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JavaOneSM

Lessons Learned: Kenai.com: JRuby Meets Rails in Production

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TS-5413

Nick

- > Former Java developer
- > JRuby core team member
- > Rails contributor
- > Kenai.com lead developer

Project Kenai

- > A short play in three acts
- > About launching a web site
- > And branching out into unfamiliar territory
- > And building bridges

Dramatis Personæ

- > Project Kenai the New Kid
 - Wet behind the ears

Project Kenai
beta

Dramatis Personæ

- > Java the Platform
 - A stalwart, dependable runtime



Dramatis Personæ

- > Rails the Framework
 - A show-off



Dramatis Personæ

- > JRuby the Also-ran
 - A diplomat and peacemaker



Project Kenai Comes of Age

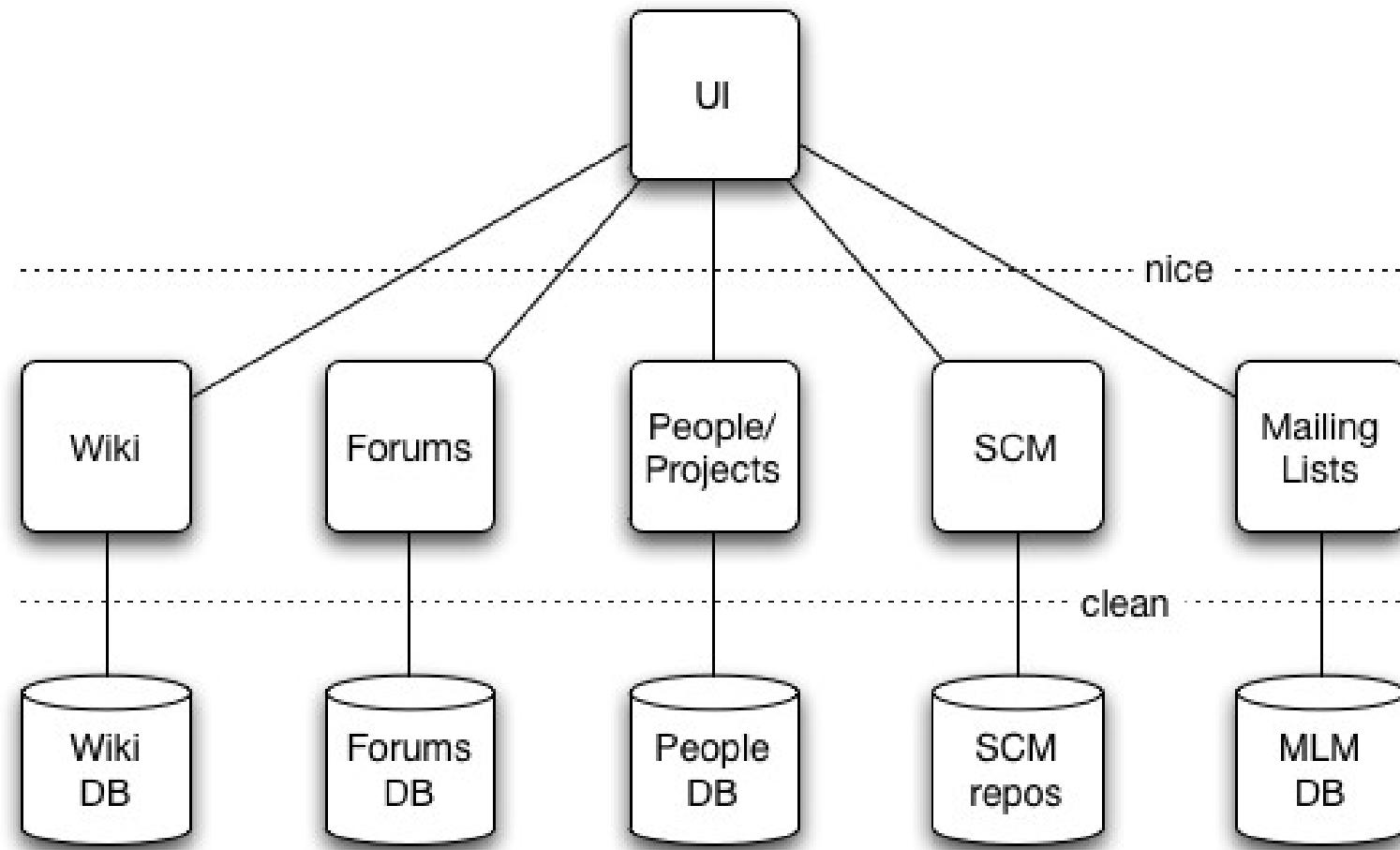
Act I

Project **K**enai
beta

Kenai.com feature set

- > People
- > Projects, container for:
 - Wikis
 - Forums
 - Mailing Lists
 - Issue Trackers
 - Source Code Repositories
 - APIs
 - New features continually added

