



## JRuby and the JVM

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Monday, May 8, AD 2017

Ruby is my ~~most second~~ third favorite  
programming language of all time.

1. My own super-awesome programming language, Teepee  
*(but it's not that awesome just yet)*

2. Common Lisp

3. Ruby

4. C

5. Clojure

...

999. Java

JRuby is Ruby, on the JVM.



## Ruby on the JVM?

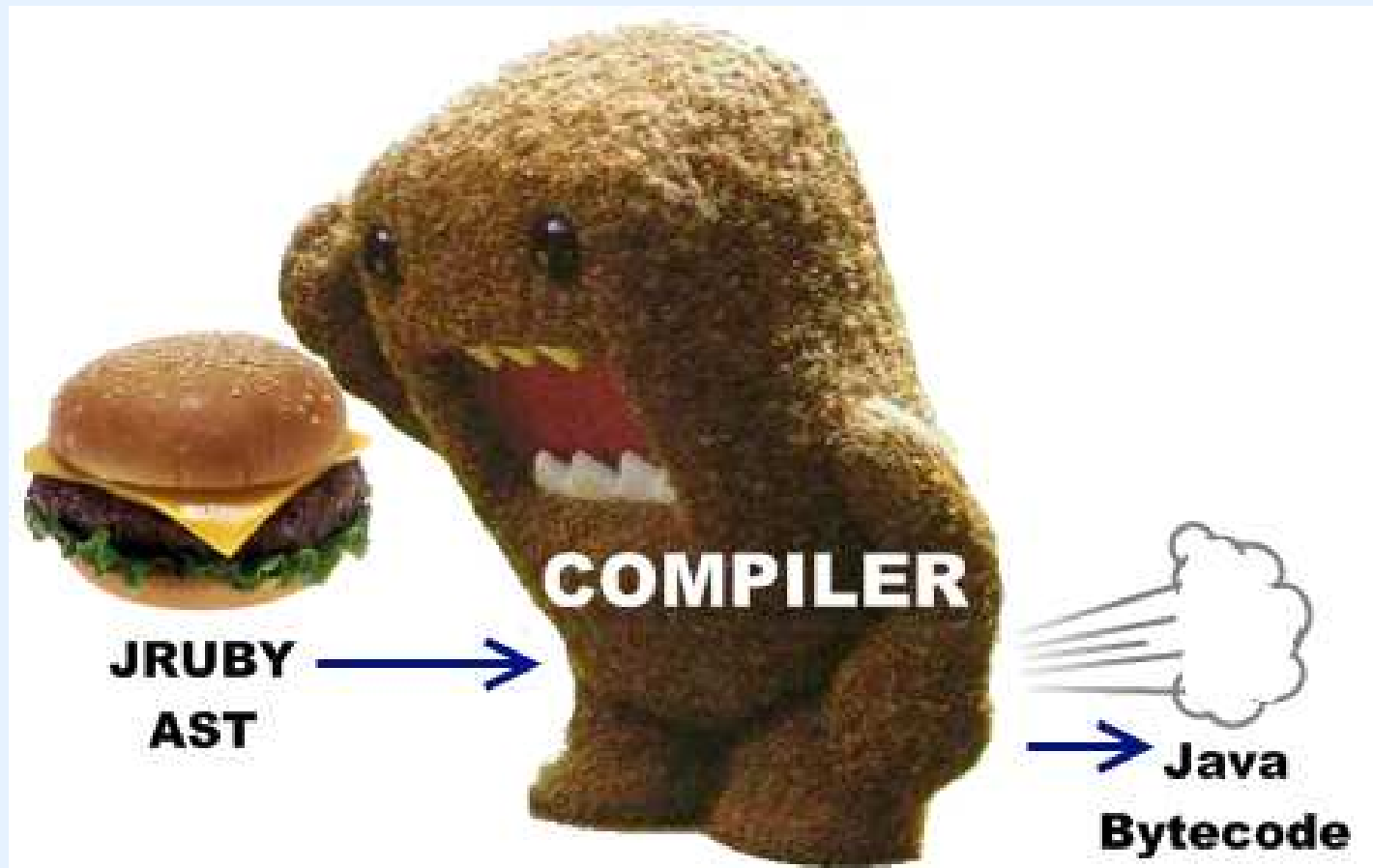
### Why would we want Ruby on the JVM?



