COMPARING JVM WEB FRAMEWORKS

Matt Raible

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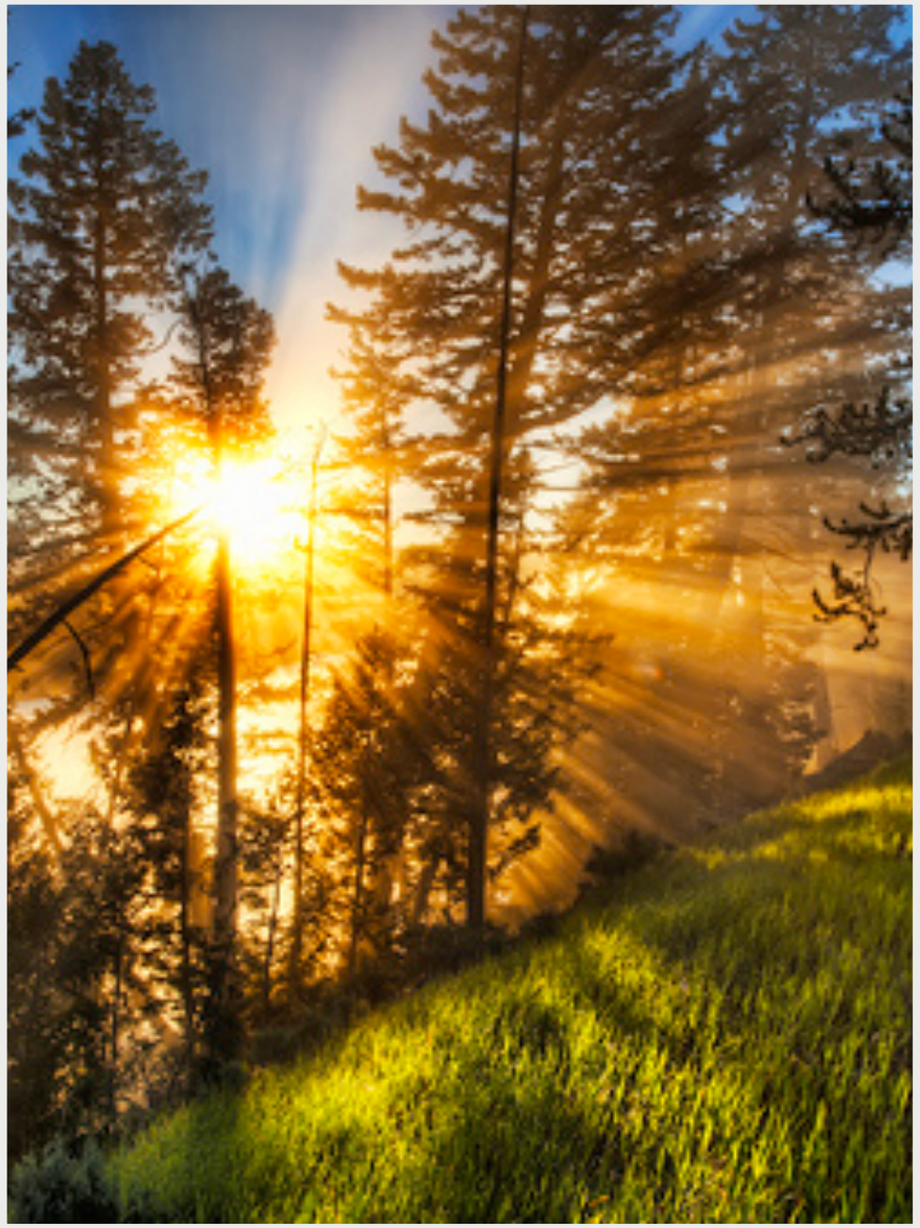
Introductions

- Your experience with web development?
- Your experience with Java EE development?
- What do you want to get from this session?
- Experience with Spring MVC, GWT, Rails, Grails, Wicket or Struts 2?



Who is **Matt Raible**?

Blogger on
raibledesigns.com

Father, Skier,
Cyclist

Web Framework Connoisseur

Montana Native

Founder of AppFuse

Session Agenda

- The Problem with Web Frameworks
- The Candidates
- Comparison Points
- The Matrix
- Conclusion
- Q and A

The Problem

Fx

GRAILS

Play!

Stripes

WICKET

tapestry

G

Struts 2

RAILS

Lift
WEBFRAMEWORK

vaadin

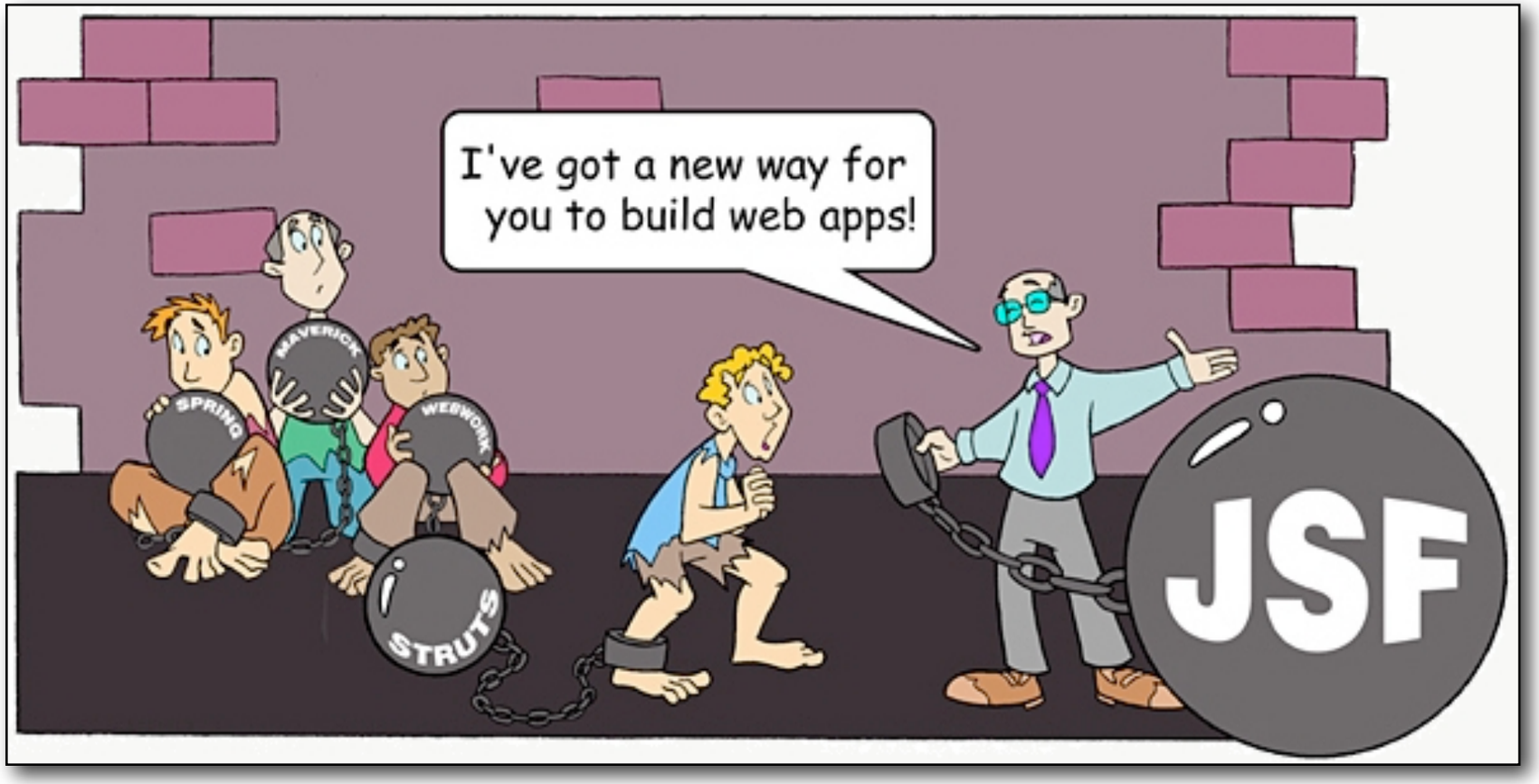
APACHE
MyFaces

Spring 2.5

How do you choose?

ELIMINATE, DON'T INCLUDE

Struts


I've got a new way for you to build web apps!
MAVERICK
SPRING
WEBWORK
STRUTS
JSF

... 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

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.

2007: 6 Important Factors

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

Request, Component or RIA

- Are you developing...
  - ... a consumer facing site?
  - ... a desktop-like, application?
  - ... a media-rich site?

- If the framework is built for state-fulness, should you use it in a stateless architecture?

Types of Applications

- High-traffic, internet facing, infinite scalability
- Intranet-based, behind the firewall, few users
- Products, to be maintained for 5-10 years
- Legacy Backend
- Others?

Types of Frameworks

- Request Based Frameworks
  - Struts 2, Spring MVC, Rails, Stripe
- Component Based Frameworks
  - JSF, Tapestry, GWT
- Rich Internet Applications
  - Flex
- One Size Fits All
  - Grails

Do they matchup?

- High-traffic, internet facing, infinite scalability
  - **Request-based frameworks**
- Intranet-based, behind the firewall, few users
  - **Component-based frameworks**
- Products, to be maintained for 5-10 years
  - **Largest Community, Most Vendor Support**
- Legacy Backend
  - **Same Language as backend**

2010: Now There's 20

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

2010: Comparison Points

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

2010: Comparison Points

- i18n and l10n
- Validation
- Multi-language Support (Groovy / Scala)
- Quality of Documentation/Tutorials
- Books Published
- REST Support (client and server)