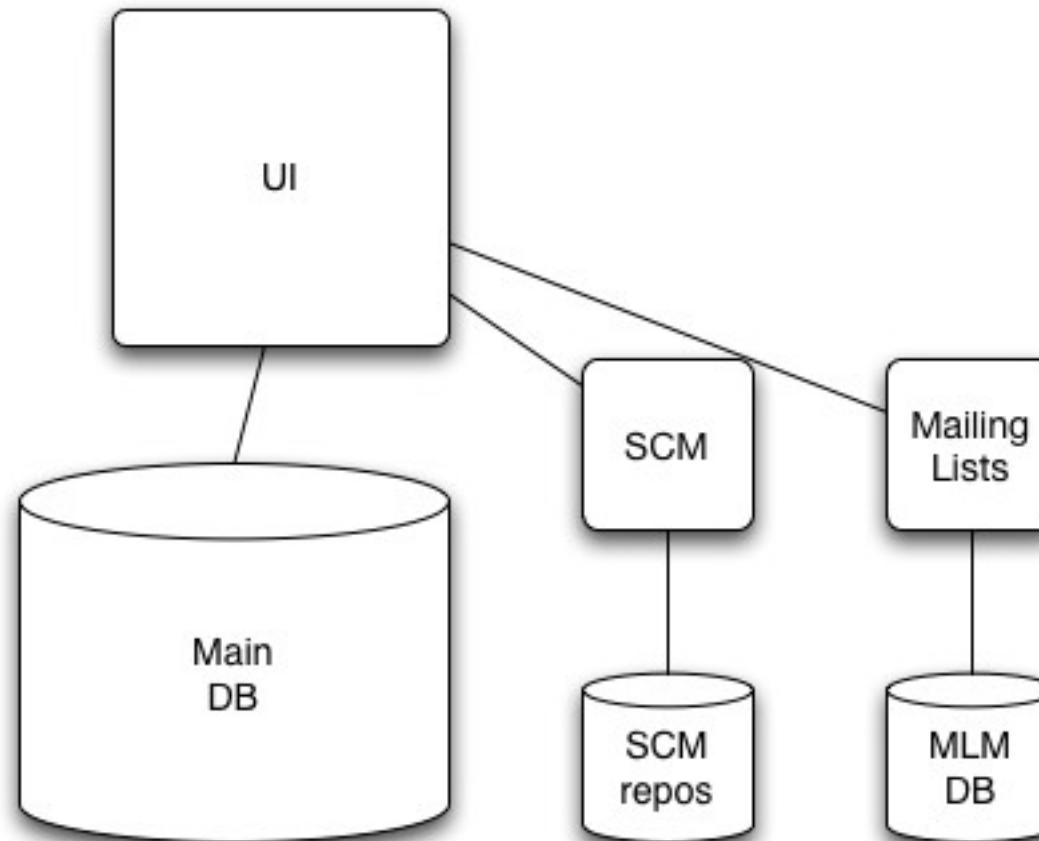
Early Kenai



Early Kenai: Problems

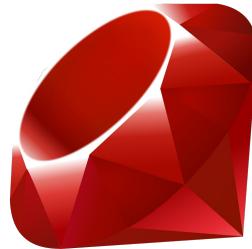
- > Too much data on the wire!
- > Bottom-up service design didn't bear fruit
- > UI usage patterns did not match APIs
- > Non-trivial speedup just from collapsing whitespace in XML

Early Kenai: Consequences



Kenai.com Meets Ruby and Rails

Act II



Ruby
A Programmer's Best Friend



attachment_fu

person_images	
id	
filename	
thumbnail	
content_type	
size	
width	
height	
parent_id	

attachment_fu

```
class PersonImage < ActiveRecord::Base
  has_attachment :content_type => :image,
                  :storage => :file_system,
                  :max_size => 500.kilobytes,
                  :resize_to => '150x150!',
                  :thumbnails => {
                    :tiny => '20x20',
                    :small => '58x58',
                    :large => '100x100'
                  }
end
```

image_voodoo

```
class ImageVoodoo
  def resize(width, height)
    image = BufferedImage.new(width, height, color_type)
    paint(image) do |graphics|
      scaled_image = @src.get_scaled_instance(
        width, height, SCALE_SMOOTH)

      graphics.draw_image scaled_image, 0, 0, nil
    end
  end
end
```

geokit

Location

minneapolis, mn

This will be displayed as a map on your profile page.

Example: San Francisco, CA

NICK SIEGER



Username: nicksieger

geokit

```
class Person < ActiveRecord::Base
  acts_as_mappable
  before_save :geocode_location

  def geocode_location
    geo = GeoKit::Geocoders::MultiGeocoder
      .geocode(location)
    if geo.success
      self.lat, self.lng = geo.lat, geo.lng
    else
      errors.add(:location, "....")
    end
  end
end
```

acts_as_solr

```
class Forum::Topic < ActiveRecord::Base
  acts_as_background_solr :fields => [
    :subject,
    :messages,
    { :forum_id=>:integer},
    { :project_id=>:integer}
  ]
end
```

```
Forum::Topic.find_by_solr "query"
```

will_paginate

```
class Wikis::PagesController < Wikis::BaseController
  def index
    @pages = Wiki::Page.paginate(
      :conditions => {
        :wiki_id => @wiki.id },
      :page => params[:page],
      :order => 'name')
  end
end
```

will_paginate

```
<%= will_paginate @pages %>
```

[« Previous](#)[1](#)[2](#)[3](#)[4](#)[5](#)[Next »](#)

