ThoughtWorks®

JRuby for the Win

Ola Bini
computational metalinguist
ola.bini@gmail.com
http://olabini.com/blog

Logistics and Demographics

Your host

From Sweden

Language geek at ThoughtWorks, in Chicago

JRuby core developer

Creator of some languages (Ioke, Seph)

Author of Practical JRuby on Rails, coauthor of Using JRuby

Member of the JSR 292 EG

What is Ruby?

- Dynamic, strongly typed, pure object oriented language
    - Interpreted
    - Open Source
    - Default implementation in C (called MRI)
- Current versions: 1.8.7 and 1.9.2
- Created in 1993 by Yukihiro ‘Matz’ Matsumoto
- “More powerful than Perl and more object oriented than Python”
- “The principle of least surprise”

Object orientation

Everything is an object:

```
Circle.new(4) # => instance of Circle
"abc".length  # => 3
2.to_s        # => "2"
```

All objects are instances of classes:

```
1.class         # => Fixnum
(9**99).class # => Bignum
"abc".class   # => String
/a/.class       # => Regexp
true.class     # => TrueClass
nil.class       # => NilClass
String.class  # => Class
Class.class    # => Class
```

Ruby - Blocks

Attach code to any invocation:

```
# two syntaxes - curly brackets and do-end
[1, 2, 3].each { |n| puts "Number #{n}" }

[1, 2, 3].each do |n|
  puts "Number #{n}"
end

def foo(num)
  yield num
end
foo(1) { |e| puts "I got number #{e}" }
```

Ruby - Blocks

Removes dangerous repetition:

No need for external iterator:

```
Iterator<String> iter = list.iterator();
while(iter.hasNext()) {
  System.out.println(iter.next());
}
```

The Ruby version shifts the responsibility:

```
list.each do |element|
  puts element
end
```

Ruby - Blocks

Internalizes transactions:

```
open(filename) do |file|
  # ... do something with the file
end
```

```
transaction do
  # some inserts
  # some selects
  # some updates
end
```

Ruby - Modules

As namespaces

```ruby
module Foo
  class Bar; end
  def self.hello  # a module method
    puts "Hello"
  end
end

Foo::Bar.new      # :: is used for nested levels
Foo::hello        # invoking the hello method
Foo.hello         # the same thing
```

Ruby - Modules

As mixins:

```
module ShapeStuff
  def diameter
    2 * @radius
  end
end

class Circle
  include ShapeStuff
end

Circle.new(4).diameter    #=> 8
```

Ruby - Enumerable

Implement **`each`**

Include **`Enumerable`**

You get:

```
all?, any?, collect, detect, each_with_index,

entries, find, find_all, grep, include?,

inject, map, max, member?, min, partition,

reject, select, sort, sort_by, to_a, zip
```

Ruby - Comparable

Implement `<=>`

Include `Comparable`

You get:

`<`

`<=`

`==`

`>`

`>=`

`between?`

Ruby - Conclusions

- Language succinctness
- Malleability of language
  - Agile way of working
  - Quick turnaround
  - Support for writing domain specific languages
- Sources of innovation
  - Rails
  - Testing
- Language power

JRuby

Implementation of the Ruby language

Java 1.5+

1.8.7 compatible (1.9.2 about 80%)

Open Source

Created 2001

Embraces testing (~50,000 tests)

Current version: 1.6.1

EngineYard

ThoughtWorks

Differences

Most compatible alternative implementation

Native threads vs Green threads

No C extensions (well, some)

No continuations

No fork

ObjectSpace disabled by default

Why JRuby?

Threading

Unicode

Performance

Memory

Explicit extension API and OO internals

Libraries and legacy systems

Politics

Simple JRuby

Java integration

Java types == Ruby types

Call methods, construct instances

Static generation of classes

camelCase or snake_case

.getFoo(), setFoo(v) becomes .foo and .foo = v

Interfaces can be implemented

Classes can be inherited from

Implicit closure conversion

Extra added features to Rubyfy Java

Ant+Rake

Maven+Gems

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

Swing - the direct approach

```
java_import javax.swing.JFrame
java_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
```

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
```

Swing - Profligacy

Profligacy

the world needs less swing

