



# Traveling Light: Porting to JRuby

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RailsConf 2011



**@diaffalo**

diaffalo

when i announced my [#jruby](#) porting project on friday, i didn't actually do anything 'til monday morning. i was done monday morning.

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# Java



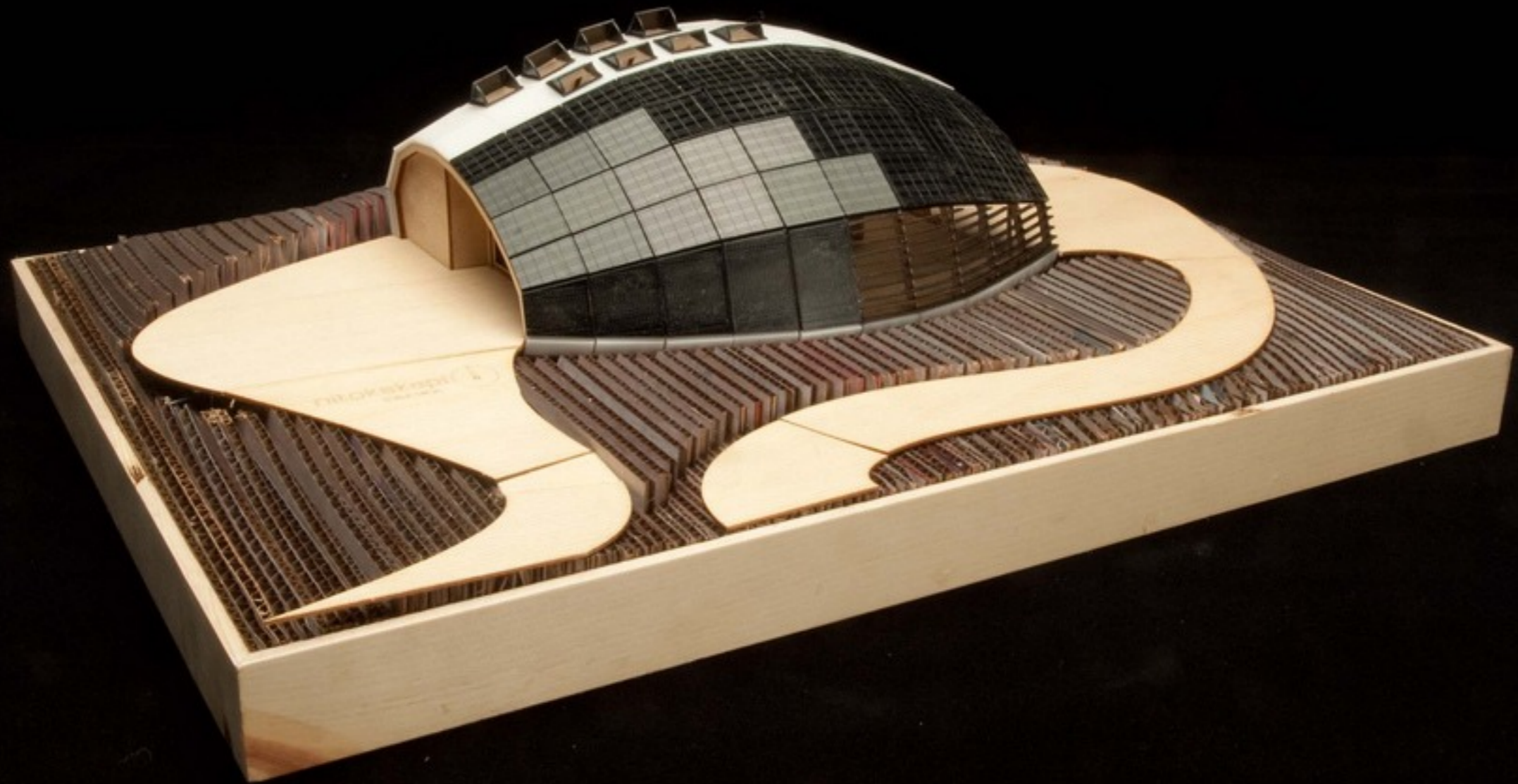
A photograph of the Tower Bridge in London at night. The bridge is illuminated with warm lights, and its reflection is visible in the water of the River Thames. The sky is a deep blue with some clouds. The word "Stability" is written in large, white, bold letters across the center of the image.