Rails caching

- > Built-in caching framework
- > Multi-layered: page, action, fragment, object
- > Pluggable stores: memory, file, memcached

Fragment Caching

```
<% cache page_cache_key(@page) do -%>
  <div class="wikiMainBody">
    <%= text_as_html(@wiki, @page) %>
  </div>
<% end -%>
```

```
def page_cache_key(page)
  "#{@project.name}/wiki/pages" +
  "/#{@page.name}/#{@page.number}"
end
```

Object caching

Filename	Author	Revision	Modified	Log Entry
.classpath	tom.enebo@gmail.com	7c4c8416	29 days ago	update for mvn release of bytel...
.externalToolBuilders	tom.enebo@gmail.com	f80fc40a	over 2 years ago	JRUBY-994: Remove jruby serializ...
.gitignore	headius@headius.com	fdd89691	8 days ago	Add test-prawn and related targe...
.project	tom.enebo@gmail.com	f80fc40a	over 2 years ago	JRUBY-994: Remove jruby serializ...
.settings	bill.dortch@gmail.com	0a625d65	about 1 year ago	Updating Eclipse settings for 1....
COPYING	vsizikov@gmail.com	dfa024cd	11 months ago	minor wording update git-svn-id:...
COPYING.CPL				
COPYING.GPL	jpetersen@uni-bonn.de	25d9ca54	over 6 years ago	- update license git-svn-id: htt...
COPYING.LGPL	jpetersen@uni-bonn.de	25d9ca54	over 6 years ago	- update license git-svn-id: htt...
LEGAL	nick@nicksieger.com	ac3c5c20	about 1 year ago	Adding back LEGAL (for Ola) git-...
LICENSE.RUBY				
README				

Object caching

```
class Scm::ScmController < ApplicationController
  def show_file
    cache_key = ...
    @entry = Rails.cache.fetch(cache_key) do
      @feature.entry(path_param)
    end

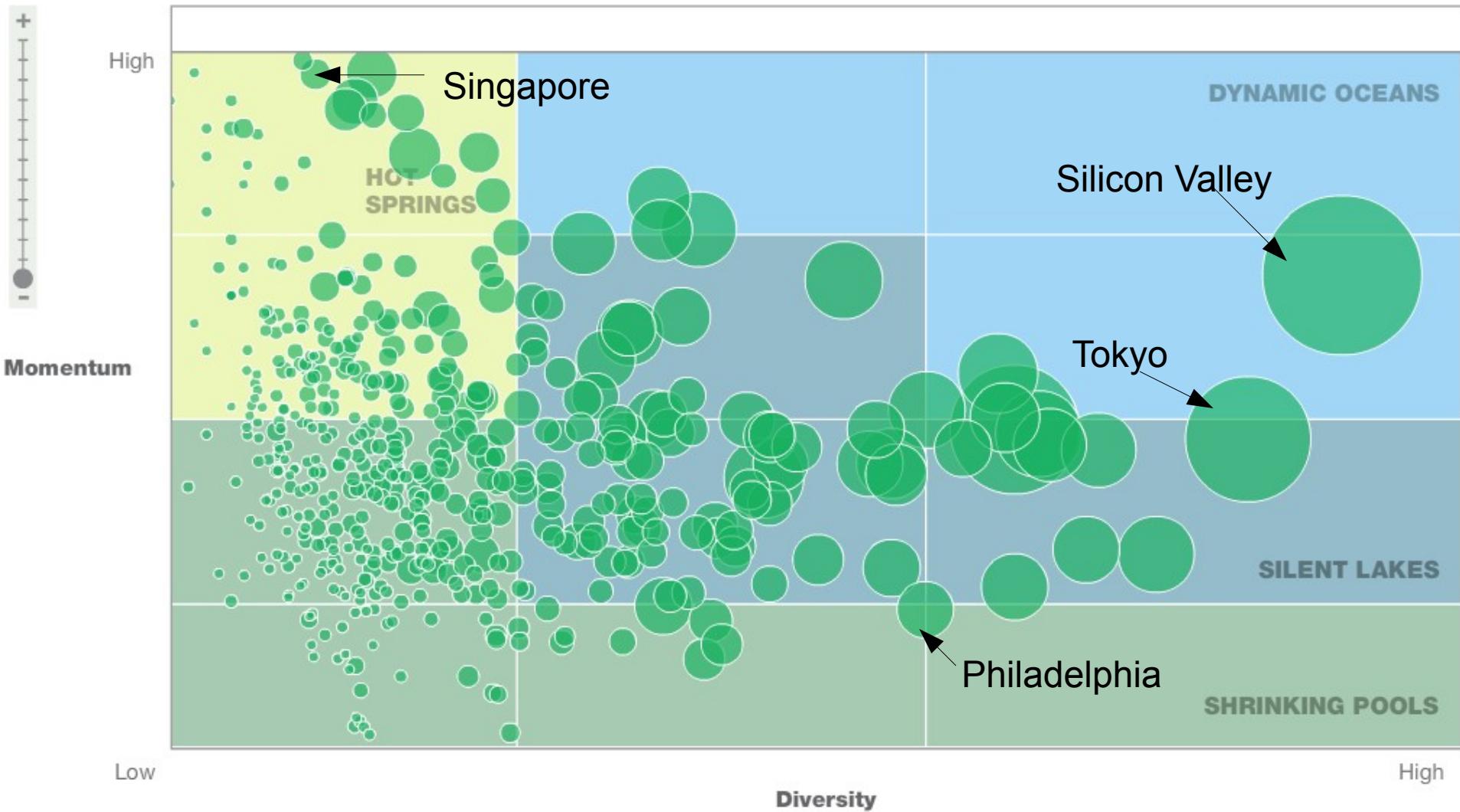
    value = Rails.cache.fetch("#{cache_key}:html") do
      render_to_string :partial => 'file_row', ...
    end

    render :text => value
  end
end
```

