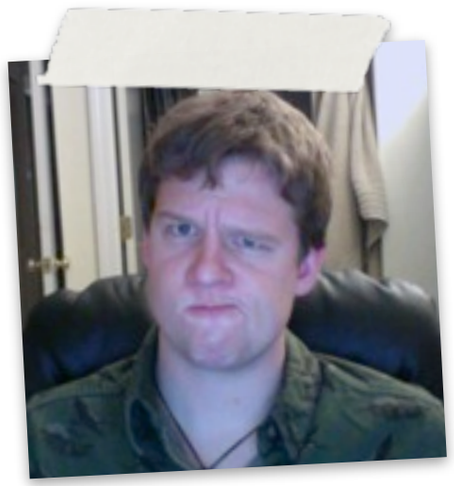
Actually Invented Here

A plea for re-inventing the wheel

BACK ◆ FORTY



Flip Sasser

@flipsasser

https://github.com/flipsasser

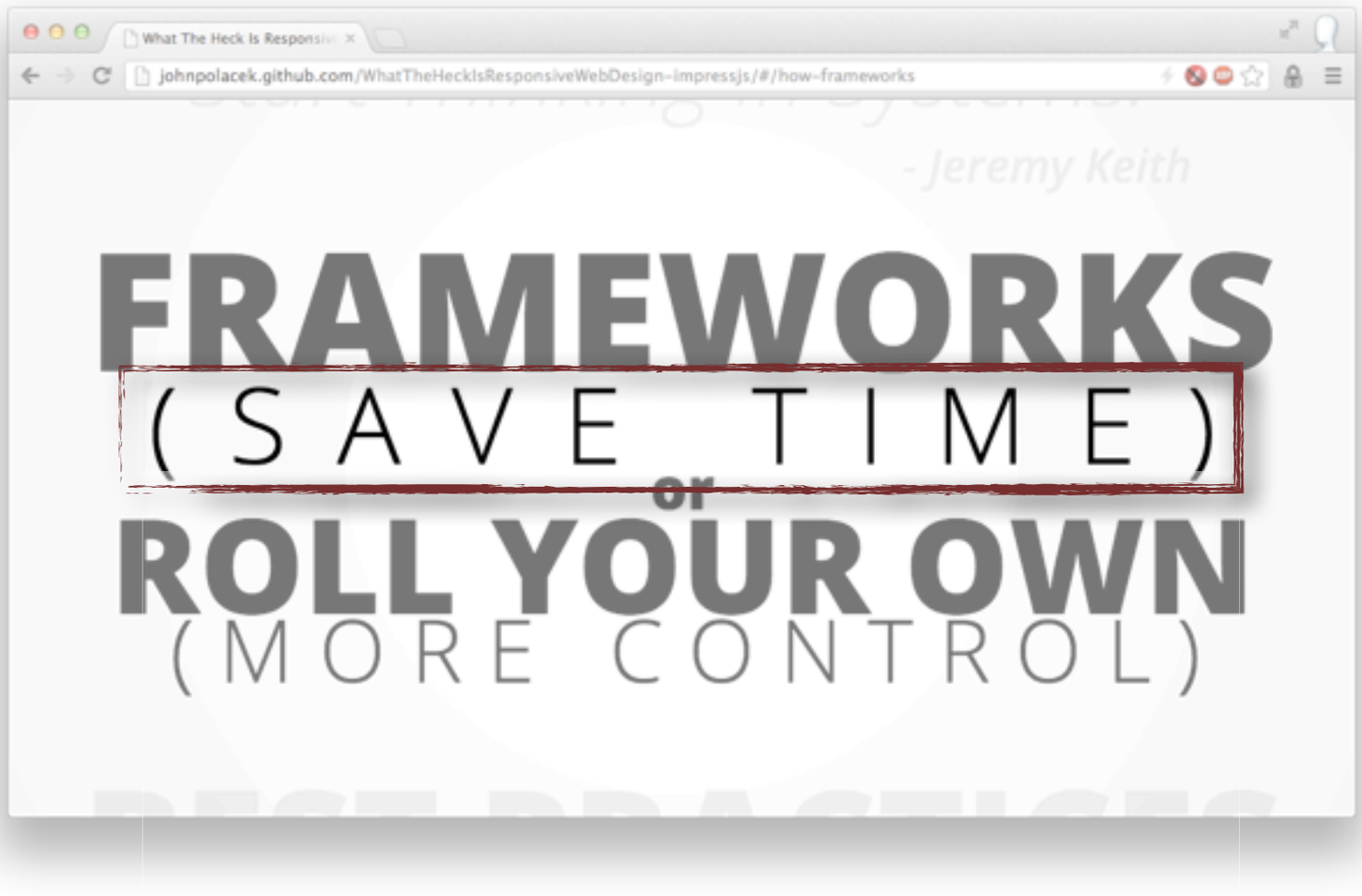
flip@inthebackforty.com

https://github.com/BackForty/actually_invented_here

BACK ◆ FORTY

“Not Invented Here” syndrome

Digital nationalism



"Frameworks save time."

BACK FORTY

How this gets reinforced:

BACK ◆ FORTY

Social pressure

“Rails is omakase. Do it my way.”

“Just install x”

BACK ◆ FORTY

Client pressure

"Isn't there something for *y* already?"

BACK ◆ FORTY

You pressure

“I don’t have (time|skill|energy|capacity) to build *z*”

(bullshit)

> You're more inclined to use a tool when you don't understand what it's doing.

- the brilliant Micah Cooper

BACK ◆ FORTY

A simple Gemfile: WomanNYC.com*

```
1  source :rubygems
2
3  gem 'rails', '>= 3.2.11'
4  gem 'pg'
5
6  gem 'active_shipping'
7  gem 'addressable'
8  gem 'bodega', '>= 0.4.8'
9  gem 'carrierwave', '0.7.1'
10 gem 'numbers_and_words'
11 gem 'paypal-express'
12 gem 'rmagick'
13
14 group :assets do
15   gem 'less-rails'
16   gem 'therubyracer', '0.10.2', platforms: :ruby
17   gem 'uglifier', '>= 1.0.3'
18 end
19
20 group :production do
21   gem 'fog', '~> 1.3.1'
22 end
```

* test libraries removed

BACK ◆ FORTY

Its friend, Gemfile.lock

```
GIT
  remote: https://github.com/flipsasser/bodega.git
  revision: c6204280b7569b63676e754cc691c8485d920d46
  specs:
    bodega (0.4.8)
      activerecord (>= 3.2.11)