2010: Comparison Points

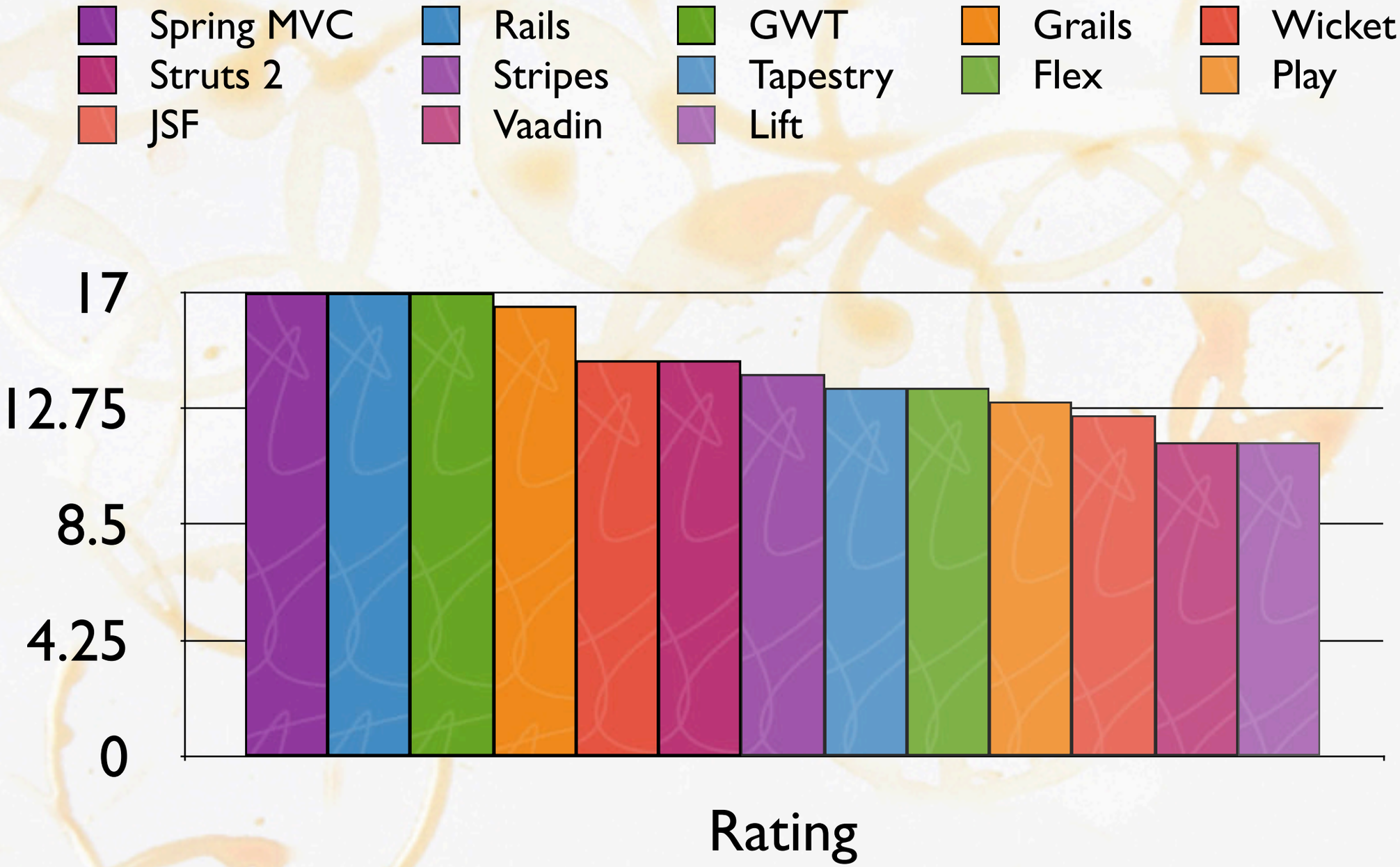
- Mobile / iPhone Support
- Degree of Risk

Comparison Matrix

Criteria	Struts 2	Spring MVC	Wicket	JSF	Tapestry	Stripes	GWT	Grails	Rails	Flex	Vaadin	Lift	Play
Developer Productivity	0.50	0.50	0.50	0.50	0.50	0.50	1.00	1.00	1.00	0.00	0.00	0.50	1.00
Developer Perception	0.50	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Learning Curve	1.00	1.00	0.50	0.50	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	1.00
Project Health	0.50	1.00	1.00	0.50	0.50	0.50	1.00	1.00	1.00	0.50	1.00	1.00	1.00
Developer Availability	0.50	1.00	0.50	1.00	1.00	0.50	1.00	0.50	1.00	1.00	0.00	0.00	0.00
Job Trends	1.00	1.00	0.00	1.00	0.50	0.00	1.00	0.50	1.00	1.00	0.00	0.00	0.50
Templating	1.00	1.00	1.00	0.50	1.00	1.00	0.50	1.00	1.00	0.50	0.50	0.50	0.50
Components	0.00	0.00	1.00	1.00	1.00	0.00	0.50	0.50	0.50	1.00	1.00	0.00	0.00
Ajax	0.50	1.00	0.50	0.50	0.50	0.50	1.00	0.50	0.50	0.50	1.00	1.00	0.50
Plugins or Add-Ons	0.50	0.00	1.00	1.00	0.50	0.00	1.00	1.00	1.00	1.00	0.00	0.50	0.50
Scalability	1.00	1.00	0.50	0.50	0.50	1.00	1.00	0.50	0.50	0.50	0.50	1.00	1.00
Testing	1.00	1.00	0.50	0.50	0.50	1.00	0.50	1.00	1.00	0.00	0.50	0.50	1.00
i18n and l10n	1.00	1.00	1.00	0.50	1.00	1.00	1.00	1.00	0.50	0.50	0.50	1.00	1.00
Validation	1.00	1.00	1.00	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.50	0.50
Multi-language Support (Groovy / Scala)	0.50	0.50	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
Quality of Documentation/Tutorials	0.50	1.00	0.50	0.50	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Books Published	1.00	1.00	0.50	1.00	0.50	0.50	1.00	1.00	1.00	1.00	0.50	0.50	0.00
REST Support (client and server)	0.50	1.00	0.50	0.00	0.50	0.50	0.50	1.00	1.00	0.50	0.50	0.50	0.50
Mobile / iPhone Support	1.00	1.00	1.00	0.50	1.00	1.00	1.00	1.00	1.00	0.50	1.00	1.00	1.00
Degree of Risk	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.50	0.50	0.50
Totals	14.5	17	14.5	12.5	13.5	14	17	16.5	17	13.5	11.5	11.5	13

http://bit.ly/jvm-frameworks-matrix

Matrix Results



Matrix Results

- Spring MVC (17)
- GWT (17)
- Ruby on Rails (17)
- Grails (16.5)
- Wicket (14.5)
- Struts 2 (14.5)

Pros and Cons

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!)

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

Grails

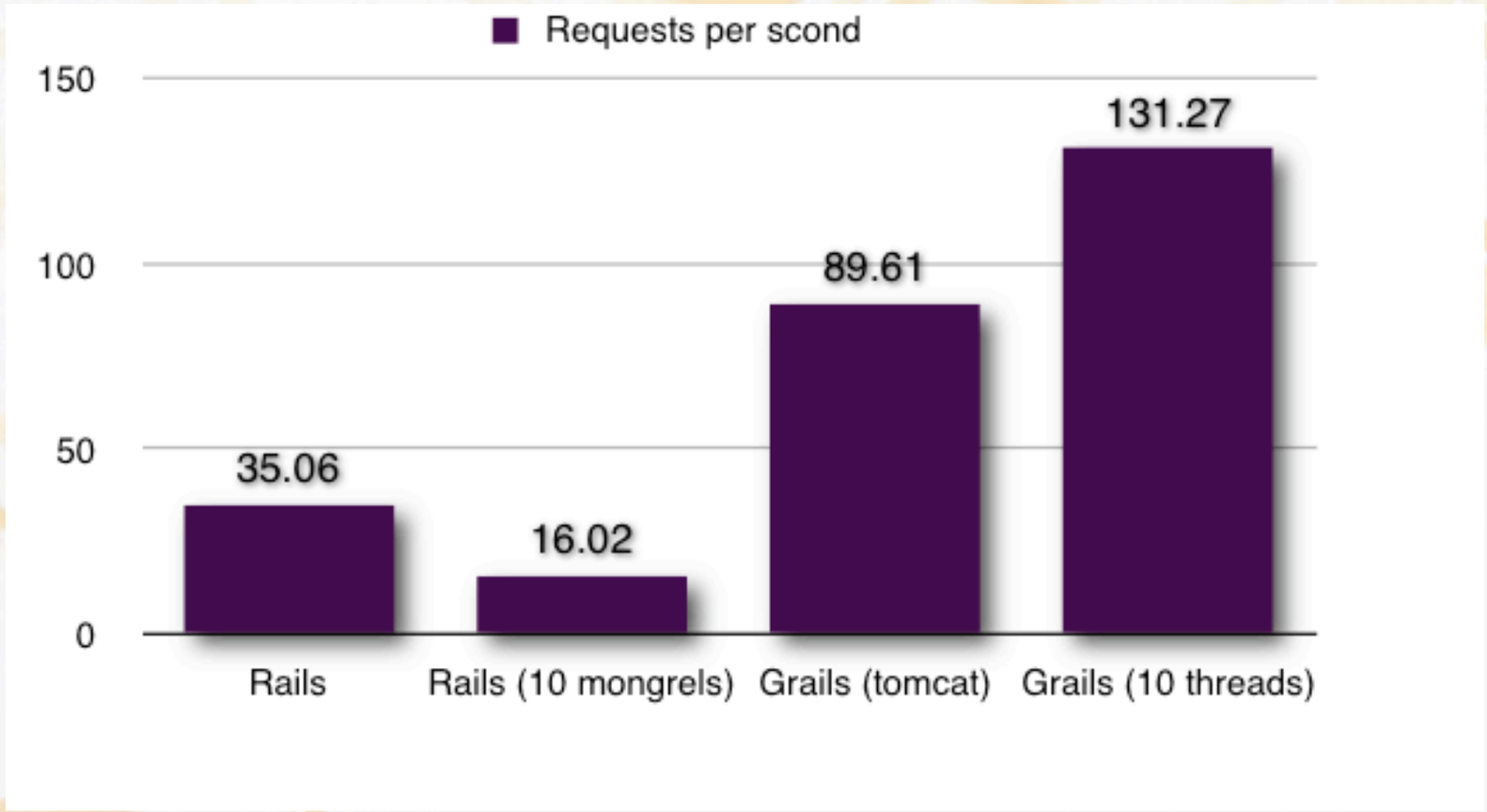
- **Pros**
  - Easy dynamic language transition for Java Developers
  - Groovy
  - Plugins for all types of applications
- **Cons**
  - Groovy learning targets Java Developers
  - Stack traces are horrendous
  - Knowledge of underlying frameworks not required, but helpful

