STUDIOS
ThoughtWorks®

JRuby
In action!

Ola Bini
JRuby Core Developer
ThoughtWorks Studios

ola.bini@gmail.com
http://olabini.com/blog

STUDIOS
ThoughtWorks®

Agenda

what

why

how

rails

other things

real world

the future

q & a


what

STUDIOS
ThoughtWorks®

What is JRuby

STUDIOS

ThoughtWorks®

What is JRuby

Implementation of the Ruby language

STUDIOS
ThoughtWorks®

What is JRuby

Implementation of the Ruby language

Java 1.5+

STUDIOS
ThoughtWorks®

What is JRuby

Implementation of the Ruby language

Java 1.5+

Open Source

STUDIOS
ThoughtWorks®

What is JRuby

Implementation of the Ruby language

Java 1.5+

Open Source

Compatible with Ruby 1.8.6 p114

STUDIOS
ThoughtWorks®

What is JRuby

Implementation of the Ruby language

Java 1.5+

Open Source

Compatible with Ruby 1.8.6 p114

Current versions 1.1.4 and 1.0.3

STUDIOS

ThoughtWorks®

Community

STUDIOS

ThoughtWorks®

Community

7.5 core developers

STUDIOS

ThoughtWorks®

Community

7.5 core developers

40-50 contributors

STUDIOS
ThoughtWorks®

Community

7.5 core developers

40-50 contributors

New projects from JRuby:

STUDIOS
ThoughtWorks®

Community

7.5 core developers

40-50 contributors

New projects from JRuby:

- JOni

STUDIOS
ThoughtWorks®

Community

7.5 core developers

40-50 contributors

New projects from JRuby:

- JOni
- RbYAML, JvYAML, JvYAMLb

STUDIOS
ThoughtWorks®

Community

7.5 core developers

40-50 contributors

New projects from JRuby:

- JOni
- RbYAML, JvYAML, JvYAMLb
- JNA-Posix

STUDIOS
ThoughtWorks®

Community

7.5 core developers

40-50 contributors

New projects from JRuby:

- JOni
- RbYAML, JvYAML, JvYAMLb
- JNA-Posix
- JOpenSSL

STUDIOS

ThoughtWorks®

Compatibility

STUDIOS

ThoughtWorks®

Compatibility

Using the RubySpecs

STUDIOS
ThoughtWorks®

Compatibility

Using the RubySpecs

Applications are king

STUDIOS
ThoughtWorks®

Compatibility

Using the RubySpecs

Applications are king

Rails, RubyGems, Rake, RSpec

STUDIOS
ThoughtWorks®

Compatibility

Using the RubySpecs

Applications are king

- Rails, RubyGems, Rake, RSpec

Testing is cool

STUDIOS
ThoughtWorks®

Compatibility

Using the RubySpecs

Applications are king

- Rails, RubyGems, Rake, RSpec

Testing is cool

- ~ 42,000 expectations/assertions

STUDIOS
ThoughtWorks®

Compatibility

Using the RubySpecs

Applications are king

- Rails, RubyGems, Rake, RSpec

Testing is cool

- ~ 42,000 expectations/assertions
- Prevents regressions

STUDIOS
ThoughtWorks®

Compatibility

Using the RubySpecs

Applications are king

- Rails, RubyGems, Rake, RSpec

Testing is cool

- ~ 42,000 expectations/assertions
- Prevents regressions
- Better definition of Ruby

STUDIOS
ThoughtWorks®

Compatibility

- Using the RubySpecs
- Applications are king
  - Rails, RubyGems, Rake, RSpec
- Testing is cool
  - ~ 42,000 expectations/assertions
  - Prevents regressions
  - Better definition of Ruby
- Might also prevent community fragmentation

STUDIOS
ThoughtWorks®

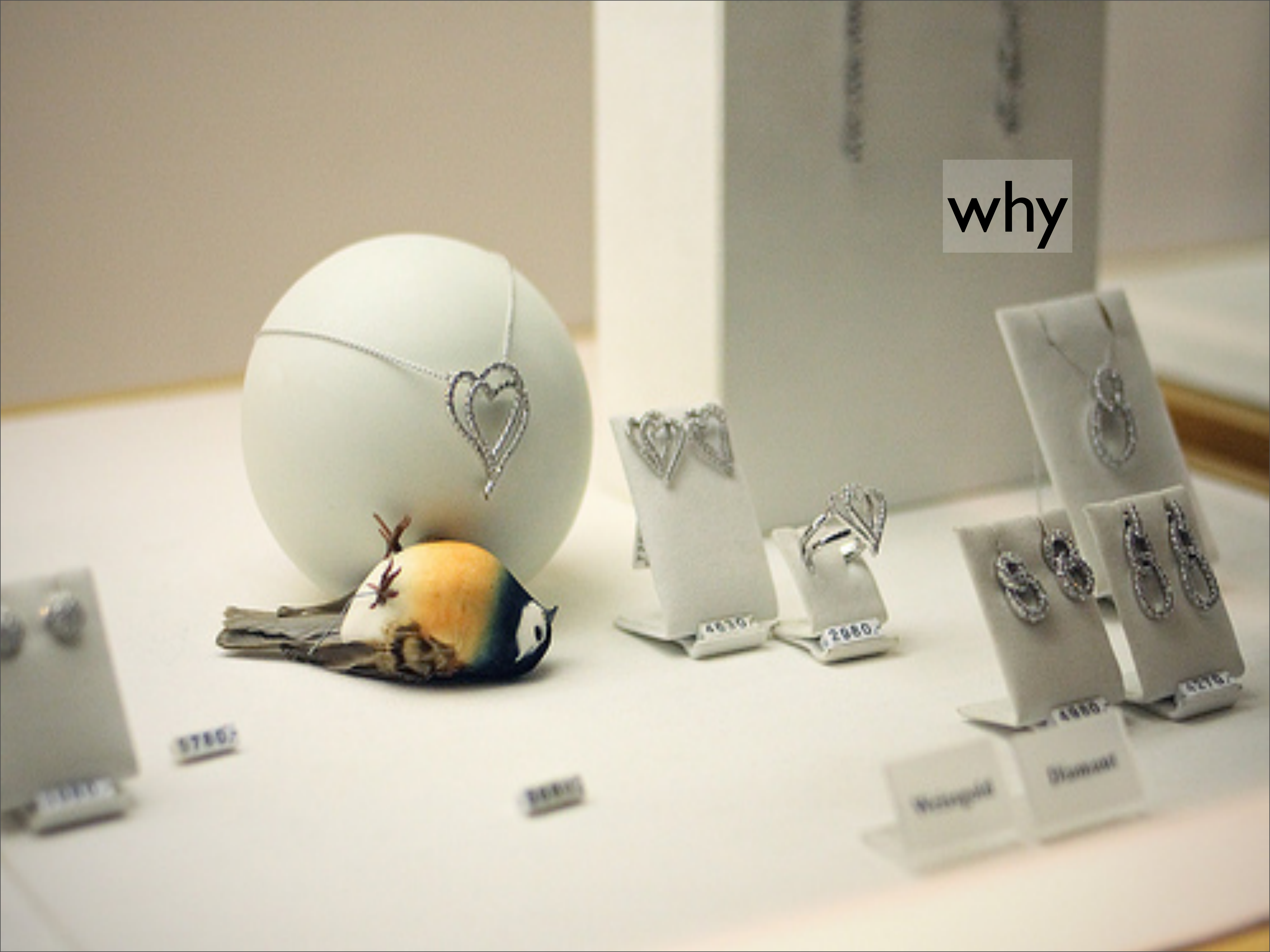
Compatibility

- Using the RubySpecs
- Applications are king
  - Rails, RubyGems, Rake, RSpec
- Testing is cool
  - ~ 42,000 expectations/assertions
  - Prevents regressions
  - Better definition of Ruby
- Might also prevent community fragmentation
  - Like Sapphire

STUDIOS
ThoughtWorks®

Compatibility

- Using the RubySpecs
- Applications are king
  - Rails, RubyGems, Rake, RSpec
- Testing is cool
  - ~ 42,000 expectations/assertions
  - Prevents regressions
  - Better definition of Ruby
- Might also prevent community fragmentation
  - Like Sapphire


why

STUDIOS

ThoughtWorks®

Why JRuby?

