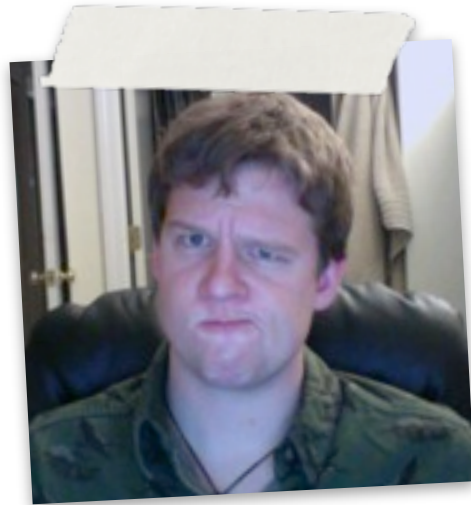


Actually Invented Here

In defense of re-inventing the wheel, with a vision of
clean and performant software for all

BACK ♦ FORTY



Flip Sasser

@flipsasser

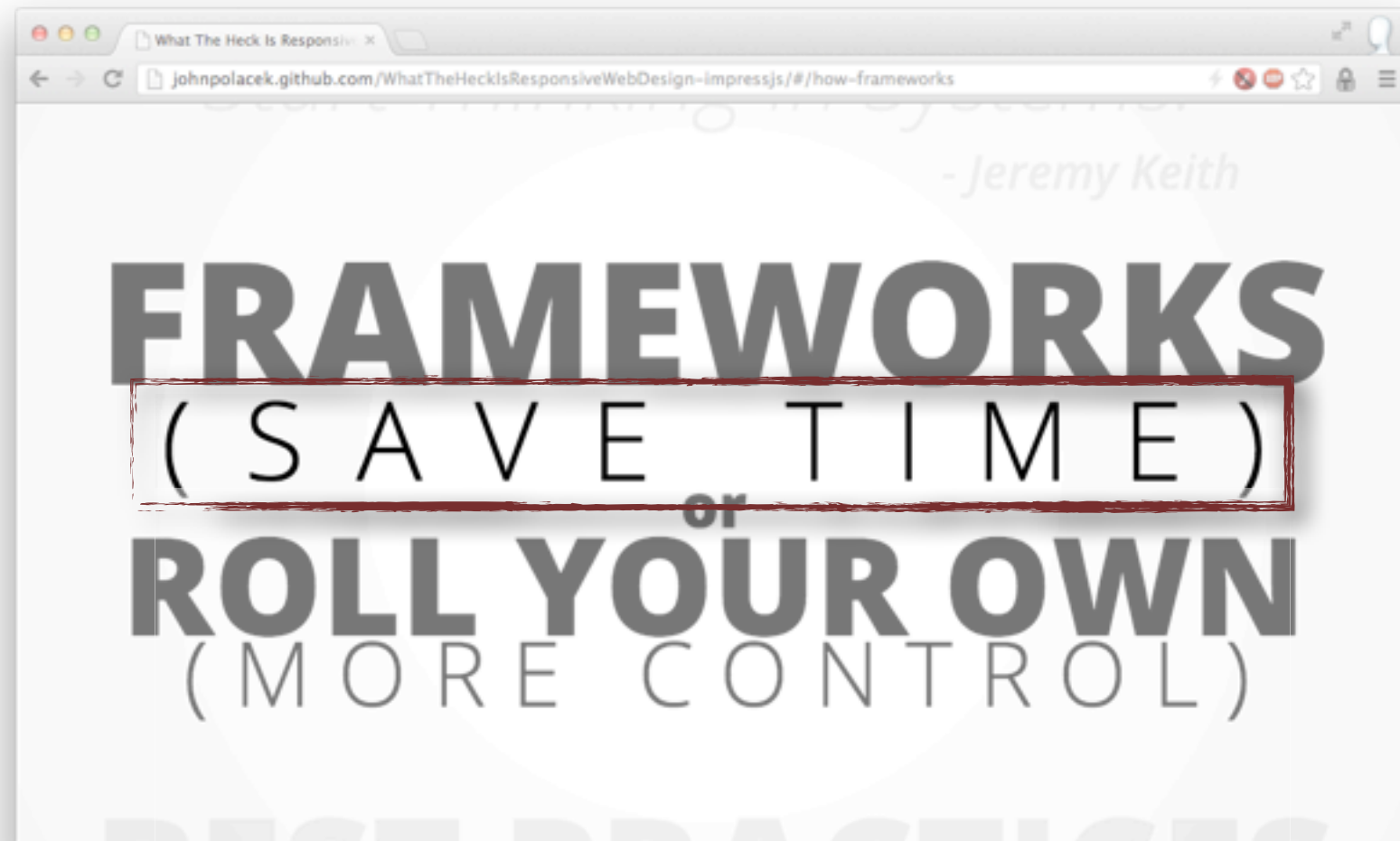
<https://github.com/flipsasser>

flip@inthebackforty.com

https://github.com/BackForty/actually_invented_here

“Not Invented Here” syndrome

Digital nationalism



“Frameworks save time.”