Wicket

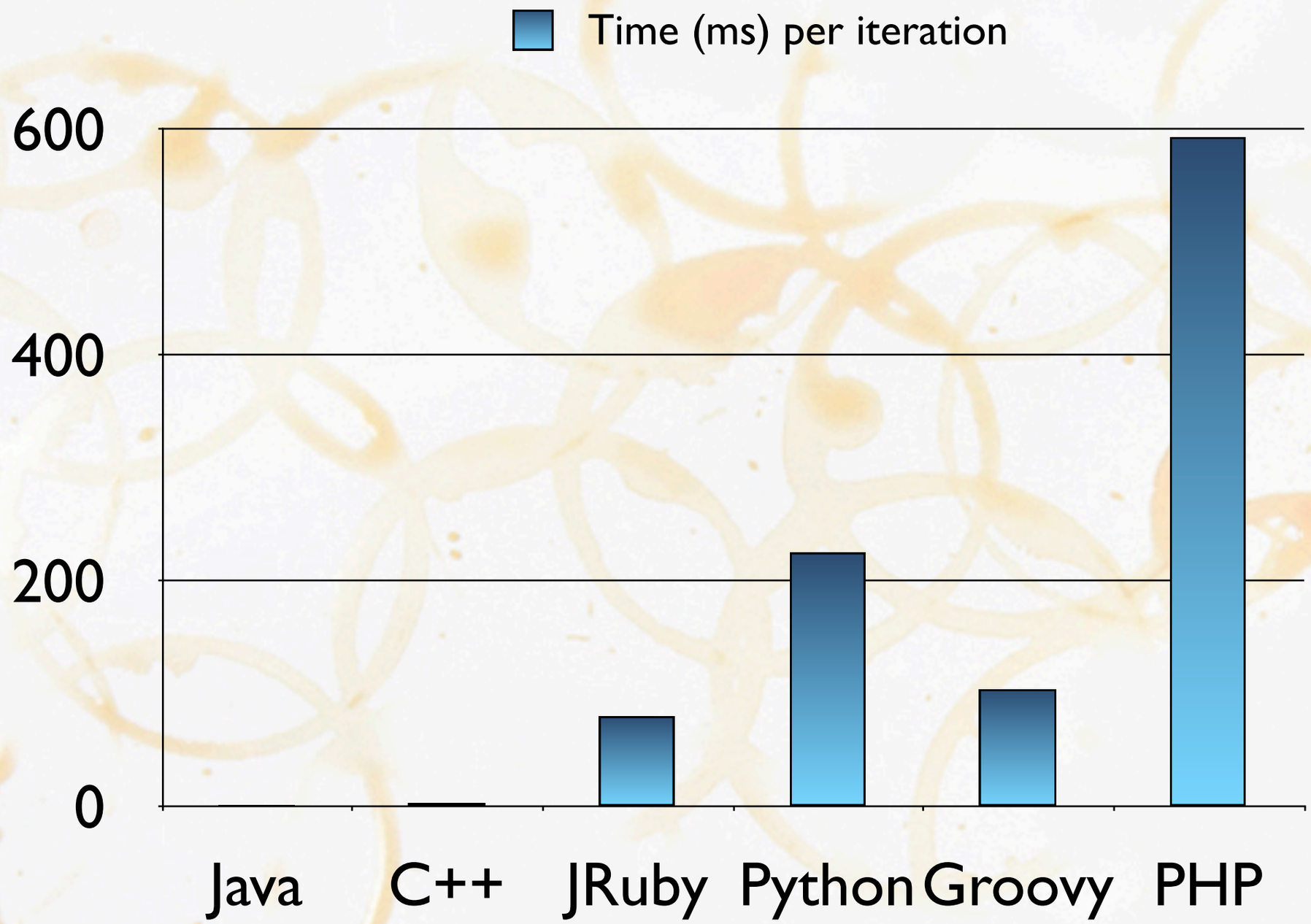
- **Pros**
  - Great for Java Developers
  - Tight binding between pages and views
  - Active community - support from creators
- **Cons**
  - No Jobs or Developers
  - Stateful by default
  - HTML Templates live next to Java code by default

Rails vs. Grails

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

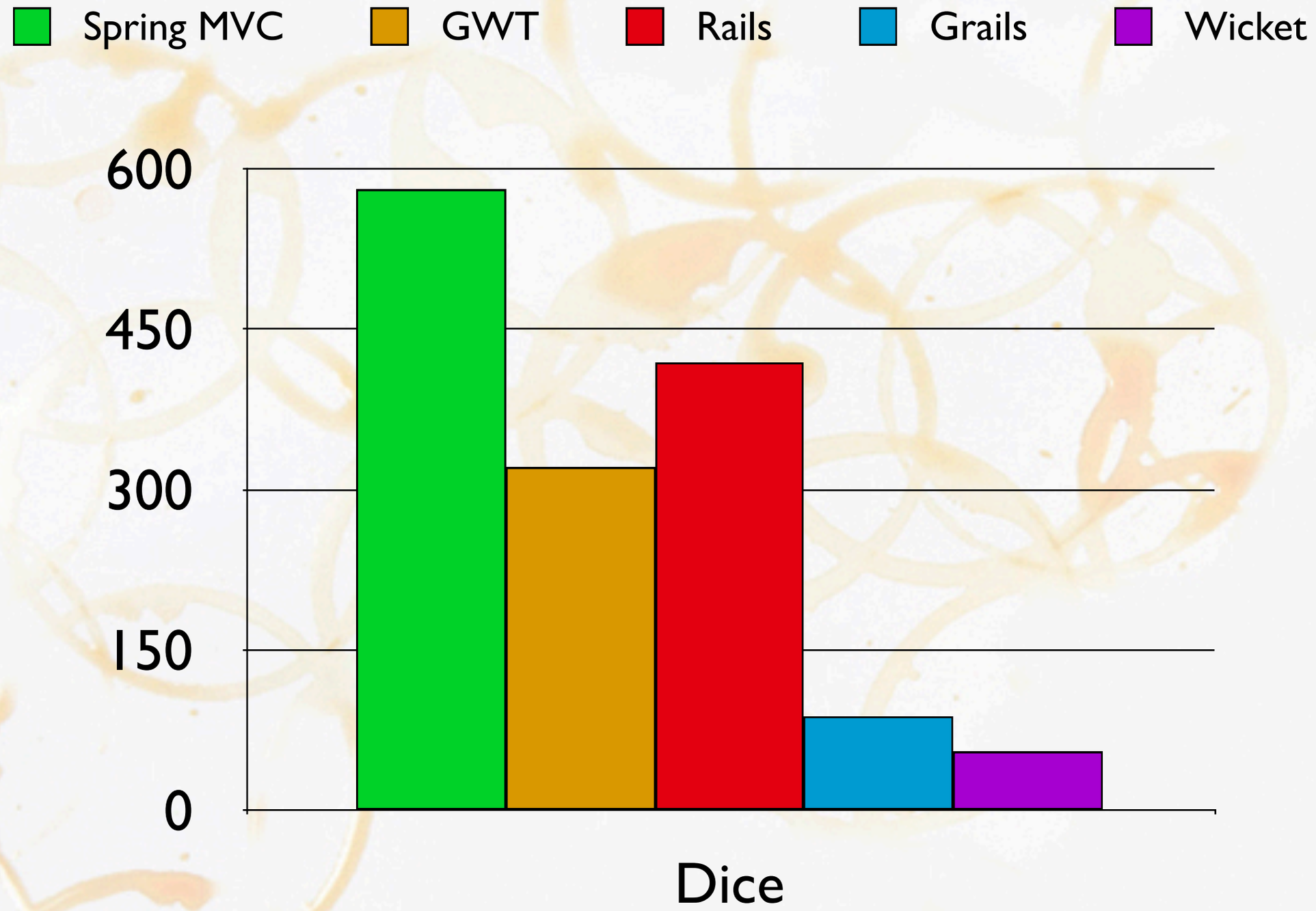


Language Performance

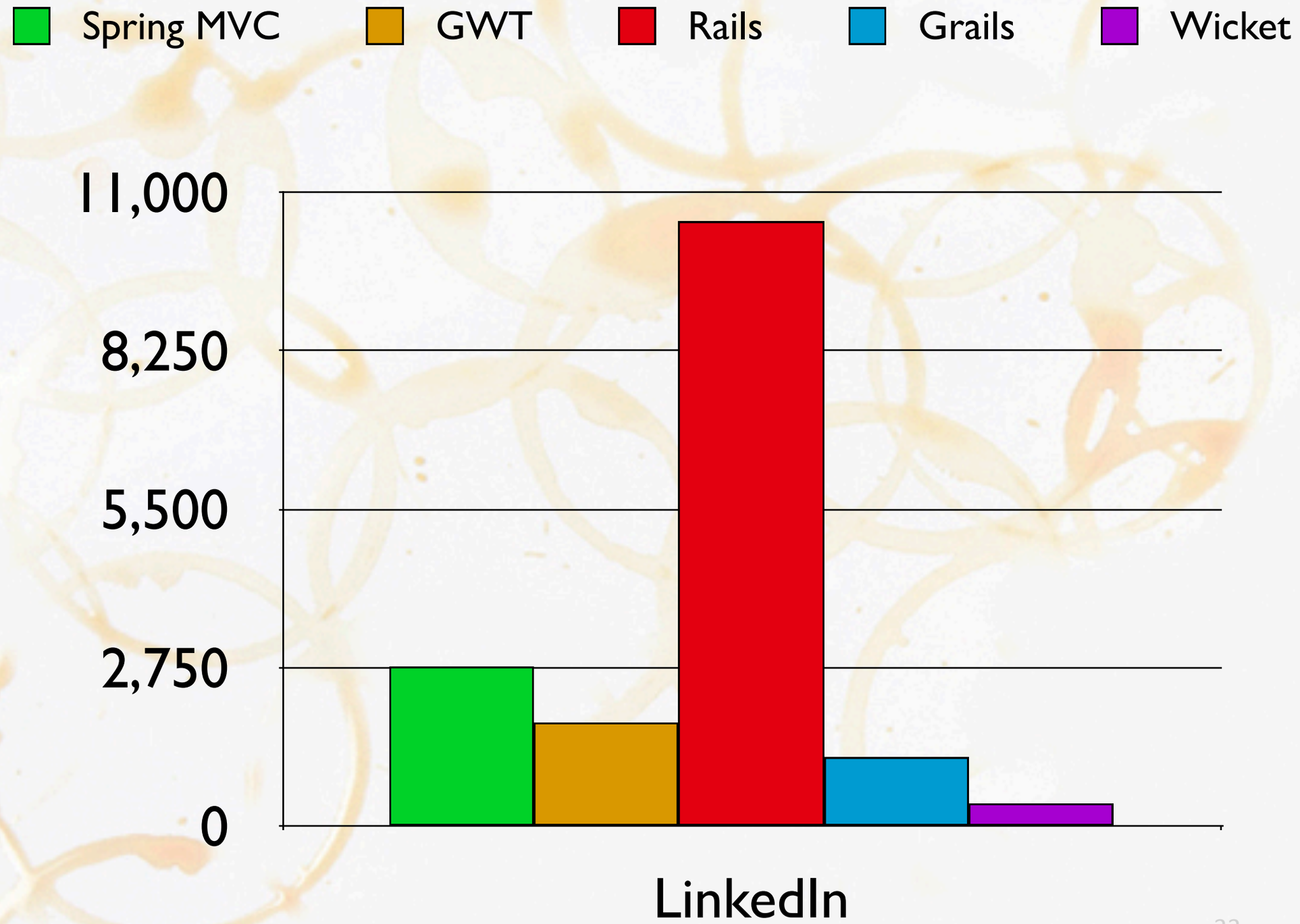


http://blog.dhananjaynene.com/2008/07/performance-comparison-c-java-python-ruby-jython-jruby-groovy/

