What Is The Hype About RubyonRails

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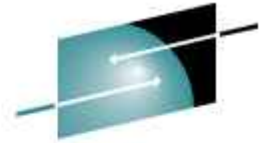
Content

- ❖ **What is RubyonRails (RoR)?**

- ❖ **Introduction to**
  - The Ruby Programming Language
  - The Rails Framework

- ❖ **How Does it Compare to Java**

- ❖ **How to Get Started**
  - Download and Installing Ruby
  - Ruby Tooling (I.e. Ruby IDE under Eclipse)
  - IBM Starter Toolkit for DB2 (free)

- ❖ **Ruby Interactive Shell Demo**

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Ruby on Rails

❖ First public released in 1995 and it is totally free

❖ The TIOBE index ranks Ruby as #9 among programming languages worldwide (with a "A" rating)

❖ A new application framework for developing database backed web applications

❖ Part of the new emerging technologies and innovation
  ▪ Web 2.0, PHP, Ajax, Dogear, Wiki, etc.

❖ Principles
  ▪ Configuration over Convention (CoC)
  ▪ Don't Repeat Yourself (DRY)

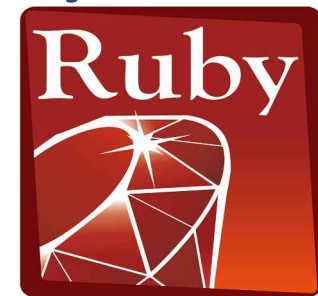❖ The Ruby on Rails web development framework is great for small and medium-sized database-backed projects

What is Ruby

"A dynamic, open source programming language with a focus on simplicity and productivity. It has an elegant syntax that is natural to read and easy to write."

❖ Ruby is a pure object-oriented language
  ▪ With classes and objects
  ▪ A scripting language

❖ Primarily a text-based, command-line oriented language

❖ Much of the syntax is familiar to users of Perl, Python, Java

❖ Ruby coding can be done via IDEs such as
  ▪ Vim, Emacs, TextMate
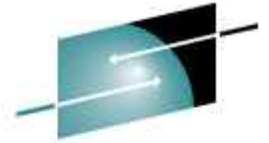 ▪ Eclipse and NetBeans

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What is Rails

- ❖ **The Rails is a full-stack, open source web framework in Ruby, consists of** (pre-configured and ready to run)
    - A Web Server called WEBrick: a http server written in Ruby
        - Contains 4 servlets - handling CGI, ERb, file directories, and a generic Proc servlet
    - A framework for processing HTTP requests and responses
    - A framework for easily persisting data to a relational DB

- ❖ **Rails is the framework much like J2EE**
    - It is based on the Model View Controller (MVS) architecture
        - the model - responsible for the business logic, application state and the actions to be performed upon that state
        - the view - used to render and present the model to the user (HTML)
        - the controller - defines application behavior

- ❖ **Rails provides 'out of the box' scaffolding which can quickly construct most of the models and views needed for a basic website**
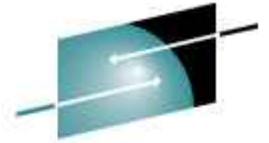
Ruby the New Java?

❖ No, not really... they each serves different purpose
  - Ruby is an effective tool for small to mid-sized projects
  - Java can be used for enterprise-scale projects

❖ Ruby compliments Java
  - Use Ruby when need to write a data conversion or text processing utilities

❖ Ruby is about speedy delivery and lower cost
  - Productivity claims: 5 to 10 times more productive

❖ Ruby is dynamically typed (like in PHP)
  - You don't need to worry about having to declare variables

❖ Both Ruby and Java both based on MVC architecture

Like Java, Ruby is …

- ❖ Memory is managed for you via a garbage collector

- ❖ Objects are strongly typed

- ❖ There are public, private, and protected methods

- ❖ There are embedded doc tools (Ruby's is called RDoc)
  - ▪ The docs generated by rdoc look very similar to those generated by javadoc