STUDIOS

ThoughtWorks®

Why JRuby?

Threading

STUDIOS

ThoughtWorks®

Why JRuby?

Threading

Unicode

STUDIOS

ThoughtWorks®

Why JRuby?

Threading

Unicode

Performance

STUDIOS
ThoughtWorks®

Why JRuby?

Threading

Unicode

Performance

Memory

STUDIOS
ThoughtWorks®

Why JRuby?

Threading

Unicode

Performance

Memory

C Extensions

STUDIOS
ThoughtWorks®

Why JRuby?

Threading

Unicode

Performance

Memory

C Extensions

Libraries

STUDIOS
ThoughtWorks®

Why JRuby?

Threading

Unicode

Performance

Memory

C Extensions

Libraries

Politics

STUDIOS
ThoughtWorks®

Why JRuby?

Threading

Unicode

Performance

Memory

C Extensions

Libraries

Politics

Legacy systems

STUDIOS
ThoughtWorks®

Why JRuby on Rails?

STUDIOS
ThoughtWorks®

Why JRuby on Rails?

Same same

STUDIOS
ThoughtWorks®

Why JRuby on Rails?

Same same

Conservative organizations (IS)

STUDIOS
ThoughtWorks®

Why JRuby on Rails?

Same same

Conservative organizations (IS)

Deployment

STUDIOS
ThoughtWorks®

Why JRuby on Rails?

Same same

Conservative organizations (IS)

Deployment

Integration

STUDIOS
ThoughtWorks®

Why JRuby on Rails?

Same same

Conservative organizations (IS)

Deployment

Integration

Monitoring

STUDIOS
ThoughtWorks®

Why JRuby on Rails?

Same same

Conservative organizations (IS)

Deployment

Integration

Monitoring

Ruby + Java == Cost efficiency && plausible fallback


how

STUDIOS

ThoughtWorks®

Getting started

STUDIOS

ThoughtWorks®

Getting started

Install Java

STUDIOS
ThoughtWorks®

Getting started

Install Java

Download http://dist.codehaus.org/jruby/jruby-bin-1.1.4.tar.gz

STUDIOS
ThoughtWorks®

Getting started

Install Java

Download http://dist.codehaus.org/jruby/jruby-bin-1.1.4.tar.gz

This includes JRuby, Ruby stdlib, RubyGems and rake

STUDIOS
ThoughtWorks®

Getting started

Install Java

Download http://dist.codehaus.org/jruby/jruby-bin-1.1.4.tar.gz

This includes JRuby, Ruby stdlib, RubyGems and rake

Unpack

STUDIOS
ThoughtWorks®

Getting started

Install Java

Download http://dist.codehaus.org/jruby/jruby-bin-1.1.4.tar.gz

This includes JRuby, Ruby stdlib, RubyGems and rake

Unpack

Multiple copies are fine

Getting started

Install Java

Download http://dist.codehaus.org/jruby/jruby-bin-1.1.4.tar.gz

This includes JRuby, Ruby stdlib, RubyGems and rake

Unpack

Multiple copies are fine

Add <jruby-dir>/bin to PATH

Getting started

Install Java

Download http://dist.codehaus.org/jruby/jruby-bin-1.1.4.tar.gz

- This includes JRuby, Ruby stdlib, RubyGems and rake

Unpack

- Multiple copies are fine

Add <jruby-dir>/bin to PATH

Install gems

Getting started

Install Java

Download http://dist.codehaus.org/jruby/jruby-bin-1.1.4.tar.gz

This includes JRuby, Ruby stdlib, RubyGems and rake

Unpack

Multiple copies are fine

Add <jruby-dir>/bin to PATH

Install gems

gem install rspec

Getting started

Install Java

Download http://dist.codehaus.org/jruby/jruby-bin-1.1.4.tar.gz

This includes JRuby, Ruby stdlib, RubyGems and rake

Unpack

Multiple copies are fine

Add <jruby-dir>/bin to PATH

Install gems

gem install rspec

jruby -S gem install rspec

STUDIOS
ThoughtWorks®

Calling Ruby from Java

```
// One-time load Ruby runtime
ScriptEngineManager factory = new ScriptEngineManager();

ScriptEngine engine = factory.getEngineByName("jruby");

// Evaluate JRuby code from string.
try {
    engine.eval("puts('Hello')");
} catch (ScriptException exception) {
    exception.printStackTrace();
}
```

STUDIOS

ThoughtWorks®

Java Integration

STUDIOS
ThoughtWorks®

Java Integration

Java types == Ruby types

STUDIOS
ThoughtWorks®

Java Integration

Java types == Ruby types

Call methods, construct instances, pass objects around

STUDIOS
ThoughtWorks®

Java Integration

- Java types == Ruby types
  - Call methods, construct instances, pass objects around
  - camelCase or snake_case both valid

STUDIOS
ThoughtWorks®

Java Integration

- Java types == Ruby types
  - Call methods, construct instances, pass objects around
  - camelCase or snake_case both valid
- Interfaces can be implemented