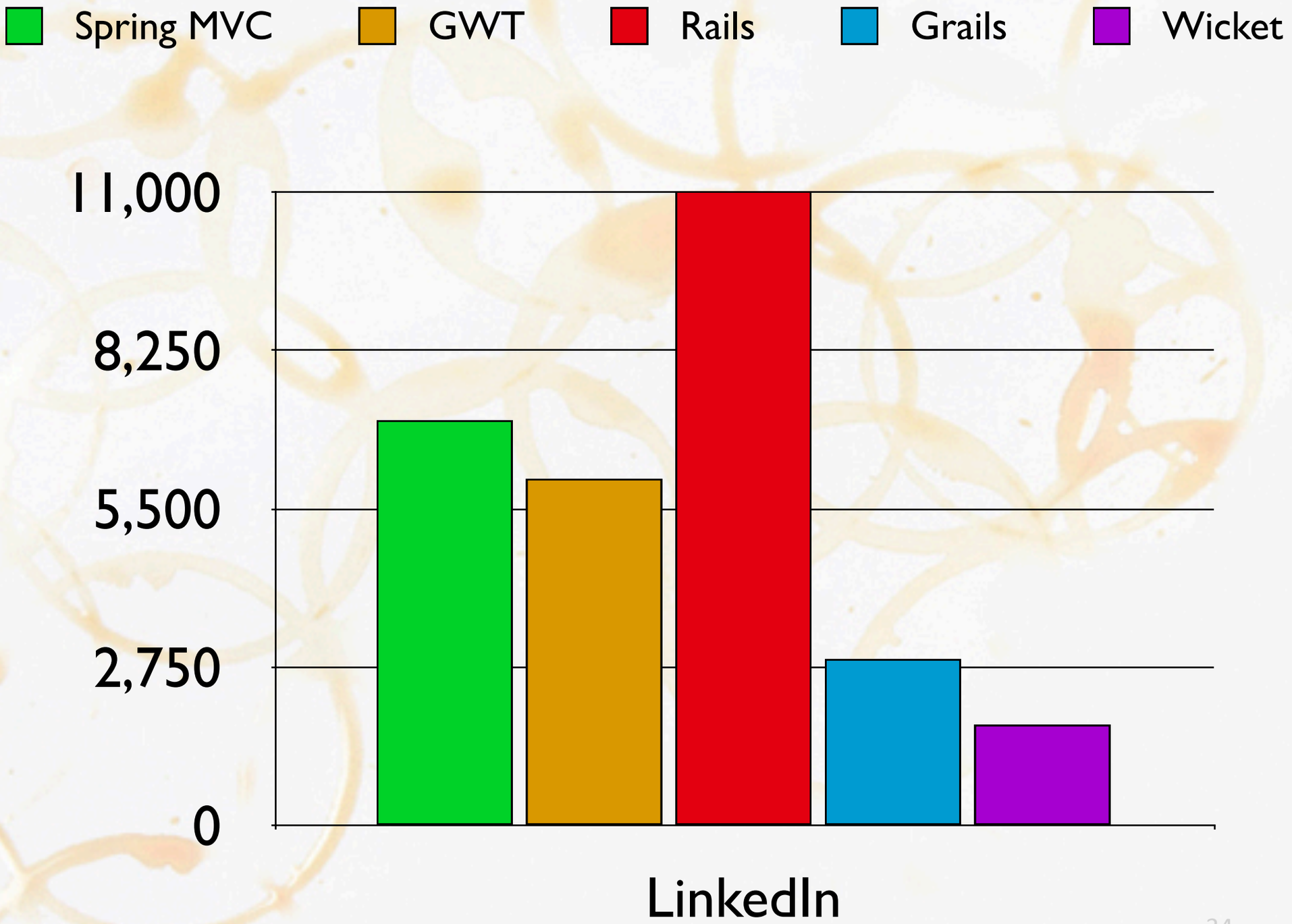
Jobs in 2010 (US)



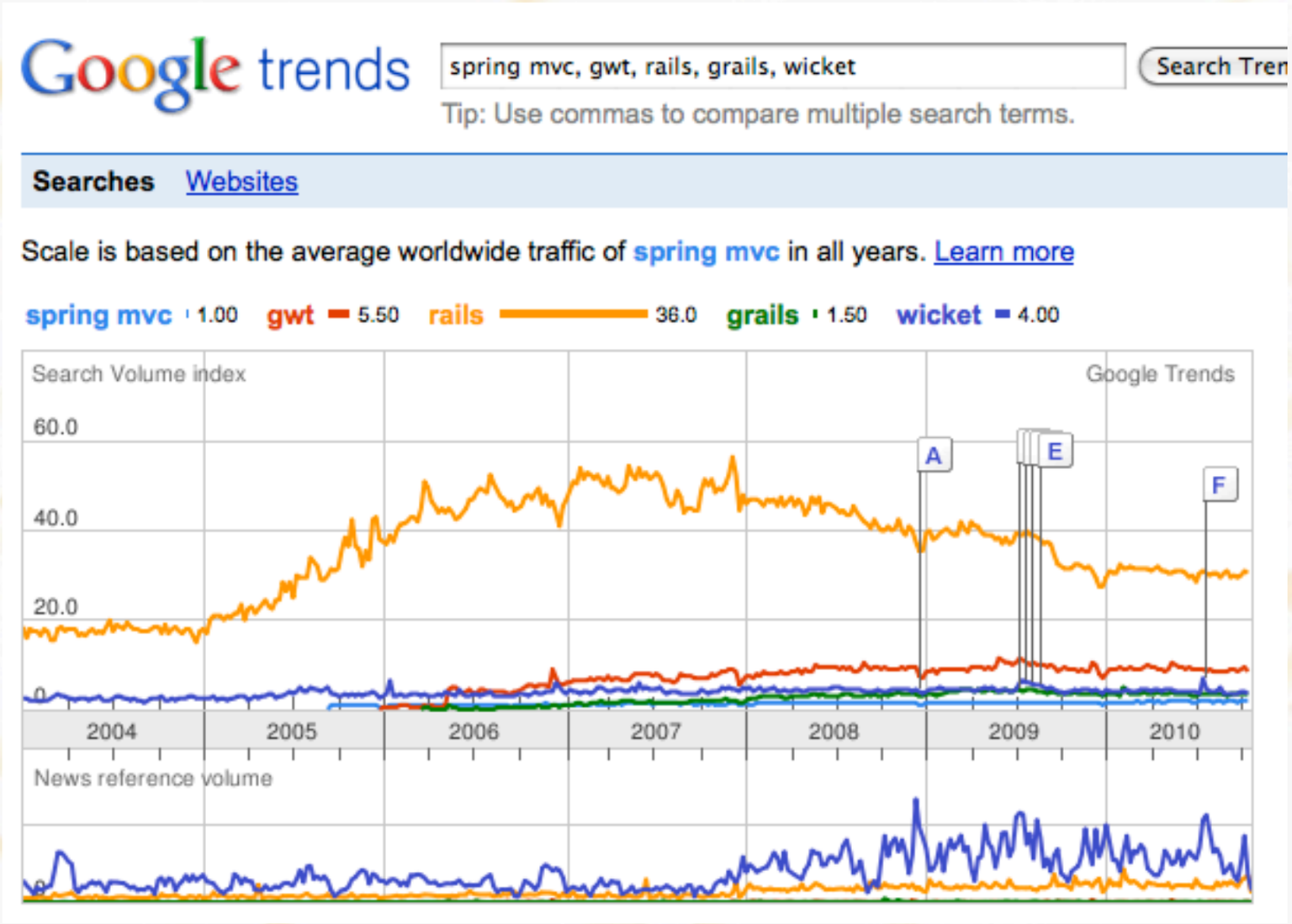
Developer Skills (US)



Developer Skills (World)



Pretty Graphs



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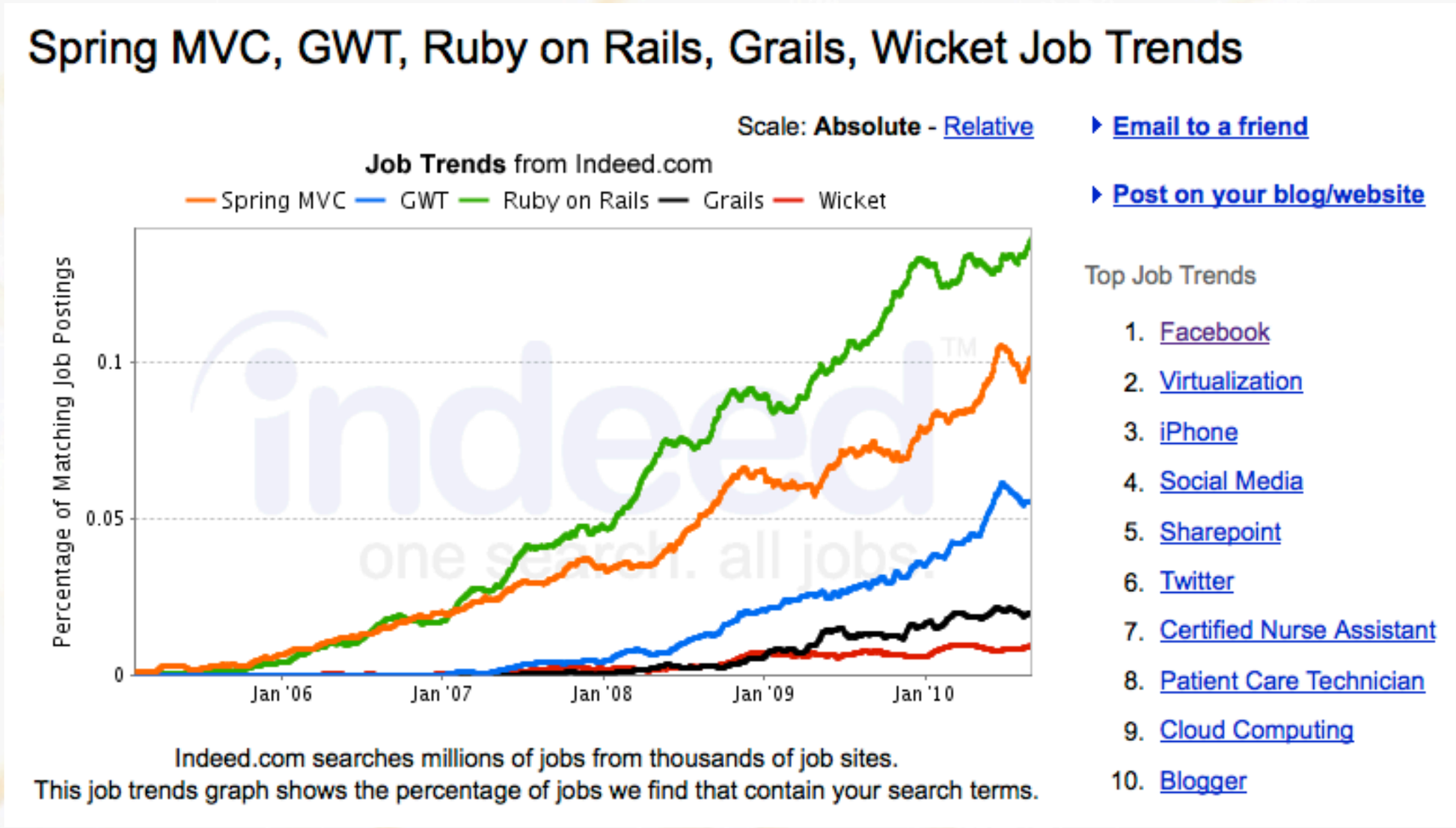

