Comparing Java Web Frameworks

JSF, Spring MVC, Stripes, Struts 2, Tapestry and Wicket

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Raible Designs

Today's Agenda

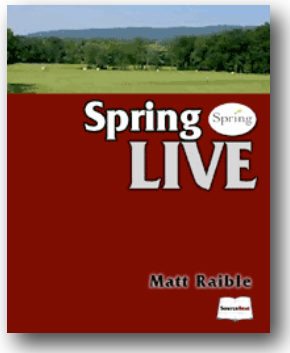
- Introductions
- Pros and Cons
- Smackdown
- Conclusion
- Q and A

Introductions

- Your experience with webapps?
- Your experience with Java EE?
- What do you want to get from this session?
- Experience with Maven, Tomcat, Hibernate, Spring?
- Web Framework Experience:
  - Spring MVC, Struts 2, Stripes, JSF, Tapestry, Wicket

Who is Matt Raible?

- 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
- Java Blogger since 2002



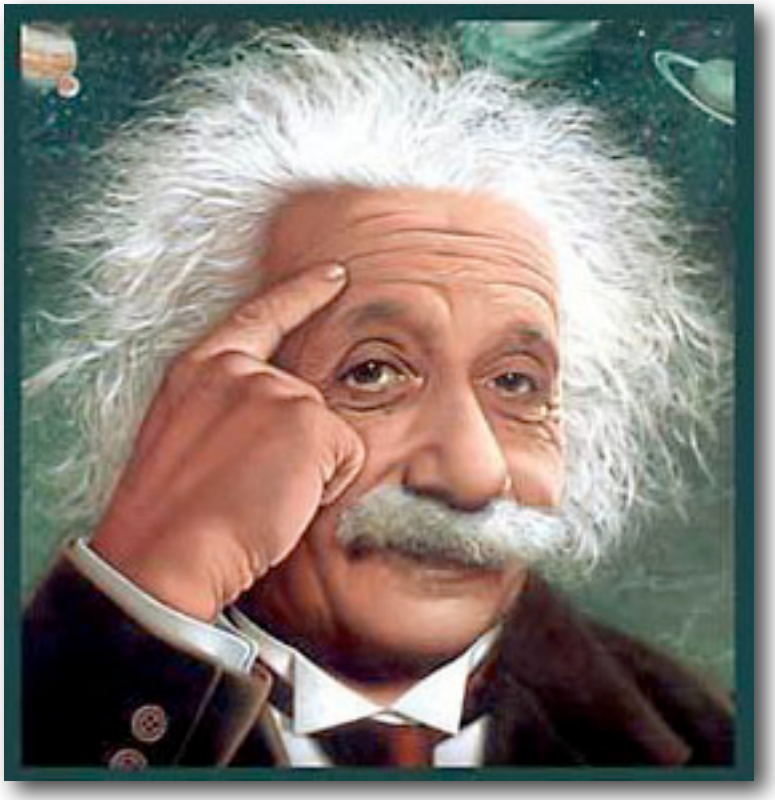
Struts 2

tapestry

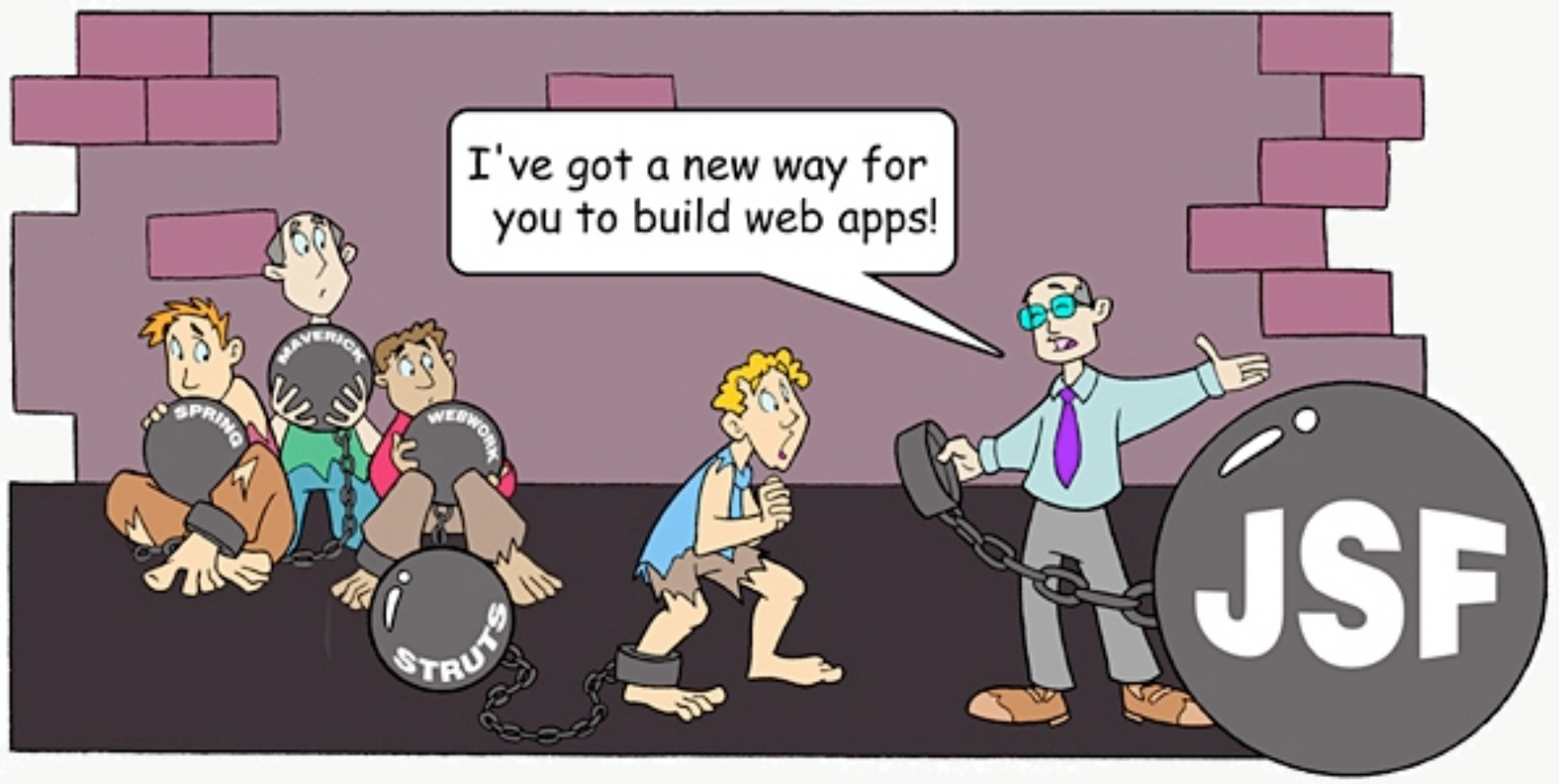
Spring 2.0

Stripes

My Experience



Pros and Cons



JSF

- Pros:
  - Java EE Standard - lots of demand and jobs
  - Fast and easy to develop with initially
  - Lots of component libraries
- Cons:
  - Tag soup for JSPs
  - Doesn't play well with REST or Security
  - No single source for implementation

Spring MVC

- Pros:
  - Lifecyle for overriding binding, validation, etc.
  - Integrates with many view options seamlessly: JSP/JSTL, Tiles, Velocity, FreeMarker, Excel, PDF
  - Inversion of Control makes it easy to test
- Cons:
  - Configuration intensive - lots of XML
  - Almost too flexible - no common parent Controller
  - No built-in Ajax support

Stripes

- Pros:
  - No XML - Convention over Configuration
  - Good documentation (easy to learn)
  - Enthusiastic community
- Cons:
  - Small Community
  - Not as actively developed as other projects
  - Hard-coded URLs in ActionBeans

Struts 2

- Pros:
  - Simple architecture - easy to extend
  - Tag Library is easy to customize with FreeMarker or Velocity
  - Controller-based or page-based navigation
- Cons:
  - Documentation is poorly organized
  - No feedback for missing properties or invalid OGNL expressions
  - Googling results in Struts 1.x documentation

Tapestry

- Pros:
  - Very productive once you learn it
  - Templates are HTML - great for designers
  - Lots of innovation between releases
- Cons:
  - Documentation very conceptual, rather than pragmatic
  - Steep learning curve
  - Long release cycles - major upgrades every year

Wicket

- Pros:
  - Great for Java developers, not web developers
  - Tight binding between pages and views
  - Active community - support from the creators
- Cons:
  - HTML templates live next to Java code
  - Need to have a good grasp of OO
  - The Wicket Way - everything done in Java

The Smackdown

Evaluation Criteria

- **Ajax Support**: Is it built-in and easy to use?
- **Bookmark-ability**: Can users bookmark pages and return to them easily?
- **Validation**: How easy is it to use and does it support client-side (JavaScript) validation?
- **Testability**: How easy is it to test Controllers out of container?