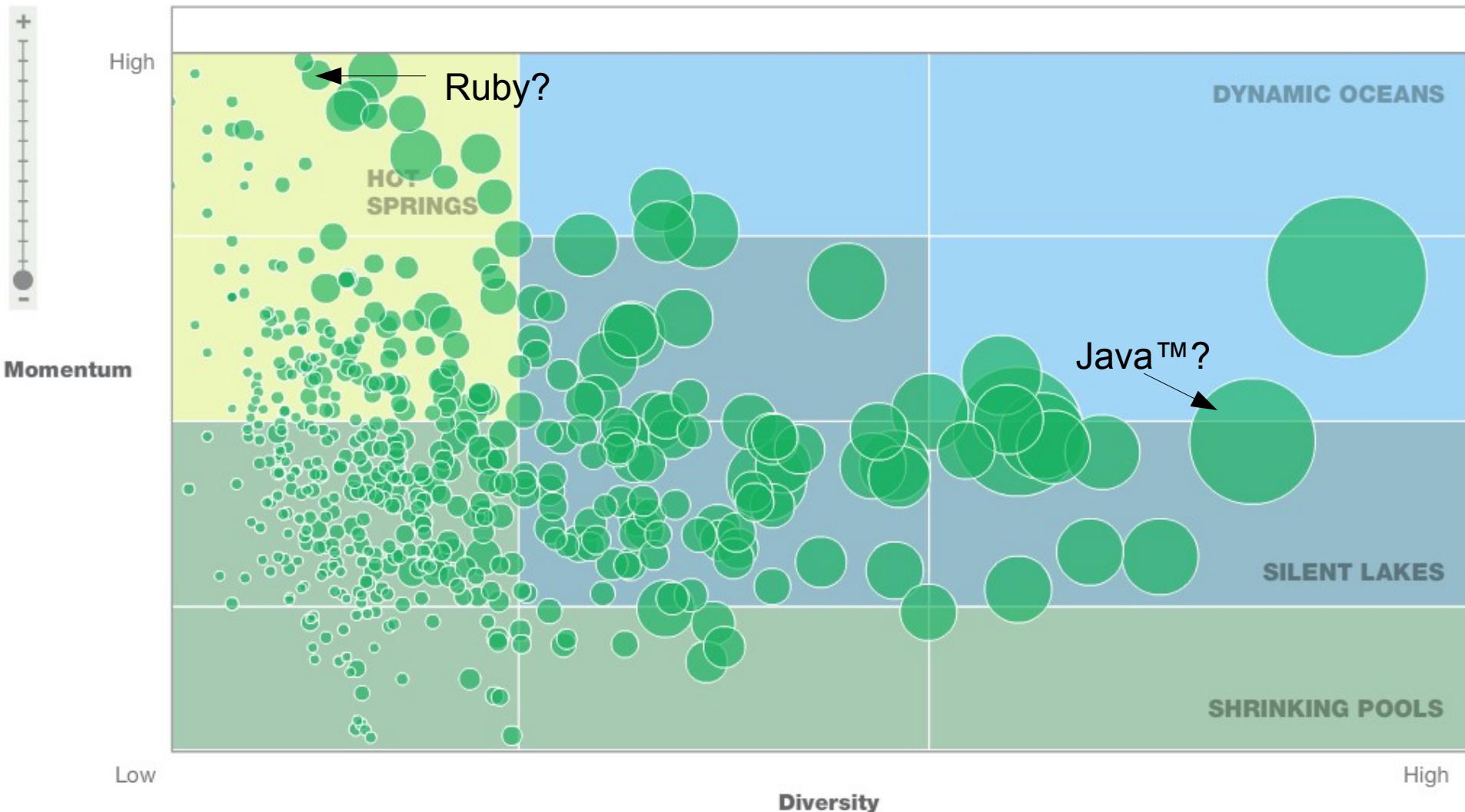
Ruby and Rails: Takeaways

- > Full stack means low friction
- > Impactful features can be added quickly
- > Healthy gem and plugin ecosystem
- > Rapid innovation

McKinsey Innovation Clusters



Ruby: “Hot Spring” of Innovation?