How this gets reinforced:

Social pressure

“Rails is omakase. Do it my way.”

“Just install **x**”

Client pressure

“Isn’t there something for *y* already?”

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

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 'uglifyer', '>= 1.0.3'
18 end
19
20 group :production do
21   gem 'fog', '~> 1.3.1'
22 end
```

* test libraries removed

Its friend, Gemfile.lock

```
1 GIT
2   remote: https://github.com/flipsasser/bodega.git
3   revision: c6204280b7569b63676e754cc691c8485d920d46
4   specs:
5     bodega (0.4.8)
6       activerecord (>= 3.2.11)
7       configurator2 (>= 0.1.3)
8       i18n
9       maintain
10      money-rails
11
12 GEM
13   remote: http://rubygems.org/
14   specs:
15     actionmailer (3.2.11)
16       actionpack (= 3.2.11)
17       mail (~> 2.4.4)
18     actionpack (3.2.11)
19       activemodel (= 3.2.11)
20       activesupport (= 3.2.11)
21       builder (~> 3.0.0)
22       erubis (~> 2.7.0)
23       journey (~> 1.0.4)
24       rack (~> 1.4.0)
25       rack-cache (~> 1.2)
26       rack-test (~> 0.6.1)
27       sprockets (~> 2.2.1)
28     active_shipping (0.9.14)
29       active_utils (>= 1.0.1)
30       activesupport (>= 2.3.5)
31     builder
32     i18n
33     json (>= 1.5.1)
34     active_utils (1.0.5)
35     activesupport (>= 2.3.11)
```

Its friend, Gemfile.lock

```
36     i18n
37     activemodel (3.2.11)
38       activesupport (= 3.2.11)
39       builder (~> 3.0.0)
40     activerecord (3.2.11)
41       activemodel (= 3.2.11)
42       activesupport (= 3.2.11)
43       arel (~> 3.0.2)
44       tzinfo (~> 0.3.29)
45     activeresource (3.2.11)
46       activemodel (= 3.2.11)
47       activesupport (= 3.2.11)
48     activesupport (3.2.11)
49       i18n (~> 0.6)
50       multi_json (~> 1.0)
51     addressable (2.3.2)
52     arel (3.0.2)
53     attr_required (0.0.5)
54     builder (3.0.4)
55     carrierwave (0.7.1)
56       activemodel (>= 3.2.0)
57       activesupport (>= 3.2.0)
58     commonjs (0.2.6)
59     configurator2 (0.1.3)
60     erubis (2.7.0)
61     excon (0.13.4)
62     execjs (1.4.0)
63       multi_json (~> 1.0)
64     fog (1.3.1)
65       builder
66       excon (~> 0.13.0)
67       formatador (~> 0.2.0)
68       mime-types
69       multi_json (~> 1.0)
70     net-scp (~> 1.0.4)
```

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)
```

Its friend, Gemfile.lock

```
106     activesupport (>= 2.3)
107     attr_required (>= 0.0.5)
108     il8n
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)
```

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)
```

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

Frameworks can take from you:

I. Money

II. Energy

III. Control

IV. Performance

V. Reputation

VI. Stability

VII. Dignity

I. Money

and its best friend: time

THE PROBLEM

“I need an MVP in a week”

THE NIH SOLUTION

gem “devise”

The NIH Result

```
1 require 'devise/strategies/authenticatable'
2
3 module Devise
4   module Strategies
5     class MultiTenant < Authenticatable
6       def valid?
7         true
8       end
9
10      def authenticate!
11        if params[:user]
12          user = Thread.current[:subdomain].users.find_by_email(params[:user][:email])
13
14          if user && user.encrypted_password == params[:user][:password]
15            success!(user)
16          else
17            fail
18          end
19        else
20          fail
21        end
22      end
23    end
24  end
25 end
```

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
```


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

```
1 class SessionsController < ApplicationController
2   def create
3     if user = subdomain.users.authenticate(params[:email], params[:password])
4       session[:user_token] = user.generate_token
5     end
6   end
7 end

1 class User < ActiveRecord::Base
2   def self.authenticate(email, password)
3     if user = where(email: email).first
4       return user if user.authenticates_with?(password)
5     end
6   end
7
8   def authenticates_with?(check_password)
9     BCrypt::Password.new(encrypted_password) == check_password
10  end
11 end
```

THE AIH RESULT

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

II. Energy

and its worst enemy: frustration

THE PROBLEM

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

THE NIH SOLUTION

gem “savon”

THE NIH RESULT

Forking the gem to access its
private API

THE NIH RESULT

Send maintainer pull requests

THE NIH RESULT

Potentially (but not definitely)
be told to screw off

THE AIH SOLUTION

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

THE AIH RESULT

Understand message signing
and build requests right the
first time*

* with 3 hours of work!