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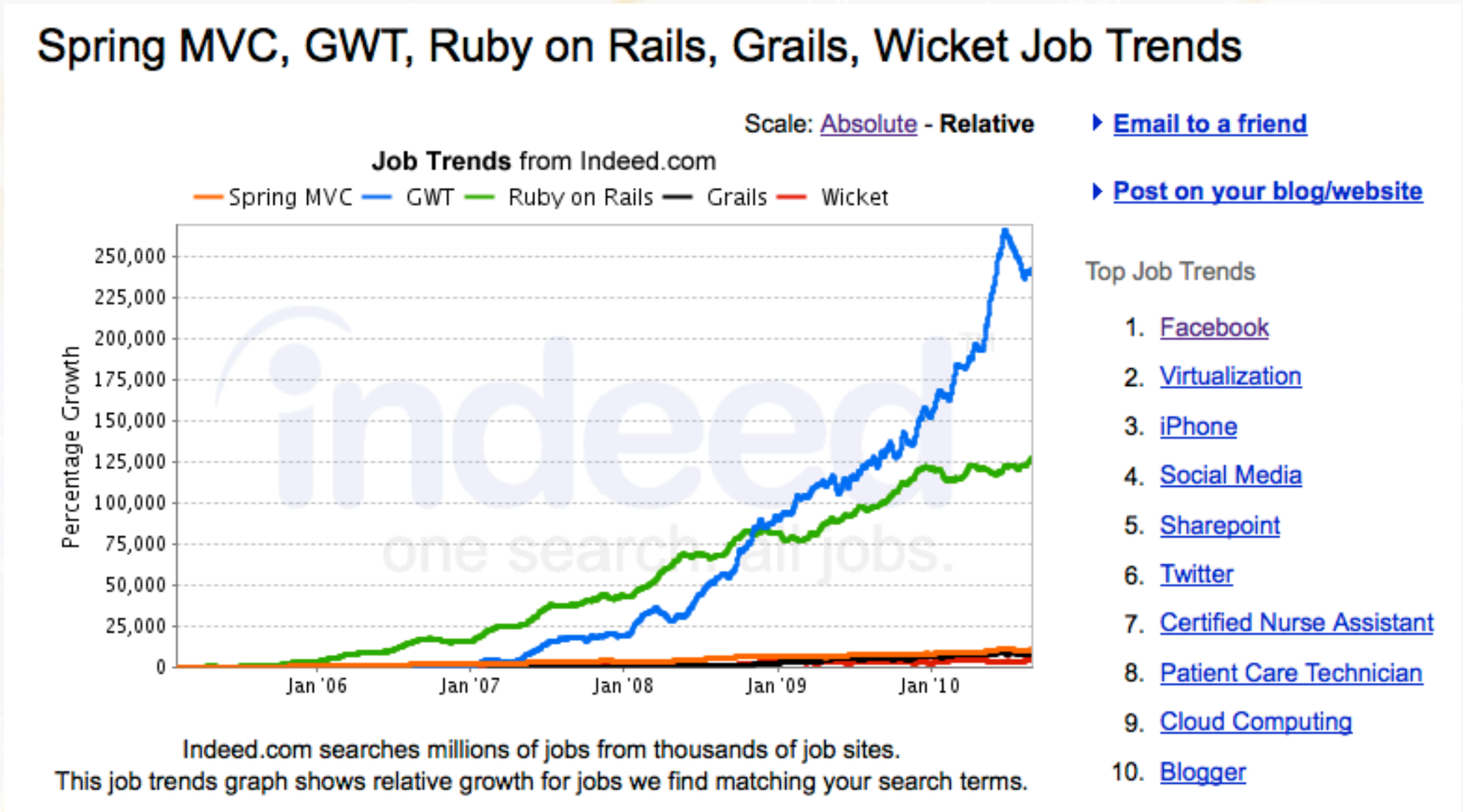
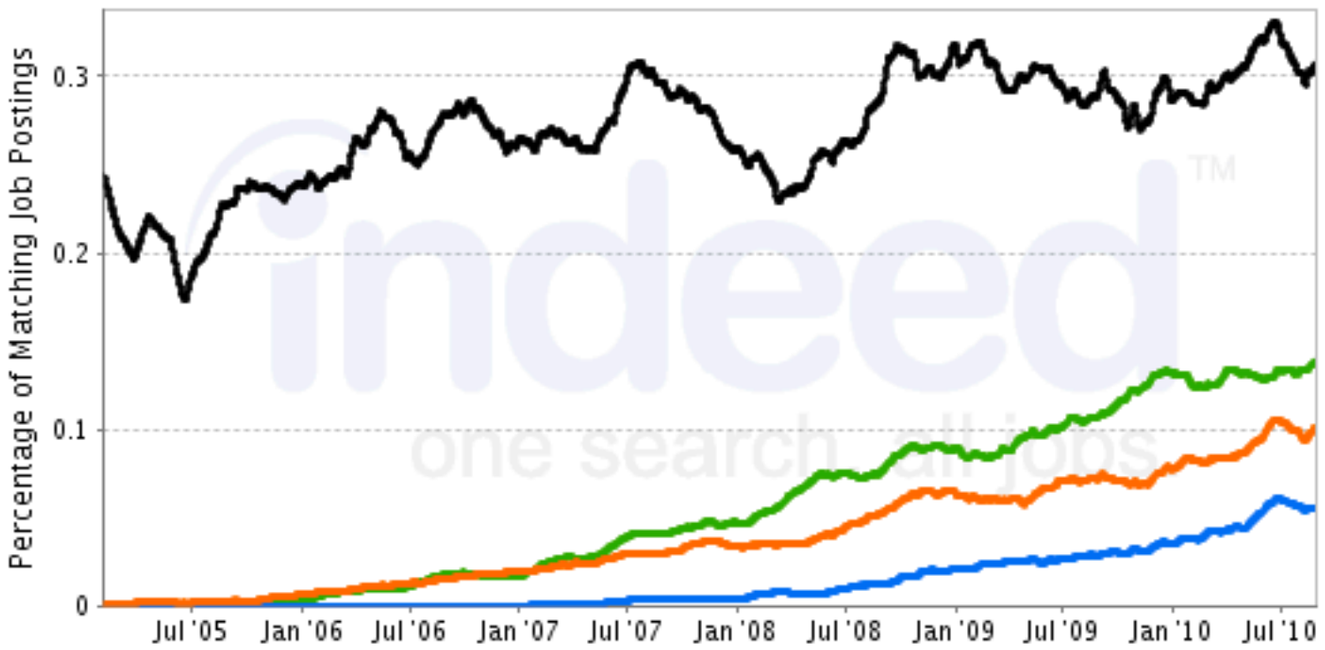


Pretty Graphs

Spring MVC, GWT, Ruby on Rails, Java Struts Job Trends

Scale: **Absolute** - Relative

Job Trends from Indeed.com



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.

▸ Email to a friend

▸ Post on your blog/website

Top Job Trends

1. Facebook
2. Virtualization
3. iPhone
4. Social Media
5. Sharepoint
6. Twitter
7. Certified Nurse Assistant
8. Patient Care Technician
9. Cloud Computing
10. Blogger

Pretty Graphs

Spring MVC, GWT, Ruby on Rails, Java Struts, PHP Job Trends

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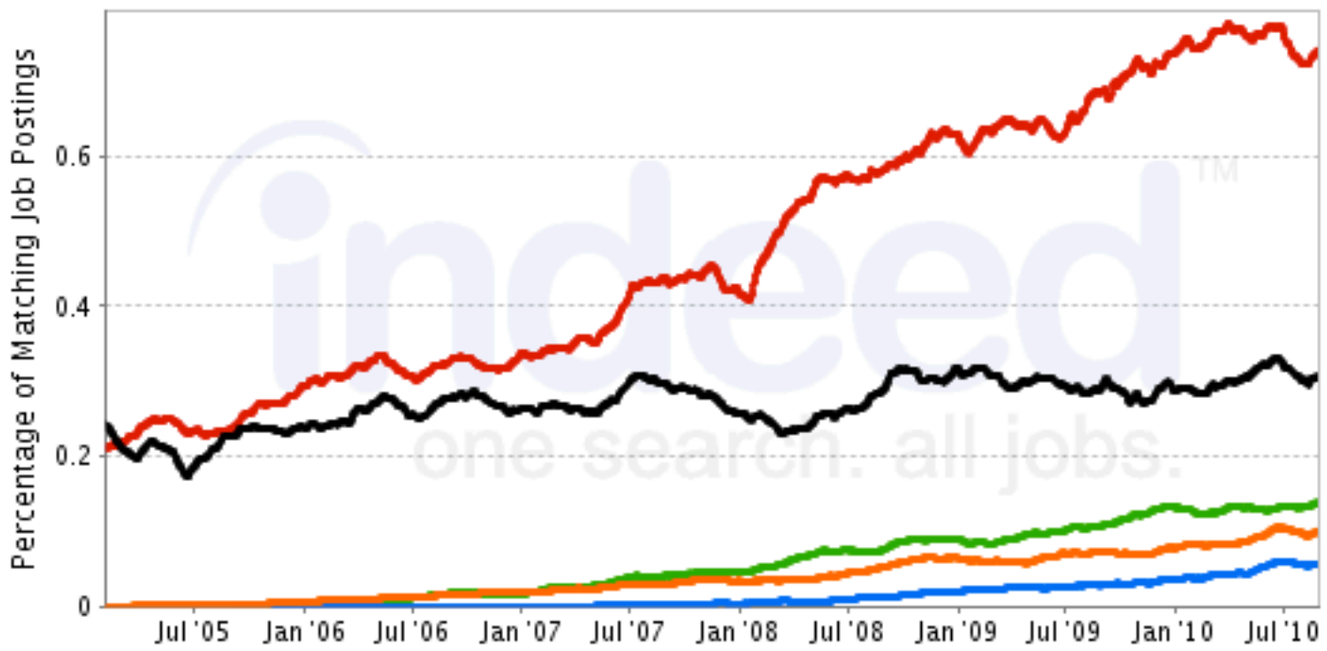

Indeed.com searches millions of jobs from thousands of job sites.
This job trends graph shows the percentage of jobs we find that contain your search terms.

