Ruby on Rails

a high-productivity
web application framework

http://blog.curthibbs.us/

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Agenda

- What is Ruby?
- What is Rails?
- Live Demonstration (sort of...)
- Metrics for Production Rails Applications
- Resources for more information
What is Ruby?

- **Short Answer:**
  - *Ruby is the successful combination of:*
    - *Smalltalk's conceptual elegance,*
    - *Python's ease of use and learning,* and
    - *Perl's pragmatism.*

- **Long Answer:**
  - *Well… see the following slides.*
What is Ruby?

Ruby is...

Interpreted

Like Perl, Python

Object-Oriented

Like Smalltalk, Eiffel, Ada, Java

Rapidly Gaining Mindshare in US and Europe

Originated in Japan, very popular there
Why Ruby?

- Easy to learn
- Open source (very liberal license)
- Rich libraries
- Very easy to extend
- Truly Object-Oriented
  - Everything is an object (no primitives)
  - Single inheritance (mixins give you the power of multiple inheritance with the problems).
- Helpful community
Why Ruby?

- Dynamic Features
  - Duck Typing
    (uses method signatures, not class inheritance)
  - Method calls are actually messages sent to an object instance
  - Open classes
  - Reflection

- Bottom Line: write more understandable code in fewer lines
  - Less code means fewer bugs
Why Not?

- **Performance**
  - although it rivals Perl and Python
- **Threading model**
  - **Does not use native threads**
Sample Ruby Code

```ruby
# The Greeter class
class Greeter
  def initialize(name)
    @name = name.capitalize
  end

  def salute
    puts "Hello #{@name}!"
  end
end

# Create a new object
g = Greeter.new("World")

# Output "Hello World!"
g.salute
```

Code courtesy of John W. Long
What is Rails?

- Short Answer:
  - An **extremely** productive web-application framework that is written in Ruby by David Heinemeier Hansson.

- Long Answer:
  - Well… see the following slides.
What is Rails?

- Full Stack Framework
  - Includes everything needed to create a database-driven web application using the Model-View-Controller pattern.
  - Being a full-stack framework means that all layers are built to work seamlessly together.
  - That way you Don’t Repeat Yourself (DRY).
What is Rails?

- **Less Code**
  - Requires fewer total lines of code than other frameworks spend setting up their XML configuration files.

- **Convention over Configuration**
  - Rails shuns configuration files in favor of conventions, reflection and dynamic run-time extensions.

- **Configure your application by making it**
  - Your code and database schema are the configuration!
  - No compilation phase
    - Make a change, see it work.
What is Rails?

Rails and MVC

- **Model (ActiveRecord)**
  - Maintains the relationship between Object and Database
  - Handles validation, association, transactions, and more...
  - Does not completely insulate the developer from SQL
What is Rails?

Rails and MVC

* View (ActionView)
  * Script-based templating system (like JSP, ASP, PHP, etc.)
  * Tight controller integration
  * Reusable components
  * Integrated, easy to use Ajax support.
What is Rails?

Rails and MVC

- Controller (ActionController)
  - Reflection ties actions to methods
  - Tight view integration
  - Filters, layouts, caching, sessions, etc.
Play *cookbook-video.exe*, a video showing development of cookbook web application from ONLamp.com article *Rolling with Ruby on Rails*:

Database Support

- Supported Databases
  - MySQL
  - PostgreSQL
  - SQLite
  - SQL Server

- Coming Soon
  - Oracle
  - DB2
  - Firebird
  - more…
ActiveRecord

- Uses reflection extensively
- Automated mapping between
  - classes and tables
  - Attributes and columns
- Dynamically generates accessors, finders, and validators.
- Best with new DB schemas
**Controllers**

- **ActionController**
  - Rails URLs are typically of the form 
    “/controller/action”
  - A controller is implemented by a class.
  - Actions map to methods in the controller
  - Implicit action-to-view mapping
Views

- **ActionView**
  - Named (by default) after the action that renders them.
  - Embeds Ruby code in the template (similar to JSP, ASP, PHP, etc.)
  - Have access to (some) of the controller’s state
Server Configurations

- **WEBBrick**
  - *Built-in to Rails*
  - *Good development environment*

- **Apache/CGI**
  - *Easy to set up, but slow*

- **Apache/mod_ruby**
  - *Ruby interpreter per Apache process*

- **Apache/mod_fastcgi**
  - *Pool of Ruby processes*

- **Lighttpd**
  - *Built-in fastcgi support*
  - *Small footprint, high performance*
But Does it Scale?