      configurator2 (>= 0.1.3)
      i18n
      maintain
      money-rails

GEM
  remote: http://rubygems.org/
  specs:
    actionmailer (3.2.11)
      actionpack (= 3.2.11)
      mail (~> 2.4.4)
    actionpack (3.2.11)
      activemodel (= 3.2.11)
      activesupport (= 3.2.11)
      builder (~> 3.0.0)
      erubis (~> 2.7.0)
      journey (~> 1.0.4)
      rack (~> 1.4.0)
      rack-cache (~> 1.2)
      rack-test (~> 0.6.1)
      sprockets (~> 2.2.1)
    active_shipping (0.9.14)
      active_utils (>= 1.0.1)
      activesupport (>= 2.3.5)
      builder
      i18n
      json (>= 1.5.1)
    active_utils (1.0.5)
      activesupport (>= 2.3.11)
```

BACK ◆ FORTY

Its friend, Gemfile.lock

```
      i18n
    activemodel (3.2.11)
      activesupport (= 3.2.11)
      builder (~> 3.0.0)
    activerecord (3.2.11)
      activemodel (= 3.2.11)
      activesupport (= 3.2.11)
      arel (~> 3.0.2)
      tzinfo (~> 0.3.29)
    activeresource (3.2.11)
      activemodel (= 3.2.11)
      activesupport (= 3.2.11)
    activesupport (3.2.11)
      i18n (~> 0.6)
      multi_json (~> 1.0)
    addressable (2.3.2)
    arel (3.0.2)
    attr_required (0.0.5)
    builder (3.0.4)
    carrierwave (0.7.1)
      activemodel (>= 3.2.0)
      activesupport (>= 3.2.0)
    commonjs (0.2.6)
    configurator2 (0.1.3)
    erubis (2.7.0)
    excon (0.13.4)
    execjs (1.4.0)
      multi_json (~> 1.0)
    fog (1.3.1)
      builder
      excon (~> 0.13.0)
      formatador (~> 0.2.0)
      mime-types
      multi_json (~> 1.0)
      net-scp (~> 1.0.4)
```