Evaluation Criteria, cont.

- **Post and Redirect**: How does the framework handle the duplicate post problem?
- **Internationalization**: How is i18n supported and how easy is it to get messages in Controllers?
- **Page Decoration**: What sort of page decoration/ composition mechanisms does the framework support?
- **Community and Support**: Can you get questions answered quickly (and respectfully)?

Evaluation Criteria, cont.

- **Tools**: Is there good tool (particularly IDE) support for the framework?
- **Marketability of Skills**: If you learn the framework, will it help you get a job?
- **Job Count**: What is the demand for framework skills on dice.com and indeed.com?

Ajax Support

- Is Ajax support built-in and easy to use?
  - JSF: No Ajax support, use ICEfaces and Ajax4JSF
  - Stripes: No libraries, supports streaming results
  - Struts 2: Dojo built-in, plugins for GWT, JSON
  - Spring MVC: No libraries, use DWR & Spring MVC Extras
  - Tapestry: Dojo built-in in 4.1
  - Wicket: Dojo and Script.aculo.us (Wicket Stuff)

Bookmarking and URLs

- JSF does a POST for everything - URLs not even considered
- Stripes uses conventions, but you can override
- Struts 2 has **namespaces** - makes it easy
- Spring MVC allows **full URL control**
- Tapestry still has somewhat ugly URLs
- Wicket allows pages/URLs to be **mounted**

Validation

- JSF has ugly default messages, but easiest to configure
- Spring MVC allows you to use Commons Validator - a mature solution
- Struts 2 uses OGNL for powerful expressions - client-side only works when specifying rules on Actions
- Tapestry has very robust validation - good messages without need to customize
- Stripes and Wicket do validation in Java - no client-side

Testability

- Spring and Struts 2 allow easy testing with mocks (e.g. EasyMock, jMock, Spring Mocks)
- Tapestry appears difficult to test because page classes are abstract, Creator class simplifies
- JSF page classes can be easily tested and actually look a lot like Struts 2 actions
- Wicket has WicketTester, a powerful solution
- Stripes has Servlet API Mocks and MockRoundtrip

Post and Redirect

- The duplicate-post problem, what is it?
- Easiest way to solve: redirect after POST
- Is there support for allowing success messages to live through a redirect?
  - Spring MVC allows you to add parameters to a redirect
  - Stripes, Tapestry and Wicket all have "flash" support
  - Struts 2 requires a custom solution
  - JSF requires a custom solution, i18n messages difficult to get in page beans

Internationalization

- JSTL's <fmt:message> tag makes it easy
- No standard for getting i18n messages in controller classes
- Stripes, Spring MVC and JSF use a single ResourceBundle per locale
- Struts 2, Tapestry and Wicket advocate separate files for each page/action
- JSF requires resource bundle to be declared on each page
- Tapestry's is awesome

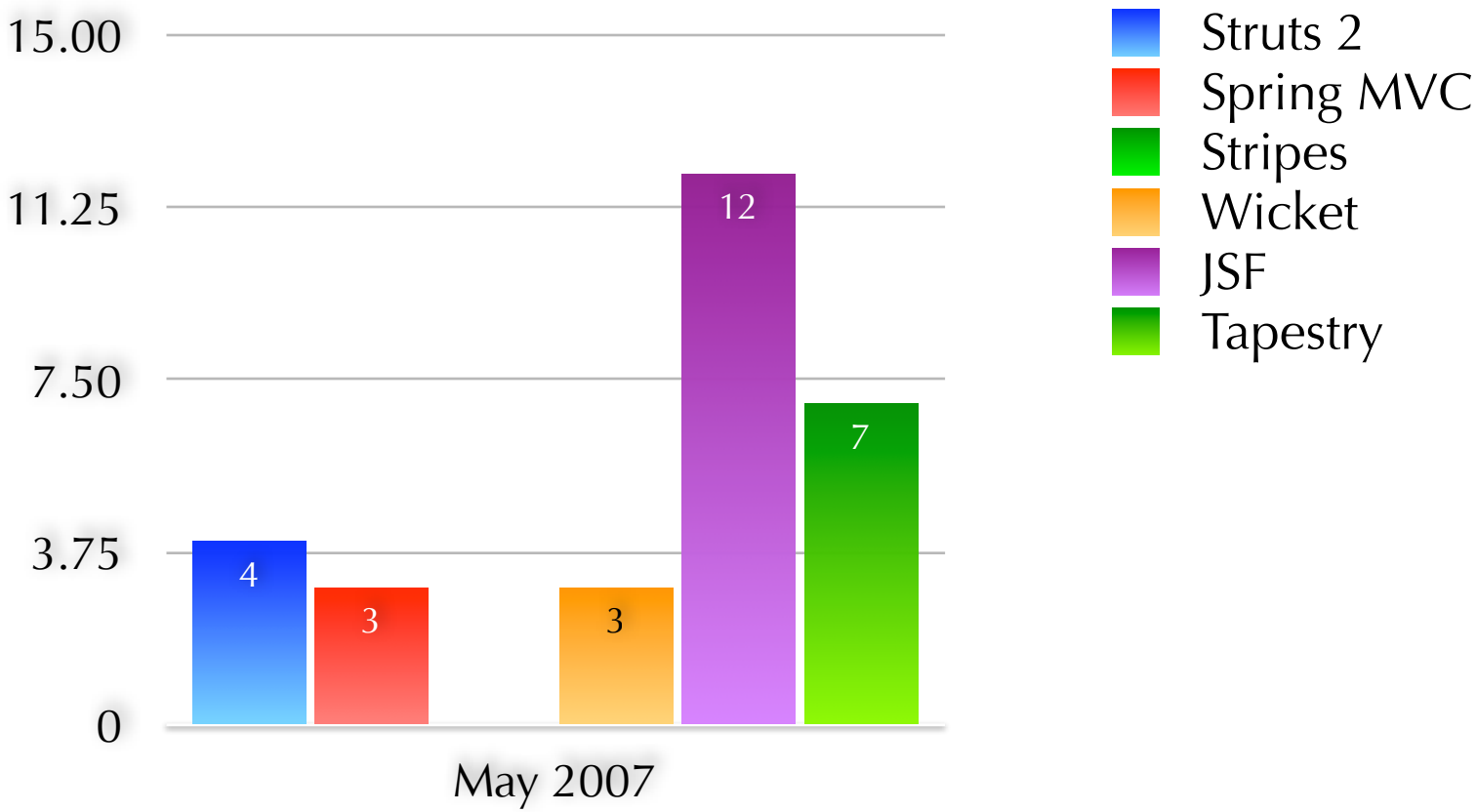
Page Decoration

- Tiles Experience: used since it first came out
- SiteMesh is much easier to setup and use
- Tiles can be used in Struts 2, Spring and JSF
  - Requires configuration for each page
- SiteMesh can be used with all frameworks
  - Requires very little maintenance after setup
- SiteMesh not supported or recommended for use with JSF, Tapestry or Wicket

Tools

- Spring has Spring IDE - only does XML validation, not a UI/web tool
- Struts 2 has EclipseWork
- Tapestry has Spindle - great for coders
- JSF has many, and they're getting better and better
- Stripes and Wicket don't have any official tools
- NetBeans has support for: Struts *, JSF (+Facelets), Tapestry and Wicket (no Stripes or Spring MVC)