Find Spring Mvc jobs, Gwt jobs, Ruby On Rails jobs, Java Struts jobs, PHP jobs

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Pretty Graphs

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

Scale: **Absolute** - Relative

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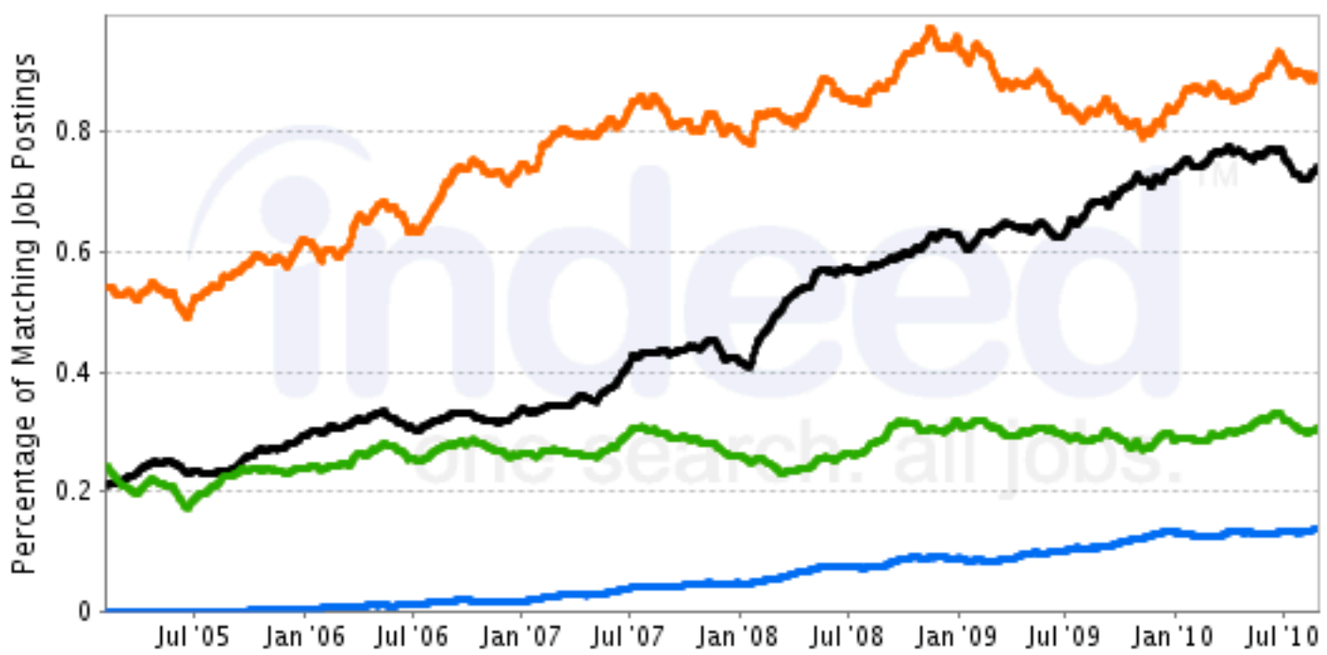

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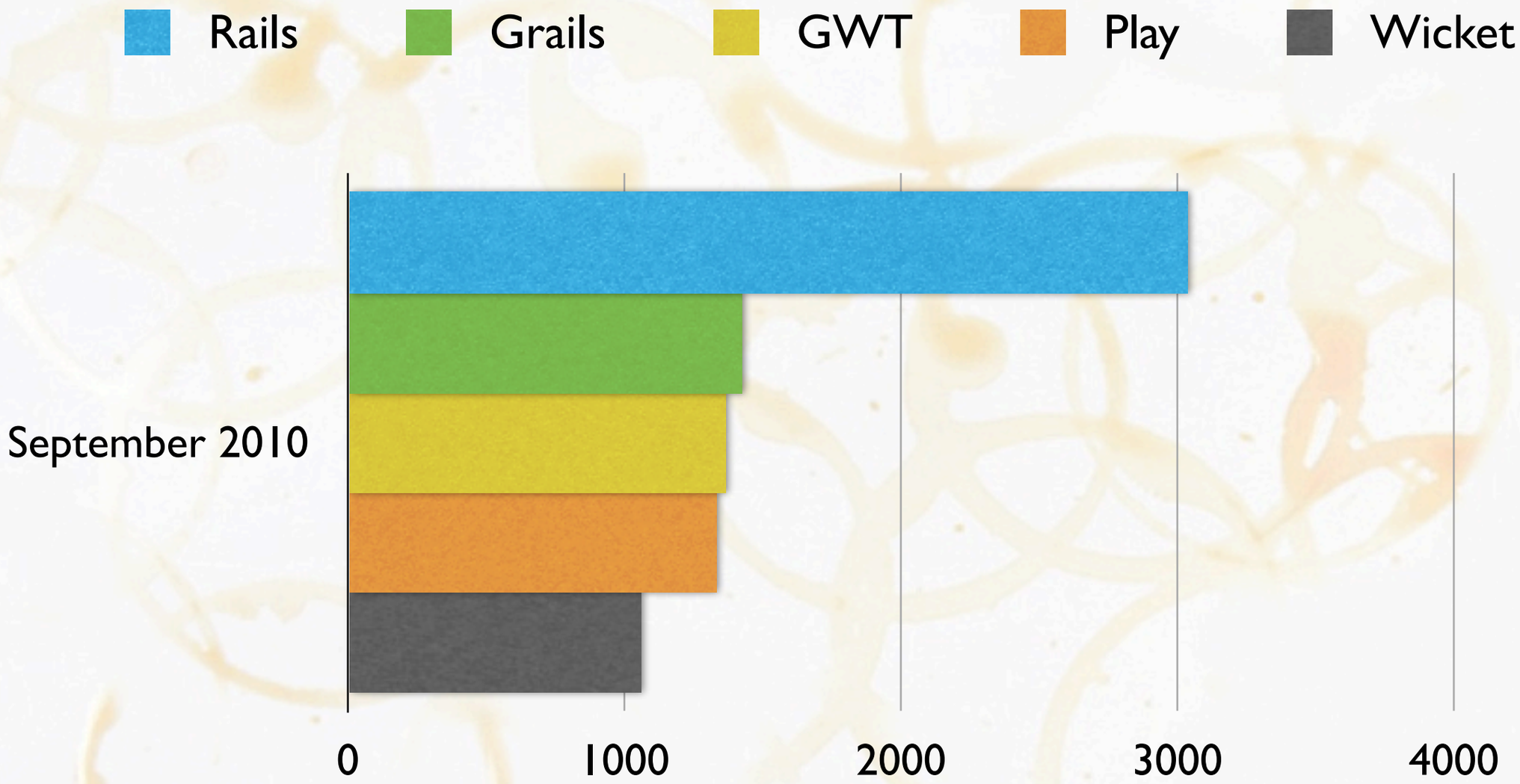
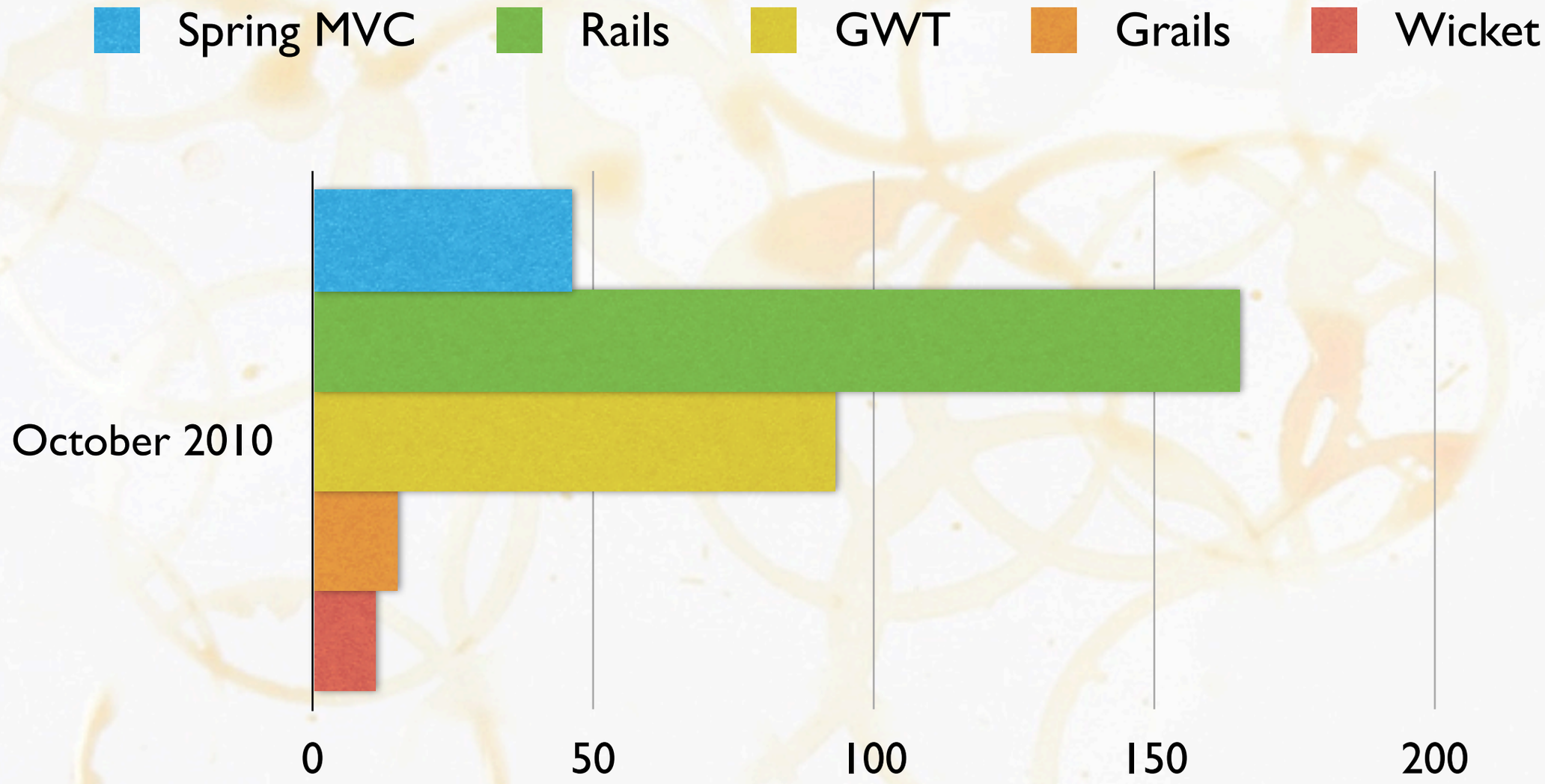
10. Blogger