BACK ◆ FORTY

Its friend, Gemfile.lock

```
71      net-ssh (>= 2.1.3)
72      nokogiri (~> 1.5.0)
73      ruby-hmac
74    formatador (0.2.4)
75    hike (1.2.1)
76    i18n (0.6.1)
77    journey (1.0.4)
78    json (1.7.6)
79    less (2.2.2)
80      commonjs (~> 0.2.6)
81    less-rails (2.2.6)
82      actionpack (>= 3.1)
83      less (~> 2.2.0)
84    libv8 (3.3.10.4)
85    mail (2.4.4)
86      i18n (>= 0.4.0)
87      mime-types (~> 1.16)
88      treetop (~> 1.4.8)
89    maintain (0.2.23)
90    mime-types (1.21)
91    money (5.1.0)
92      i18n (~> 0.6.0)
93    money-rails (0.7.1)
94      activesupport (~> 3.0)
95      money (~> 5.1.0)
96      railties (~> 3.0)
97    multi_json (1.5.0)
98    net-scp (1.0.6)
99      net-ssh (>= 2.6.5)
100   net-ssh (2.6.5)
101   nokogiri (1.5.6)
102   numbers_and_words (0.5.0)
103     activesupport
104     i18n
105   paypal-express (0.5.3)
```

BACK ◆ FORTY

Its friend, Gemfile.lock

```
106       activesupport (>= 2.3)
107       attr_required (>= 0.0.5)
108       i18n
109       restclient_with_cert
110     pg (0.14.1)
111     polyglot (0.3.3)
112     rack (1.4.5)
113     rack-cache (1.2)
114       rack (>= 0.4)
115     rack-ssl (1.3.3)
116       rack
117     rack-test (0.6.2)
118       rack (>= 1.0)
119     rails (3.2.11)
120       actionmailer (= 3.2.11)
121       actionpack (= 3.2.11)
122       activerecord (= 3.2.11)
123       activeresource (= 3.2.11)
124       activesupport (= 3.2.11)
125       bundler (~> 1.0)
126       railties (= 3.2.11)
127     railties (3.2.11)
128       actionpack (= 3.2.11)
129       activesupport (= 3.2.11)
130       rack-ssl (~> 1.3.2)
131       rake (>= 0.8.7)
132       rdoc (~> 3.4)
133       thor (>= 0.14.6, < 2.0)
134     rake (10.0.3)
135     rdoc (3.12.1)
136       json (~> 1.4)
137     rest-client (1.6.7)
138       mime-types (>= 1.16)
139     restclient_with_cert (0.0.8)
140       rest-client (>= 1.6)
```

BACK ◆ FORTY

Its friend, Gemfile.lock

```
141     rmagick (2.13.2)
142     ruby-hmac (0.4.0)
143     sprockets (2.2.2)
144       hike (~> 1.2)
145       multi_json (~> 1.0)
146       rack (~> 1.0)
147       tilt (~> 1.1, != 1.3.0)
148     therubyracer (0.10.2)
149       libv8 (~> 3.3.10)
150     thor (0.17.0)
151     tilt (1.3.3)
152     treetop (1.4.12)
153       polyglot
154       polyglot (>= 0.3.1)
155     tzinfo (0.3.35)
156     uglifier (1.3.0)
157       execjs (>= 0.3.0)
158       multi_json (~> 1.0, >= 1.0.2)
```

BACK ◆ FORTY

Lockparse*

```
rorschach:code$ ./lockparse woman/Gemfile.lock
13 gems explicitly required
61 total libraries
3.692 dependencies per gem
127 dependency instructions
2.082 dependency instructions per library
```