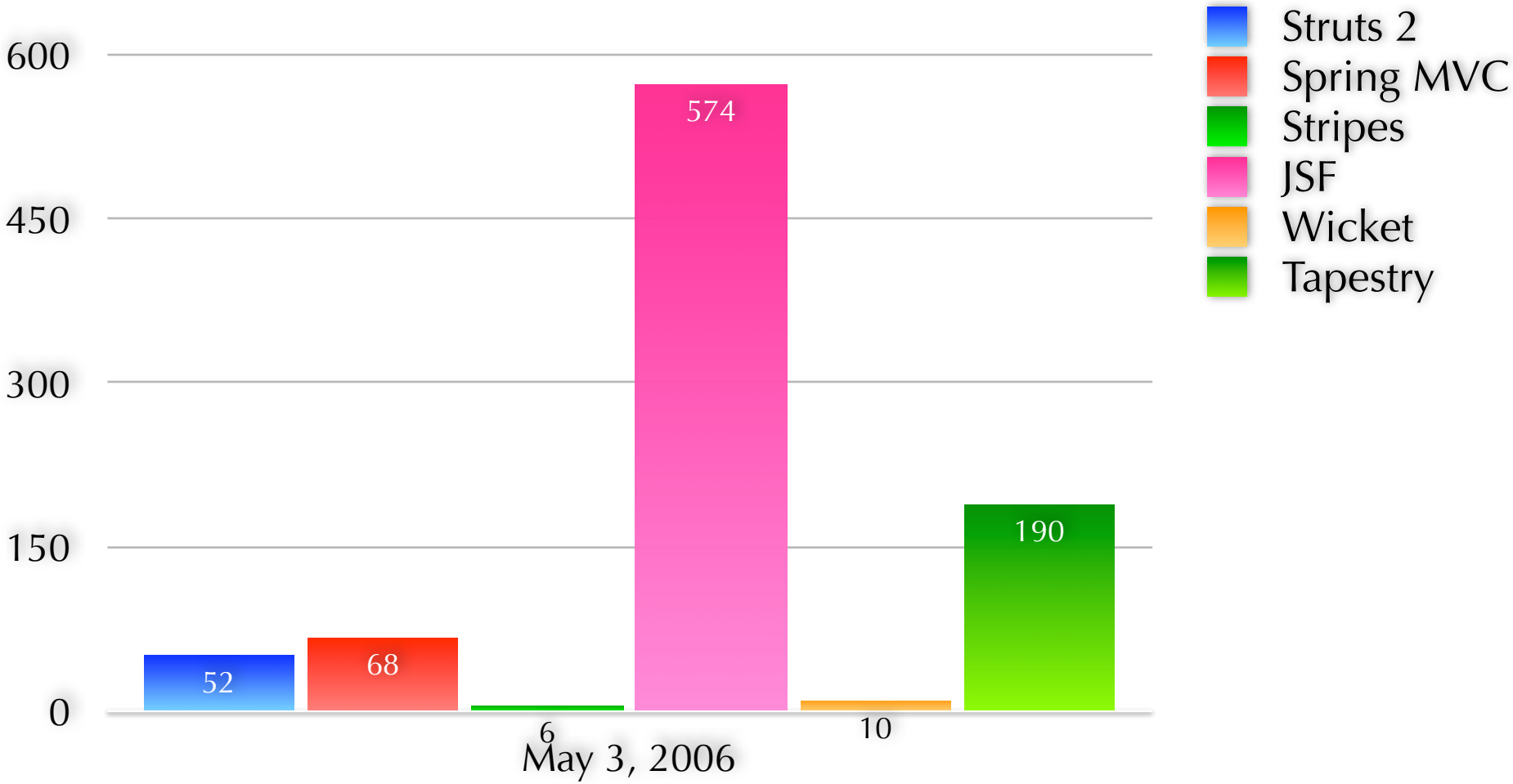
Tools Available



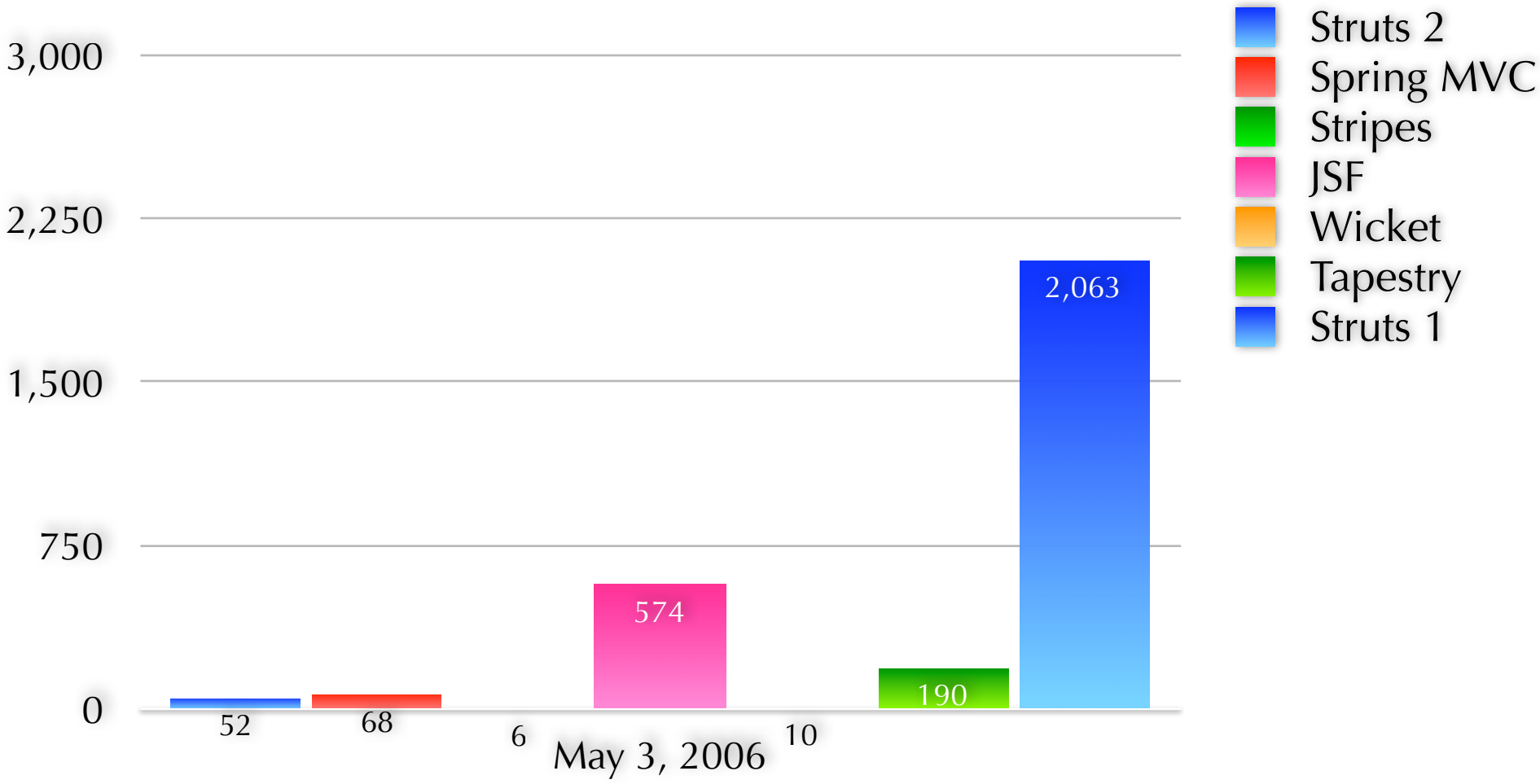
Marketability of Skills

- Struts 1 is still in high-demand and widely-used
- Spring is getting more press, but mostly due to the framework's other features
- JSF is quickly becoming popular
- Struts 2 is gaining ground, but very scarce on job boards
- Tapestry has increased in popularity in last couple years
- Wicket and Stripes are virtually unknown