Because there's tons of great libraries for everything.



I found this image on the internet that describes very accurately how JRuby works.



## Getting Started

1. Download it from `http://jruby.org/download`  
...Or `brew install jruby` on OS X  
...Or `rvm install jruby` if you use RVM
2. Run jruby from your shell
3. Make code!

## CON: The JVM takes forever to start up

```
$ time jruby -e "puts 'hi'"
```

```
hi
```

```
real 0m1.761s
```

```
user 0m4.800s
```

```
sys 0m0.235s
```

```
$ time ruby -e "puts 'hi'"
```

```
hi
```

```
real 0m0.595s
```

```
user 0m0.054s
```

```
sys 0m0.050s
```



**CON: Until the JIT kicks in it's actually considerably slower than MRI.**

**CON: Even after the JIT kicks in, it's not really that much faster.**

## CON: THE JVM WANTS ALL OF YOUR RAM AND IT WANTS IT NOW.

%CPU	%MEM	VSZ	RSS	COMMAND
0.0	0.1	2475044	9300	ruby -e sleep 60

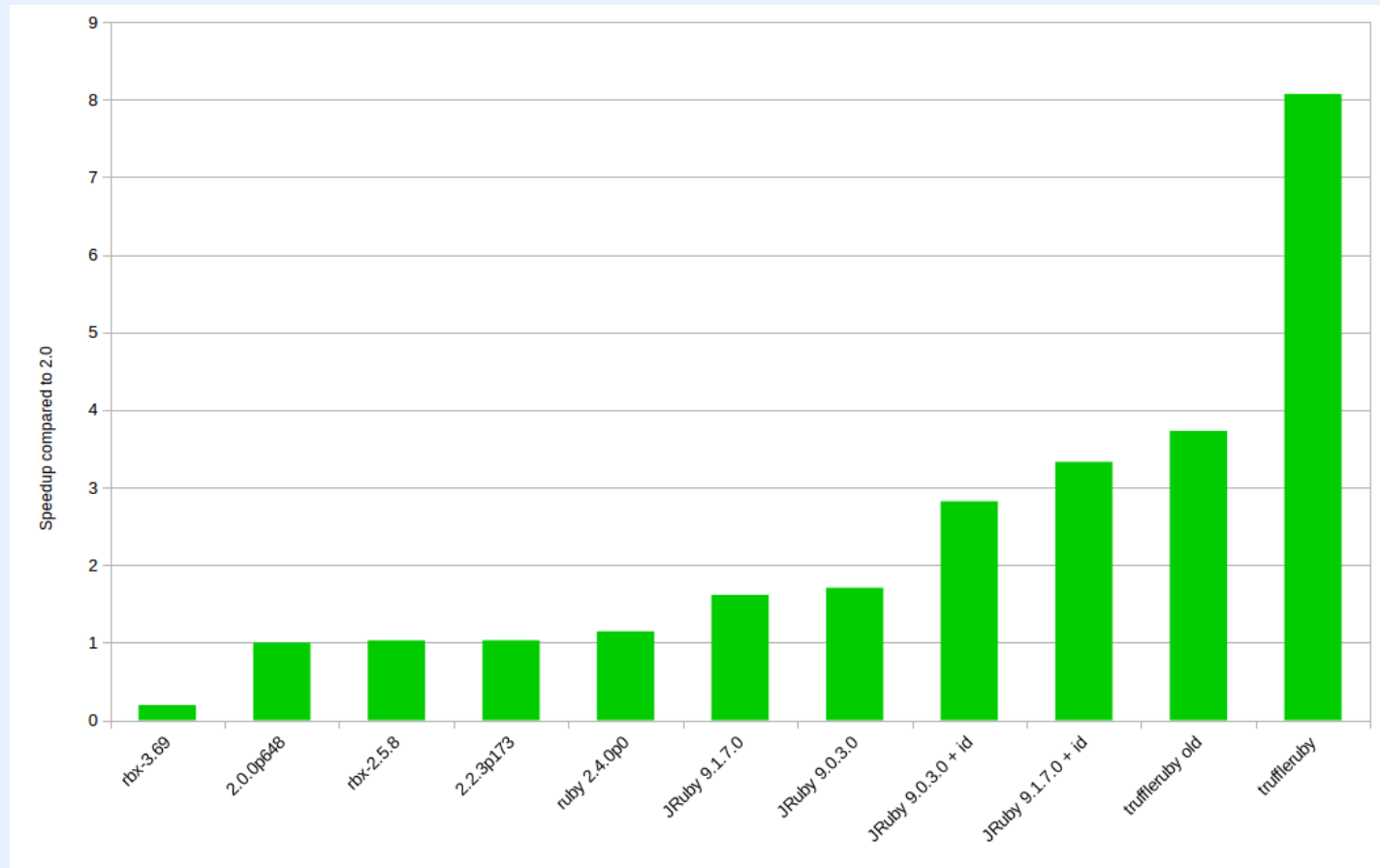
%CPU	%MEM	VSZ	RSS	COMMAND
0.0	1.0	8325372	164520	... org.jruby.Main -e sleep 60