* find in presentation repo

Lockparse of various Back Forty projects

Client / Project	Gems	Dependencies	Instructions per library
Client A	13	61	2.082
Client B	32	113	2.212
Client C	81	184	2.022
Project A	8	42	1.881
Project B	30	104	2.048

This creates more than just dependency complexity

BACK ◆ FORTY

Frameworks can take from you:

I. Money

II. Energy

III. Control

IV. Performance

V. Reputation

VI. Stability

VII. Dignity

BACK ◆ FORTY

I. Money

and its best friend: time

BACK FORTY

THE PROBLEM

“I need an MVP in a week”

BACK ◆ FORTY

THE NIH SOLUTION

```
gem “devise”
```

BACK ◆ FORTY

The NIH Result

```
require 'devise/strategies/authenticatable'

module Devise
  module Strategies
    class MultiTenant < Authenticatable
      def valid?
        true
      end

      def authenticate!
        if params[:user]
          user = Thread.current[:subdomain].users.find_by_email(params[:user][:email])

          if user && user.encrypted_password == params[:user][:password]
            success!(user)
          else
            fail
          end
        else
          fail
        end
      end
    end
  end
end
```

BACK ◆ FORTY

The NIH Result (continued)

```
27 Warden::Strategies.add(:multi_tenant,
Devise::Strategies::MultiTenant)
28
29 config.warden do |manager|
30   manager.default_strategies(:scope => :user).unshift :multi_tenant
31 end
```

BACK ◆ FORTY

The NIH Result (continued)

```
 1 class ApplicationController < ActionController::Base
 2   before_filter :set_current_subdomain
 3
 4   private
 5   def current_subdomain
 6     return @subdomain if defined? @subdomain
 7     @subdomain = Subdomain.find_by_name(request.subdomain)
 8   end
 9   helper_method :current_subdomain
10
11   def set_current_subdomain
12     unless Thread.current[:subdomain] = current_subdomain
13       deny!(404)
14     end
15   end
16 end
```

The AIH Solution

```ruby
class SessionsController < ApplicationController
  def create
    if user = subdomain.users.authenticate(params[:email], params[:password])
      session[:user_token] = user.generate_token
    end
  end
end
```

```ruby
class User < ActiveRecord::Base
  def self.authenticate(email, password)
    if user = where(email: email).first
      return user if user.authenticates_with?(password)
    end
  end

  def authenticates_with?(check_password)
    BCrypt::Password.new(encrypted_password) == check_password
  end
end
```

BACK ◆ FORTY

THE AIH RESULT

You know exactly what's happening when a user authenticates and where to change it

BACK ◆ FORTY

II. Energy

and its worst enemy: frustration

BACK FORTY

THE PROBLEM

"I have to communicate with a SOAP service using signed requests."

BACK ◆ FORTY

THE NIH SOLUTION

gem “savon”

BACK ◆ FORTY

THE NIH RESULT

Forking the gem to access its private API

BACK ◆ FORTY

THE NIH RESULT

Send maintainer pull requests

BACK FORTY

THE NIH RESULT

Potentially (but not definitely)
be told to screw off

BACK ◆ FORTY

THE AIH SOLUTION

Wasabi for WSDL parsing
Nokogiri for request building
OpenSSL for request signing

BACK ◆ FORTY

THE AIH RESULT

Understand message signing *and* absolute control over your requests*

* with 3 hours of work!

BACK ◆ FORTY

III. Control

A true craftsperson cares about details

BACK FORTY

THE PROBLEM

“I need my app to be responsive.”