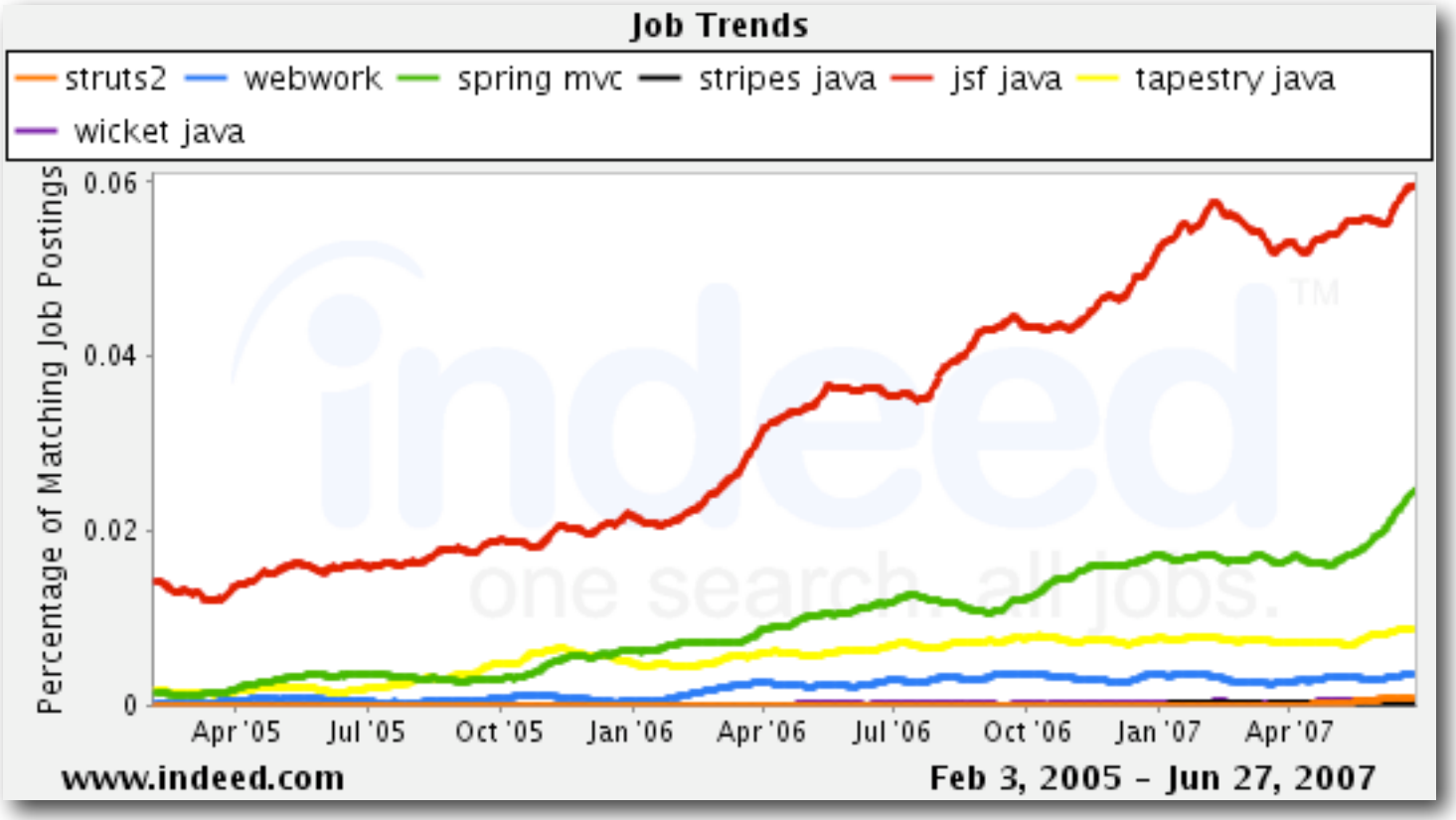
Dice Job Count



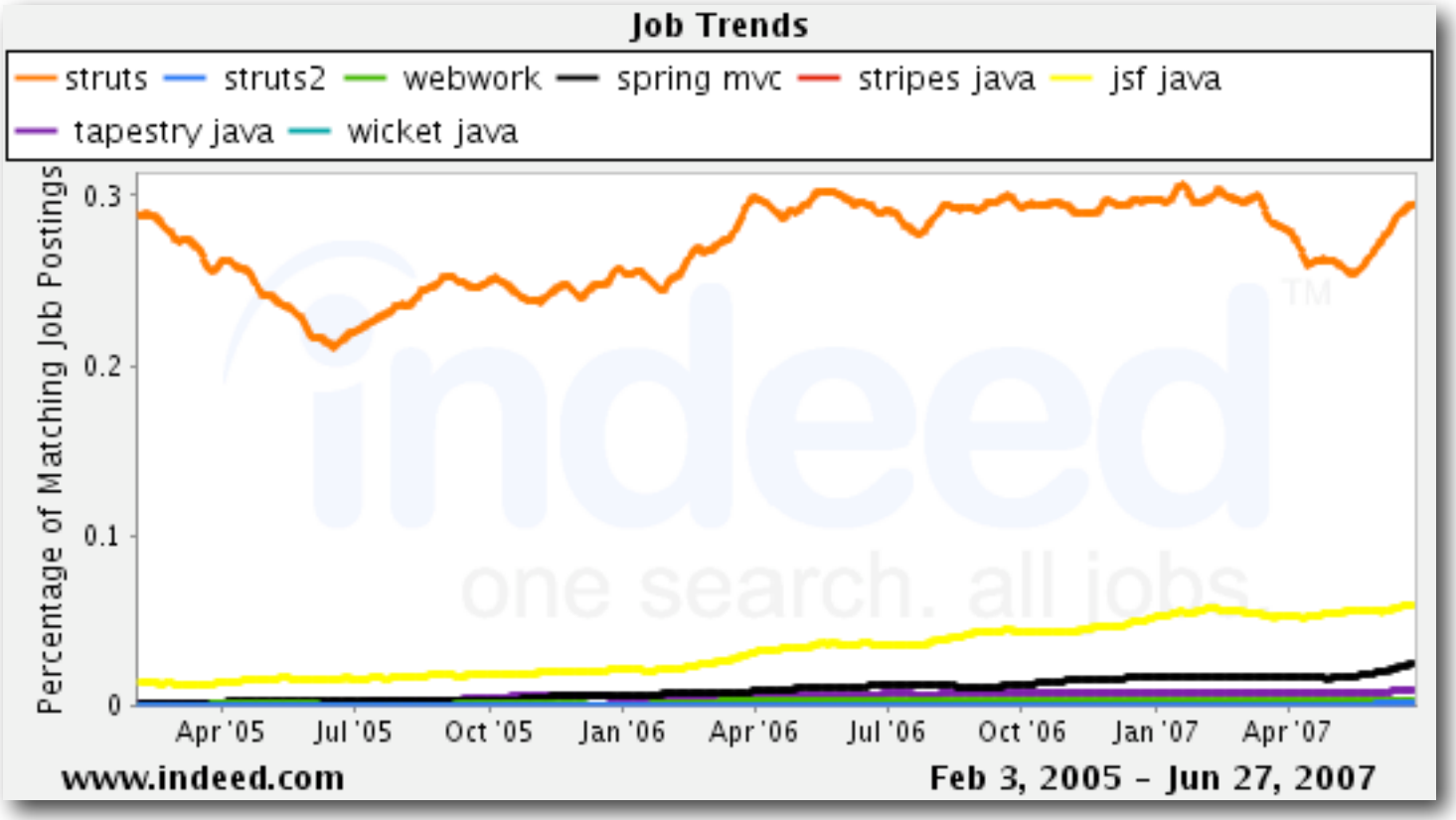
Dice Job Count w/ Struts



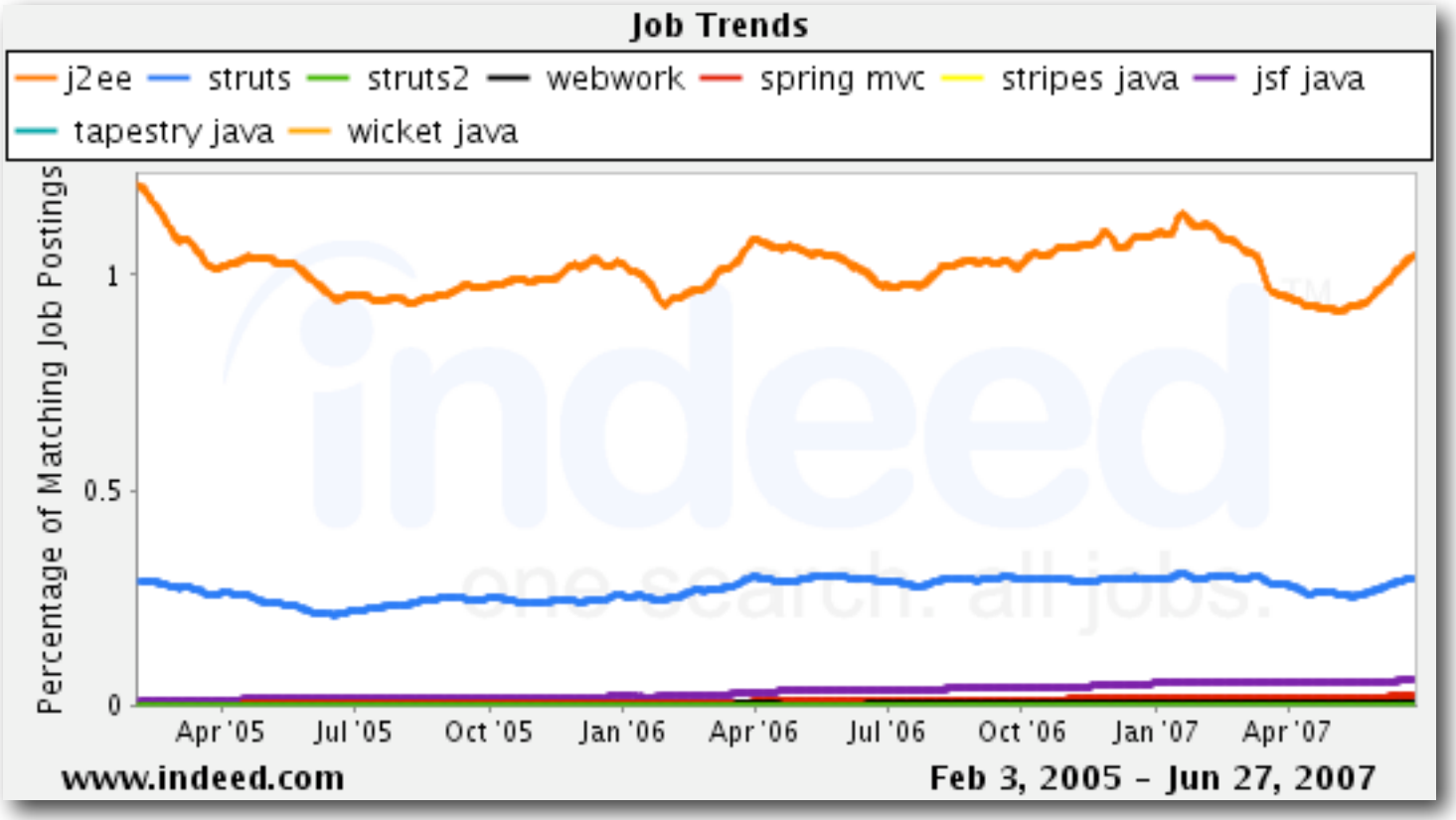
Job Trends



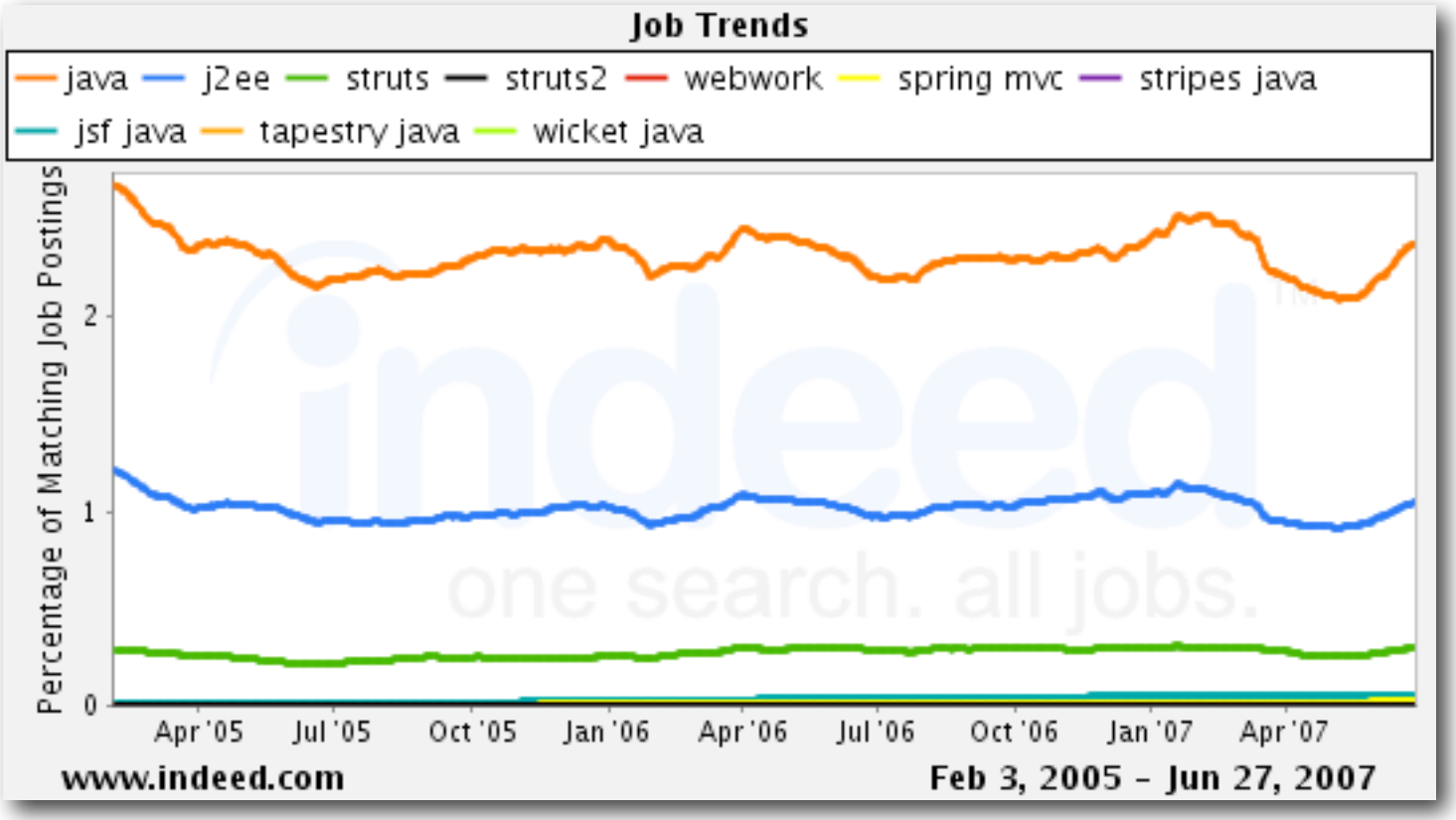