Kenai.com codebase

- > 12K lines of application code
- > 10K lines of views (HTML + template code)
- > 1K lines of custom Javascript
- > 8K lines of test code
- > 73.7% test coverage

Kenai goes to Production with JRuby

Act III



Project Kenai
beta

Iron: Sun Fire T2000

- > 1.2GHz UltraSPARC T1 processor w/ 8 cores
- > 32 hardware threads
- > 32 GB RAM
- > Slow, but can handle a big load
- > Lots of 32-bit JVMs can run in 32 GB



Software Stack

- > OpenSolaris Nevada
- > JDK 6
- > Apache
- > GlassFish
- > Subversion
- > Python – Mercurial, Django
- > Perl – SYMPA

Software Stack (continued)

- > Postfix
- > JRuby
- > Memcached
- > Solr
- > Git
- > Kestrel
- > Puppet

Stack Overflow

- > OpenSolaris Nevada means no IPS
- > SPARC also means no IPS
- > Coolstack/Webstack/Blastwave no go
- > Have to maintain our own packages

Script Kiddies

- > No one on the team with deep sysadmin/automation experience
- > No previous system looks like the one you conceive yourself
- > Repeatable deployments were elusive

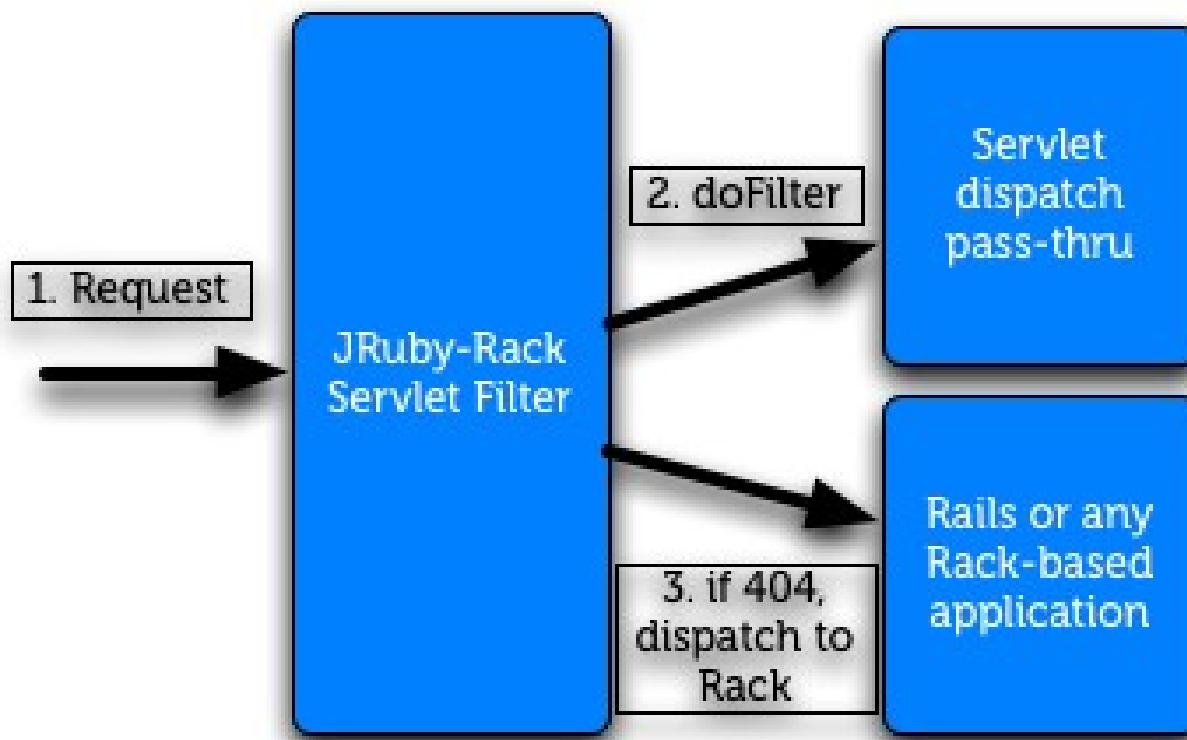
Kenai meets Warbler

- > Tool to convert Rails app into a .war file
- > warbler.kenai.com



JRuby-Rack: Warbler's partner

- > Servlet filter bridges servlets to Ruby web apps
- > jruby-rack.kenai.com



Project Kenai to live in a Glass Fish

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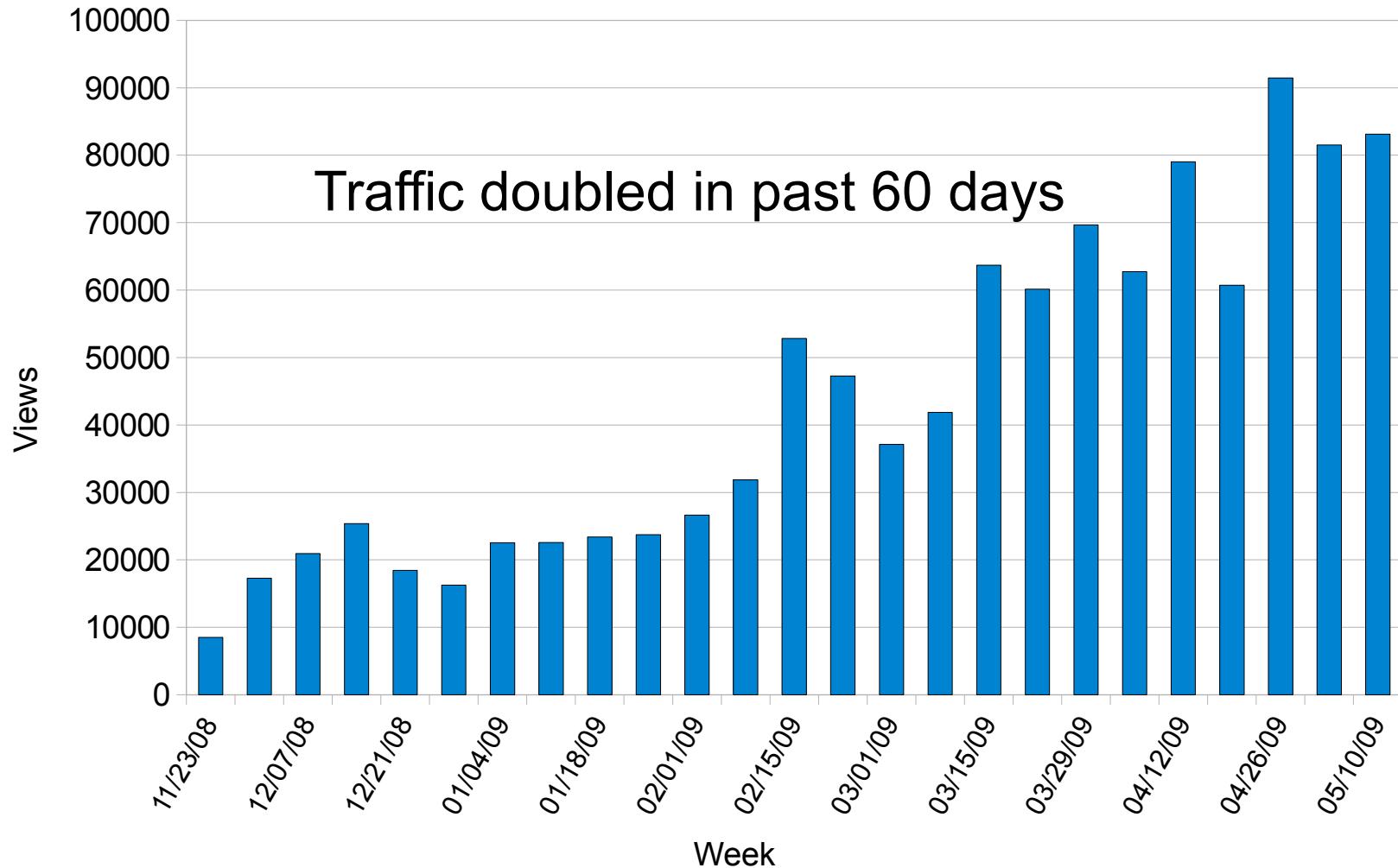
Load testing

- > Initial results: Bad
- > `java.lang.OutOfMemoryError: PermGen space`
- > Crashing VMs
- > Low CPU scaling/utilization
- > This must be Rails' fault!

