JRuby

Enterprise 2.0

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ThoughtWorks

Agenda

- What are Ruby and JRuby?
- Benefits and Drawbacks
- Where to use?
- Demos
- Case studies

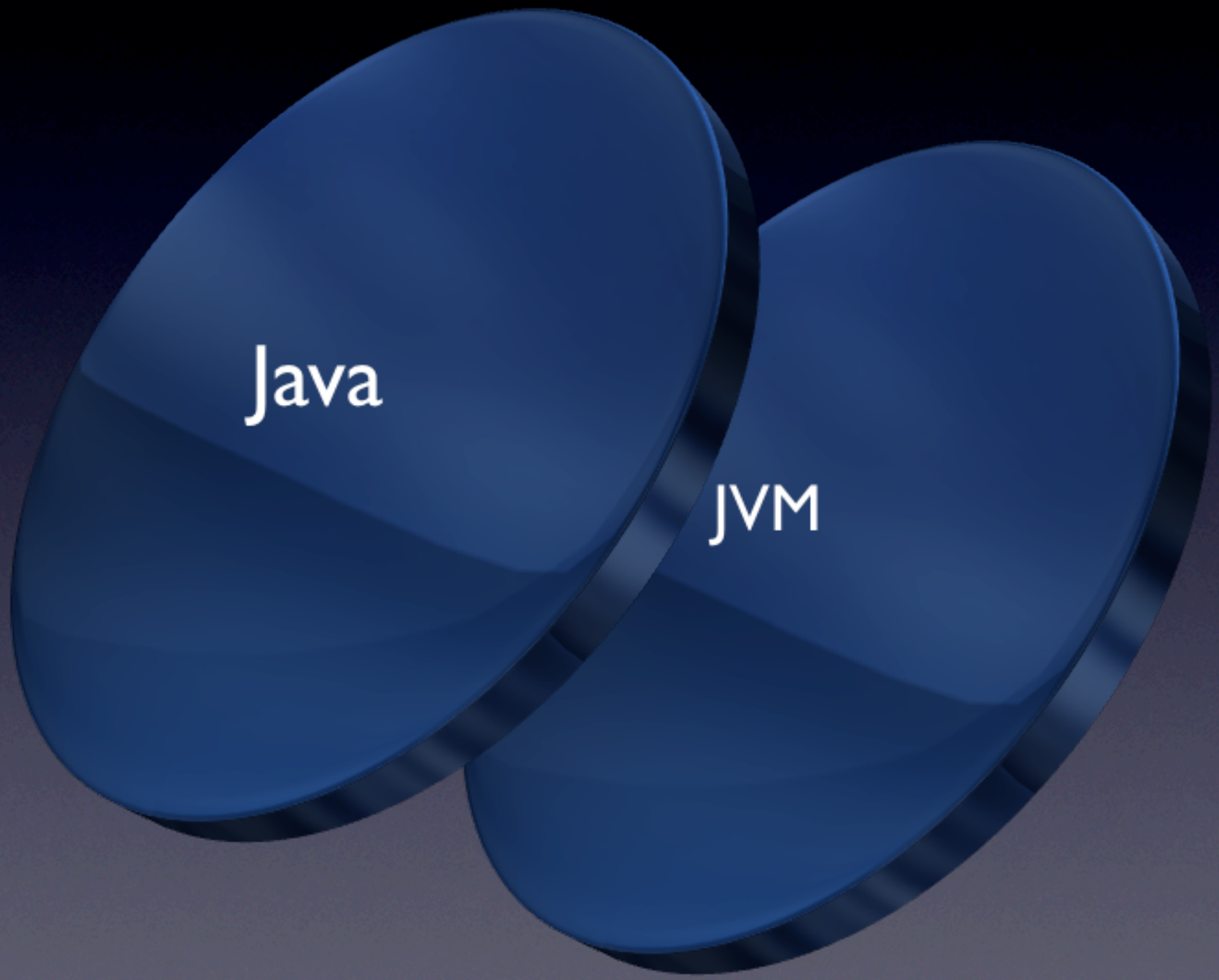
Ruby

- Created by Yukihiro Matsumoto in 1993
- Open Source
- Vibrant community
- Dynamically typed
- Pure OO
- Syntactically flexible for DSLs
- Advanced meta programming