Job Trends vs. Struts



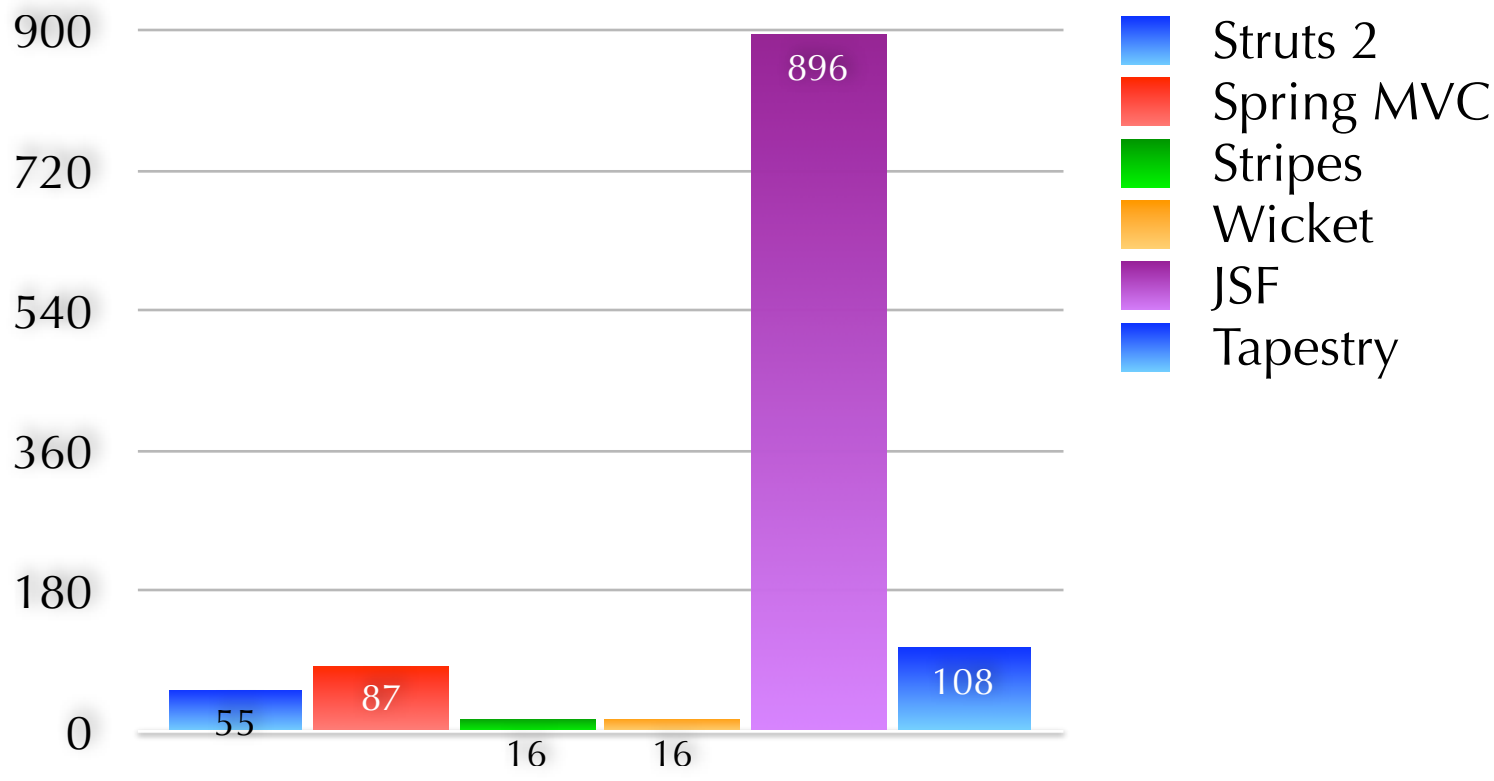
Job Trends vs. J2EE



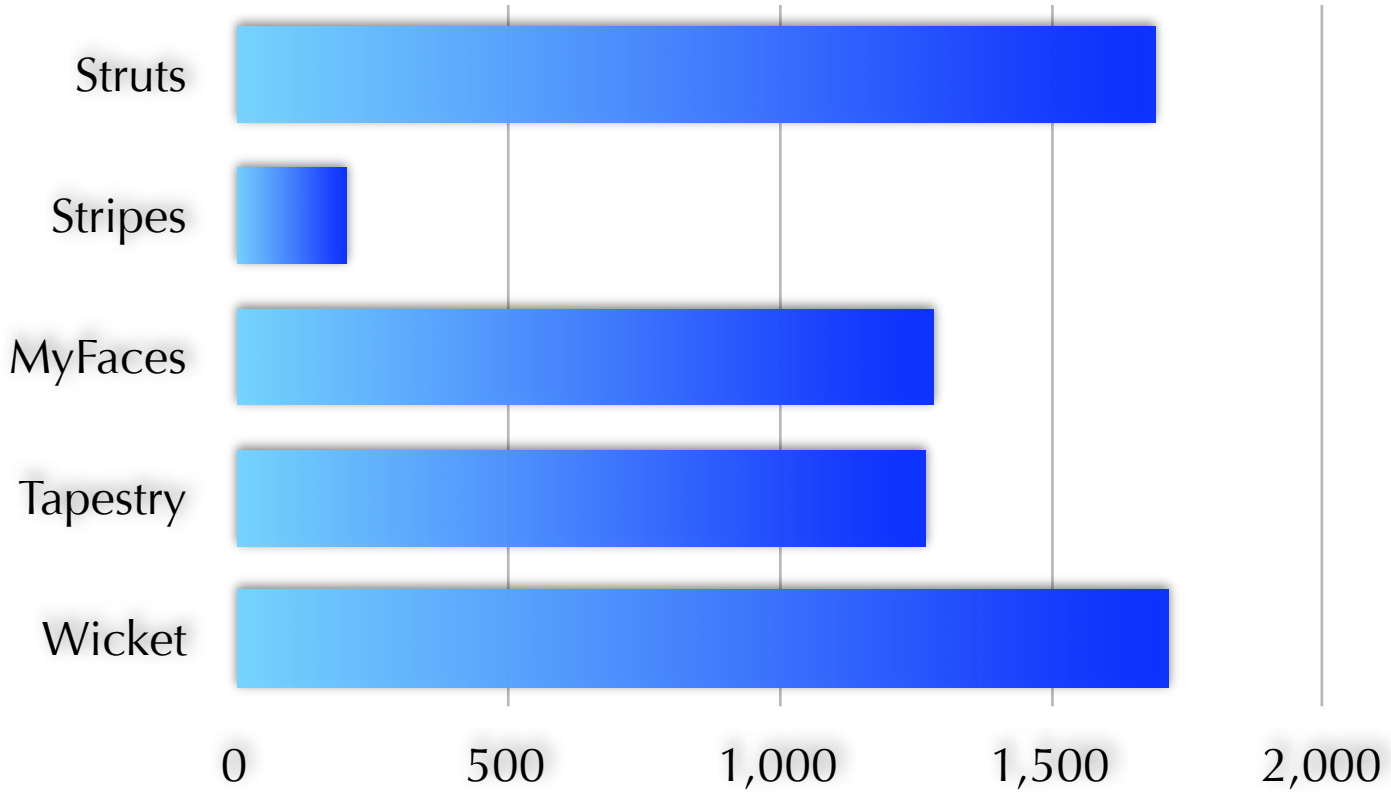
Job Trends vs. Java



Employer Search on Monster.com
Resumes posted 4/3 ~ 5/3/2007



Mailing List Traffic



** Spring MVC is not listed here because they have a forum instead of a mailing list and I couldn't figure out a way to count the number of messages for each month.*