# Stability

An aerial night photograph of a dense urban landscape. The city is illuminated with various lights, including streetlights and building lights. A prominent feature is a tall, slender tower in the center, which is brightly lit with a warm, orange glow. The tower has a unique, twisted or braided appearance. Surrounding the tower are numerous other buildings of varying heights, some with lit windows. In the foreground, there are roads with traffic, indicated by light trails from cars. The overall scene is a vibrant, high-angle view of a city at night.

# Concurrency

# Mental Model





**@RoflscaleTips**

Roflscale Tips

Array#dup is slow. Try splatting the array you want to duplicate into an empty one instead for more speed: [\*arr]

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# Uncertainty

```
/* ruby/struct.c */
static VALUE rb_struct_equal(VALUE s, VALUE s2) {
    /* ... */

    if (RSTRUCT_LEN(s) != RSTRUCT_LEN(s2)) {
        rb_bug("inconsistent struct"); /* should never happen */
    }

    /* ... */
}
```

**O RLY?!**



# How could this code fail?

```
class ExpensiveToCreate
  def self.instance
    @instance ||= ExpensiveToCreate.new
  end
end
```

# How could this code fail?

```
class ExpensiveToCreate
  def self.instance
    unless defined?(@instance)
      @instance = ExpensiveToCreate.new
    end
  end
end
```

# How could this code fail?

```
class ExpensiveToCreate
  def self.instance
    unless defined?(@instance)
      @instance = ExpensiveToCreate.allocate
    end
    @instance.initialize # big pause here
    @instance
  end
end
end
```

**T2** →

**T1** →

# Avoid shared mutable state, lazy initialization

```
MutableConstant.merge! :key => value
```

```
class MemoryCache
  def self.cache
    @cache ||= {}
  end
end
end

$global_lock.do_something!
```

**Difficult to observe  
with green threads**

```
data = []
M.times do |m|
  Thread.new do
    N.times do |n|
      data << m * n
    end
  end
end
end
```