- ❖ Some minor syntax differences
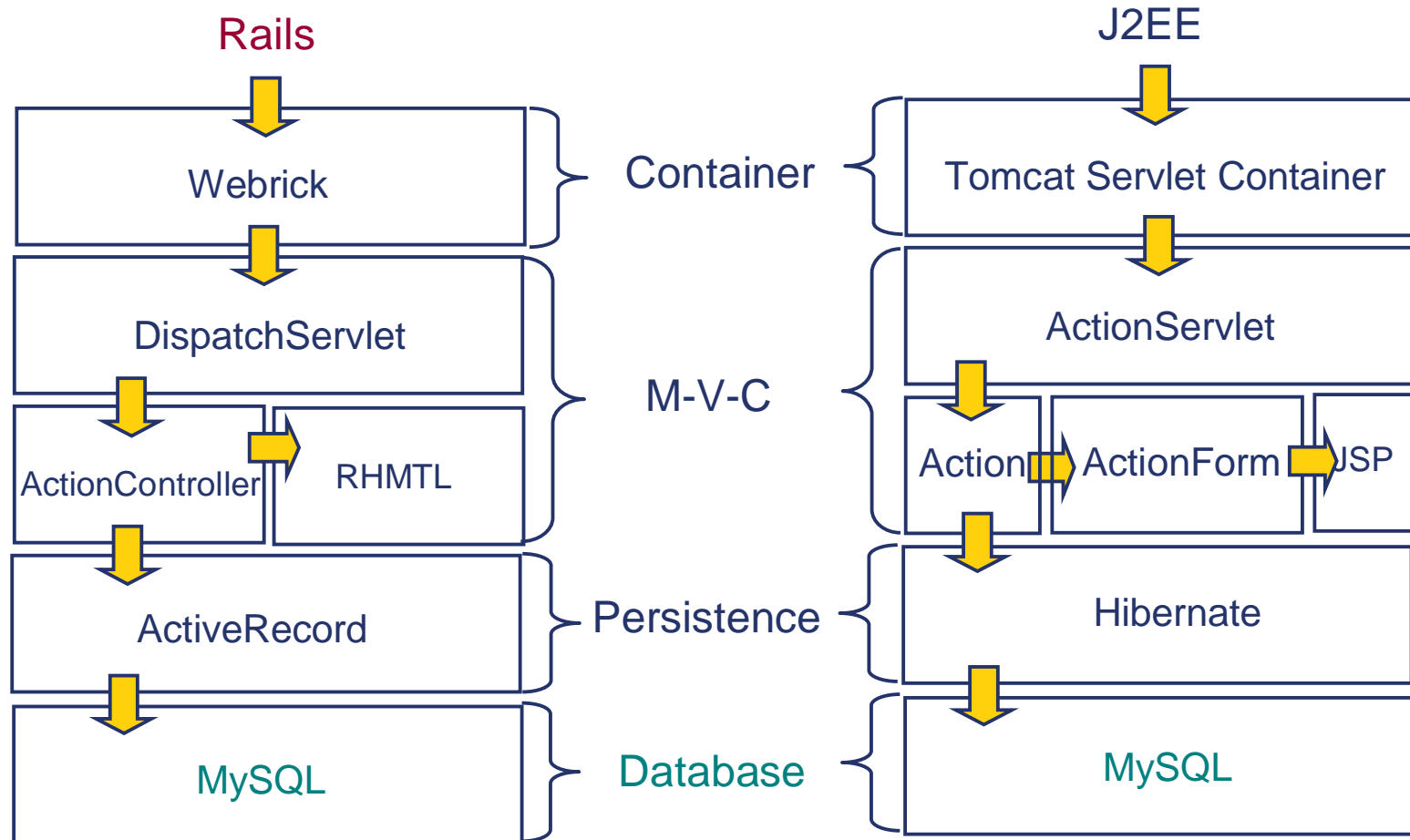
- ❖ Based on M-V-C architecture

Unlike Java, Ruby is ...

❖ You don't need to compile your code - just run it directly

❖ You have "require" instead of "import"

❖ You can extend a Ruby classes by adding methods and data

❖ RHTML instead of HTML

❖ YAML tends to be favored over XML

❖ nil instead of null

❖ Everything is an object in Ruby
  ▪ Integers, floats, strings even classes and methods are objects
    • Including numbers like 2 and 3.141597

❖ All member variables are private
  ▪ From the outside, you access everything via methods

❖ The constructor is always named "initialize" instead of the name of the class

Comparison of Rails and J2EE Stacks

Rails

J2EE

Rails		J2EE
Webrick	Container	Tomcat Servlet Container
DispatchServlet		ActionServlet
ActionController → RHMTL	M-V-C	Action → ActionForm → JSP
ActiveRecord	Persistence	Hibernate
MySQL	Database	MySQL

Ruby and Java Side-by-Side

❖ Sample Comparison

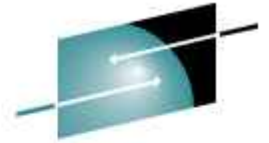| Java class for Hello World	Ruby for Hello World

class HelloWorldApp {
 	
    public static void main(String[] args) {
 	
    System.out.println("Hello World!");
	puts ["Hello World!"]

http://tryruby.hobix.com/

How Does RoR Compare to Java

❖ Open source

❖ Enterprise scale

❖ Mature, complete and has dominated the Web

❖ Industry wide standards-based

❖ Portability – Write once and run anywhere

❖ Supports Two-phase commit

❖ Open source, totally free

❖ Not for enterprise scale projects
  - Good for prototyping

❖ New technology
  - New programming language

❖ Provide out-of-box scaffolding
  - Less convention, easy to learn and be productive