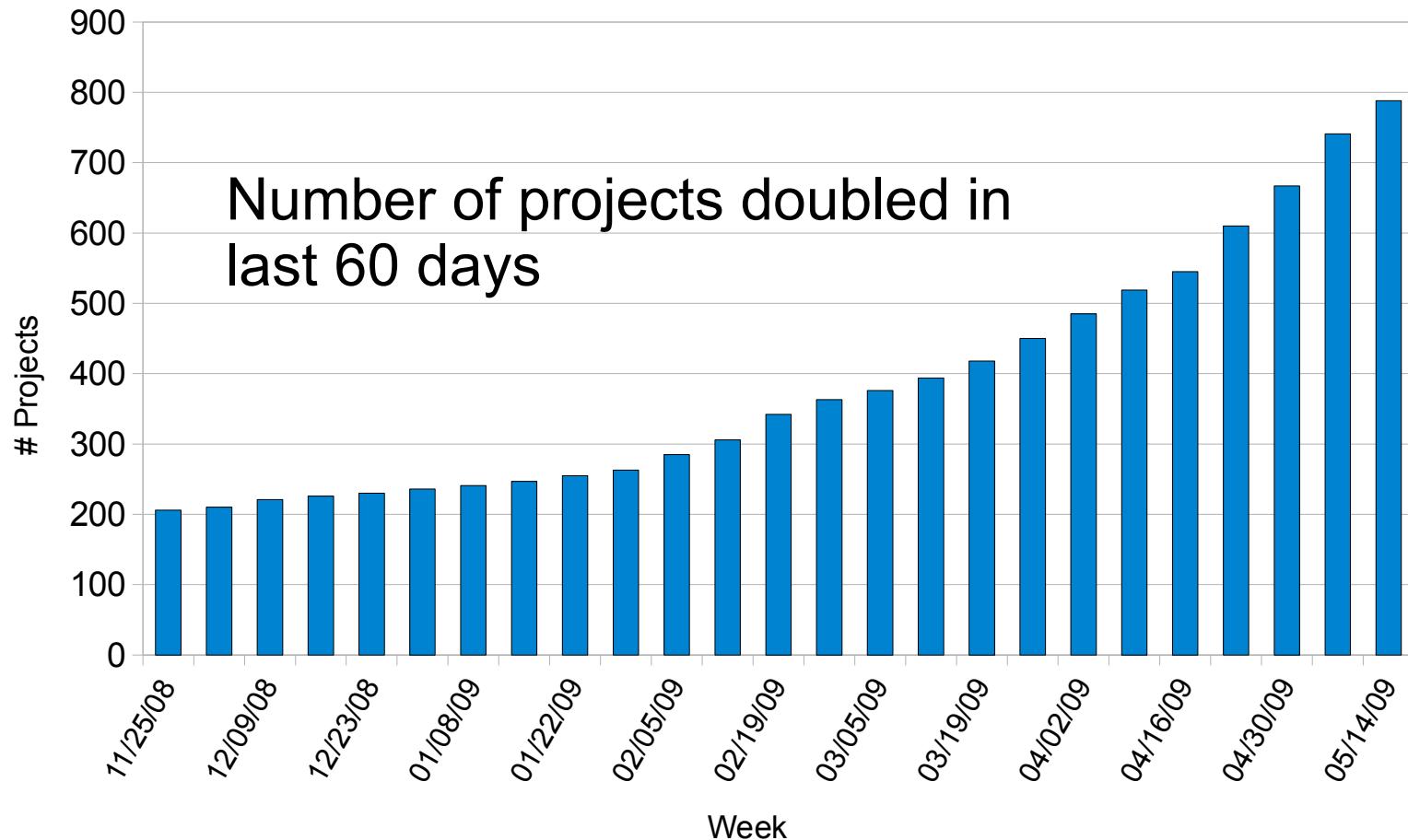
Fixing the load tests

- > JRuby needed some burn-in
 - Fix PermGen by sharing classes and reducing code size
- > Improved CPU utilization by running more VMs
 - 32GB and 32 threads await
- > Use Parallel GC
- > Track JRuby releases!