**OK**

**method def**  
**class def**  
**class vars**

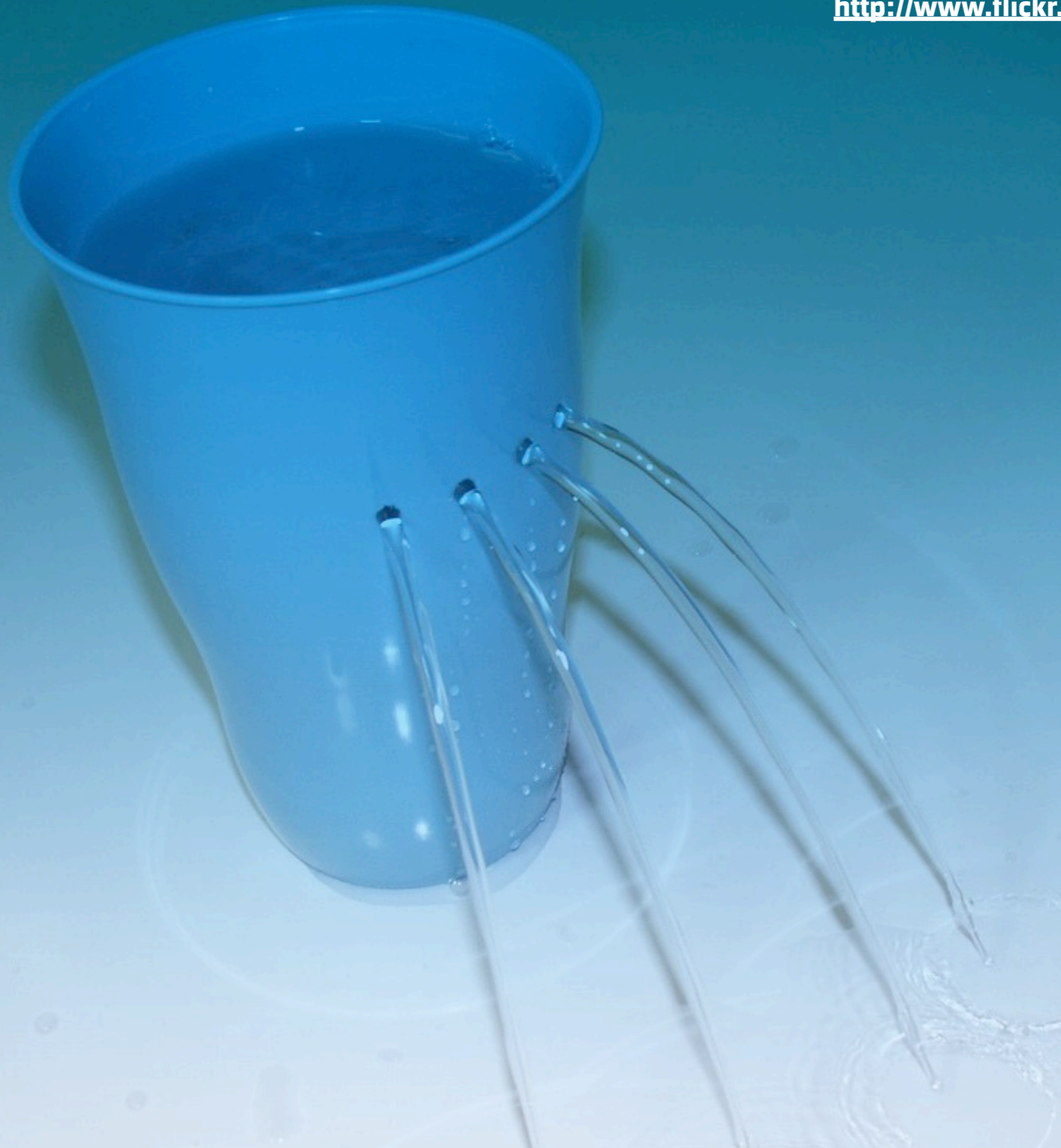
**NOT OK**

**instance vars**  
**String**  
**Array**  
**Hash**



# **C Extensions!**





# JRuby's C-Ext API

```
#include <ruby.h>
```

**Objects**

**Java**

*objectToValue*

*valueToObject*

**VALUEs**

**C**

```
#define RHASH \  
  ({ JRuby does not support RHASH })
```

**Stop the Madness!**

# Dream last year



```
$ gem install jruby-lint
$ cd ~/my-rails-app
$ jrlint
Gemfile:12: unsupported 'sqlite3-ruby' gem
lib/worker.rb:22: uses Kernel#fork
...
```



**<http://jrubby.org/download>**

**rvm install jrubby**

```
INSTALL > gem install jrubby-lint
```

```
$ jrlint
```

# JRuby-Lint

# JRuby 1.7

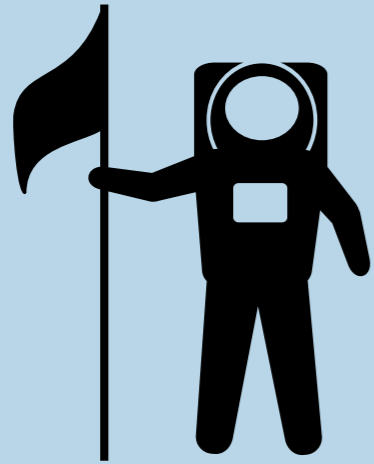
Java 7 arrives this summer  
<invokedynamic>