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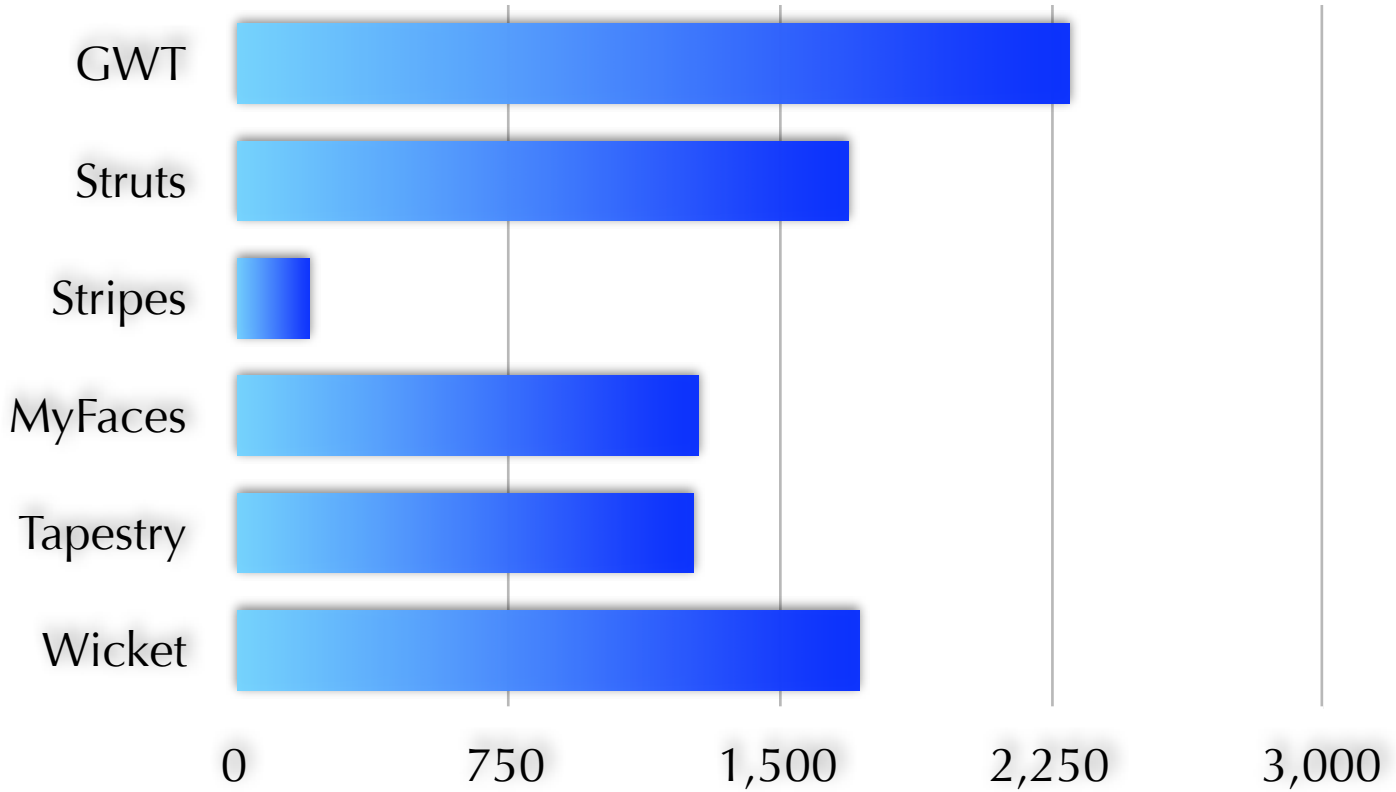

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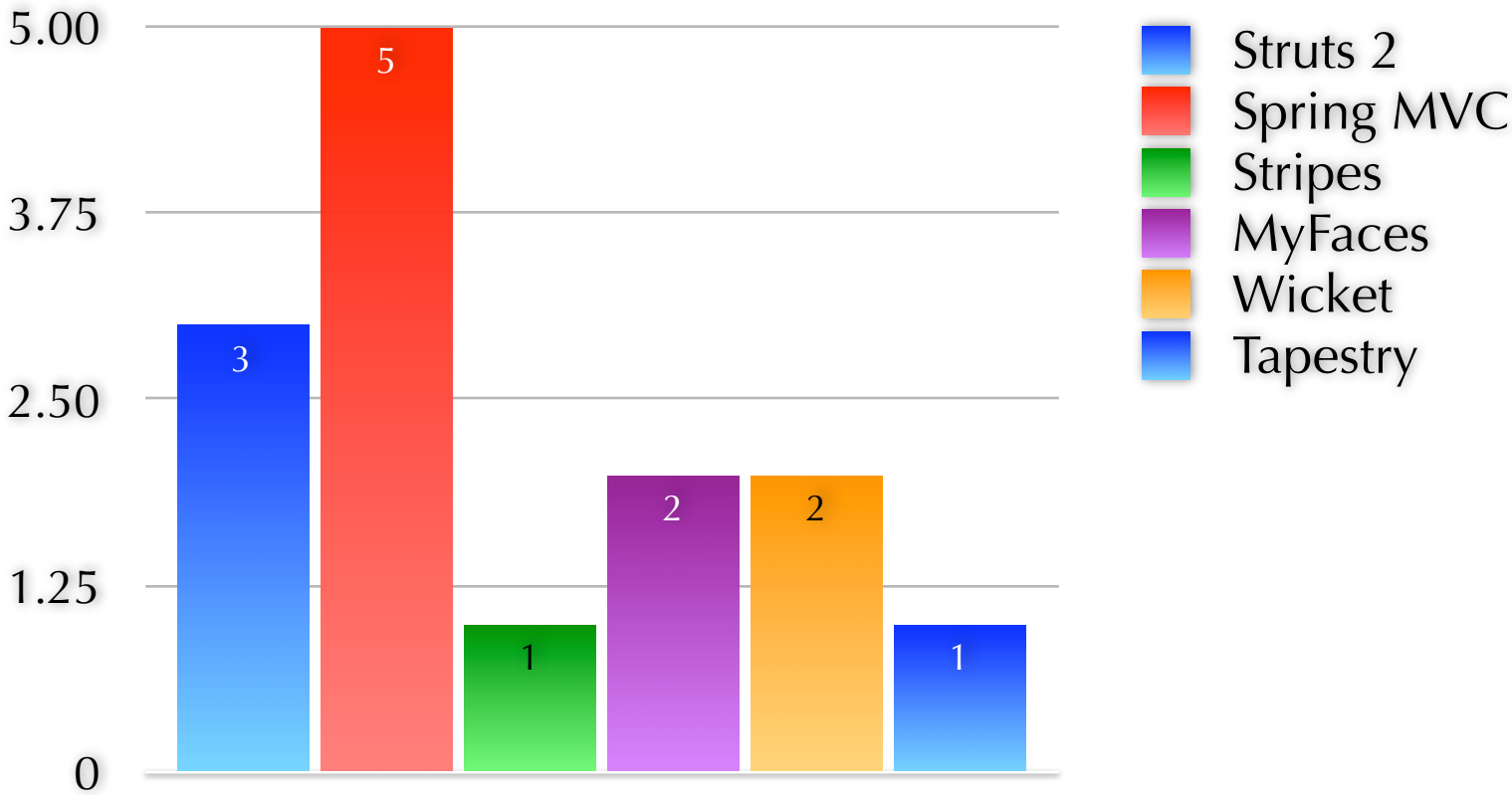
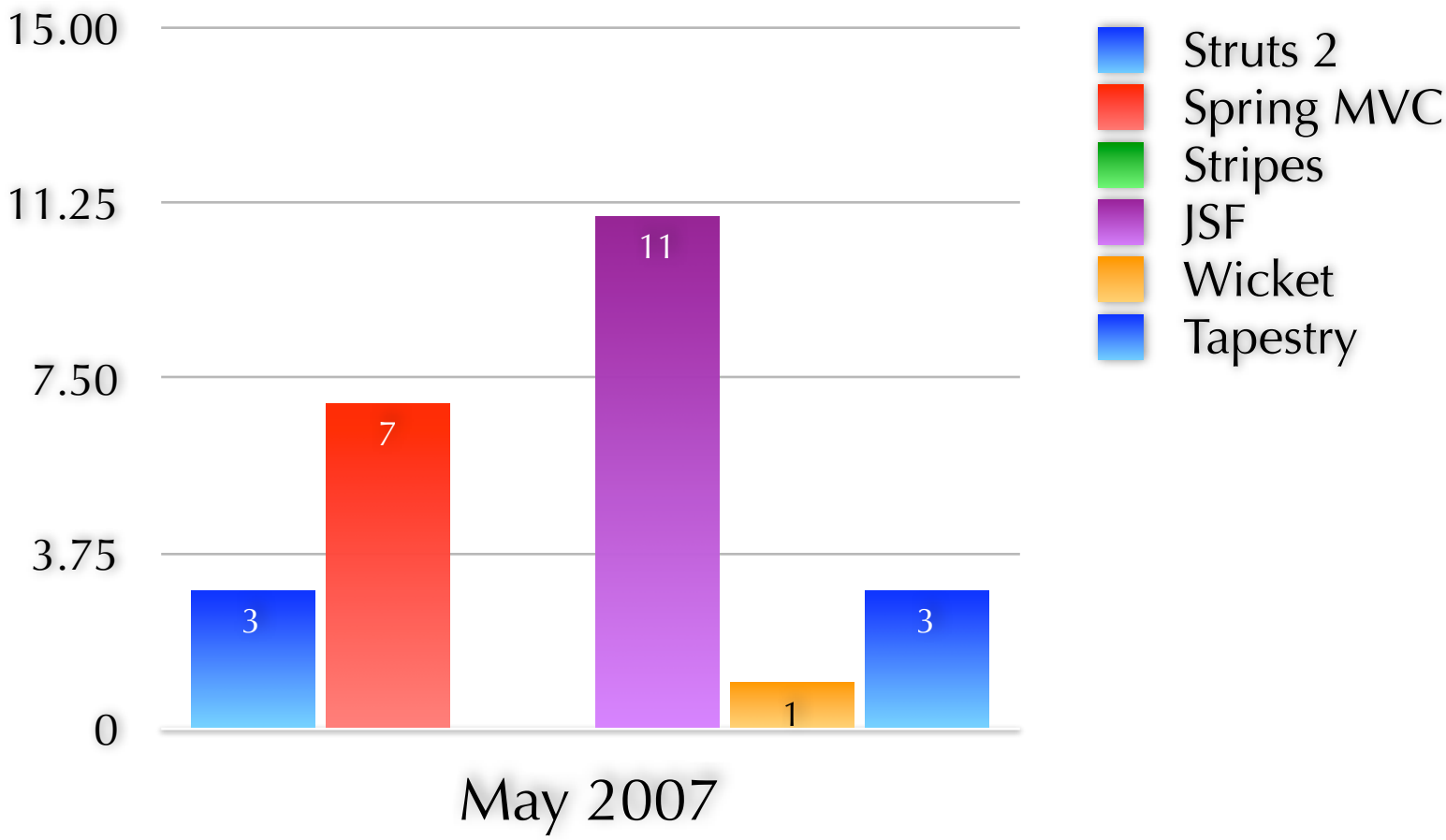
Releases in 2007