STUDIOS
ThoughtWorks®

Java Integration

Java types == Ruby types

Call methods, construct instances, pass objects around

camelCase or snake_case both valid

Interfaces can be implemented

Classes can be inherited from

STUDIOS
ThoughtWorks®

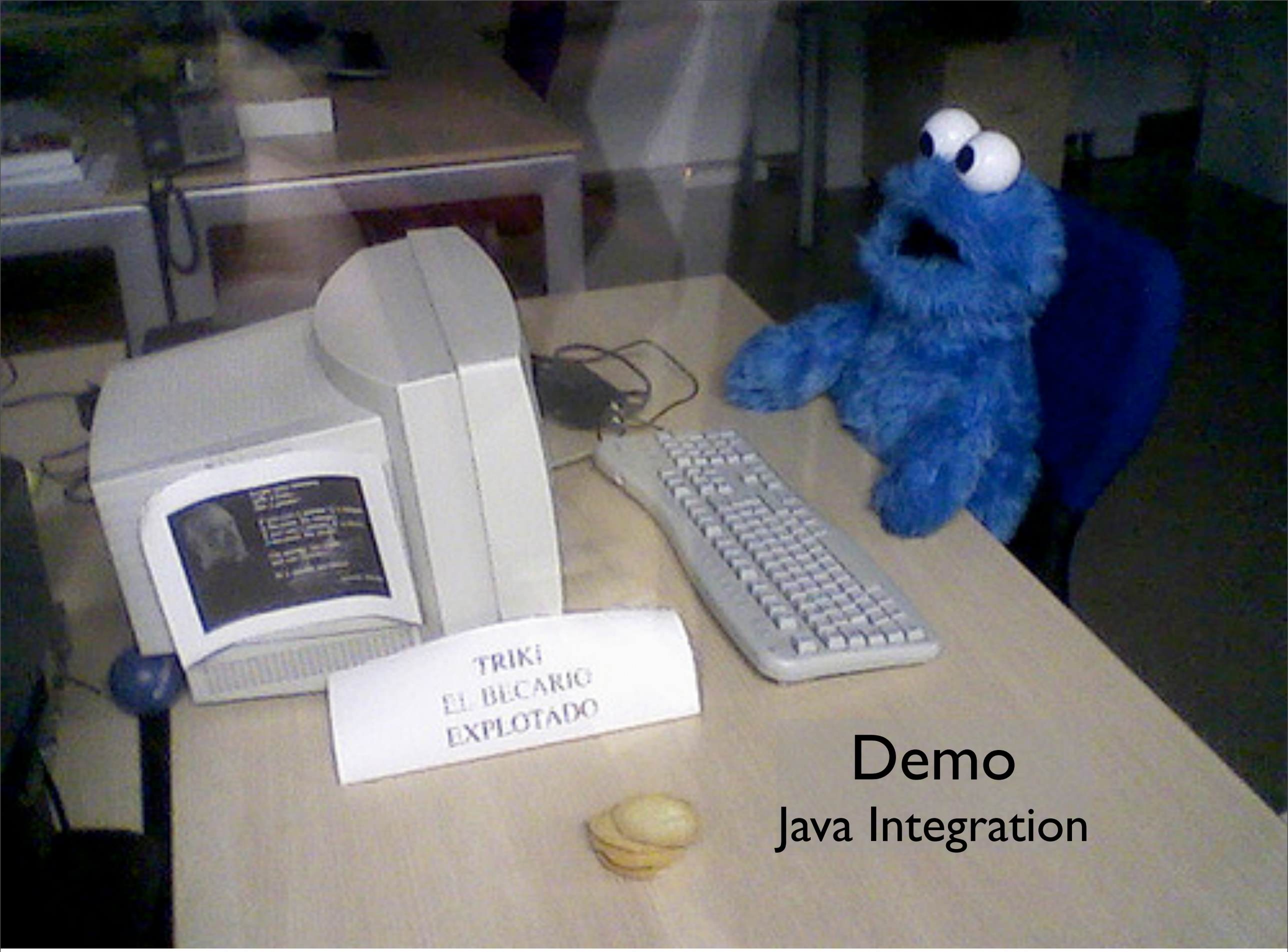
Java Integration

- Java types == Ruby types
  - Call methods, construct instances, pass objects around
  - camelCase or snake_case both valid
- Interfaces can be implemented
- Classes can be inherited from
- Implicit closure conversion

STUDIOS
ThoughtWorks®

Java Integration

- Java types == Ruby types
  - Call methods, construct instances, pass objects around
  - camelCase or snake_case both valid
- Interfaces can be implemented
- Classes can be inherited from
- Implicit closure conversion
- Extra added features to Rubyfy Java classes and Interfaces



Demo

Java Integration

STUDIOS
ThoughtWorks®

Differences to MRI

STUDIOS
ThoughtWorks®

Differences to MRI

No continuations

STUDIOS
ThoughtWorks®

Differences to MRI

No continuations

will you miss them?

STUDIOS
ThoughtWorks®

Differences to MRI

No continuations

will you miss them?

No native extensions

STUDIOS
ThoughtWorks®

Differences to MRI

No continuations

will you miss them?

No native extensions

you might miss them

STUDIOS
ThoughtWorks®

Differences to MRI

No continuations

will you miss them?

No native extensions

you might miss them

No crappy GC

STUDIOS
ThoughtWorks®

Differences to MRI

No continuations

will you miss them?

No native extensions

you might miss them

No crappy GC

you won't miss that

STUDIOS
ThoughtWorks®

Differences to MRI

No continuations

will you miss them?

No native extensions

you might miss them

No crappy GC

you won't miss that

File and POSIX operations is still not 100%


rails

STUDIOS ThoughtWorks®

Getting started

```
[jaoo] (1) ƛ jruby -S gem install rails

[jaoo] (2) ƛ jruby -S gem install activerecord-jdbcmysql-adapter

[jaoo] (3) ƛ jruby -S rails yourapp -d mysql

[jaoo] (4) ƛ cd yourapp

[jaoo] (5) ƛ sed -i -e 's/mysql/jdbcmysql/g' config/database.yml

[jaoo] (6) ƛ jruby script/server
```

STUDIOS

ThoughtWorks®

GlassFish

STUDIOS

ThoughtWorks®

GlassFish

Modular application server

STUDIOS
ThoughtWorks®

GlassFish

Modular application server

Full support for JEE 5

STUDIOS
ThoughtWorks®

GlassFish

Modular application server

Full support for JEE 5

Monitoring etc

STUDIOS
ThoughtWorks®

GlassFish

Modular application server

Full support for JEE 5

Monitoring etc

Support for several alt JVM languages

STUDIOS ThoughtWorks®

GlassFish

Modular application server

Full support for JEE 5

Monitoring etc

Support for several alt JVM languages

Ruby, PHP, JavaScript

STUDIOS ThoughtWorks®

GlassFish

Modular application server

Full support for JEE 5

Monitoring etc

Support for several alt JVM languages

Ruby, PHP, JavaScript

```
[jaoo] (7) λ jruby -S gem install glassfish
```

STUDIOS ThoughtWorks®

GlassFish

Modular application server

Full support for JEE 5

Monitoring etc

Support for several alt JVM languages

Ruby, PHP, JavaScript

```
[jaoo] (7) λ jruby -S gem install glassfish
```

STUDIOS ThoughtWorks®

GlassFish

Modular application server

Full support for JEE 5

Monitoring etc

Support for several alt JVM languages

Ruby, PHP, JavaScript

```
[jaoo] (7) λ jruby -S gem install glassfish
```

Size of glassfish-0.2.0-universal-java.gem: 2870784 bytes

Demo

GlassFish gem

STUDIOS

ThoughtWorks®

Jetty-Rails

STUDIOS

ThoughtWorks®

Jetty-Rails

New project by Fabio Kung

STUDIOS
ThoughtWorks®

Jetty-Rails

New project by Fabio Kung

Works with Warbler configuration

STUDIOS
ThoughtWorks®

Jetty-Rails

New project by Fabio Kung

Works with Warbler configuration

Similar to the GlassFish gem, but more light weight

STUDIOS
ThoughtWorks®

Jetty-Rails

New project by Fabio Kung

Works with Warbler configuration

Similar to the GlassFish gem, but more light weight

For development phase of Warbler enabled project

STUDIOS

ThoughtWorks®

JNDI

STUDIOS

ThoughtWorks®

JNDI

In production

STUDIOS
ThoughtWorks®

JNDI

In production

Fall back on regular database configuration

ThoughtWorks STUDIOS

JNDI

In production

Fall back on regular database configuration

Add:

JNDI

In production

Fall back on regular database configuration

Add:

```
jndi: jdbc/yourapp_production
```

To your database.yml

JNDI

In production

Fall back on regular database configuration

Add:

```
jndi: jdbc/yourapp_production
```

To your database.yml

Get:

JNDI

In production

Fall back on regular database configuration

Add:

```
jndi: jdbc/yourapp_production
```

To your database.yml

Get:

Manageability

JNDI

In production

Fall back on regular database configuration

Add:

```
jndi: jdbc/yourapp_production
```

To your database.yml

Get:

Manageability

Securability

JNDI

In production

Fall back on regular database configuration

Add:

```
jndi: jdbc/yourapp_production
```

To your database.yml

Get:

Manageability

Securability

Poolability

JNDI

In production

Fall back on regular database configuration

Add:

```
jndi: jdbc/yourapp_production
```

To your database.yml

Get:

Manageability

Securability

Poolability

STUDIOS

ThoughtWorks®

Deployment

STUDIOS

ThoughtWorks®

Deployment

Traditional approach

STUDIOS

ThoughtWorks®

Deployment

Traditional approach

Pack of Mongrels

STUDIOS
ThoughtWorks®

Deployment

- Traditional approach
  - Pack of Mongrels
    - N mongrels for N concurrent requests

STUDIOS
ThoughtWorks®

Deployment

- Traditional approach
  - Pack of Mongrels
    - N mongrels for N concurrent requests
  - Deployed with Capistrano