Mailing List Traffic

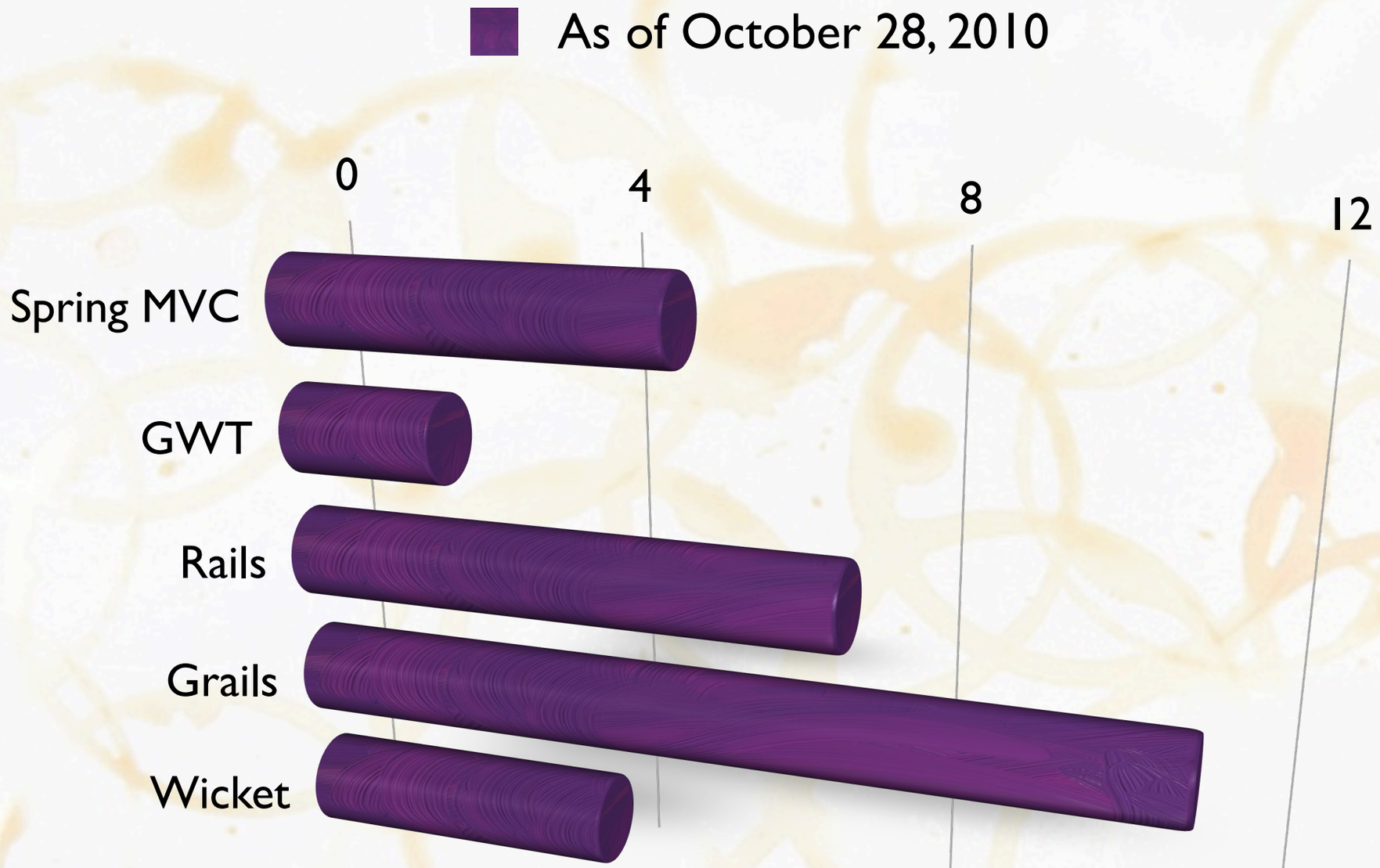


* Spring MVC uses Forums, which don't provide this data.

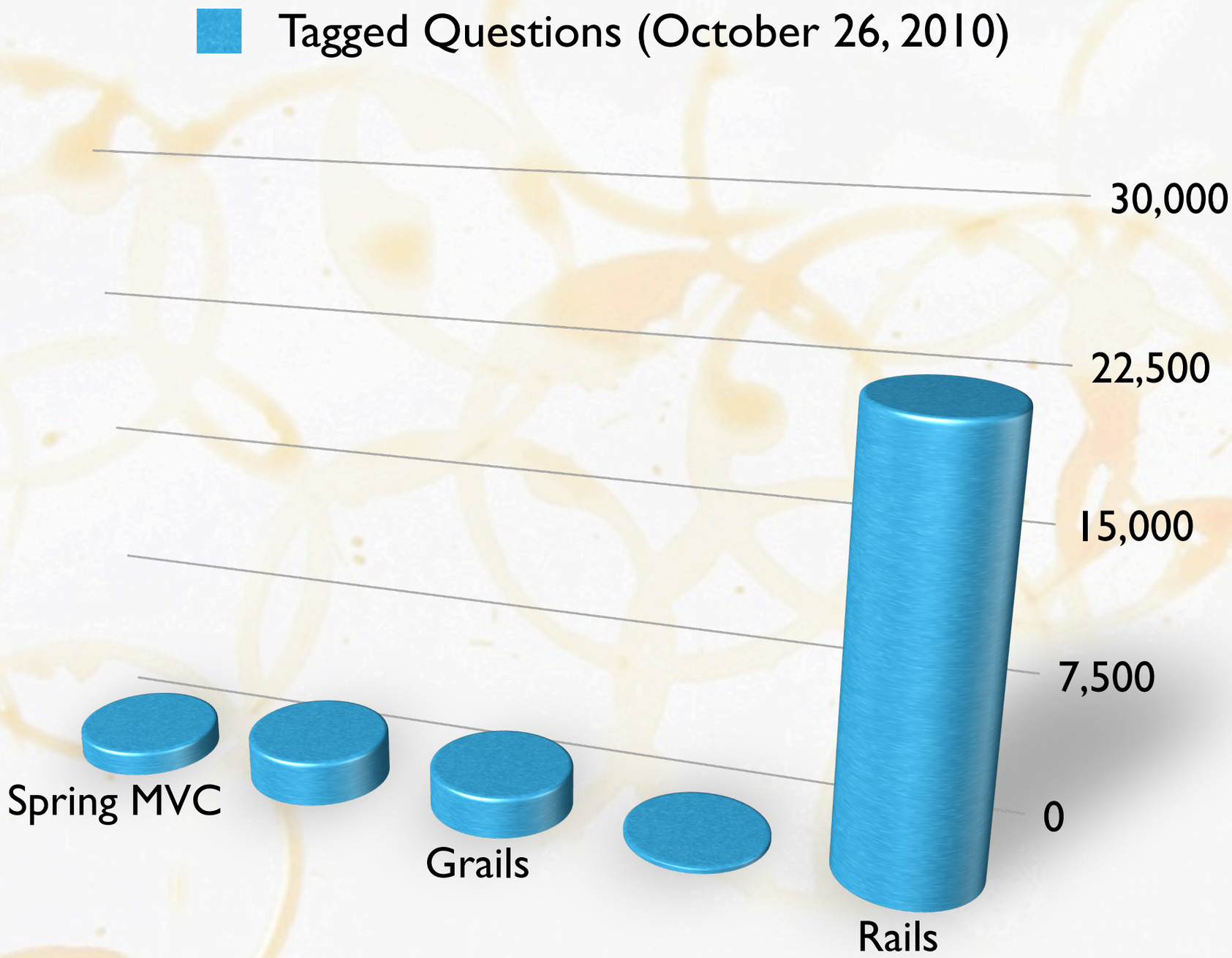
Books on Amazon



2010 Releases



StackOverflow



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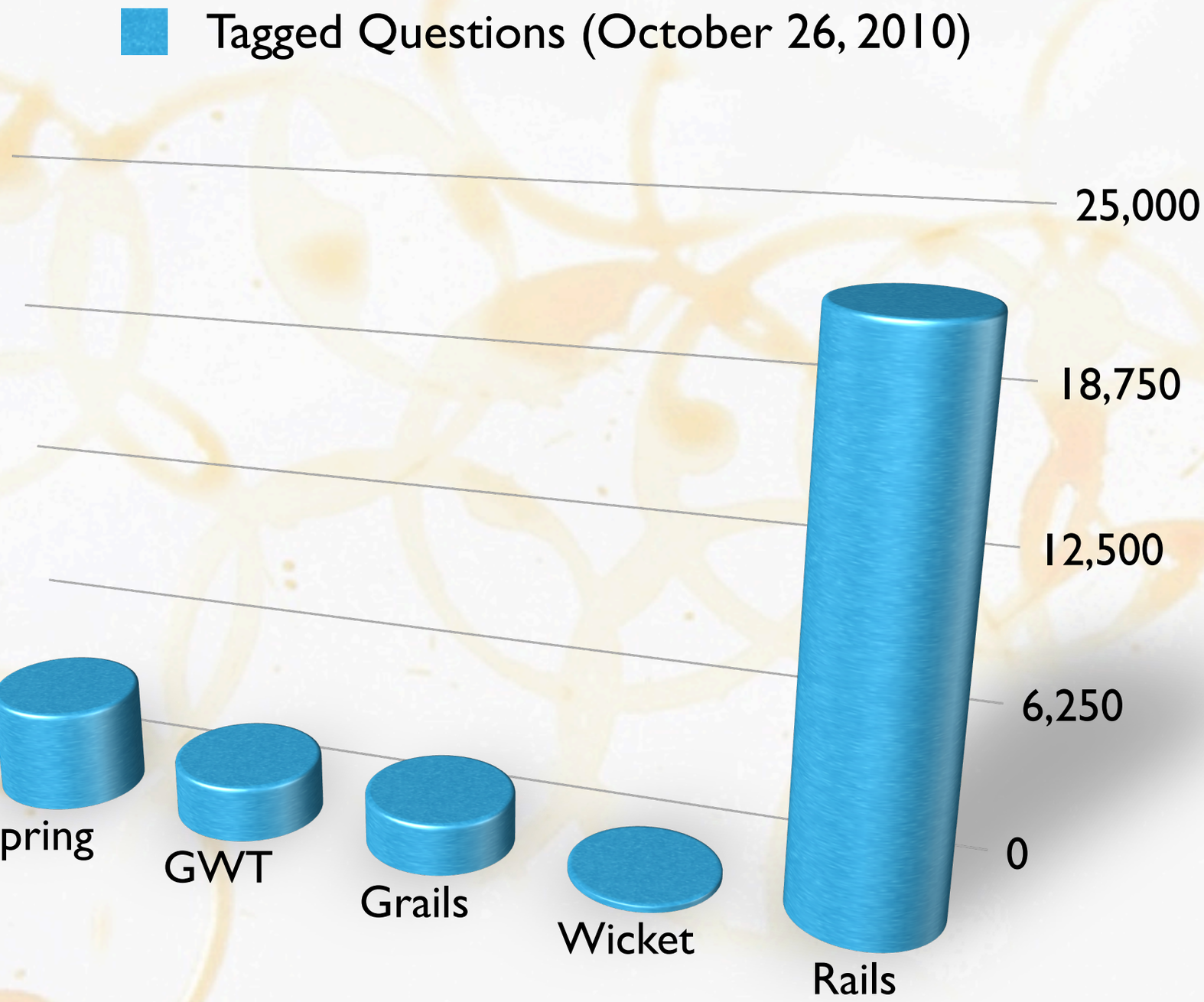