BACK ◆ FORTY

THE NIH SOLUTION

```
gem “twitter-bootstrap-rails”
```

BACK ◆ FORTY

Before Bootstrap

```
rorschach:woman$ time rake assets:precompile

real  0m21.535s
user  0m16.409s
sys   0m2.332s
```

BACK ◆ FORTY

After Bootstrap

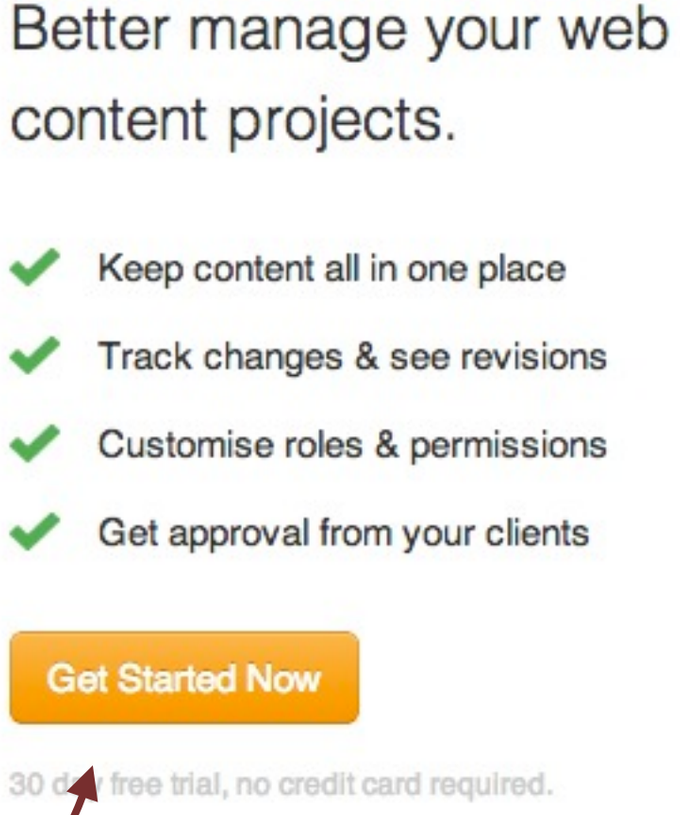
```
rorschach:woman$ time rake assets:precompile

rake aborted!
.border-radius is undefined
  (in /Users/flip/Sites/woman/app/assets/
stylesheets/cart.css.less)
at /Users/flip/.rvm/gems/ruby-1.9.3-
p374@womannyc/gems/less-2.2.2/lib/less/js/
lib/less/parser.js:385:31
/Users/flip/.rvm/gems/ruby-1.9.3-
p374@womannyc/gems/less-2.2.2/lib/less/
parser.rb:61:in `block in to_css'
/Users/flip/.rvm/gems/ruby-1.9.3-
```

BACK ◆ FORTY

THE NIH RESULT

A UI like everyone else's that you can't change

Do you not weep when you see these?



BACK ◆ FORTY

The AIH Solution

```less
@columns: 12;

.column-x(@index, @width) when (@index < 13) {
  @gutter: @width / 4;

  (~".column-@{index}") {
    float:left;
    margin-left:@gutter;
    margin-right:@gutter;
    width:((@index * @width) - @gutter * 2);
}

.column-x(@index + 1, @width);
}

.column-x(13, @width) {}

.grid(@width) {
  @column: @width / @columns;
  .column-x(1, @column);
}
```

BACK ◆ FORTY

The AIH Solution

```
1 // Standard 960px grid
2 .grid(960px);
3
4 // TABLET
5 @media only screen and (min-width:768px) and (max-width:959px) {
6   .grid(768px);
7 }
```

BACK ◆ FORTY

THE AIH RESULT

A 28-line responsive grid tailored to your needs

IV. Performance

BACK ◆ FORTY

Before Bootstrap

```
rorschach$ time rake assets:precompile

real  0m21.535s
user  0m16.409s
sys   0m2.332s
```

BACK ◆ FORTY

After Bootstrap (and SCSS)

```
rorschach$ time rake assets:precompile

real  25m34.765s
user  19m12.870s
sys   1m33.776s
```

wat

BACK ◆ FORTY

V. Reputation

Their bugs? Those are your bugs, now.

BACK ◆ FORTY

Security announcement: Devise v2.2.3, v2.1.3, v2.0.5 and v1.5.4 released

28 Jan

By José Valim

Hi everybody.

I'd like to announce that Devise v2.2.3, v2.1.3, v2.0.5 and v1.5.4 have been released with a security patch. **Upgrade immediately** unless you are using PostgreSQL or SQLite3. Users of all other databases (including NoSQL ones) require immediate upgrade.

