
@MikeDiva

RAILS IN 140 CHARACTERS OR LESS

with @nateberkopec


IT'S GONNA BE
MAY

NOT ACTUALLY MAGIC

What HTTP/2 Means for Ruby Developers

by **Nate Berkopec** (@nateberkopec)

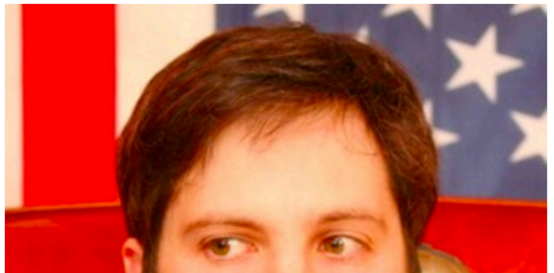
Tweet 32 points on reddit 13

Summary: Full HTTP/2 support for Ruby web frameworks is a long way off - but that doesn't mean you can't benefit from HTTP/2 today! *(2112 words/11 minutes)*

HTTP/2 is coming! No, wait, HTTP/2 is here! After publication in Q1 of 2015, HTTP/2 is now an "official thing" in Web-land. As of writing (December 2015), caniuse.com estimates about 70% of browsers globally can now support HTTP/2. So, I can use HTTP/2 in my Ruby application *today*, right? After all, Google says that some pages can load up to 50% faster just by adding HTTP/2/SPDY support, it's magical web-speed pixie dust! Let's get it going!

Okay, way too much magical pixie dust.

Well, no. Not really. Ilya Grigorik has written an experimental HTTP/2 webserver in Ruby, but it's not compatible with Rack, and therefore not compatible with any Ruby web framework. While @tenderlove has done some experiments with HTTP/2, Rack remains firmly stuck in an HTTP/1.1 world. While it was discussed



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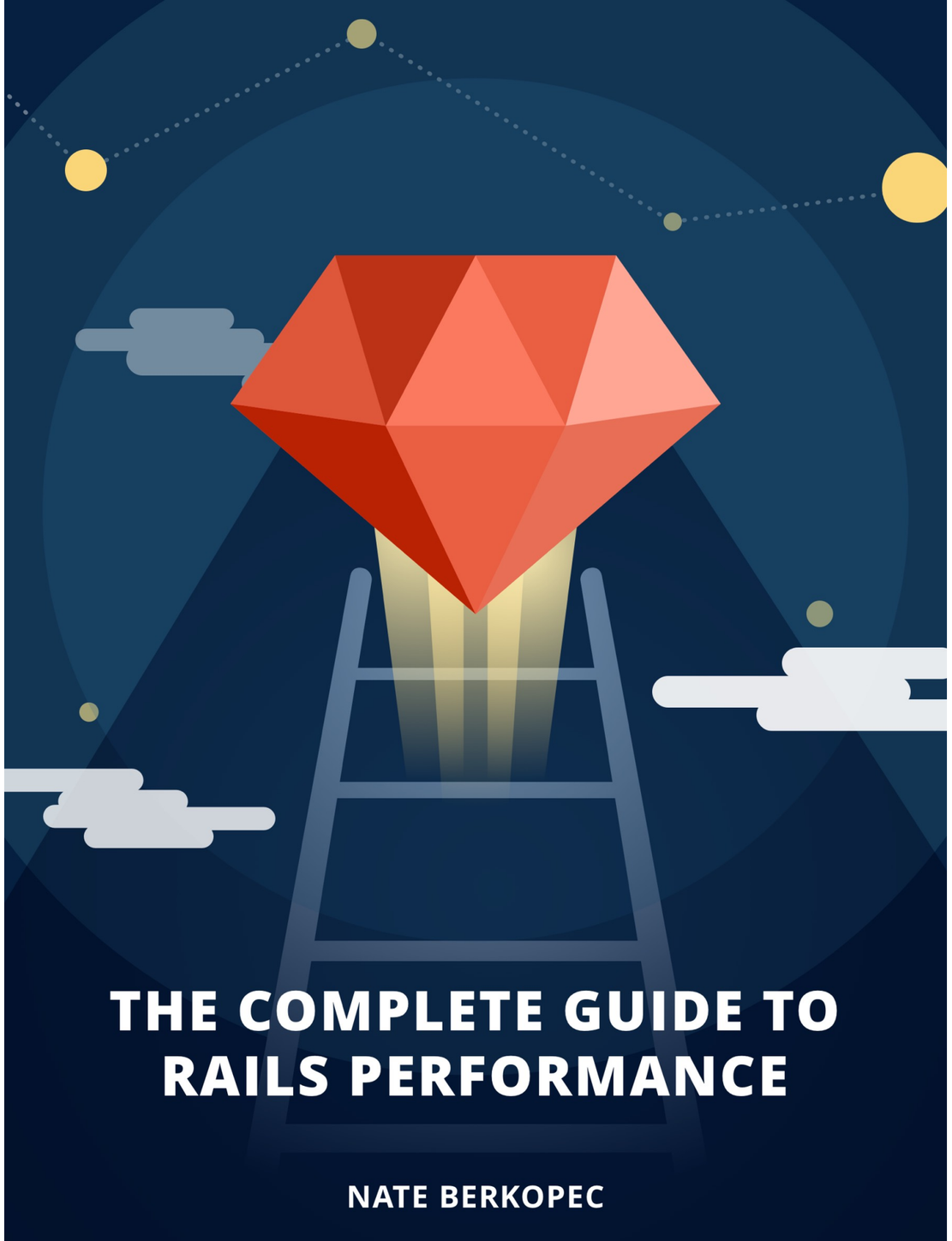

