INTRODUCTIONS

- Your experience with web development?
- Your experience with Java EE development?
- What do you want to get from this session?
- Experience with Grails, GWT, Rails, Spring MVC, Wicket, Tapestry or Play?
Who is Matt Raible?

Blogger on raibledesigns.com

Founder of AppFuse

Father, Skier, Cyclist

Web Framework Connoisseur
SESSION AGENDA

- The Problem with Web Frameworks
- The Candidates
- Comparison Points
- The Matrix
- Conclusion
- Q and A
THE PROBLEM
HOW DO YOU CHOOSE?
ELIMINATE, DON’T INCLUDE
Struts
I've got a new way for you to build web apps!
... while I'd *love* to see life made simpler for Java web developers, and a lot of the things happening in Struts2 are going that way -- it won't be me doing it.

I've gone over to the dark side :-) and much prefer to develop in Rails -- for the conciseness mentioned above, but also because I don't ever have to do a "build" or "deploy" step during my development cycle any more. But you guys and gals need to be reminded that *this* is the kind of thing you are competing against if you expect to attract Rails developers ... or to avoid even more "previously Java web developer" defectors like me :-).

-- Craig McClanahan, 10/23/2007

http://markmail.org/thread/qfb5sekad33eobh2
JAMES GOSLING ON JSF

http://www.youtube.com/watch?v=9ei-rbULWoA&t=47m
2007: 6 IMPORTANT FACTORS

- Request, Component or RIA Framework
- Ease of Development
- Project Community
- Project Future and Roadmap
- Maintenance
- Technical Features
CHOOSING A FRAMEWORK

- Choose a short list of frameworks to prototype with.
- Create an application prototype with each framework.
- Document findings and create a matrix with important criteria.
- Create presentation to summarize document.
- Deliver document, presentation and recommendation.
2011: NOW THERE’S 20

1. Developer Productivity
2. Developer Perception
3. Learning Curve
4. Project Health
5. Developer Availability
6. Job Trends
7. Templating
8. Components
9. Ajax
10. Plugins or Add-Ons
11. Scalability
12. Testing Support
2011: COMPARISON POINTS

13. i18n and l10n
14. Validation
15. Multi-language Support (Groovy / Scala)
16. Quality of Documentation/Tutorials
17. Books Published
18. REST Support (client and server)
2011: COMPARISON POINTS

19. Mobile / iPhone Support

20. Degree of Risk
# COMPARISON MATRIX

MATRIX RESULTS

Grails: 17.5
Spring: 17
Rails: 17
GWT: 15.5
Vaadin: 15
Wicket: 15
Tapestry: 14.5
Struts 2: 14
Stripes: 14
Play: 13.5
Flex: 13.5
JSF: 11.5
Lift: 11.5
MATRIX RESULTS

- Grails (17.5)
- GWT (17)
- Ruby on Rails (17)
- Spring MVC (17)
- Vaadin (15.5)
- Tapestry and Wicket (15)
# Weighted Matrix