Deployment

- Traditional approach
  - Pack of Mongrels
    - N mongrels for N concurrent requests
  - Deployed with Capistrano
  - Something in front, like Nginx or Apache HTTPd

STUDIOS ThoughtWorks®

Deployment

- Traditional approach
  - Pack of Mongrels
    - N mongrels for N concurrent requests
  - Deployed with Capistrano
  - Something in front, like Nginx or Apache HTTPd
  - Needs monitoring

Deployment

- Traditional approach
  - Pack of Mongrels
    - N mongrels for N concurrent requests
  - Deployed with Capistrano
  - Something in front, like Nginx or Apache HTTPd
  - Needs monitoring
    - Monit

Deployment

- Traditional approach
  - Pack of Mongrels
    - N mongrels for N concurrent requests
  - Deployed with Capistrano
  - Something in front, like Nginx or Apache HTTPd
  - Needs monitoring
    - Monit
    - God

Deployment

- Traditional approach
  - Pack of Mongrels
    - N mongrels for N concurrent requests
  - Deployed with Capistrano
  - Something in front, like Nginx or Apache HTTPd
  - Needs monitoring
    - Monit
    - God
  - Repeat for each application

STUDIOS

ThoughtWorks®

Deployment: Mongrel

STUDIOS
ThoughtWorks®

Deployment: Mongrel

Same approach “works”

STUDIOS
ThoughtWorks®

Deployment: Mongrel

Same approach “works”

For some definition of works

STUDIOS
ThoughtWorks®

Deployment: Mongrel

Same approach “works”

For some definition of works

Do you want N JVMs?

STUDIOS

ThoughtWorks®

Deployment: Warbler

STUDIOS
ThoughtWorks®

Deployment: Warbler

Installs as a gem

STUDIOS
ThoughtWorks®

Deployment: Warbler

Installs as a gem

JRuby included

STUDIOS
ThoughtWorks®

Deployment: Warbler

Installs as a gem

JRuby included

And so is a Rails servlet

STUDIOS
ThoughtWorks®

Deployment: Warbler

Installs as a gem

JRuby included

And so is a Rails servlet

Automates the War configuration

Deployment: Warbler

Installs as a gem

JRuby included

And so is a Rails servlet

Automates the War configuration

```
[jaoo] (8) ⅄ jruby -S gem install warbler

[jaoo] (9) ⅄ jruby -S warble pluginize
```

Deployment: Warbler

Installs as a gem

JRuby included

And so is a Rails servlet

Automates the War configuration

```
[jaoo] (8) ⅄ jruby -S gem install warbler

[jaoo] (9) ⅄ jruby -S warble pluginize

[jaoo] (10) ⅄ jruby -S rake war
```

Deployment: Warbler

Installs as a gem

JRuby included

And so is a Rails servlet

Automates the War configuration

```
[jaoo] (8) ⅄ jruby -S gem install warbler

[jaoo] (9) ⅄ jruby -S warble pluginize

[jaoo] (10) ⅄ jruby -S rake war
```

smörgåsbord

STUDIOS

ThoughtWorks®

Ribs

STUDIOS

ThoughtWorks®

Ribs

Not finished yet

STUDIOS

ThoughtWorks®

Ribs

Not finished yet

Uses real Hibernate under the covers

STUDIOS
ThoughtWorks®

Ribs

Not finished yet

Uses real Hibernate under the covers

AR like interface (not compatible, just inspired by AR)

STUDIOS
ThoughtWorks®

Ribs

Not finished yet

Uses real Hibernate under the covers

AR like interface (not compatible, just inspired by AR)

Can use existing Hibernate mappings and Java domains

STUDIOS

ThoughtWorks®

Ribs

Not finished yet

Uses real Hibernate under the covers

AR like interface (not compatible, just inspired by AR)

Can use existing Hibernate mappings and Java domains

Alternative to ActiveRecord

Ribs

Not finished yet

Uses real Hibernate under the covers

AR like interface (not compatible, just inspired by AR)

Can use existing Hibernate mappings and Java domains

Alternative to ActiveRecord

Version 0.0.2 out now

STUDIOS
ThoughtWorks®

Ribs

Not finished yet

Uses real Hibernate under the covers

AR like interface (not compatible, just inspired by AR)

Can use existing Hibernate mappings and Java domains

Alternative to ActiveRecord

Version 0.0.2 out now

Repository
Unit of Work
Identity Map
Active Record
Data Mapper

```ruby
# define a model (not needed at all when following conventions)
class Project
  Ribs! :table => "PROJECTS" do |r|
    r.id :primary_key, :column => :PROJECT_ID
  end
end

# create
project = R(Project).create(:name => "JRuby", :complexity => 10)
project_id = project.id

# query
all_projects = R(Project).all
jruby_project = R(Project).get(project_id)

# update
jruby_project.complexity = 37
R(jruby_project).save

# destroy
R(jruby_project).destroy!
```

STUDIOS

ThoughtWorks®

Merb

STUDIOS

ThoughtWorks®

Merb

JRuby runs Merb

STUDIOS
ThoughtWorks®

Merb

JRuby runs Merb

JRuby-rack is the preferred solution

STUDIOS
ThoughtWorks®

Merb

JRuby runs Merb

JRuby-rack is the preferred solution

Should Just Work (TM)

JDBC

STUDIOS

ThoughtWorks®

STUDIOS
ThoughtWorks®

JDBC

Can be used directly from JRuby

STUDIOS
ThoughtWorks®

JDBC

Can be used directly from JRuby

There is a DBI driver

STUDIOS
ThoughtWorks®

JDBC

Can be used directly from JRuby

There is a DBI driver

DataMapper driver on the way

STUDIOS
ThoughtWorks®

JDBC

Can be used directly from JRuby

There is a DBI driver

DataMapper driver on the way

And of course, AR-JDBC

STUDIOS
ThoughtWorks®

JDBC

Can be used directly from JRuby

There is a DBI driver

DataMapper driver on the way

And of course, AR-JDBC

JNDI

STUDIOS
ThoughtWorks®

JDBC

Can be used directly from JRuby

There is a DBI driver

DataMapper driver on the way

And of course, AR-JDBC

JNDI

Connection pools

STUDIOS
ThoughtWorks®

JDBC

Can be used directly from JRuby

There is a DBI driver

DataMapper driver on the way

And of course, AR-JDBC

JNDI

Connection pools

Prepared statements

Ever installed RMagick?

STUDIOS

ThoughtWorks®

Java2D

STUDIOS
ThoughtWorks®

Java2D

Java2D is available everywhere. And works the same.

STUDIOS
ThoughtWorks®

Java2D

Java2D is available everywhere. And works the same.

ImageVoodoo

STUDIOS
ThoughtWorks®

Java2D

Java2D is available everywhere. And works the same.

ImageVoodoo

Compatible with ImageScience

STUDIOS
ThoughtWorks®

Java2D

Java2D is available everywhere. And works the same.

