

JRuby on Rails: A Path to Adoption

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What will we cover:

- JRuby 101 – Fluff 'n Stuff
- JRuby on Rails – The Basics
- Deployment Options – How Easy Can They Be?
- Beyond Rails – Creating Your Own Chimera

Your Humble Hosts

- Charles Oliver Nutter and Thomas Enebo
- Longtime Java developers (10+ yrs each)
- Shorttime engineers at Sun Microsystems
- Full-time JRuby developers
- Also working to build out JVM dynlang support
- Wide range of past experience
 - C, C++, C#, Perl, Python, Delphi, Lisp, Scheme
 - Java EE and ME, JINI, WS

Off We Go!

JRuby 101

A Floor Wax and a Dessert Topping

JRuby is:

- Ruby (1.8ish)
- A non-Java language for the Java platform
- A new way to look at Ruby and the JVM
- Helping to expand Ruby's reach
- Helping the world better understand Ruby
- Really cool

A Floor Wax and a Dessert Topping

JRuby is not:

- An attempt to pollute or fork Ruby
- An admission that Java sucks
- The answer to every problem with Ruby
- An attempt to alter Ruby or add incompatible features
- Slow

Ruby and JRuby: Brothers!

- RubyGems 0.9.1 is preinstalled
 - `gem install rails -y --no-ri --no-rdoc`
 - `gem install ActiveRecord-JDBC`
- Mongrel supports JRuby
 - No remote gem, download from jruby-extras project
- Rails “just works”
 - Lots of effort put into making Rails run well
 - Major orgs now investing in JRuby on Rails

JRuby IRB: Interactive Java

Now It Gets Interesting

JRuby on Rails: The Basics

Many (most?) gems just work.

Rails (of course)
RedCloth, BlueCloth
Hpricot

Basically, anything pure Ruby (or with a JRuby port).

Typical Rails commands just work.

```
rails myapp  
jruby script/generate controller test hello  
rake db:migrate
```

Command-line dev looks basically the same.

Basic server use is the same.

```
jruby script/server => WEBrick  
gem install mongrel-1.0.1-jruby.gem  
jruby script/server => Mongrel
```

So development-time serving works about the same.

But a few things are different.

(otherwise what would be the point?)

Big Difference #1: Database Support

Default pure-Ruby MySQL driver works...

```
development:  
  adapter: mysql  
  database: testapp_development  
  username: testapp  
  password: testapp  
  host: localhost
```

Different and faster, but just as easy.

```
development:  
  adapter: jdbc  
  url: jdbc:mysql://localhost/testapp_dev  
  username: testapp  
  password: testapp  
  driver: com.mysql.jdbc.Driver
```

Different database, but just a copy.



```
development:
  adapter: jdbc
  url: jdbc:mysql://localhost/testapp_dev
  username: testapp
  password: testapp
  driver: com.mysql.jdbc.Driver
```

New in ActiveRecord-JDBC 0.5

```
development:  
  adapter: mysql  
  database: testapp_development  
  username: testapp  
  password: testapp  
  host: localhost
```

JNDI for connection pooling

development:

adapter: jdbc

jndi: java:comp/env/jdbc/MyAppPool

driver: mysql

Broad Database Support

4th Dimension (4D RDBMS), ADABAS, ALLBASE SQL, Advantage Database Server, Advantage Ingres 2.6, [Apache Derby](#), BASIS, Birdstep RDM Server, CA-IDMS, CISAM, Cache, Centura SQLBase, Clipper, Cloudscape, CodeBase, D3, DABroker, [DB2](#), DB2 IBM AS/400 UNIX, DB2 Linux, DB2 OS/390, DB2 Windows, DBMaker, DL/I, DMSII, DaffodilDB, DataFlex/PowerFlex, Datacom, Domino, ECB, EDA, Empress RDBMS, Enscribe, Essentia, FireBirdSQL, FirstSQL/J Embedded Mobile, FirstSQL/J Enterprise Server, FormWeb, FoxBase, FoxPro, FrontBase, H2 Database, [HSQLDB](#), IBM AS/400, IDMS, IMS, Image/Turboimage, ImageSQL, Informix, Ingres, InstantDB, InterBase, JDataStore, [Java DB](#), LDAP, [MS Access](#), [MS SQL Server](#), [Mimer SQL](#), [MySQL](#), News Server, Nonstop SQL/MP, ODBC, OS/390 Sequential Files, OleDB-Provider, OpenBase, OpenIngres, [Oracle](#), PICK, Paradox, Pervasive.SQL, PointBase, [PostgreSQL](#), Primebase SQL Database Server, Progress, Quadcap, RDB, RMS, Recital, Redbrick Warehouse, SAP DB, SAS, SESAM/SQL-Server, SOLID Embedded Engine, SOLID SynchroNet, SQL/DS, SQLite, SUPRA Server SQL, SearchServer, Sequential, Solid Server, Sybase, Teradata RDBMS, Text (CSV, Tab separated etc.), ThinkSQL, TinySQL, TurboIMAGE, UNIFY, VFP, VSAM, XML, YARD-SQL, dBase, kdb, mSQL, xbase, xbase

Does JDBC Support Mean Rails Support?