<table>
<thead>
<tr>
<th>Weight</th>
<th>Criteria</th>
<th>Struts 2</th>
<th>Spring MVC</th>
<th>Wicket</th>
<th>JSF</th>
<th>Tapestry</th>
<th>Stripes</th>
<th>CWT</th>
<th>Grails</th>
<th>Rails</th>
<th>Flex</th>
<th>Vaadin</th>
<th>Lift</th>
<th>Play</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Developer Productivity</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>10.00</td>
<td>5.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>10.00</td>
</tr>
<tr>
<td>0</td>
<td>Developer Perception</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5</td>
<td>Learning Curve</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
</tr>
<tr>
<td>5</td>
<td>Project Health</td>
<td>2.50</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
<td>2.50</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>5</td>
<td>Developer Availability</td>
<td>2.50</td>
<td>5.00</td>
<td>2.50</td>
<td>5.00</td>
<td>2.50</td>
<td>2.50</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
<td>0.00</td>
</tr>
<tr>
<td>0</td>
<td>Job Trends</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>0</td>
<td>Templating</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>0</td>
<td>Components</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5</td>
<td>Ajax</td>
<td>2.50</td>
<td>5.00</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>5.00</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
</tr>
<tr>
<td>5</td>
<td>Plugins or Add-Ons</td>
<td>2.50</td>
<td>0.00</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
<td>0.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
</tr>
<tr>
<td>10</td>
<td>Scalability</td>
<td>10.00</td>
<td>10.00</td>
<td>5.00</td>
<td>5.00</td>
<td>10.00</td>
<td>10.00</td>
<td>5.00</td>
<td>10.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>10</td>
<td>Testing</td>
<td>10.00</td>
<td>10.00</td>
<td>5.00</td>
<td>5.00</td>
<td>10.00</td>
<td>10.00</td>
<td>5.00</td>
<td>10.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>0</td>
<td>i18n and i10n</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5</td>
<td>Validation</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>2.50</td>
<td>2.50</td>
</tr>
<tr>
<td>10</td>
<td>Multi-language Support (Groovy / Scala)</td>
<td>5.00</td>
<td>5.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>0.00</td>
<td>10.00</td>
<td>0.00</td>
<td>0.00</td>
<td>10.00</td>
<td>0.00</td>
<td>5.00</td>
</tr>
<tr>
<td>10</td>
<td>Quality of Documentation/Tutorials</td>
<td>5.00</td>
<td>10.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>0</td>
<td>Books Published</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>10</td>
<td>REST Support (client and server)</td>
<td>5.00</td>
<td>10.00</td>
<td>5.00</td>
<td>0.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>10</td>
<td>Mobile / iPhone Support</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>5.00</td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>0</td>
<td>Degree of Risk</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

| Weighted Totals | 70 | 65 | 67.5 | 62.5 | 75 | 77.5 | 80 | 90 | 82.5 | 50 | 82.5 | 62.5 | 62.5 |

© 2011, Raible Designs
WEIGHTED RESULTS

- Grails (90)
- Spring MVC (85)
- Ruby on Rails (82.5)
- Vaadin (82.5)
- Play (82.5)
- GWT (80)
FIGHTING FOR 5TH

Top at Devoxx 2010

- GWT
- Rails
- Spring MVC
- Grails
- Wicket / Struts 2
FIGHTING FOR 5TH

Top at Rich Web Experience 2010

- Grails
- GWT
- Rails
- Spring MVC
- Tapestry / Vaadin
FIGHTING FOR 5TH

Top at TheServerSide Java Symposium 2010

- Grails
- GWT
- Rails
- Spring MVC
- Vaadin
RATINGS LOGIC

1. Developer Productivity
2. Developer Perception
3. Learning Curve
4. Project Health
5. Developer Availability
6. Job Trends
RATINGS LOGIC

7. Templating
8. Components
9. Ajax
10. Plugins or Add-Ons
11. Scalability
12. Testing Support
13. i18n and l10n

14. Validation

15. Multi-language Support (Groovy / Scala)

16. Quality of Documentation/Tutorials

17. Books Published

18. REST Support (client and server)
19. Mobile / iPhone Support

20. Degree of Risk

http://raibledesigns.com/rd/entry/how_i_calculated_ratings_for
DAVID POLLACK’S LIFT RATINGS

Developer Productivity: Lift gets a 11, Rails gets a 5, most Java-based frameworks get a 1 or less.

Developer Perception: Every web framework gets a 1.

Learning Curve: Lift gets a 2.

Job Trends, yep, it's zero.

* Matt's scale is 0-1 and my ratings are on Matt's scale, except mine goes to 11.

http://lift.la/my-take-on-matt-raibles-spreadsheet
Seam / JSF vs. Wicket Performance Comparison