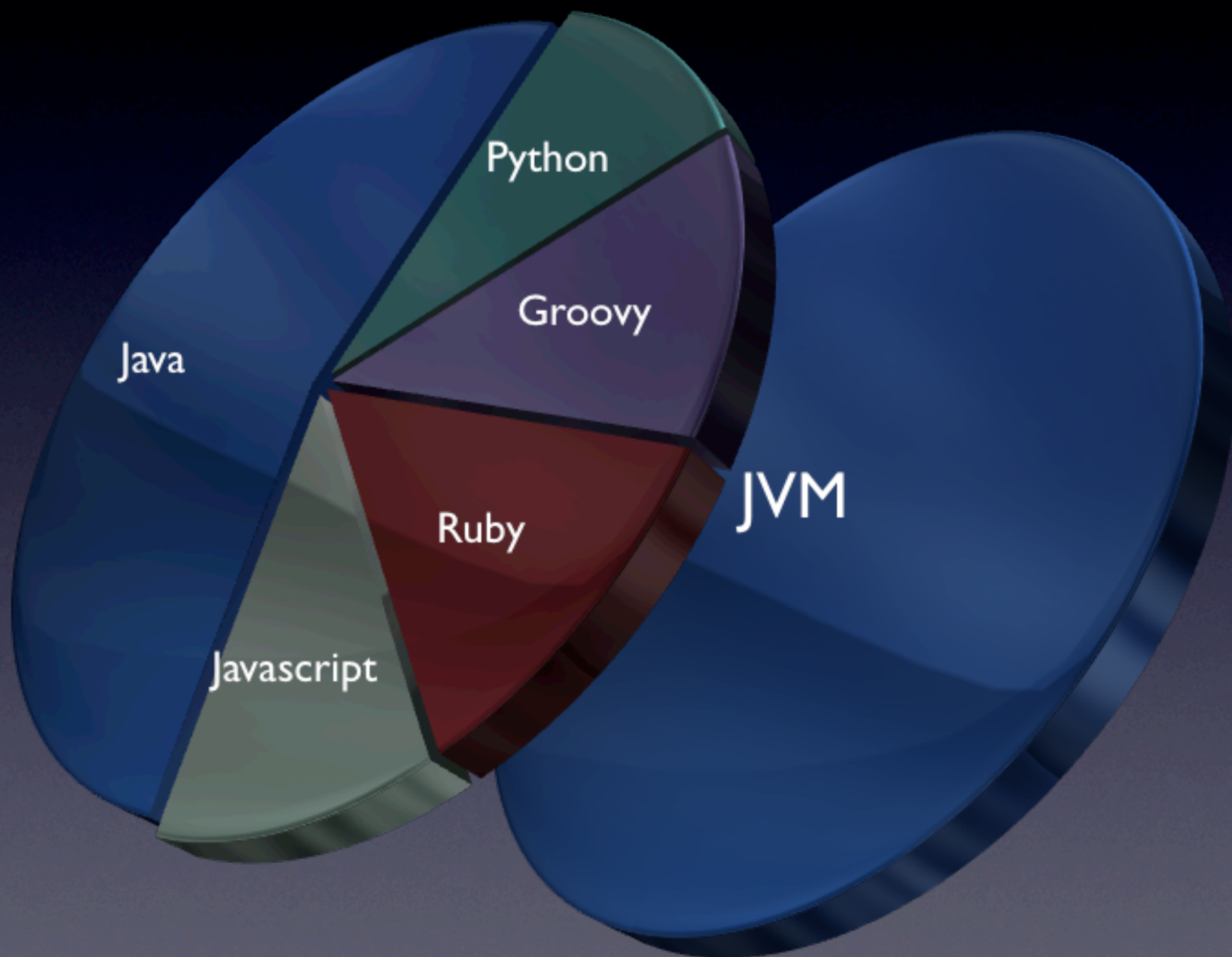
Ruby Runtimes

- MRI Matz's Ruby Interpreter in C (Ruby 1.8.6)
- YARV Yet another Ruby VM (Ruby 1.9)
- IronRuby .NET, DLR (alpha)
- Rubinius Alternative VM
- xRuby Compiler in Java
- **JRuby** on the JVM