❖ Highly Portable just like Java
  - It is developed mostly on GNU/Linux
  - Will work on many types of UNIX, Mac OS X & Windows

❖ Ruby features a true mark-and-sweep garbage collector for all Ruby objects

Note: this is not a complete list… by all means

Ruby Components

❖ Ruby
  ▪ Package manager
  ▪ Interactive shell → Interactive Ruby (irb)

❖ Rails
  ▪ Web Server (WEBrick)

❖ MySQL database

❖ Ruby library
  ▪ RubyForge is a popular home or Ruby libraries
  ▪ Browse software map – lists libraries

❖ RubyGemes
  ▪ A package manager for the Ruby programming language
  ▪ It provides a standard format for distributing Ruby programs and libraries

❖ Ruby documentation
  ▪ Core API → http://www.ruby-doc.org/
  ▪ Standard API → http://www.ruby-doc.org/stdlib/
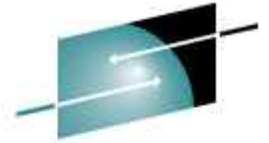   • Can be found under lib/ruby/1.x/ directory of a Ruby installation

Learning Ruby

❖ The Basics

❖ Define your own classes and methods

❖ Control structures

❖ GUI with Tk
  ▪ Tk comes with Ruby automatically and its free

Ruby Basics

- ❖ A Ruby file – Ruby files end with .rb

- ❖ The Ruby Launcher ➔ #!/usr/local/bin/ruby
  - ▪ The path to your Ruby interpreter called launcher.rb

- ❖ Command-line
  - ▪ Windows ➔ $ ruby launcher.rb
  - ▪ Unix ➔ $ chmod u+x launcher.rb
           $ ./launcher.rb

Ruby Syntax Basics

- ❖ # comment – hidden from the Ruby interpreter

- ❖ Class name begin with a capital letter
  - ▪ Classes are constants
  - ▪ All Ruby constants start with a capital letter

- ❖ One statement per line and no ";"

- ❖ Use "\" for line continuation

- ❖ "n\" forces a line break

- ❖ For a more complete overview of Ruby syntax, please see "Ruby—A Diamond of a Programming Language?"

- ❖ The home of Ruby language
  - ▪ http://www.ruby-lang.org/en/

```
#!/usr/local/bin/ruby
# Example application to demonstrate some basic Ruby features
# This code loads a given file into an associated application
```

```
class Launcher
end
launcher = Launcher.new
```

Adding behavior using the 'def' keyword followed by a method name then the argument list (if any)

Define method   method name   argument list
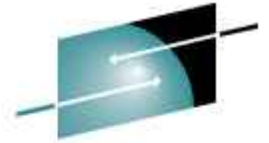
```
def  initialize ( app_map)
@app_map = app_map
end
```

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Ruby Class and Method

❖ A Ruby class
  class Rectangle
  end

  To add method to class Rectangle
  class Rectangle
       def area (hgt, wdth)
            return hgt*wdth
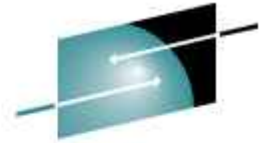   end
  end

  Note: you don't really need the "(")" in Ruby
       it is purely for legibility purpose

Instance Variables

❖ Your initialize method takes one argument → app_map

❖ The "app_map" argument gets assigned to the variable @app_map

❖ The @ symbol indicates that the variable is an instance variable

❖ You create this instance variable when you create your object, and it will be available to any other methods you add to your code

Ruby Code Structure

```ruby
def sayGoodnight(name)
    result = "Goodnight, " + name
    return result
end

# Time for bed...
puts sayGoodnight("John-Boy")
puts sayGoodnight("Mary-Ellen")
```

Goodnight, John-Boy

Goodnight, Mary-Ellen

The following lines are all equivalent
    puts sayGoodnight "John-Boy"
    puts sayGoodnight ("John-Boy")
    puts (sayGoodnight ("John-Boy"))
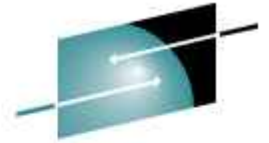
Sample Code (class and method) in Ruby

```ruby
class AddressBook
    #  Fundamental methods: initialize, add, remove
    def initialize
        @persons = []
    end
    def add(person)
        @persons += [person]
        @persons = @persons.sort{|a,b| by_name(a,b)}
    end
    …

    private  # Start private methods

    #  Sorting function.
    def by_name(a,b)
        if  a.first_name  == b.first_name
            a.last_name  <=> b.last_name
        else
            a.first_name <=> b.first_name
        end
    end
end
```

