Traveling Light: Porting to JRuby

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when i announced my #jruby porting project on friday, i didn't actually do anything 'til monday morning. i was done monday morning.
Java
Stability

http://www.flickr.com/photos/anirudhkoul/3499471010/
Concurrency
Mental Model

http://www.flickr.com/photos/solar_decathlon/4524503892/
Array#dup is slow. Try splatting the array you want to duplicate into an empty one instead for more speed: [*arr]
/* 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 */
    }

    /* ... */
}
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
      @instance.initialize # big pause here
    end
  end
end
Avoid shared mutable state, lazy initialization

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

class MemoryCache
  def self.cache
    @cache ||= {}
  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
<table>
<thead>
<tr>
<th>OK</th>
<th>NOT OK</th>
</tr>
</thead>
<tbody>
<tr>
<td>method def</td>
<td>instance vars</td>
</tr>
<tr>
<td>class def</td>
<td>String</td>
</tr>
<tr>
<td>class vars</td>
<td>Array</td>
</tr>
<tr>
<td></td>
<td>Hash</td>
</tr>
</tbody>
</table>
C Extensions!
JRuby’s C-Ext API

#include <ruby.h>
#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://jruby.org/download

rvm install jruby

$ jrlint
JRuby-Lint
JRuby 1.7
Java 7 arrives this summer
<invokedynamic>
Meet the JVM
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>
Using JRuby
Bringing Ruby to Java

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

Edited by Jacquelyn Carter