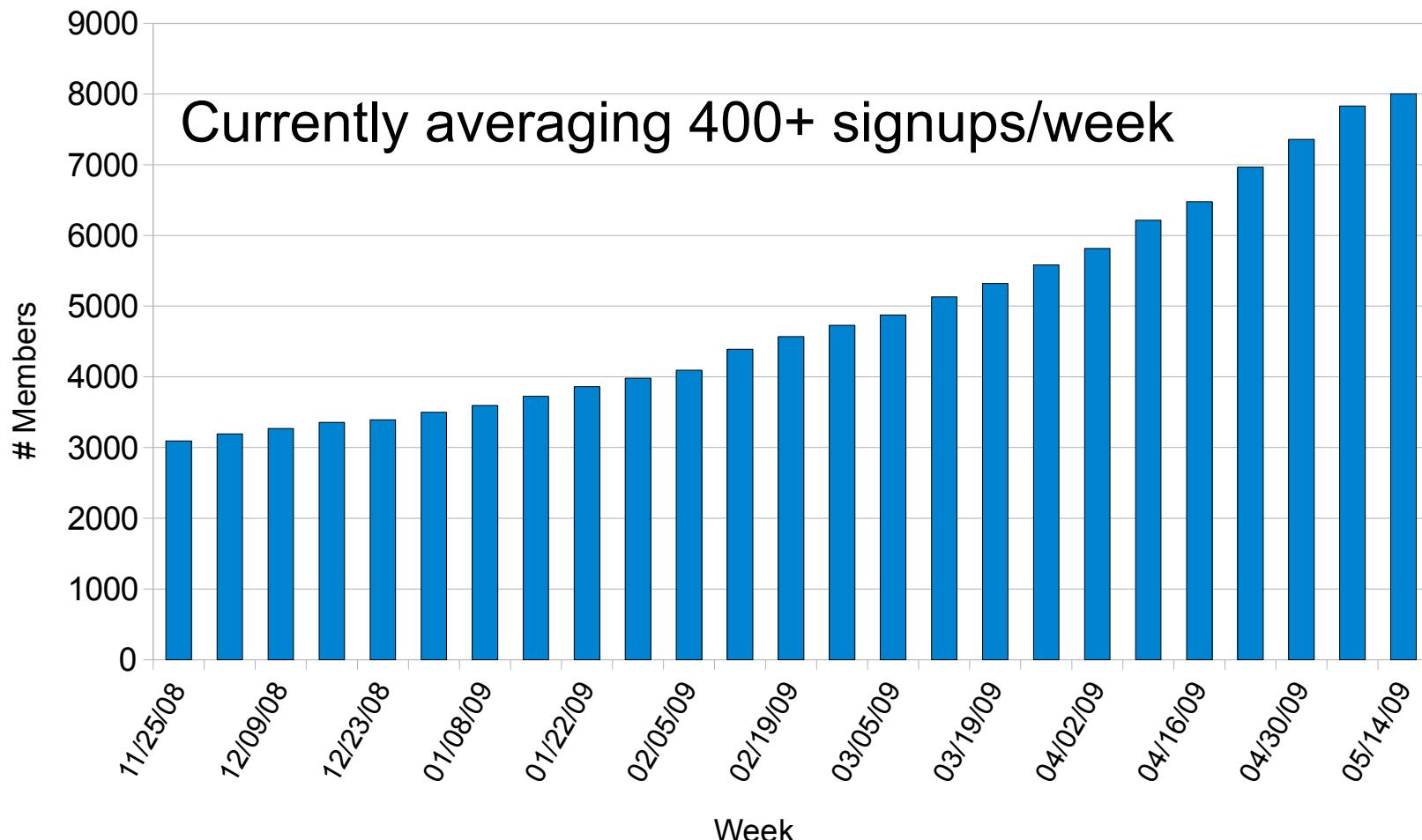
Kenai.com – Page Views



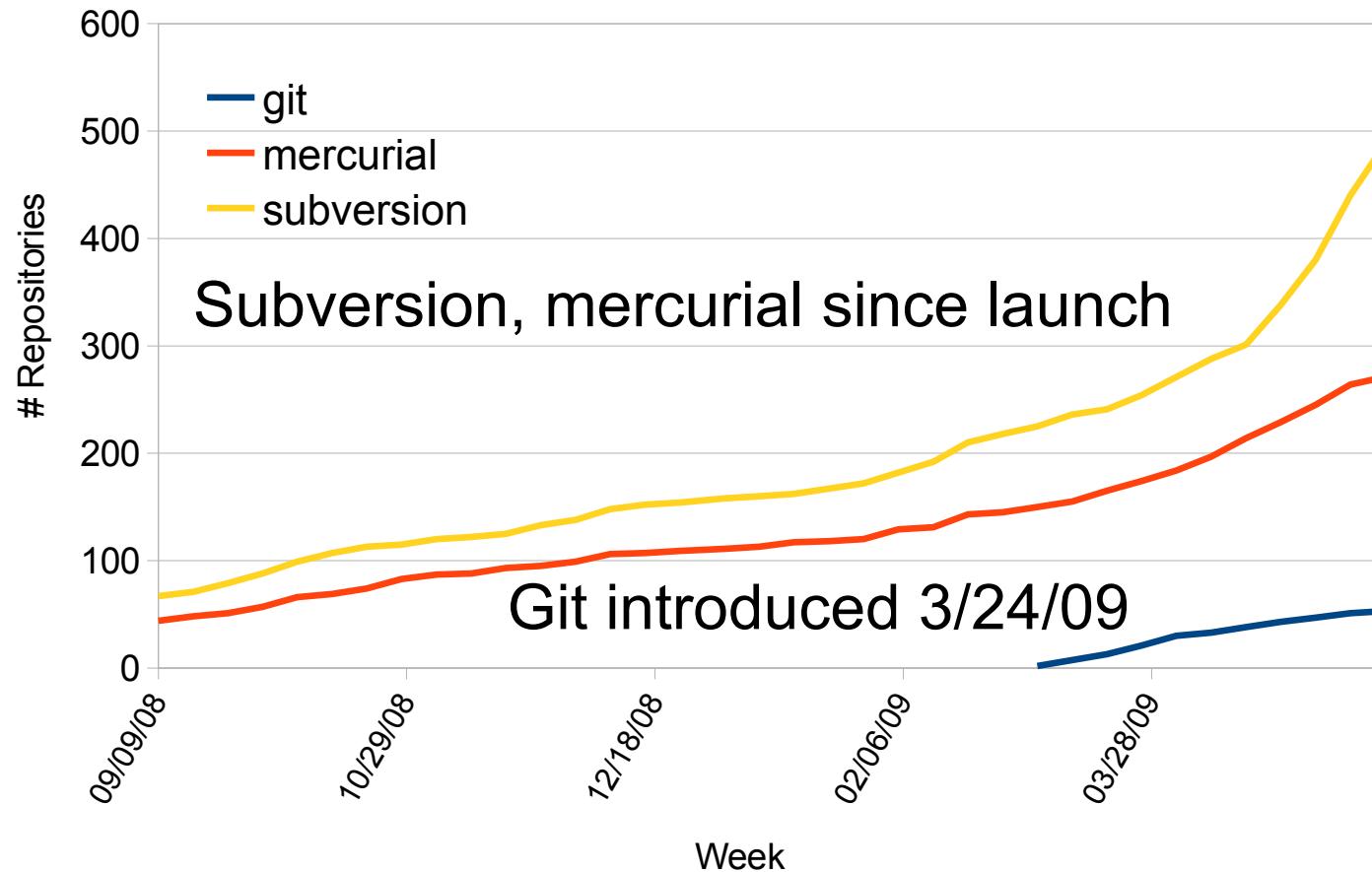
Kenai.com – Projects



Kenai.com – Signups



Kenai.com – Repositories



Takeaways

Curtain

Project K_≡nai
beta



MySQL®



RAILS

The Rails logo, which features a white horse running on a red background with the word "RAILS" in white capital letters at the bottom.

Java's part

- > Use Java for its strengths
- > Awesome, stable platform for servers
- > Not everything can (or needs to be) built in Java

Rails' part

- > Rails may appear flashy
- > But it has Game™ to back it up
- > Highly productive
- > Rich community
- > Innovative
- > Fun!

JRuby's part

- > Bridge technology par excellence
- > Marrying the best of both worlds
- > Greater choice
 - Java or Ruby libraries
- > Broaden your horizons
 - Takes away tedium and repetition of Java



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Thank You

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TS-5413: Lessons Learned: Kenai.com: JRuby
Meets Rails in Production