Java platform



Today's Java Platform



JRuby

- Java implementation of Ruby
- Open Source
- Full time developers from Sun and ThoughtWorks
  - Charles Nutter, Thomas Enebo, Ola Bini et al
- Allows Ruby to call Java code and vice versa

Timeline

- Started around 2001 by Jan Arne Petersen
- JRuby 1.0 released in June 2007
- JRuby 1.1 RC2 just released
- 1.1 release out soon

Why JRuby?

- Ruby / Rails productivity & tools
- Java libraries and interoperability
- Run on any OS / JVM / App server
- Leverage existing infrastructure & ops skills
- Politics – it's just a WAR

JRuby advantages

- Native vs Green Threading
- World class garbage collection
- Unicode
- Runs the same on all platforms
- JIT & AOT compilation

JRuby disadvantages

- Large memory footprint
- Longer startup times
- No native C extensions
- Not technically complete

Ruby Demo

A Simple Ruby Class

```
class RubyDemo < Demo
    def say_hello
        5.times { puts “Hi from Ruby!” }
    end
    def greet(guests)
        guests.collect { |g| “Welcome #{g.name}” }
    end
end
>> RubyDemo.new.greet(josh, james)
=> [“Welcome Josh”, “Welcome James”]
```

Swing Demo

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

f = JFrame.new('Swing Demo')
f.set_size 300, 300
f.layout = java.awt.FlowLayout.new
button = JButton.new('Hi World!')
f.add(button)
f.show
```

Cheri Swing Demo

```
require 'cheri/swing'
include Cheri::Swing
f = swing.frame('Hello') {
    size 500, 500
    flow_layout
    button('Hello!') {
        on_click { puts 'Hi from Swing!' }
    }
}
```

Rails

- Originally written by DHH extracted from Basecamp
- Released as Open Source in 2004
- Complete web framework:
  - MVC framework with built-in REST / AJAX support
  - O-R mapping framework
  - Standard directory structure
  - Simple templating language for views
  - Plug-in framework

JRuby on Rails demo

- GoldSpike
  - Packages a WAR for any Java app server
  - Automatically creates extra runtimes
- Warbler
  - Easy to use wrapper around GoldSpike
- Glassfish Rails gem
  - Gem containing Glassfish v3 and Grizzly

Where to use?

- Enterprise Glue
- Web 1.0 / 2.0 Apps
- Ruby tools for Java

JRuby as Enterprise Glue

- Aggregating, synchronising and displaying data from different systems
- Productivity benefits of using Ruby / Rails
- Leverage existing Java code
- Better JMS integration
- Best of both worlds

Case Study

- Enterprise glue in a large investment bank
- Different systems with partial information
- JRuby webapp aggregates and displays data
- Built in 4 months
- Connects to different systems
  - JDBC (Sybase, Oracle)
  - XML over HTTPS (Ruby + Java)
  - REST over HTTPS (Ruby + Java)
  - SOAP (xFire)

Mingle

- ThoughtWorks Studios first product
- Agile Project Management application
- Built with Ruby on Rails, deployed on JRuby
- v1.0 built in < 1 year
- v1.1 released 3 months later
- v2.0 due for release soon

JRuby and Mingle

- Developed in MRI deployed on JRuby
- Stable deployment
- Speed of development
- Java libraries
  - charting, search, PDF, encryption
- Obfuscating ruby code
- Large memory footprint / speed

Ruby Tools

- Gems
  - Simple package management