ImageVoodoo

- Compatible with ImageScience
- Works with attachment_fu and others

STUDIOS
ThoughtWorks®

JRuby internals

```
JRuby::ast_for("1+1")   #=> Java AST

JRuby::ast_for { 1+1 } #=> Java AST

JRuby::compile("1+1")   #=> CompiledScript
```

```
CompiledScript.inspect_bytecode

JRuby::runtime

JRuby::reference("str")
```

STUDIOS
ThoughtWorks®

... evil stuff

```
a = "foobar"
a.freeze
JRuby::reference(a).set_frozen(false)

class Foobar; end
something = Object.new
JRuby::reference(something).set_meta_class(Foobar)

class Foobar; end
JRuby::reference(Foobar).get_methods
```

JtestR

STUDIOS

ThoughtWorks®

STUDIOS

ThoughtWorks®

JtestR

Test Java code with Ruby

STUDIOS

ThoughtWorks®

JtestR

Test Java code with Ruby

Includes

STUDIOS
ThoughtWorks®

JtestR

Test Java code with Ruby

Includes

RSpec (and story support)

STUDIOS
ThoughtWorks®

JtestR

Test Java code with Ruby

Includes

RSpec (and story support)

Test::Unit

STUDIOS
ThoughtWorks®

JtestR

Test Java code with Ruby

Includes

- RSpec (and story support)
- Test::Unit
- dust

STUDIOS
ThoughtWorks®

JtestR

Test Java code with Ruby

Includes

- RSpec (and story support)
- Test::Unit
- dust
- Mocha

STUDIOS
ThoughtWorks®

JtestR

Test Java code with Ruby

Includes

- RSpec (and story support)
- Test::Unit
- dust
- Mocha
- Expectations

STUDIOS
ThoughtWorks®

JtestR

Test Java code with Ruby

Includes

- RSpec (and story support)
- Test::Unit
- dust
- Mocha
- Expectations

Ant, JUnit and Maven 2 integration

STUDIOS
ThoughtWorks®

JtestR

Test Java code with Ruby

Includes

- RSpec (and story support)
- Test::Unit
- dust
- Mocha
- Expectations

Ant, JUnit and Maven 2 integration

0.3.1 is current version

Demo

Testing with JtestR

STUDIOS

ThoughtWorks®

Rubiq

STUDIOS

ThoughtWorks®

Rubiq

Lisp layer on top of JRuby

STUDIOS
ThoughtWorks®

Rubiq

Lisp layer on top of JRuby

Transforms to JRuby AST

STUDIOS
ThoughtWorks®

Rubiq

Lisp layer on top of JRuby

Transforms to JRuby AST

... and lets JRuby execute it

STUDIOS
ThoughtWorks®

Rubiq

Lisp layer on top of JRuby

Transforms to JRuby AST

... and lets JRuby execute it

Macros

STUDIOS
ThoughtWorks®

Rubiq

Lisp layer on top of JRuby

Transforms to JRuby AST

... and lets JRuby execute it

Macros

Read macros (used to implement regexp syntax, for example)

STUDIOS
ThoughtWorks®

Rubiq

Lisp layer on top of JRuby

Transforms to JRuby AST

... and lets JRuby execute it

Macros

Read macros (used to implement regexp syntax, for example)

Pure lexical scoping

STUDIOS
ThoughtWorks®

Rubiq

Lisp layer on top of JRuby

Transforms to JRuby AST

... and lets JRuby execute it

Macros

Read macros (used to implement regexp syntax, for example)

Pure lexical scoping

Lambdas transparently transforms to blocks or Proc.new

STUDIOS

ThoughtWorks®

Ruvlets

STUDIOS

ThoughtWorks®

Ruvlets

Expose Servlets as Ruby API

STUDIOS
ThoughtWorks®

Ruvlets

Expose Servlets as Ruby API

Because we can!

STUDIOS
ThoughtWorks®

Ruvlets

Expose Servlets as Ruby API

Because we can!

People keep asking for this....really!

STUDIOS
ThoughtWorks®

Ruvlets

Expose Servlets as Ruby API

Because we can!

People keep asking for this....really!

Expose highly tuned web-infrastructure to Ruby

STUDIOS
ThoughtWorks®

Ruvlets

- Expose Servlets as Ruby API
  - Because we can!
  - People keep asking for this....really!
  - Expose highly tuned web-infrastructure to Ruby
  - Similar in L&F to Camping

STUDIOS
ThoughtWorks®

Ruvlets

- Expose Servlets as Ruby API
  - Because we can!
  - People keep asking for this....really!
  - Expose highly tuned web-infrastructure to Ruby
  - Similar in L&F to Camping

How it works:

STUDIOS
ThoughtWorks®

Ruvlets

- Expose Servlets as Ruby API
  - Because we can!
  - People keep asking for this....really!
  - Expose highly tuned web-infrastructure to Ruby
  - Similar in L&F to Camping
- How it works:
  - Evaluates file from load path based on URL

STUDIOS
ThoughtWorks®

Ruvlets

- Expose Servlets as Ruby API
  - Because we can!
  - People keep asking for this....really!
  - Expose highly tuned web-infrastructure to Ruby
  - Similar in L&F to Camping
- How it works:
  - Evaluates file from load path based on URL
  - File returns an object with a 'service' method defined

STUDIOS
ThoughtWorks®

Ruvlets

- Expose Servlets as Ruby API
  - Because we can!
  - People keep asking for this....really!
  - Expose highly tuned web-infrastructure to Ruby
  - Similar in L&F to Camping
- How it works:
  - Evaluates file from load path based on URL
  - File returns an object with a 'service' method defined
  - Object cached for all future requests

STUDIOS
ThoughtWorks®

Bare bones Ruvlet

```
class HelloWorld
  def service(context, request, response)
    response.content_type = "text/html"
    response.writer << <<-EOF
      <html>
        <head><title>Hello World!</title></head>
        <body>Hello World!</body>
      </html>
    EOF
  end
end

HelloWorld.new
```

STUDIOS

ThoughtWorks®

Swing

STUDIOS
ThoughtWorks®

Swing

Swing API == large and complex

STUDIOS
ThoughtWorks®

Swing

Swing API == large and complex

Ruby magic simplifies most of the tricky bits

STUDIOS
ThoughtWorks®

Swing

Swing API == large and complex

Ruby magic simplifies most of the tricky bits

Java is a very verbose language

STUDIOS
ThoughtWorks®

Swing

Swing API == large and complex

Ruby magic simplifies most of the tricky bits

Java is a very verbose language

Ruby makes Swing fun (more fun at least)

Swing

Swing API == large and complex

- Ruby magic simplifies most of the tricky bits

Java is a very verbose language

- Ruby makes Swing fun (more fun at least)

No consistent cross-platform GUI library for Ruby

STUDIOS
ThoughtWorks®

Swing

- Swing API == large and complex
  - Ruby magic simplifies most of the tricky bits
- Java is a very verbose language
  - Ruby makes Swing fun (more fun at least)
- No consistent cross-platform GUI library for Ruby
  - Swing works everywhere Java does

STUDIOS
ThoughtWorks®

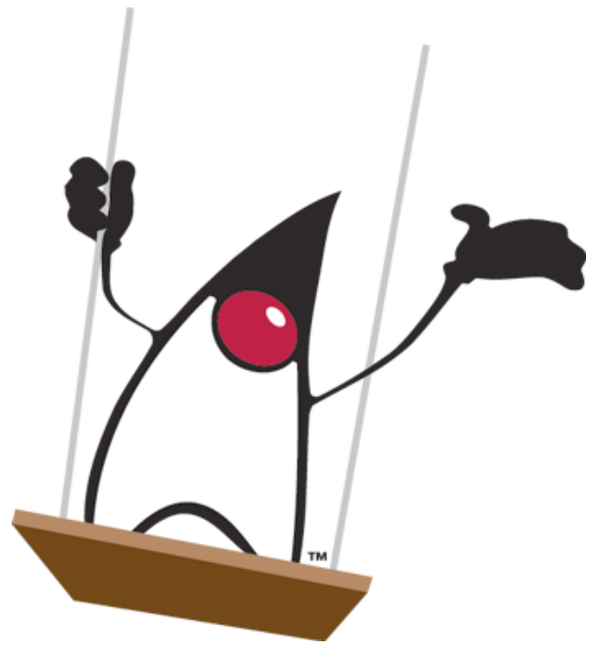
Swing - the direct approach

```
import javax.swing.JFrame
import javax.swing.JButton

frame = JFrame.new("Swing is easy now!")
frame.set_size 300, 300
frame.always_on_top = true

button = JButton.new("Press me!")
button.add_action_listener do |evt|
  evt.source.text = "Don't press me again!"
  evt.source.enabled = false
end

frame.add(button)
frame.show
```