VSZ: virtual memory size, all memory that the process can access, including memory that is swapped out and memory that is from shared libraries.

RSS: resident set size, how much memory is allocated to that process and is in RAM.

**No (practical) C extension support, just FFI and Java stuff.**

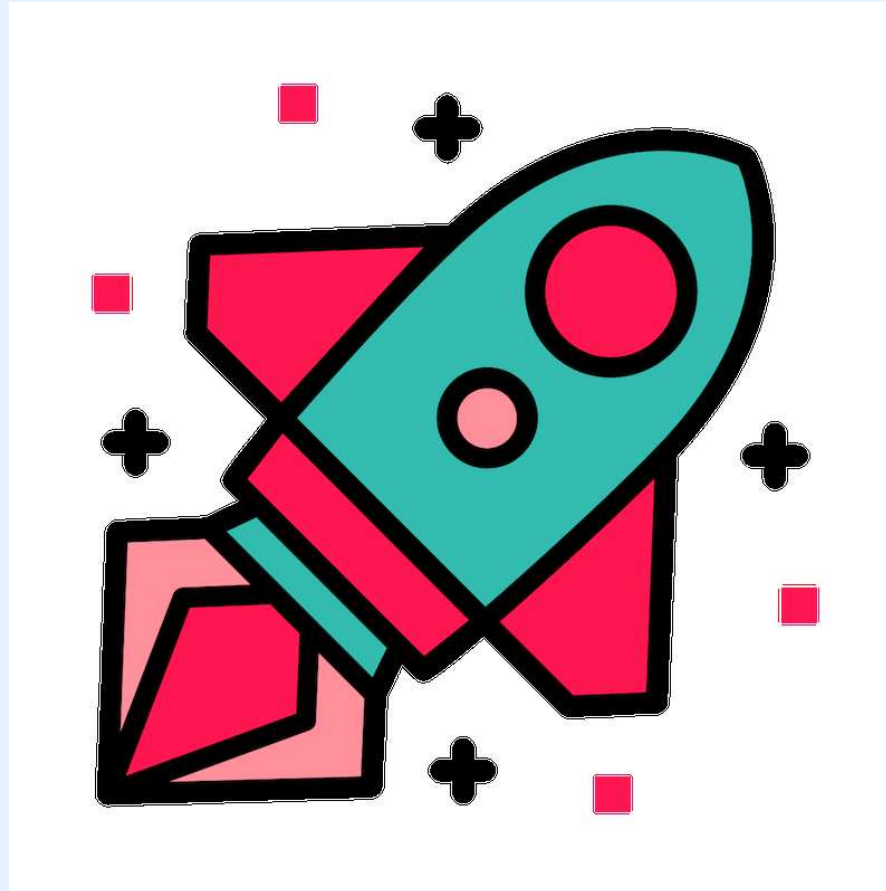
## PRO: It's often faster than MRI.



<https://pragtob.wordpress.com>

[/2017/01/24/benchmarking-a-go-ai-in-ruby-cruby-vs-rubinius-vs-jruby-vs-truffle-a-year-later/](https://pragtob.wordpress.com/2017/01/24/benchmarking-a-go-ai-in-ruby-cruby-vs-rubinius-vs-jruby-vs-truffle-a-year-later/)

...Although, nowhere near as fast as  
TruffleRuby apparently, also on the JVM.