```
> gem install activescaffold
```

- Rake
  - Build tool

```
> rake db:migrate
```

- Capistrano
  - Flexible deployment tool

```
> cap production deploy
```

Rake

```
desc “Generate application code”
task :code_gen do
  # do the code generation
end

desc “Compile code”
task :compile => [:code_gen] do
  #do the compilation
end

desc “Test application”
task :test => [:compile] do
  # run the tests
end
```

Capistrano

```
desc "Start ferret server"
task :start, :role => :app do
  run "cd #{current_path}; script/ferret_server -e #{stage} start"
end

desc "Stop ferret server"
task :stop, :role => :app do
  run "cd #{current_path}; script/ferret_server -e #{stage} stop"
end

desc "Restart ferret server"
task :restart, :role => :app do
  ferret.server.stop
  sleep(5)
  ferret.server.start
end
```

Unit test Java code

```
require 'test/unit'
require 'java'

import java.util.ArrayList

class ArrayListTest < Test::Unit::TestCase

  def test_adding_object_to_arraylist
    list = ArrayList.new
    list.add("element")
    assert_equal(1, list.size)
  end

end
```

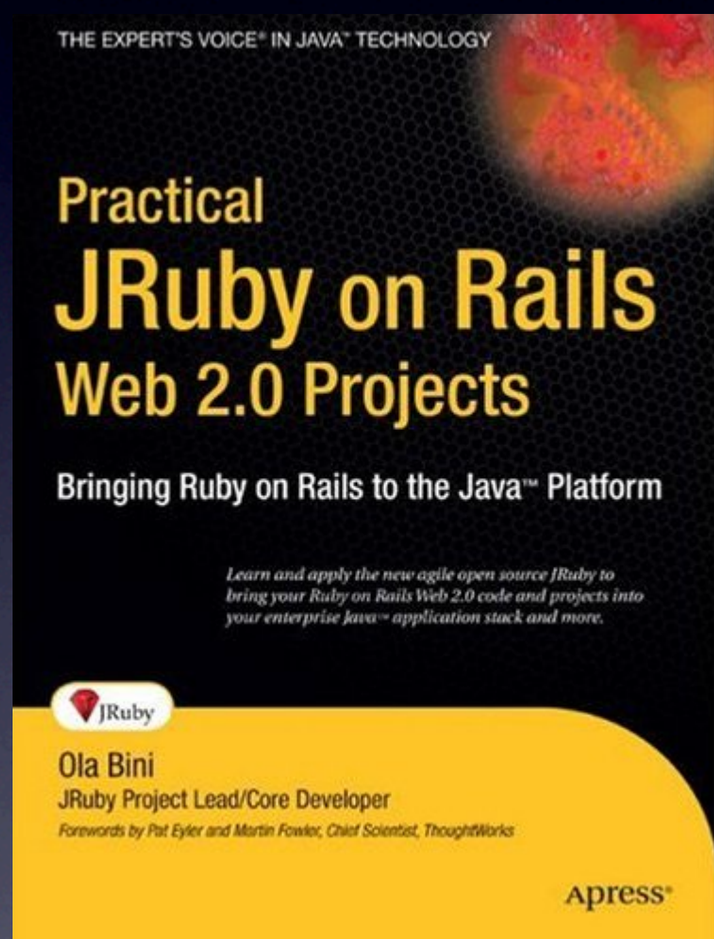
RSpec Java code

```
require 'spec'
require 'java'

import java.util.ArrayList

describe "ArrayList with no elements" do

  it "should have one element after adding a string" do
    list = ArrayList.new
    list.add("element")
    list.size.should == 1
  end

end
```

Adoption issues

- Few developers in the market
- Smaller community than Ruby or Java
- Less books, google hits, documentation
- Less training and support options
- Diverging from the “one true language”

Adoption



- Ola's book
- Growing community
- Mailing lists & blogs

Summary

- Ruby / Rails productivity
- Web apps and system integration
- Leverage your Java investment
- Deploy to mature Java production environment
- Already used in production

Questions?

References

JRuby

http://www.jruby.org

Ola Bini's blog & book

http://ola-bini.blogspot.com/

Charles Nutter's blog

http://headius.blogspot.com/

James' blog (for slides)

http://jamescrisp.org/