STUDIOS
ThoughtWorks®

Swing - Cheri (builder)

```
include Cheri::Swing

frame = swing.frame("Swing builders!") { |form|
  size 300, 300
  box_layout form, :Y_AXIS
  content_pane { background :WHITE }

  button("Event binding is nice") { |btn|
    on_click { btn.text = "You clicked me!" }
  }
}

frame.visible = true
```

STUDIOS ThoughtWorks®

Swing - Profligacy

Profligacy
the world needs less swing

```
class ProfligacyDemo
  import javax.swing.*
  include Profligacy

  def initialize
    layout = "[<translate][*input][>result]"
    @ui = Swing::LEL.new(JFrame, layout) {|cmps, ints|
      cmps.translate = JButton.new("Translate")
      cmps.input = JTextField.new
      cmps.result = JLabel.new

      translator = proc {|id, evt|
        original = @ui.input.text
        translation = MyTranslator.translate(original)
        @ui.result.text = translation
      }

      ints.translate = {:action => translator}
    }
  end
end
```

STUDIOS
ThoughtWorks®

Swing - MonkeyBars (tools)

monkeyBars

Swing - MonkeyBars (tools)

GUI editor friendly (e.g. NetBeans “Matisse”)

monkeyBars

Swing - MonkeyBars (tools)

GUI editor friendly (e.g. NetBeans “Matisse”)

Simple Ruby MVC based API

monkeybars

STUDIOS
ThoughtWorks®

Swing - MonkeyBars (tools)

GUI editor friendly (e.g. NetBeans "Matisse")

Simple Ruby MVC based API

Combines best of both worlds

monkeyBars

real world

STUDIOS

ThoughtWorks®

Is anyone using it?

STUDIOS
ThoughtWorks®

Is anyone using it?

Mingle (ThoughtWorks)

STUDIOS

ThoughtWorks®

Is anyone using it?

Mingle (ThoughtWorks)

Mix (Oracle)

STUDIOS

ThoughtWorks®

Is anyone using it?

Mingle (ThoughtWorks)

Mix (Oracle)

MediaCast (Sun)

STUDIOS
ThoughtWorks®

Is anyone using it?

Mingle (ThoughtWorks)

Mix (Oracle)

MediaCast (Sun)

Kenai (Sun)

STUDIOS
ThoughtWorks®

Is anyone using it?

Mingle (ThoughtWorks)

Mix (Oracle)

MediaCast (Sun)

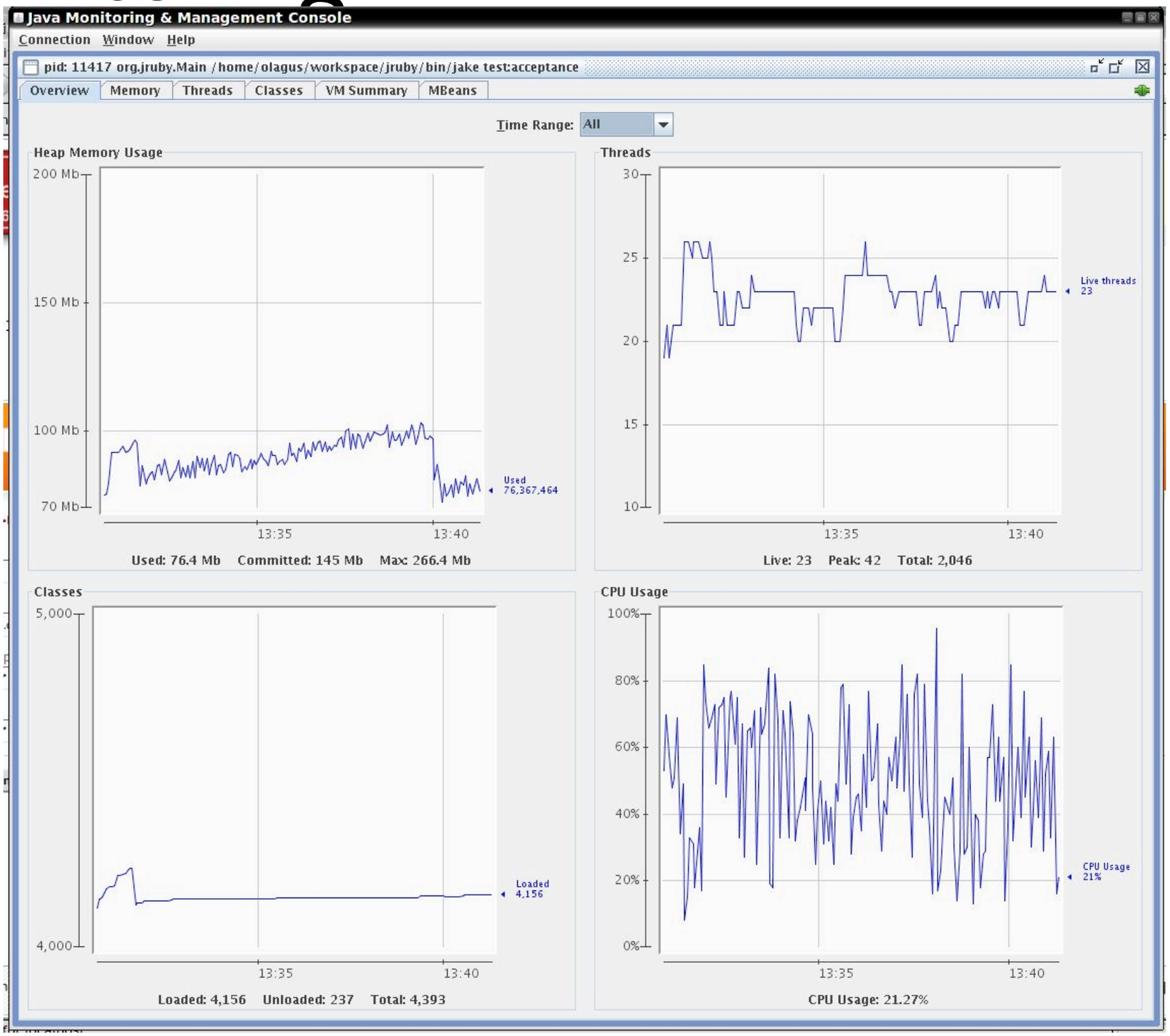
Kenai (Sun)

Sonar (Open Source, Hortis)