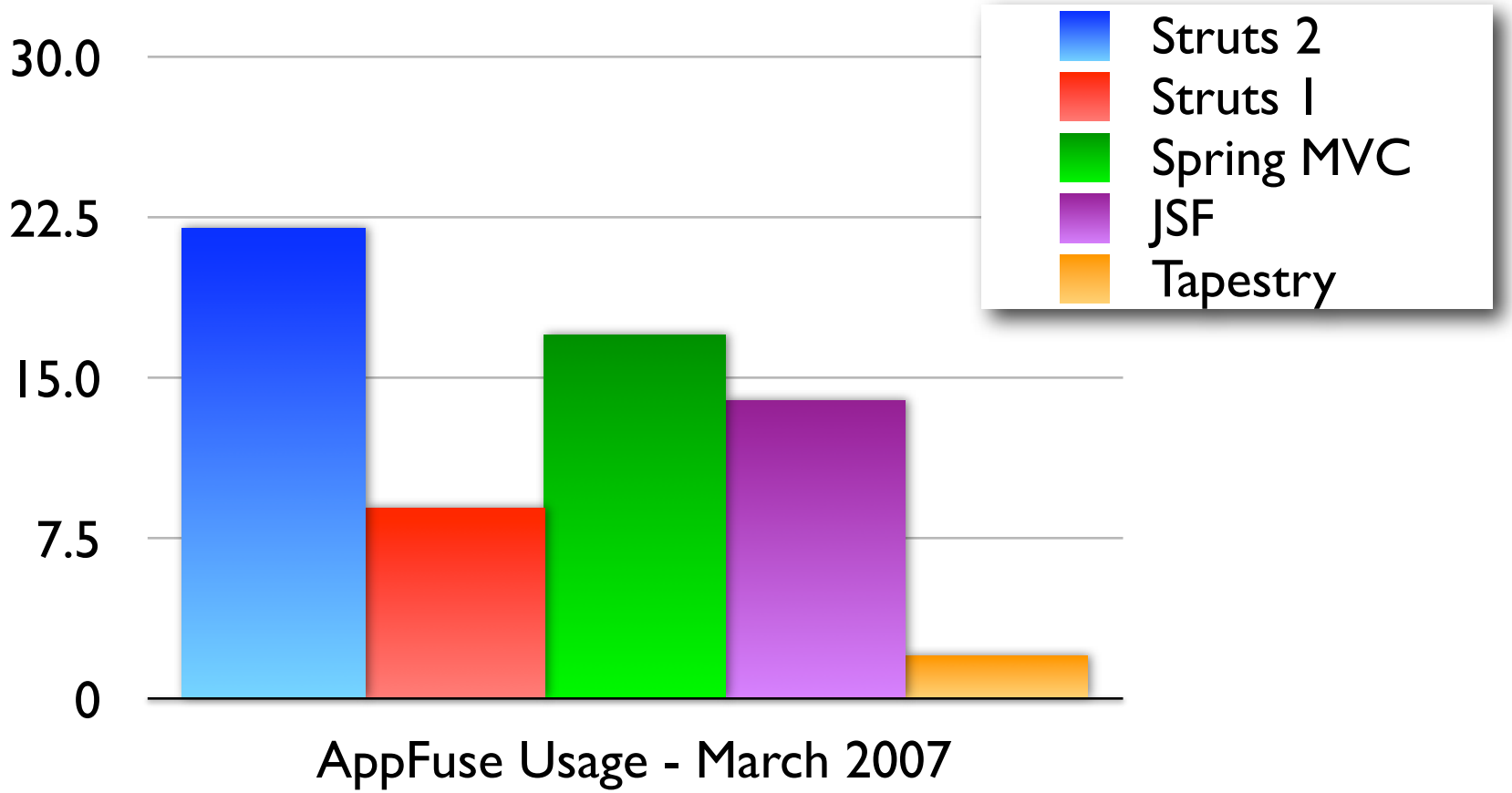


Books on Amazon



Which would I choose?

What do others think?



Resources

- Download this presentation
  - **http://static.raibledesigns.com/repository/presentations**
- Struts - http://struts.apache.org
  - **StrutsTestCase**: http://strutstestcase.sf.net
- Spring MVC - http://www.springframework.org
  - **Spring IDE**: http://www.springide.org
  - **Gaijin Studio**: http://gaijin-studio.sf.net
- Struts 2 - http://opensymphony.org/webwork
  - **Eclipse Plugin**: http://sf.net/projects/eclipsework
  - **IDEA Plugin**: http://wiki.opensymphony.com/display/WW/IDEA+Plugin

Resources, cont.

- Tapestry - http://tapestry.apache.org
  - **Spindle**: http://spindle.sourceforge.net
- JSF - http://java.sun.com/j2ee/javaserverfaces and http://myfaces.apache.org
  - **Java Studio Creator**: http://sun.com/software/products/jscreator
  - **MyEclipse**: http://myeclipseide.com
- **IDEA**: http://www.jetbrains.com/idea
- **SiteMesh**: http://opensymphony.com/sitemesh

Resources, cont.

- Testing Frameworks
  - **JUnit**: http://junit.org
  - **EasyMock**: http://easymock.org
  - **jMock**: http://jmock.org
  - **jWebUnit**: http://jwebunit.sourceforge.net
  - **Canoo WebTest**: http://webtest.canoo.com
  - **Tapestry Test Assist**: http://howardlewisship.com/blog/2004/05/tapestry-test-assist.html
- **AppFuse** - http://appfuse.org

Books

- **Starting Struts 2**, Ian Roughly (free on InfoQ.com)
- **The Spring Primer**, Matt Raible
- **Pro Spring**, Rob Harrop and Jan Machacek
- **Spring in Action**, Craig Walls and Ryan Breidenbach
- **Professional Java Development with Spring**, Rod Johnson, Juergen Hoeller and Team

Books, cont.

- **WebWork in Action**, Patrick Lightbody and Team
- **Tapestry 101**, Warner Onstine
- **Tapestry in Action**, Howard Lewis Ship
- **Core JSF**, David Geary and Cay Horstmann
- **JSF in Action**, Kito Mann
- **Pro Wicket**, Karthik Gurumurthy

Grails

GWT

Seam

Flex

What's Next?

Django

Ruby on Rails

Trails

OpenLaszlo

Who cares?

"If it works, use it!"

Questions?

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