```
class ProfligacyDemo
  java_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
```

Swing - MonkeyBars (tools)

- GUI editor friendly (e.g. NetBeans “Matisse”)
- Simple Ruby MVC based API
- Combines best of both worlds

monkeyBars

Testing

Ruby frameworks

Cucumber

JtestR

Google AppEngine

JRuby runs on it

JRuby-rack supports it

Google gems

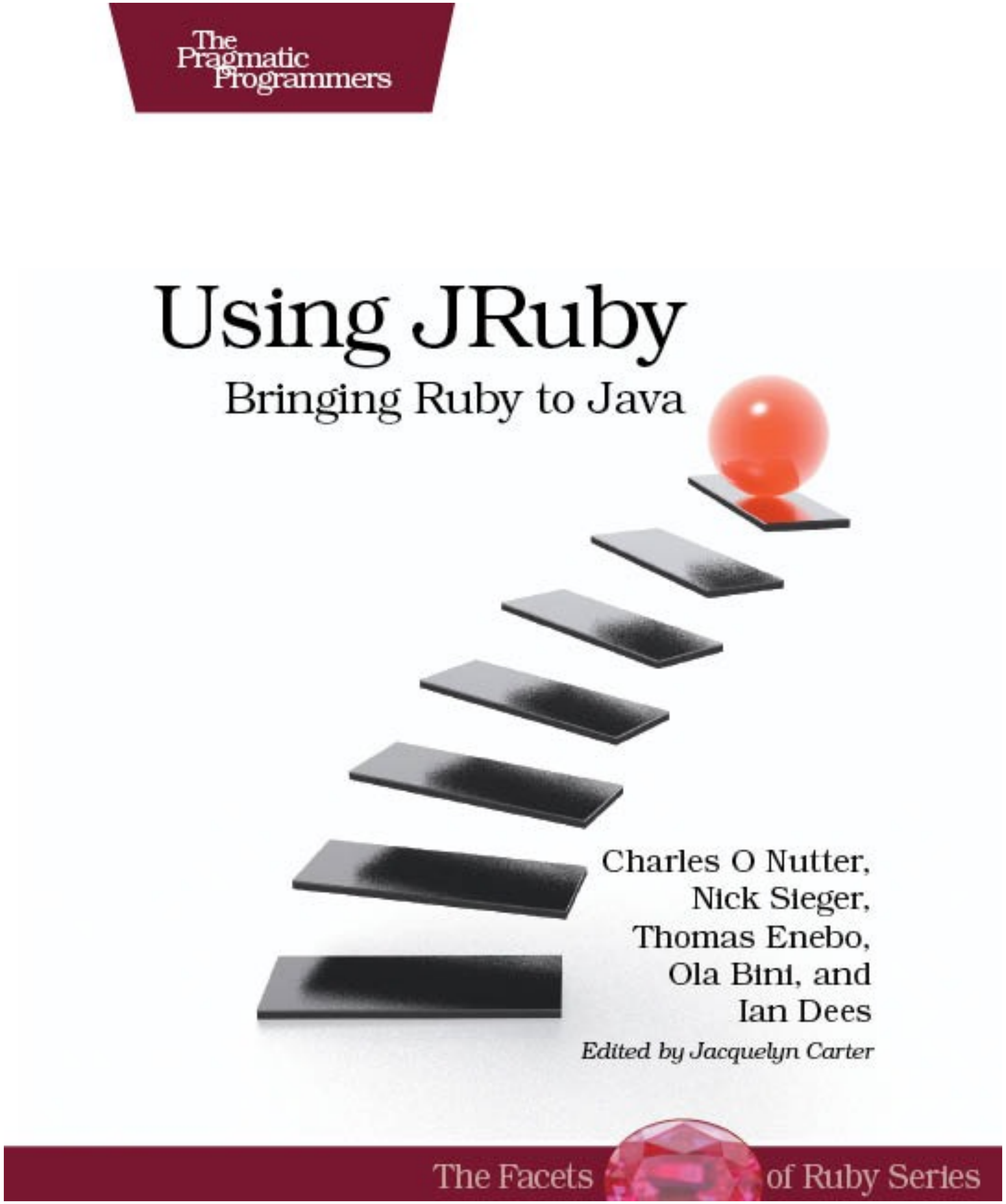
Startup time

Merb, Ramaze and Sinatra easy options

Rails works

Mobile

Clojure STM



The Pragmatic Programmers

Using JRuby

Bringing Ruby to Java

Charles O Nutter,
Nick Sieger,
Thomas Enebo,
Ola Bini, and
Ian Dees

Edited by Jacquelyn Carter

The Facets of Ruby Series

Questions?

Ola Bini

ThoughtWorks®

http://olabini.com
@olabini
obini@thoughtworks.com