<http://chrisseaton.com/rubytruffle/>

## So let's just use TruffleRuby, right?

- No OpenSSL support
- No Nokogiri
- No ActiveRecord device drivers
- Only some of the Rails test suite passes

Maybe in a few years?

**So let's stay with JRuby for now.  
You can run (nearly) any normal Ruby code.**

```
$ jruby -e '5.times {|i| puts "hi #{i}"}'  
hi 0  
hi 1  
hi 2  
hi 3  
hi 4
```



It's easy to use use in scripts.

```
1 #!/usr/bin/env jruby  
2 # -*- mode: ruby -*-  
3  
4 puts "Hello, JVM!"
```

## Most Ruby gems are available and work.

```
$ jgem install nokogiri
```

```
1 #!/usr/bin/env jruby
2 # -*- mode: ruby -*-
3 require 'nokogiri'
4 doc = Nokogiri::XML \
5     "<root>
6     <aliens>
7     <alien>
8     <name>Alf</name>
9     </alien>
10    </aliens>
11    </root>"
12 puts doc.xpath("//name").first.content # Alf
```

## Let's play with Java.

```
1 #!/usr/bin/env jruby
2 # -*- mode: ruby -*-
3 require 'java' # you want Java
4 # Java classes
5 frame = javax.swing.JFrame.new "Window"
6 label = javax.swing.JLabel.new "Hello"
7 # Java methods
8 frame.add label
9 frame.setDefaultCloseOperation \
10     javax.swing.JFrame::EXIT_ON_CLOSE
11 frame.pack
12 frame.setVisible true
```

But I've got my own really awesome Java code that there's no way I'd ever be able to reimplement in Ruby, it's just too awesome.

```
1 public class HelloWorld {  
2     public static void main(String[] args) {  
3         System.out.println("Hello, _World");  
4     }  
5 }
```

```
$ javac HelloWorld.java
```

```
$ jar cvfe HelloWorld.jar HelloWorld HelloWorld.class
```

Don't worry, we can get to it.

```
1 #!/usr/bin/env jruby  
2 # -*- mode: ruby -*-  
3 require 'java'  
4 require './HelloWorld.jar'  
5 Java::HelloWorld.main [""]
```

## But.Java.Classes.Are.Namespaced.Forever.Deep

```
1 #!/usr/bin/env jruby
2 # -*- mode: ruby -*-
3 require 'java'
4 java_import javax.swing.JFrame
5 java_import javax.swing.JLabel
6 frame = JFrame.new "Window"
7 label = JLabel.new "Hello"
8 frame.add label
9 frame.setDefaultCloseOperation \
10     JFrame::EXIT_ON_CLOSE
11 frame.pack
12 frame.setVisible true
```

## You don't need sillyCamelCaseNonsense or getThatThing or setThatThing.

`x.getSomething`

`x.something`

`x.setSomething(newValue)`    `x.something = new_value`

`x.isSomething`

`x.something?`

So our code looks a lot more reasonable now.

```
1 #!/usr/bin/env jruby
2 # -*- mode: ruby -*-
3 require 'java'
4 java_import javax.swing.JFrame
5 java_import javax.swing.JLabel
6 frame = JFrame.new "Window"
7 label = JLabel.new "Hello"
8 frame.add label
9 frame.default_close_operation =
10   JFrame::EXIT_ON_CLOSE
11 frame.pack
12 frame.visible = true
```



## You can implement Java interfaces with Ruby classes.

```
1 class SomeJRuby
2   include java.lang.Runnable
3   include java.lang.Comparable
4
5   # ... do stuff ...
6 end
```

**jrubyc, for when you want to get to your JRuby  
from Java (or Clojure, or Scala, or ...)**

```
1  class Foo
2    def bar(a, b)
3      puts a + b
4    end
5  end
```

```
$ jrubyc --javac ruby_foo.rb
```

**Now there will be `Foo.java` and `Foo.class` files  
for you to use in your other JVM stuff.**

## What does this mean?

- We can write a Ruby on Rails app ...
- And then move it over to JRuby on the JVM ...
- And then have real multi-threading ...
- And have Clojure libraries that we can use within our Rails app.

*Questions?*