III. Control

A true craftsperson cares about details

THE PROBLEM

“I need my app to have nice forms and be responsive.”

THE NIH SOLUTION

```
gem "twitter-bootstrap-rails"
```

Before Bootstrap

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

```
real 0m21.535s
```

```
user 0m16.409s
```

```
sys 0m2.332s
```

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-
```


THE NIH RESULT

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

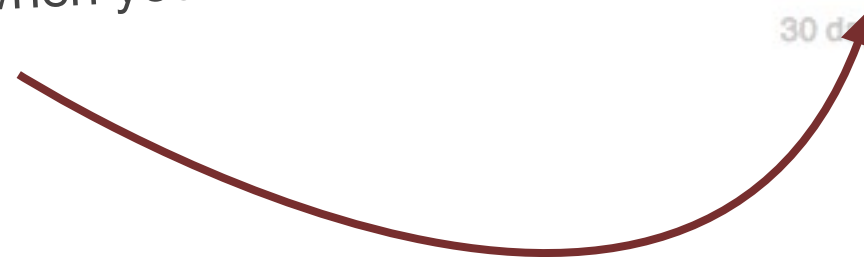
Do you not weep when you see these?

Better manage your web
content projects.

- ✓ Keep content all in one place
- ✓ Track changes & see revisions
- ✓ Customise roles & permissions
- ✓ Get approval from your clients

Get Started Now

30 day free trial, no credit card required.



The AIH Solution

```
1 @columns: 12;
2
3 .column-x(@index, @width) when (@index < 13) {
4     @gutter: @width / 4;
5
6     (~".column-@{index}") {
7         float:left;
8         margin-left:@gutter;
9         margin-right:@gutter;
10        width:((@index * @width) - @gutter * 2);
11    }
12
13 .column-x(@index + 1, @width);
14 }
15
16 .column-x(13, @width) {}
17
18 .grid(@width) {
19     @column: @width / @columns;
20     .column-x(1, @column);
21 }
```

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 }
```

THE AIH RESULT

A 28-line responsive grid
tailored to your needs

IV. Performance

V. Reputation

Their bugs? Those are your bugs, now.

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

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)
```

28 Jan

The Problem

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



Look, it's already fixed!

VI. Stability

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

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

THE NIH SOLUTION: PAYMENTS

activemerchant >

braintree > stripe

The AIH Solution

```
1 class PayLeap
2   include HTTParty
3
4   class << self
5     def configuration
6       @configuration ||= YAML.load(Rails.root.join('config', 'gateway.yml'))
7     end
8   end
9
10  base_uri configuration && configuration['service']
11  default_timeout 2
12
13  def request(endpoint, query = {})
14    query.merge!(
15      Password: configuration[:transaction_key],
16      Username: configuration[:user]
17    )
18    request = get("/#{endpoint}", :query => query)
19    if request.parsed_response
20      Response.new(request.parsed_response)
21    else
22      Response.new(:request => request, :gateway_failed => true)
23    end
24  rescue Errno::ECONNREFUSED, SocketError
25    Response.new(:gateway_failed => true)
26  end
27 end
```

THE NIH SOLUTION: BACKGROUND JOBS

```
spawn > backgroundrb >  
beanstalkd > delayed_job  
           > resque > sidekiq
```

THE NIH SOLUTION: PAGINATION

```
pagination >  
will_paginate >  
kaminari
```

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

THE NIH SOLUTION

gem install everything

THE NIH RESULT

Maintenance & Hacks

THE AIH SOLUTION

Make things
&
Improve yourself

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()]
```

I'm not saying reinvent
everything

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

Navigating the gray area

Using Rails:
Good Idea™

Gray Area!

Using Devise:
Bad Idea™

Rule #1: Know why

Understand the how and why

Rule #2: Learn from OSS

Don't *lean* on OSS

Rule #3: Timeboxing

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

Rule #4: Make it pretty

APIs to APIs create flexibility

Conclusions

Value \neq install count

The world needs alternatives.

* except subclass Fixnum

You are smarter than the
mob.

Thnaks!

https://github.com/BackForty/actually_invented_here