - unused

/customers/{id}
GET - get customer details
PUT - update customer
POST - unused
DELETE - delete customer

/customers/{id}/orders
GET - get all orders for customer
PUT - unused
POST - add order
DELETE - cancel all customer orders
```

http://www.infoq.com/articles/rest-introduction
REST is enabled by default with Scaffolding
Scaffolding doesn’t support one-to-many UI
**ActiveScaffold** fixes one-to-many, supports REST and adds Ajax
- Rails 2.1 and ActiveScaffold 1.1.1
  - `script/install plugin and git clone`
  - Download and unzip works...
  - ...but, you need 2.1 patch from:
    - [http://github.com/lightningdb/activescaffold/tree/master](http://github.com/lightningdb/activescaffold/tree/master)
  - Warbler has issues with ActiveScaffold
This XML file does not appear to have any style information associated with it. The document tree is shown below.

```xml
<user>
  <email>matt@raibledesigns.com</email>
  <fn>Matt Raible</fn>
  <id type="integer">1</id>
  <n>Matt</n>
  <org>LinkedIn</org>
  <photoUrl nil="true"/>
  <tags nil="true"/>
  <tel nil="true"/>
  <url nil="true"/>
</user>
```
Grails 1.x has REST support built-in

Scaffolding does not support REST by default

Adding REST support to Scaffolding


Scaffolding insufficiently supports one-to-many UI

One-to-many support possible if you modify templates

- [http://www.stainlesscode.com/site/comments/grails_one_to_many_scaffolding](http://www.stainlesscode.com/site/comments/grails_one_to_many_scaffolding)
This XML file does not appear to have any style information associated with it. The document tree is shown below.

```xml
<resume id="1">
  <affiliations/>
  <educations/>
  <experiences/>
  <publications/>
  <skills/>
  <summary>My Resume</summary>
</resume>
```
Rails vs. Grails

- http://grails.org/Grails+vs+Rails+Benchmark
- Grails: 40 requests per second, Rails: 32
Language Performance

- Time (ms) per iteration

- Java
- C++
- JRuby
- Python
- Groovy
- PHP

My LinkedIn Network

- Located in or near 80210
- Grails
- Rails
Flex + Rails

- Flex Scaffold
- Flex e-Genial Scaffold
  - http://rubyforge.org/projects/flexscaffold
- WebORB for Ruby on Rails
- `<mx:HTTPService id="..." url="..." resultFormat="..." HTTPMethod="..." result="..."/>`
Pros:
- Produces Flash UI
- Funded by Adobe
- Has many successful client stories
- Supports REST easily

Cons
- Not Search Engine Friendly
- Doesn’t render HTML content well
- Doesn’t print well by default
- No Zero Turnaround w/o IDE
GWT + Grails

- GWT Plugin
  - [http://grails.org/GWT+Plugin](http://grails.org/GWT+Plugin)
  - Uses Server-side RPC
- GWT has limited support for REST
  - JSONRequest
  - GWT-REST (works best with Rails)
  - Sonatype GWT REST (in development)
  - Restlet API (in development)
Pros:
- Write Java => Produces JavaScript
- Easy to learn and develop with standard Java tools
- Vibrant Community
- Zero Turnaround in Hosted Mode

Cons:
- Hard to attach GWT on top of existing code
- Doesn’t support REST very well
- Operates within the confines of the browser’s JavaScript sandbox
Ajax vs. Flex


Use the Best Tool for the Job

- Open Web: Ajax
- Video and Rich Media: Flex
- HTML Rendering: Ajax
- Vector Graphics and Bitmap Manipulation: Flex
- Accessibility: Flex
Flex vs. Ajax Performance

http://www.jamesward.com/census
My LinkedIn Network

- Located in or near 80210

- GWT
- Flex
Grails - http://grails.org

Apache 2.0 License

Active Community @ http://grails.org/Community

Training from G2One and No Fluff Just Stuff

The 2G Experience

Recommended Books:

Getting Started with Grails by Jason Rudolph

Groovy Recipes by Scott Davis

Programming Groovy by Venkat Subramaniam

Beginning Groovy and Grails by Judd, Nusairat and Shingler
Project Support and Licensing

- Ruby on Rails - [http://rubyonrails.org](http://rubyonrails.org)
- MIT License
- Active Community @ [http://www.rubyonrails.org/community](http://www.rubyonrails.org/community)
- Training from The Pragmatic Studio and many others
- RailsConf and The Rails Edge
- Recommended Books:
  - Agile Web Development with Rails by Thomas and DHH
  - Rails for Java Developers by Halloway and Gehtland
  - Practical JRuby on Rails by Ola Bini
  - The Rails Way by Obie Fernandez
Adobe Flex

- Flex SDK under Mozilla Public License
- Active Community
  - Yahoo Group: [http://tech.groups.yahoo.com/group/flexcoders](http://tech.groups.yahoo.com/group/flexcoders)
  - User Groups: [http://flex.org/usergroups_list](http://flex.org/usergroups_list)
- 360|Flex
- Recommended Books
  - Flexible Rails by Peter Armstrong
  - Flex 3 in Action by Tariq Ahmed
  - Flex on Java by Allmon and Anderson
Google Web Toolkit

- Google Web Toolkit - [http://code.google.com/webtoolkit](http://code.google.com/webtoolkit)

- Apache 2.0 License

- Active Community
  - [http://groups.google.com/group/Google-Web-Toolkit](http://groups.google.com/group/Google-Web-Toolkit)

- Pearson’s Google Web Toolkit Conference and Google I/O

- Recommended Books
  - GWT in Action by Hanson and Tacy
  - GWT in Practice by Cooper and Collins
  - Google Web Toolkit Solutions by Geary and Gordon
  - Pro Web 2.0 Application Development with GWT by Jeff Dwyer
Rails is more mature and supports RESTifying a database better.

Framework and Language performance doesn’t == scalability.

Grails may be faster from a requests per second standpoint.

Flex/Flash is not as restricted by the browser sandbox.

Flex supports REST better.

GWT works best if UI and backend are in same project.

SOFEA UIs are fun, but not for every application.

Don’t Believe The Hype!

Prototype and draw your own conclusions.
Questions?

http://raibledesigns.com/rd/page/publications
Parties at OSCON

- Tonight (Wednesday)
  - Expo Hall (6-6:30)
  - RedMonk at Kells (8-10)
  - OpenSolaris/MySQL/Zend at DoubleTree Hotel (8-12)

- Tomorrow
  - SourceForge Awards Party at Jupiter Hotel (6-9)
  - BeerForge III at Bossanova (8-11)

- [http://upcoming.yahoo.com/tag/oscon](http://upcoming.yahoo.com/tag/oscon)