January 2009: Seam 2.1.1 and Wicket 1.3.5

Average page response time in milliseconds

<table>
<thead>
<tr>
<th>Action</th>
<th>Seam / JSF</th>
<th>Wicket</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>users-1</td>
<td>users-5</td>
</tr>
<tr>
<td>get login</td>
<td>569</td>
<td>521</td>
</tr>
<tr>
<td>post login</td>
<td>392</td>
<td>626</td>
</tr>
<tr>
<td>ajax post search</td>
<td>35</td>
<td>117</td>
</tr>
<tr>
<td>get view hotel</td>
<td>19</td>
<td>106</td>
</tr>
<tr>
<td>post book hotel</td>
<td>28</td>
<td>71</td>
</tr>
<tr>
<td>ajax post cc number</td>
<td>23</td>
<td>59</td>
</tr>
<tr>
<td>ajax post cc name</td>
<td>18</td>
<td>61</td>
</tr>
<tr>
<td>post booking details</td>
<td>16</td>
<td>52</td>
</tr>
<tr>
<td>post confirm booking</td>
<td>33</td>
<td>126</td>
</tr>
<tr>
<td>get logout</td>
<td>15</td>
<td>24</td>
</tr>
</tbody>
</table>
On the Seam / JSF side, the 20 sessions each take up about 800 KB adding up to around 16 MB total. On the Wicket side the 20 sessions add up to around 1.5 MB.

<table>
<thead>
<tr>
<th></th>
<th>Seam / JSF</th>
<th>Wicket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heap Size (bytes)</td>
<td>23,947,512</td>
<td>9,496,312</td>
</tr>
<tr>
<td>Classes</td>
<td>6,344</td>
<td>4,489</td>
</tr>
<tr>
<td>Objects</td>
<td>585,123</td>
<td>179,028</td>
</tr>
<tr>
<td>Class Loaders</td>
<td>370</td>
<td>234</td>
</tr>
</tbody>
</table>

+ Lots of banter between Peter and Seam developers @ [http://bit.ly/3X50Gc](http://bit.ly/3X50Gc)
Peter’s Observations:

- Grails was far more productive than Tapestry 5.
- Grails still has some ways to go in terms of performance.
- Overall, Wicket is fastest, with Tapestry coming a close second.
- Wicket takes up the least amount of heap.
- Session usage of the Seam + JSF combination is significantly higher compared to the rest.
PROS AND CONS
GRAILS

Pros

- Easy dynamic language transition for Java Developers
- Groovy
- Plugins for all types of applications

Cons

- Groovy learning targets Java Developers
- Stack traces are horrendous
- Knowledge of underlying frameworks not required, but helpful
GWT

Pros

- Write Java => Produces Optimized JavaScript
- Easy to learn and develop with standard Java Tools
- Vibrant Community

Cons

- You have to know Java
- Slow to compile, difficult to test
- More like a JSP Tag Library than a web framework
RUBY ON RAILS

Pros

- Easy to learn and understand for Web Developers
- Lots and lots of documentation
- Passionate Community

Cons

- Slightly less performant by default
- Dynamic language means more tests
- Development Tools and Debugging
SPRING MVC

Pros

- Easy Configuration with Annotations and Conventions
- Integrates with many view options seamlessly: JSP/JSTL, Tiles, FreeMarker, Excel, PDF, JSON
- Excellent REST Support

Cons

- Instant reload not built-in, need JRebel or Spring Roo
- No open development process, need to be SpringSource
- Ajax requires 3rd-party library (can be a good thing!)
VAADIN

**Pros**
- Uses GWT API for developing view.
- Vibrant Community and company backing.
- Excellent Themes and Layouts support.

**Cons**
- Large memory footprint, state stored in session.
- All client interactions communicate with server.
- Joonas keeps telling me my cons are wrong.
WICKET

**Pros**
- Great for Java Developers
- Tight binding between pages and views
- Active community - support from creators

**Cons**
- No Jobs or Developers
- Stateful by default
- HTML Templates live next to Java code by default
TAPESTRY

Pros

- Live Class Reloading
- Development emphasis on performance and scalability
- Excellent Exception Reporting

Cons

- No Jobs
- Prototype baked in for JS Library
- Annotations vs. Conventions
JOBS IN 2011 (US)

Dice.com
DEVELOPER SKILLS (US)
PRETTY GRAPHS

Google Trends graph showing search trends for grails, gwt, ruby on rails, spring mvc, vaadin.
Grails, GWT, Ruby on Rails, Spring MVC, Vaadin Job Trends