- ActiveRecord-JDBC doesn't support all of them
 - JDBC has no schema management API
 - Different databases quote differently
 - Some databases are missing features
- We focused on databases close to Rails, JRuby
 - MySQL passes 100% of ActiveRecord tests (yay!)
 - Derby 34F, PostgreSQL, 17F (out of 1000+ tests)
 - Others at varying levels, but coming along

Big Difference #2: No Native Extensions*

*At least, not until ports are available

Native Extensions

- Some ports done, some in progress
 - Mongrel: done
 - Hpricot: done
 - Database support: some done, some in progress
 - RMagick: in progress
- Looking for porters and recommendations
- Exploring ways to load existing extensions

Big Difference #3: Command-line Performance

Same Old Story

No, Java isn't slow...
...except at startup.

Startup Time

```
~ $ time jruby -e "1"
```

```
real  0m1.597s  
user  0m1.150s  
sys   0m0.169s
```

```
~ $ time ruby -e "1"
```

```
real  0m0.097s  
user  0m0.007s  
sys   0m0.007s
```

Regular Expressions

```
~ $ jruby -J-server -O bm_vm2_regexp.rb
```

```
6.683000 0.000000 6.683000 ( 6.683000)  
5.565000 0.000000 5.565000 ( 5.566000)  
5.356000 0.000000 5.356000 ( 5.357000)  
5.457000 0.000000 5.457000 ( 5.457000)
```

```
~ $ ruby bm_vm2_regexp.rb
```

```
4.470000 0.010000 4.480000 ( 4.483934)  
4.480000 0.010000 4.490000 ( 4.485320)
```

```
...
```

Straight-line Performance

```
~ $ jruby -J-server bench_fib_recursive.rb
```

```
1.220000 0.000000 1.220000 ( 1.220000)  
1.342000 0.000000 1.342000 ( 1.342000)  
1.311000 0.000000 1.311000 ( 1.312000)  
1.310000 0.000000 1.310000 ( 1.309000)
```

```
~ $ ruby bench_fib_recursive.rb
```

```
1.760000 0.000000 1.760000 ( 1.764736)  
1.750000 0.000000 1.750000 ( 1.761526)
```

```
...
```

Borasky's Matrix Benchmark

JRuby trunk:

Hilbert matrix of dimension 128 times its inverse = identity? true
372.950000 0.000000 372.950000 (372.950000)

ruby 1.8.5:

Hilbert matrix of dimension 128 times its inverse = identity? true
586.110000 5.710000 591.820000 (781.251569)

What a Difference a Year Makes

JRuby trunk/1.1 (September 2007)

```
~ $ jruby -j-server bench_fib_recursive.rb
```

```
1.220000 0.000000 1.220000 ( 1.220000)
```

```
1.342000 0.000000 1.342000 ( 1.342000)
```

```
1.311000 0.000000 1.311000 ( 1.312000)
```

...

JRuby 0.9.1 (September 2006)

```
~ $ JAVA_OPTS="-server" jruby bench_fib_recursive.rb
```

```
0.000000 0.000000 0.000000 ( 14.313000)
```

```
0.000000 0.000000 0.000000 ( 14.710000)
```

...

Ship It!

Deployment

Tried and True: Mongrel

Mongrel

- You know the good reasons, they still apply
- Some community use, but little testing
- You thought n Ruby processes took up memory!
- Not utilizing best of JRuby and JVM

A Taste of the Old World

Web Archive in App Server

- Multi-app, multi-request concurrency
- Most servers support transparent clustering
- Resource pooling
 - Database connections, cached results
 - Execution threads
 - Request handlers
- Access to the “good” Java EE features

Java EE 5: The Choicest Cuts

A Grizzly/GlassFish v3 option

- Lightweight, gem-installable like Mongrel
- Concurrency, pooling, multi-app like WAR
- Completes the deployment story for JRuby
- Looking for suggestions and help!

GlassFish V3 Gem

Beyond Rails

Creating your own Chimera

Binding EJB into a Controller

JEE5 in Ruby on Rails Controller (Naoto Takai)

```
class HelloController <
  ApplicationController
  ejb :hello, :jndi_name => 'HelloEJB'

  def index
    render_text hello.greeting
  end
end
```

Using Java Management Extensions

Coming Soon at RubyConf 2007

JRuby 1.1 - “Eidechse”

- Bytecode compiler 100% complete
 - Gems compile at install time
 - Standard library all precompiled
- Memory reduction, equal or less than C Ruby
- Tested safe concurrent threading
- Ruby 1.9 bytecode compiler/engine (maybe)

Other JRuby Talks at RailsConf

- Mingle - the JRuby on Rails product (now)
- JRuby on Rails at ThoughtWorks (Wed 10:45)
- Rails Hydra: Synthesizing an Application out of Multiple Rails Codebases (Wed 10:45)
- An Introduction to JRuby on Rails: This Time with Tools (Wed 11:35)

Free Stuff!

- Sun Fire T1000 Server Giveaway
- Drop your business card at the Sun booth
 - Stick around and play with NetBeans + JRuby
- Drawing at 14:00 tomorrow **at the Sun booth**

A New Beginning

JRuby: www.jruby.org

JRuby Wiki: www.headius.com/jrubywiki

Charlie's Blog: headius.blogspot.com

Tom's Blog:
bloglines.com/blog/ThomasEEnebo

GlassFish JRuby Support:
wiki.glassfish.java.net/Wiki.jsp?page=JRuby