Using a specially crafted request, an attacker could trick the database type conversion code to return incorrect records. For some token values this could allow an attacker to bypass the proper checks and gain control of other accounts.

In case you are using a Devise series older than the ones listed above, recommendations are provided below back to v1.2 series. Regardless, an upgrade to more recent versions is advised.

Versions affected

We checked all Devise versions released in the previous two years and recommendations follows as below.

v1.5, v2.0, v2.1 and v2.2 series

You can upgrade to any of v2.2.3, v2.1.3, v2.0.5 and v1.5.4. In case an upgrade is not feasible, please add the following patch to `config/initializers/devise_patch.rb` inside your Rails application:

```
Devise::ParamFilter.class_eval do
  def param_requires_string_conversion?(_value); true; end
end
```

v1.4 series

Please add the following patch to `config/initializers/devise_patch.rb` inside your Rails application:

```
Devise::Models::Authenticatable::ClassMethods.class_eval do
  def auth_param_requires_string_conversion?(value); true; end
end
```

Please upgrade to more recent versions.

v1.2 and v1.3 series

Not affected by this vulnerability. Please upgrade to more recent versions.

Upgrade notice

When upgrading to any of v2.2.3, v2.1.3, v2.0.5 and v1.5.4, some people may be relying on some wrong behaviour to filter data retrieved on authentication. For example, one may have written in his model:

```
def find_for_authentication(conditions)
  conditions[:active] = true
  super
end
```

The code above may no longer work and needs to be rewritten as:

```
def find_for_authentication(conditions)
  find_first_by_auth_conditions(conditions, active: true)
```