Job Trends from Indeed.com

- Grails
- GWT
- Ruby on Rails
- Spring MVC
- Vaadin

Scale: Absolute - Relative

Top Job Trends
1. HTML5
2. Mobile app
3. Android
4. Twitter
5. jQuery
6. Facebook
7. Social Media
8. iPhone
9. Cloud Computing
10. Virtualization

Indeed.com searches millions of jobs from thousands of job sites. This job trends graph shows the percentage of jobs we find that contain your search terms.
PRETTY GRAPHS

**Vaadin, Wicket, Tapestry, Play Framework Job Trends**

*Job Trends* from Indeed.com

- **Vaadin**
- **Wicket**
- **Tapestry**
- **Play Framework**

Scale: **Absolute** - **Relative**

- Email to a friend
- Post on your blog/website

**Top Job Trends**
1. HTML5
2. Mobile app
3. Android
4. Twitter
5. jQuery
6. Facebook
7. Social Media
8. iPhone
9. Cloud Computing
10. Virtualization

Indeed.com searches millions of jobs from thousands of job sites. This job trends graph shows the percentage of jobs we find that contain your search terms.
PRETTY GRAPHS

Grails, GWT, Ruby on Rails, Java Struts Job Trends

Job Trends from Indeed.com

- Grails
- GWT
- Ruby on Rails
- Java Struts

Scale: Absolute - Relative

Top Job Trends
1. HTML5
2. Mobile app
3. Android
4. Twitter
5. jQuery
6. Facebook
7. Social Media
8. iPhone
9. Cloud Computing
10. Virtualization

Indeed.com searches millions of jobs from thousands of job sites. This job trends graph shows the percentage of jobs we find that contain your search terms.
Grails, GWT, Ruby on Rails, Java Struts, PHP Job Trends

Job Trends from Indeed.com

Scale: Absolute - Relative

% of Matching Job Postings

Jan’06 Jan’07 Jan’08 Jan’09 Jan’10 Jan’11

Indeed.com searches millions of jobs from thousands of job sites. This job trends graph shows the percentage of jobs we find that contain your search terms.

Top Job Trends
1. HTML5
2. Mobile app
3. Android
4. Twitter
5. jQuery
6. Facebook
7. Social Media
8. iPhone
9. Cloud Computing
10. Virtualization

© 2011, Raible Designs
PRETTY GRAPHS

ASP.NET, Ruby on Rails, Java Struts, PHP Job Trends

**Job Trends** from Indeed.com
- Orange line: ASP.NET
- Blue line: Ruby on Rails
- Green line: Java Struts
- Black line: PHP

**Scale:** Absolute - Relative

Top Job Trends
1. HTML5
2. Mobile app
3. Android
4. Twitter
5. jQuery
6. Facebook
7. Social Media
8. iPhone
9. Cloud Computing
10. Virtualization

Indeed.com searches millions of jobs from thousands of job sites. This job trends graph shows the percentage of jobs we find that contain your search terms.
* Spring MVC uses Forums, which don’t provide this data.
* ICEfaces uses Forums, which don’t provide this data.
MAILING LIST TRAFFIC

January 2011

* Spring MVC and Vaadin use Forums, which don’t provide this data.
MAILING LIST TRENDS

JRuby

Ruby on Rails
MAILING LIST TRENDS

Source: http://markmail.org
STACKOVERFLOW

Tagged Questions (February 15, 2011)

Java
Scala
JRuby
Clojure
Groovy
STACKOVERFLOW

Tagged Questions (February 15, 2011)

Scala
JRuby
Clojure
Groovy
Source: ZeroTurnaround's Java EE Productivity Report 2010
CONCLUSION
What if there is no “best” web framework?

DON’T LISTEN TO ME!

THINK FOR YOURSELF!

MAKE ME!
CHOOSE YOUR OWN!

Prioritize a list of features that are important to your application.

Pick 3-4 frameworks and do a 1-week spike with each, developing the same application.

Document and rank each framework against your list of features.

Calculate and choose!
QUESTIONS?

Contact Information

http://raibledesigns.com
http://twitter.com/mraible

Download Presentation

http://slideshare.net/mraible