STUDIOS

ThoughtWorks®

Monitoring



STUDIOS

ThoughtWorks®

Performance

STUDIOS

ThoughtWorks®

Performance

Hard question of course

STUDIOS
ThoughtWorks®

Performance

Hard question of course

Most benchmarks and apps are 2-3x faster than MRI

STUDIOS
ThoughtWorks®

Performance

Hard question of course

Most benchmarks and apps are 2-3x faster than MRI

Rails is on par

STUDIOS
ThoughtWorks®

Performance

Hard question of course

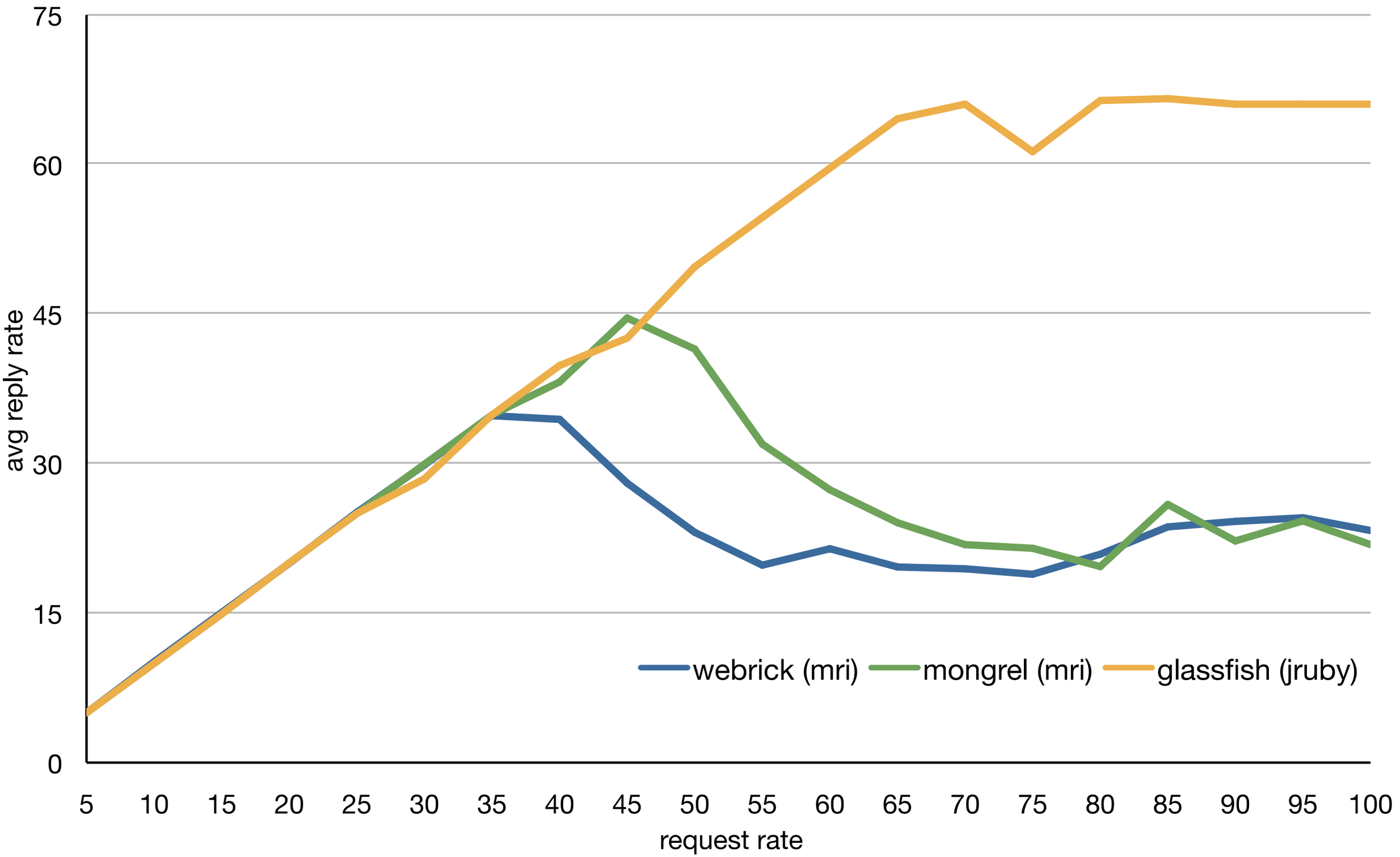
Most benchmarks and apps are 2-3x faster than MRI

Rails is on par

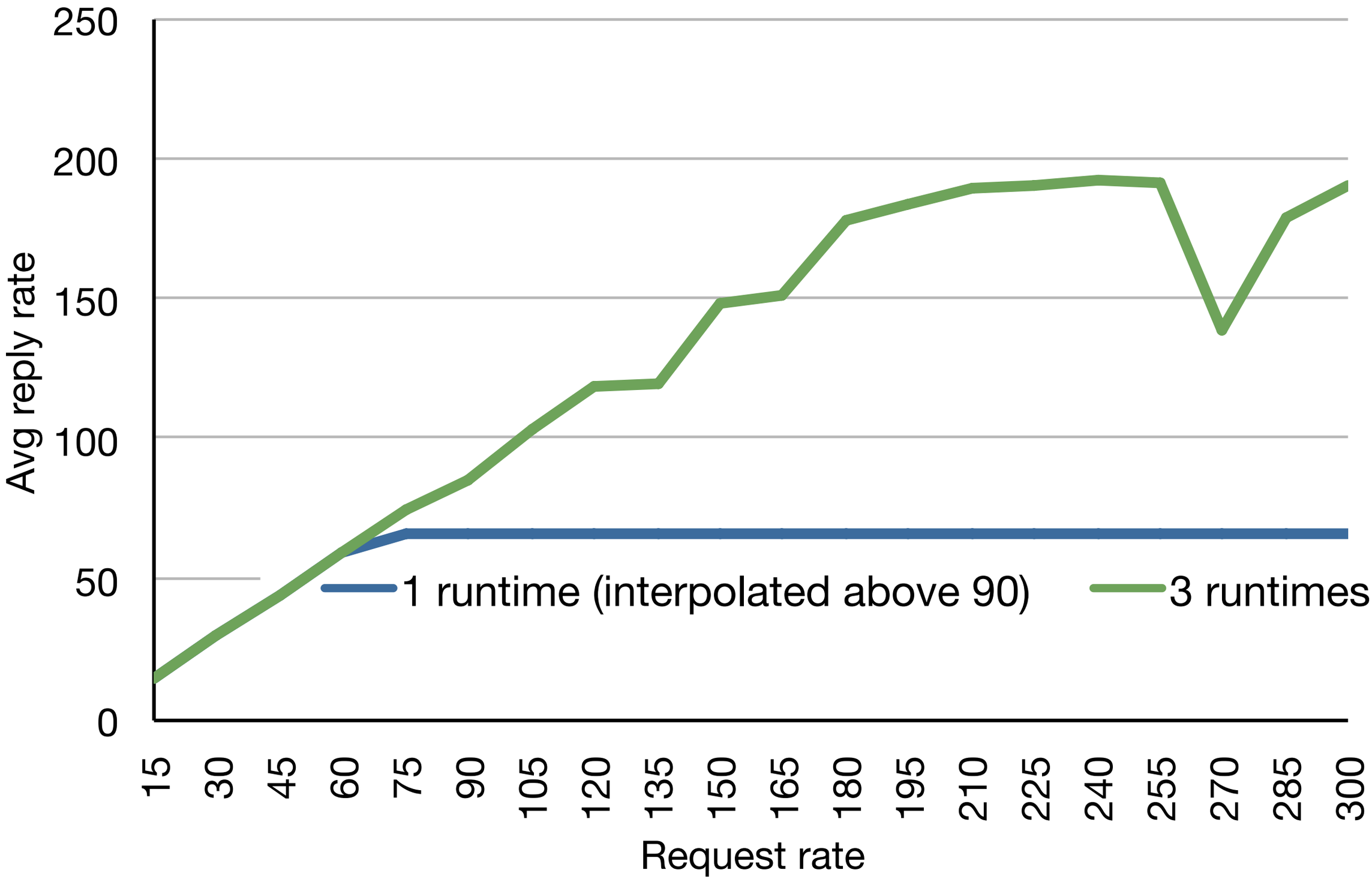
We are working on this

Request Scaling (1 process or runtime)

STUDIOS ThoughtWorks®



JRuby/Glassfish




the future

STUDIOS

ThoughtWorks®

YARV and Rubinius

STUDIOS

ThoughtWorks®

YARV and Rubinius

YARV

STUDIOS
ThoughtWorks®

YARV and Rubinius

YARV

2.0 Compatibility

STUDIOS
ThoughtWorks®

YARV and Rubinius

- YARV
  - 2.0 Compatibility
  - Simple machine

STUDIOS

ThoughtWorks®

YARV and Rubinius

- YARV
  - 2.0 Compatibility
  - Simple machine
  - Simple compiler

STUDIOS
ThoughtWorks®

YARV and Rubinius

- YARV
  - 2.0 Compatibility
  - Simple machine
  - Simple compiler
  - Might give interpreted performance improvement