Commercial Rails Applications

- Basecamp
  - [http://www.basecamphq.com](http://www.basecamphq.com)

- 43 Things
  - [http://43things.com](http://43things.com)

- Ta-Da Lists
  - [http://tadalists.com](http://tadalists.com)

- Snowdevil
  - [http://www.snowdevil.ca](http://www.snowdevil.ca)

- Bellybutton
  - [http://www.bellybutton.de](http://www.bellybutton.de)

- Backpack
Development Metrics

Basecamp

- Launched in early 2004
  - “Tens of thousands of users across 50 countries”
  - 2 man-months of programming by a single developer (the Rails author).
  - 4,000 Lines of Code.

- Server details
  - One dual 2.2GHz Xeon, 2G RAM.
Development Metrics

Backpack

- Launched in May 2005
  - http://www.backpackit.com
  - Makes very heavy use of Rails’ built-in Ajax support for an extremely responsive user interface.
Development Metrics

43 Things

“With Ruby and Rails we went from nothing to a live site in about 3 months. Only one person in the company had any prior Ruby experience (me) and he spent half his time playing sysadmin.

“In the 2.5 months since launch we’ve done major rewrites of two of our core codepaths, added 3 large features and have done exploratory programming in two other directions with only 5 developers.

“Our codebase is hanging in at just under 7,000 lines of production Ruby…”

As of February, 2005:

- 9,000 registered users
- 200,000 hits per day
Development Metrics

BellyButton.de

- Launched in February 2005
  - An ecommerce site marketing pregnancy related products.
  - 2 developers and one graphic designer.
  - 2,400 Lines of Code.
  - 5 man-months of development time.
Development Metrics

SnowDevil.ca

- Launched in February 2005
- An ecommerce site marketing snowboards and related gear.
- 2 developers.
- 6,000 lines of code.
- 4 months of development time.

Andrew Robinson Brings Snowdevil to Europe!

Earlier this year Tabi and I were wondering where our furthest customer would come from. Since Snowdevil was only set up for North American purchases, we were pleasantly surprised when Andrew Robinson emailed us asking if we ship to Germany! Andrew ended up buying a Never Summer Legacy 106 and recently sent us some pictures of himself and his NS Legacy boarding at 3000m on the Hintertux glacier in Austria!! That’s a long way from Ottawa.

The END is NEAR!

We are now in the final final days of the snowboard season and if you are browsing around Snowdevil you’ll notice that we have sold out of almost all our stock.

This has been a great season for Snowdevil and we would like to thank everyone who bought something from us. This was our first year and I can proudly say that this whole experience was a huge success!
Development Metrics

RubyFAQ

- User contributed and commented FAQs (a production web-app) by David Black
- 573 Lines of code
- 5 hours of development time.
Development Metrics

StoryCards

- Web app to support XP-style development by Jim Weirich
- 1,250 Lines of code
- 8 hours of development time

![Story Cards V0.0.1](http://onestepback.org:3030/story_cards)

**Project RubyGems**

- **Name:** RubyGems
- **Summary:** Ruby Packaging System
- **Hidden:** No
- **Default iteration days:** 14
- **Description:**

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<th>Points (completed)</th>
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<table>
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Powered by Ruby on Rails
Rails Testimonials

“I'm absolutely floored by how fast I'm developing with Rails. Stuff that would have taken me over a week in Java + Web Work2 + Velocity + Hibernate has taken me a little over a day with Rails. I'm not even going to try to compare it to my current client's project which requires Struts.”

- Anoop Ranganath
“Rails is the most well thought-out web development framework I've ever used. And that's in a decade of doing web applications for a living. I've built my own frameworks, helped develop the Servlet API, and have created more than a few web servers from scratch. Nobody has done it like this before. That's not to say they got it all right. It's by no means "perfect". I've got more than a few nits and picks about how things are put together. But "perfect" isn't the point. The point is that it gets you up and going fast and has plenty of depth to keep you going. And Rails does that very well.”

- James Duncan Davidson
  was the creator of Apache Tomcat and Apache Ant and was instrumental in their donation to the Apache Software Foundation by Sun Microsystems. While working at Sun, he authored two versions of the Java Servlet API specification as well as the Java API for XML Processing.
Resources for more information

- **Ruby**
  - Main Ruby Site
  - One-Click Ruby Installer for Windows
  - RubyForge – open source project repository
    - [http://rubyforge.org/](http://rubyforge.org/)

- **Rails**
  - Main Rails Site
    - [http://www.rubyonrails.org/](http://www.rubyonrails.org/)
  - Rails Tutorial (2 part series)
    - [http://www.onlamp.com/pub/a/onlamp/2005/03/03/rails.html](http://www.onlamp.com/pub/a/onlamp/2005/03/03/rails.html)
  - Agile Web Development with Rails (first Rails book)
  - Ajax on Rails