**ONE WAY**

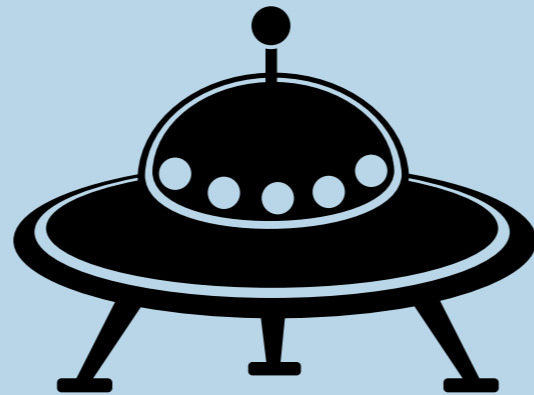
# Meet the JVM





**Stability**

**JVM**



**Monitoring/  
Tools**



**Native Threads**



**Performance**

**Parallelism**  
**HotSpot compiler**  
**Visual VM**

# Pick a Server

<http://ey.io/webservers>

**Trinidad**

**Mizuno**

**Kirk**

**TorqueBox**



# Distribute your app

<https://github.com/nicksieger/warbler>

```
INSTALL > gem install warbler
```

```
$ cd recordstore
```

```
$ warble executable war  
rm -f recordstore.war  
Creating recordstore.war
```

```
$ java -jar recordstore.war  
<server starts on port 8080>
```



**יורק**

**1.6.1**

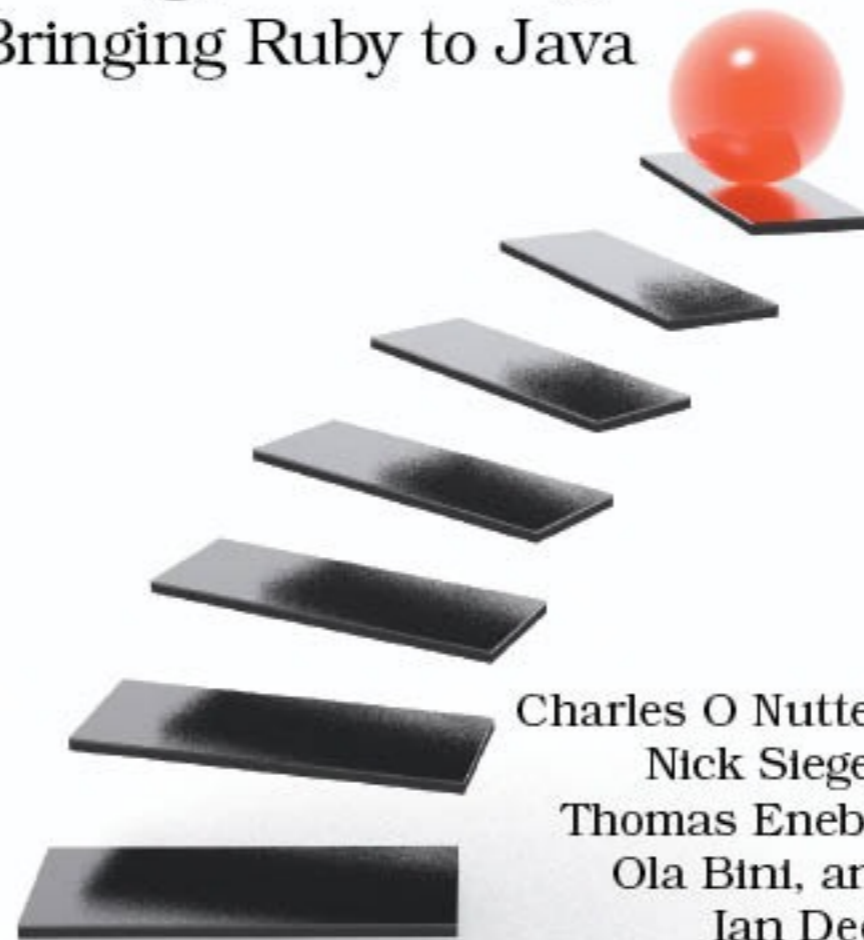
+

AppCloud

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