STUDIOS
ThoughtWorks®

YARV and Rubinius

- YARV
  - 2.0 Compatibility
  - Simple machine
  - Simple compiler
  - Might give interpreted performance improvement
- Rubinius

STUDIOS
ThoughtWorks®

YARV and Rubinius

- YARV
  - 2.0 Compatibility
  - Simple machine
  - Simple compiler
  - Might give interpreted performance improvement
- Rubinius
  - Simple machine

STUDIOS
ThoughtWorks®

YARV and Rubinius

- YARV
  - 2.0 Compatibility
  - Simple machine
  - Simple compiler
  - Might give interpreted performance improvement
- Rubinius
  - Simple machine
  - Quite outdated at the moment

STUDIOS
ThoughtWorks®

YARV and Rubinius

- YARV
  - 2.0 Compatibility
  - Simple machine
  - Simple compiler
  - Might give interpreted performance improvement
- Rubinius
  - Simple machine
  - Quite outdated at the moment
    - Will be redone after Rubinius C++ engine finished

STUDIOS
ThoughtWorks®

YARV and Rubinius

- YARV
  - 2.0 Compatibility
  - Simple machine
  - Simple compiler
  - Might give interpreted performance improvement
- Rubinius
  - Simple machine
  - Quite outdated at the moment
    - Will be redone after Rubinius C++ engine finished
  - Why do it? Why not?

STUDIOS

ThoughtWorks®

JSR292 and the DaVinci machine

STUDIOS

ThoughtWorks®

JSR292 and the DaVinci machine

Dynamic invocation: non-java call sites

STUDIOS

ThoughtWorks®

JSR292 and the DaVinci machine

Dynamic invocation: non-java call sites

Method handles

STUDIOS

ThoughtWorks®

JSR292 and the DaVinci machine

Dynamic invocation: non-java call sites

Method handles

Anonymous classes

STUDIOS

ThoughtWorks®

JSR292 and the DaVinci machine

Dynamic invocation: non-java call sites

Method handles

Anonymous classes

Faster reflection, escape analysis

STUDIOS

ThoughtWorks®

JSR292 and the DaVinci machine

Dynamic invocation: non-java call sites

Method handles

Anonymous classes

Faster reflection, escape analysis

Interface injection

STUDIOS

ThoughtWorks®

JSR292 and the DaVinci machine

Dynamic invocation: non-java call sites

Method handles

Anonymous classes

Faster reflection, escape analysis

Interface injection

Continuations

STUDIOS

ThoughtWorks®

JSR292 and the DaVinci machine

Dynamic invocation: non-java call sites

Method handles

Anonymous classes

Faster reflection, escape analysis

Interface injection

Continuations

Value objects (Lisp fixnums)

JSR292 and the DaVinci machine

- Dynamic invocation: non-java call sites
- Method handles
- Anonymous classes
- Faster reflection, escape analysis
  - Interface injection
  - Continuations
  - Value objects (Lisp fixnums)
  - Tuple types

JSR292 and the DaVinci machine

- Dynamic invocation: non-java call sites
- Method handles
- Anonymous classes
- Faster reflection, escape analysis
  - Interface injection
  - Continuations
  - Value objects (Lisp fixnums)
  - Tuple types
  - Tail calls

JRuby future

STUDIOS
ThoughtWorks®

STUDIOS

ThoughtWorks®

JRuby future

Interpreter

STUDIOS
ThoughtWorks®

JRuby future

Interpreter

Java Integration

STUDIOS
ThoughtWorks®

JRuby future

Interpreter

Java Integration

Ahead-of-time compilation

STUDIOS
ThoughtWorks®

JRuby future

Interpreter

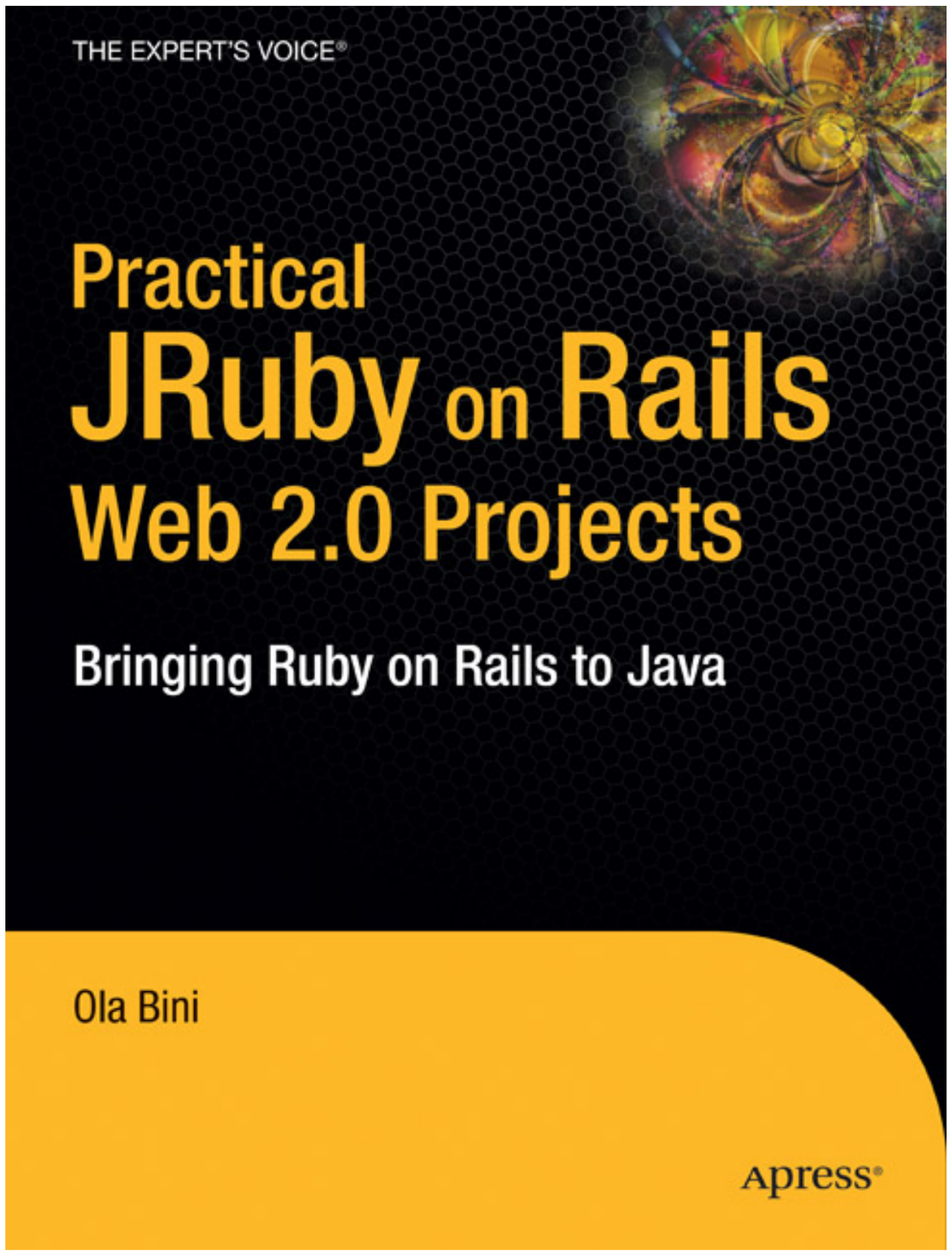
Java Integration

Ahead-of-time compilation

More library integration

STUDIOS

ThoughtWorks®



Q and A