Ruby Reuse with "require"

❖ Code reuse with "**require"**

```
require "addressbook"
#  Sandy Smith
addr = Address.new
addr.street = "324 Campus Dr."
addr.city   = "College Park"
addr.state  = "MD"
addr.zip = "23659"

puts addr
```

Run the program, and you should get:

```
$ ruby prog.rb

324 Campus Dr.
College Park
MD, 23659

$
```
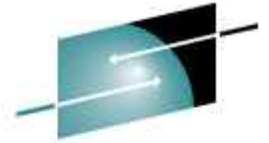
Unique Feature Samples

❖ **About ActiveRecord**

- You don't have to write SQL
  - RoR knows how to build the SQL join for you

- Its about database.yml file
  - Supported by DB2 and other databases

❖ **Use of Ajax Cart**

- Ajax without using JavaScript

- You can click on the "Add to Cart" button and automatically update the cart on the page
  - Ruby and the built-in APIs

- Unlike JavaScript with XmlHttpRequest and then retrieve the XML response, followed by updating the pate

Developing Ruby Code

❖ Ruby IDEs

1. Develop Ruby Applications Using Eclipse IDE
2. Develop Ruby Applications Using Komodo IDE
3. Develop Ruby Applications Using SciTE Editor
4. Develop Ruby Applications Using JEdit Editor
5. Develop Ruby Applications Using Vim 7.0 Editor

❖ Ruby tools are basically a set of code generators

- You write less code
  - Shorten development time and smaller learning curve

How To Install Ruby

❖ Linux

- Most Linux distributions come with Ruby pre-installed. If you don't already have it, here is how to get it:
- RPM installDownload an RPM from RPM Find and install with # rpm -Uhv ruby-*.rpm
- Gentoo Linux# emerge ruby
- Debian Linux# apt-get install ruby
- SourceGo to the Source section.

❖ Windows

- As of this writing, the latest version available was 1.8.6
  - Just download Ruby186-258.exe and run the installer.
- You can find the latest version at http://rubyinstaller.sourceforge.net/

Note: After the one-click Ruby install the SciTE (text editor) is installed by default
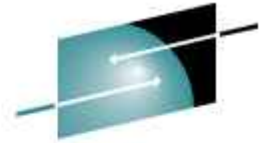
Ruby Development and Test Resources

❖ **Ruby Toolkits**
  ▪ WxRuby, FXRuby, Ruby-GNOME2
  ▪ Bundled-in Ruby Tk

❖ **Ruby Development Tools (RDT)**
  ▪ The open source development IDE for Eclipse platform
  ▪ http://rubyeclipse.sourceforge.net/
  ▪ The key features of an IDE is the ability to run and debug the applications you build from within the same environment

❖ **Unit Tests**
  ▪ Ruby library includes a TestCase class and the concept of a TestSuite

❖ **IBM DB2 Toolkit – Free Download**

How Can I and Where Do I....

❖ Ruby Home Page is http://www.ruby-lang.org.

❖ You can also find Ruby information at
  ▪ http://www.rubycentral.com
  ▪ Online references to Ruby's built-in classes and modules at http://www.rubycentral.com/ref/
  ▪ FAQ at http://www.rubycentral.com/faq/

❖ The latest version of Ruby can be downloaded from:
  ▪ http://www.ruby-lang.org/en/download.html

❖ Ruby Cheatsheet
  ▪ http://www.ilovejackdaniels.com/cheat-sheets/ruby-on-rails-cheat-sheet/

❖ IBM Technical Papers
  ▪ http://www.ibm.com/developerworks/web/library/l-rubyrails/
  ▪ http://www-128.ibm.com/developerworks/web/library/wa-rubyonrails/index.html

Where To Get Help

- ❖ **Ruby User Groups**
  - http://www.rubygarden.org/ruby?RubyUserGroups

- ❖ **TechSupport**
  - Community-based support
    - *ruby-talk-ctl@ruby-lang.org* with the following in the body of the message (not the subject):
    - subscribe Your-First-Name Your-Last-Name

Demo: Try Ruby

❖ One-Click Ruby Installer

- A self-contained installer that includes the Ruby language, dozens of popular extensions, a syntax-highlighting editor and the book "Programming Ruby: The Pragmatic Programmer's Guide". Platforms: Windows NT/2000/XP, (OS X in development).

❖ Try Ruby – an interactive demo

- If you don't have Ruby installed
  - http://tryruby.hobix.com/
- If you have Ruby installed
  - Go to Ruby directory and click start the "fxri – Interactive Ruby Help & Console"
  - You'll see the "fxri – Instant Ruby Enlightment" window popup