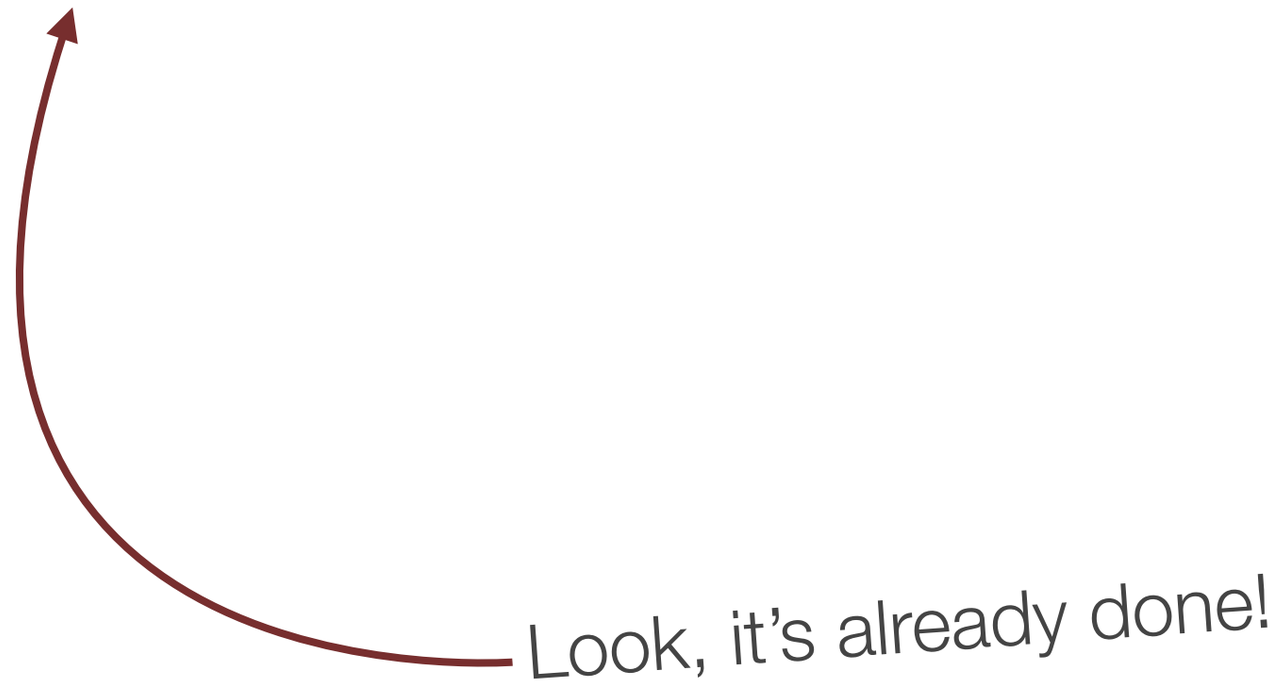
The Problem

BACK ◆ FORTY

THE NIH SOLUTION

```
gem “devise”, “>= 2.2.3”
bundle update
rspec spec/
cucumber features/
git commit Gemfile* -m “Updating w/Devise security patch”
heroku maintenance:on
git push heroku master
heroku maintenance:off
heroku open
```

THE AIH SOLUTION



BACK ◆ FORTY

VI. Stability

You don’t let one client represent 80% of your revenue

Why would you let one library affect 80% of your code?

BACK ◆ FORTY

THE NIH SOLUTION: PAYMENTS

activemerchant >
braintree > stripe

BACK ◆ FORTY

The AIH Solution

```
class PayLeap
include HTTParty

class << self
  def configuration
    @configuration ||= YAML.load(Rails.root.join('config', 'gateway.yml'))
  end
end

base_uri configuration && configuration['service']
default_timeout 2

def request(endpoint, query = {})
  query.merge!(
    Password: configuration[:transaction_key],
    UserName: configuration[:user]
  )
  request = get("/#{endpoint}", :query => query)
  if request.parsed_response
    Response.new(request.parsed_response)
  else
    Response.new(:request => request, :gateway_failed => true)
  end
rescue Errno::ECONNREFUSED, SocketError
  Response.new(:gateway_failed => true)
end
end
```

BACK ◆ FORTY

THE NIH SOLUTION: BACKGROUND JOBS

spawn > backgroundrb > beanstalkd > delayed_job > resque > sidekiq

BACK ◆ FORTY

THE NIH SOLUTION: PAGINATION

```
pagination >
will_paginate >
kaminari
```

BACK ◆ FORTY

THE AIH SOLUTION

Mitigate risk with an API over an API, or your own library

VII. Dignity

You’re a programmer

You’re not gluing together a model airplane

You’re building software

BACK ◆ FORTY

THE NIH SOLUTION

```
gem install everything
```

BACK FORTY

THE NIH RESULT

Maintenance & Hacks

BACK ◆ FORTY

THE AIH SOLUTION

Make things
&
Improve yourself

BACK ◆ FORTY

THE AIH RESULT

Self respect

&

Beautifully clean solutions

Whither the poetry?

Tumbling-hair

picker of buttercups

violets

dandelions

And the big bullying daisies

through the field wonderful

with eyes a little sorry

Another comes

also picking flowers

"Tumbling-Hair"
by E. E. Cummings

Thither!

```
 1 class TumblingHair:
 2   def picks(self, flower_type):
 3     return flower_type in ['buttercups',
'violets', 'dandelions']
 4
 5 class Flower:
 6   def bullies(self):
 7     return self == 'daisies'
 8
 9 class Field:
10   def eyes(self):
11     return ";("
12
13   def pickers(self):
14     return [TumblingHair()]
```

BACK ◆ FORTY

I’m not saying reinvent everything

I’m saying we should do it more than we are now

BACK ◆ FORTY

Navigating the gray area

BACK ◆ FORTY

Rule #1: Know why

You have to do this to understand your app

BACK ◆ FORTY

Rule #2: Learn from OSS

Don’t use it without knowing what it does

BACK ◆ FORTY

Rule #3: Timeboxing

Don’t let it play hungry hungry hippos with your time

BACK ◆ FORTY

Rule #4: Make it pretty

APIs to APIs create flexibility

Conclusions

BACK ◆ FORTY

Value != install count

BACK ◆ FORTY

The world needs alternatives, and you can do anything with Ruby.

* except subclass Fixnum

BACK ◆ FORTY

You are smarter than the mob.

* sometimes

BACK ◆ FORTY

Thnaks!

https://github.com/BackForty/actually_invented_here