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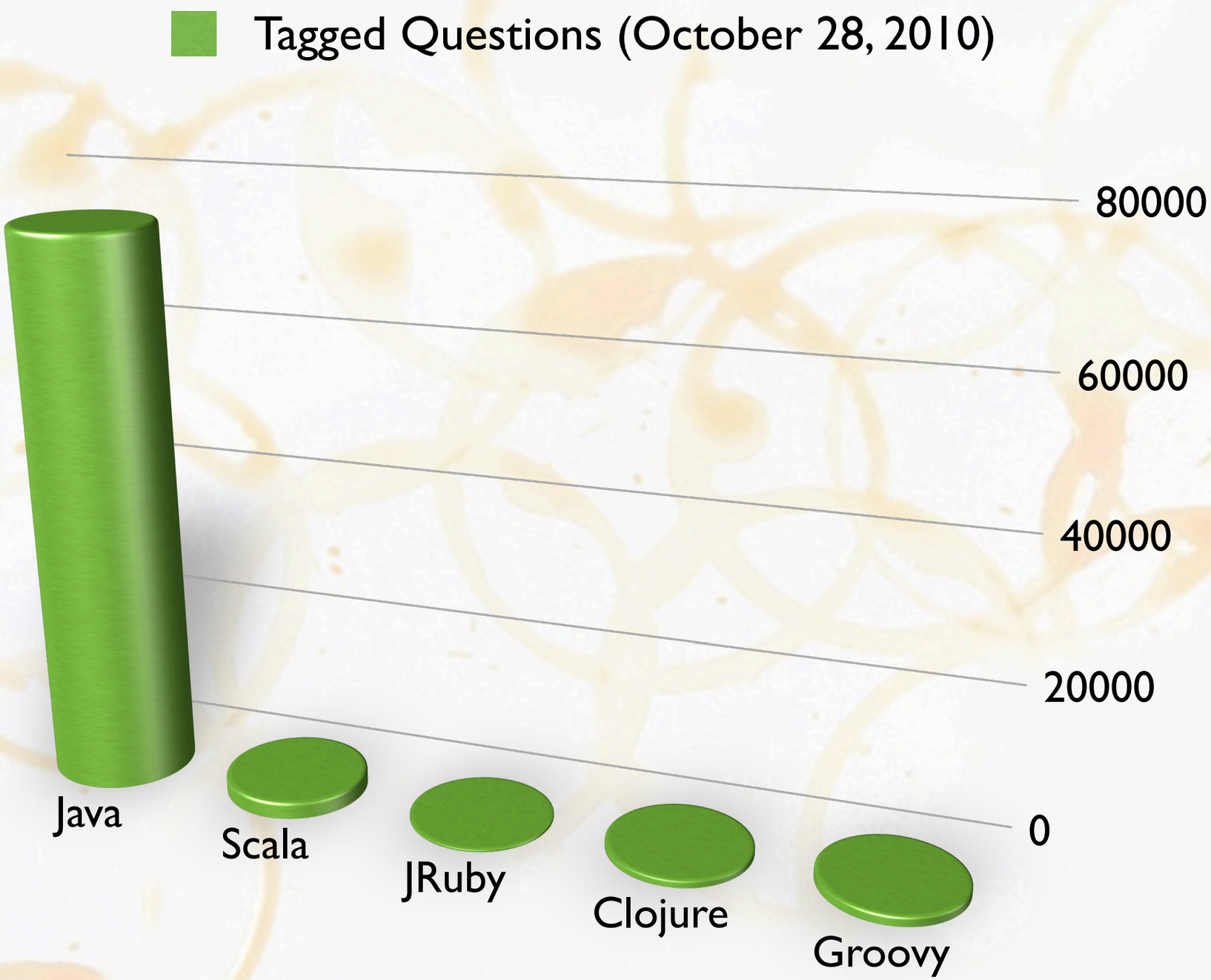

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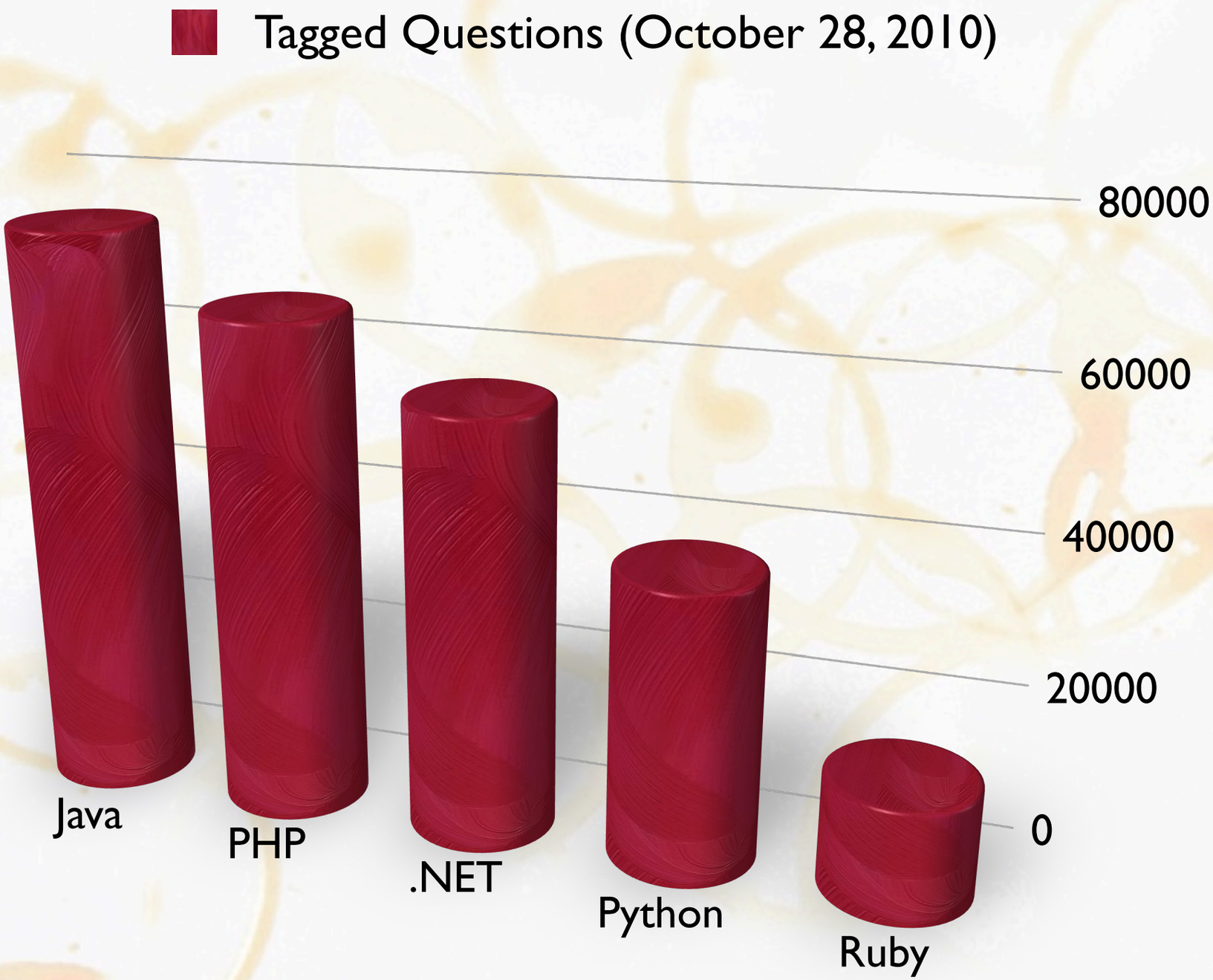

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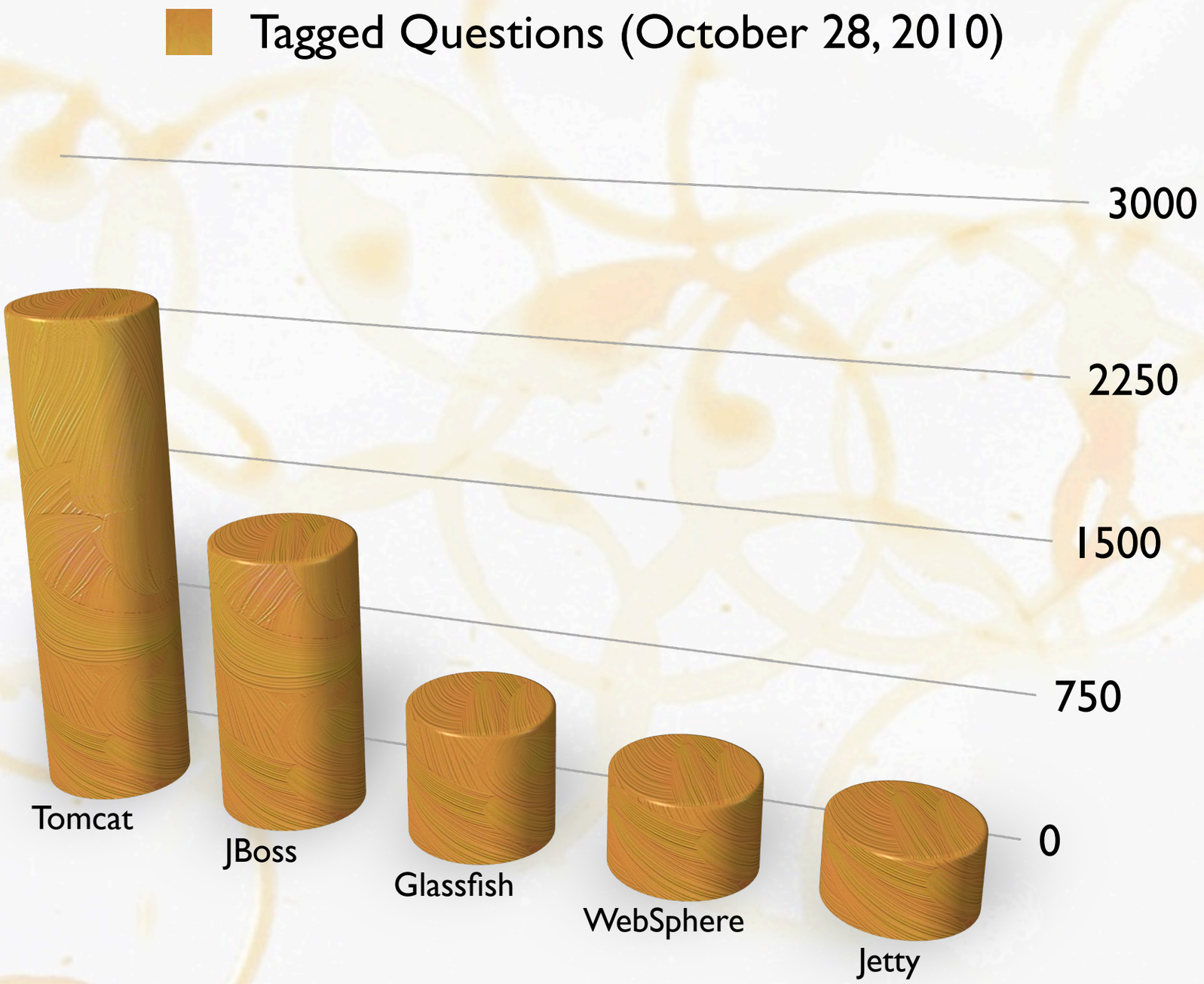

Spring MVC

- http://www.springsource.org
- Apache 2.0 License
- Active Community @ http://forum.springsource.org/forumdisplay.php?f=25
- Recommended Books:
  - Expert Spring MVC
  - Spring in Action
  - Pro Spring

Google Web Toolkit

- http://code.google.com/webtoolkit
- Apache 2.0 License
- Active Community @ http://groups.google.com/group/Google-Web-Toolkit
- Recommended Books:
  - GWT in Action
  - GWT in Practice
  - Google Web Toolkit Solutions

Ruby on Rails

- http://rubyonrails.org
- MIT License
- Active Community @
  http://rubyonrails.org/community
- Recommended Books:
  - Agile Web Development with Rails
  - Rails for Java Developers

Grails

- http://grails.org
- Apache 2.0 License
- Active Community @

  http://grails.org/Community

- Recommended Books:
  - Getting Started with Grails
  - Grails: A Quick-Start Guide
  - Programming Groovy

Apache Wicket

- http://wicket.apache.org
- Apache 2.0 License
- Active Community @ http://wicket.apache.org/help/email.html
- Recommended Books:
  - Wicket in Action
  - Pro Wicket

CONCLUSION

What if there is no “best” web framework?

How to Choose?

- 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

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http://twitter.com/mraible

Download Presentation

http://slideshare.net/mraible