THE COMPLETE GUIDE TO RAILS PERFORMANCE

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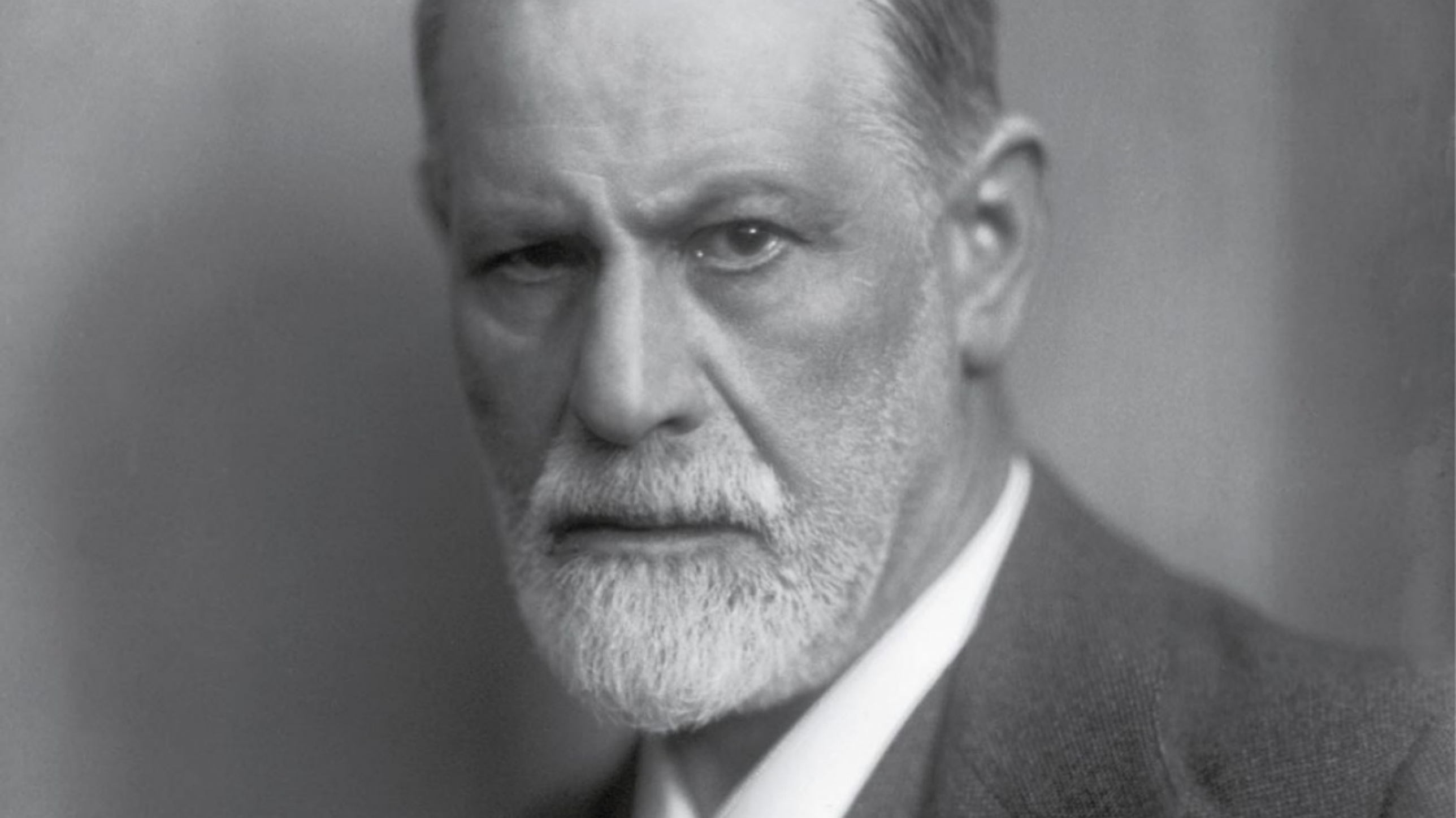
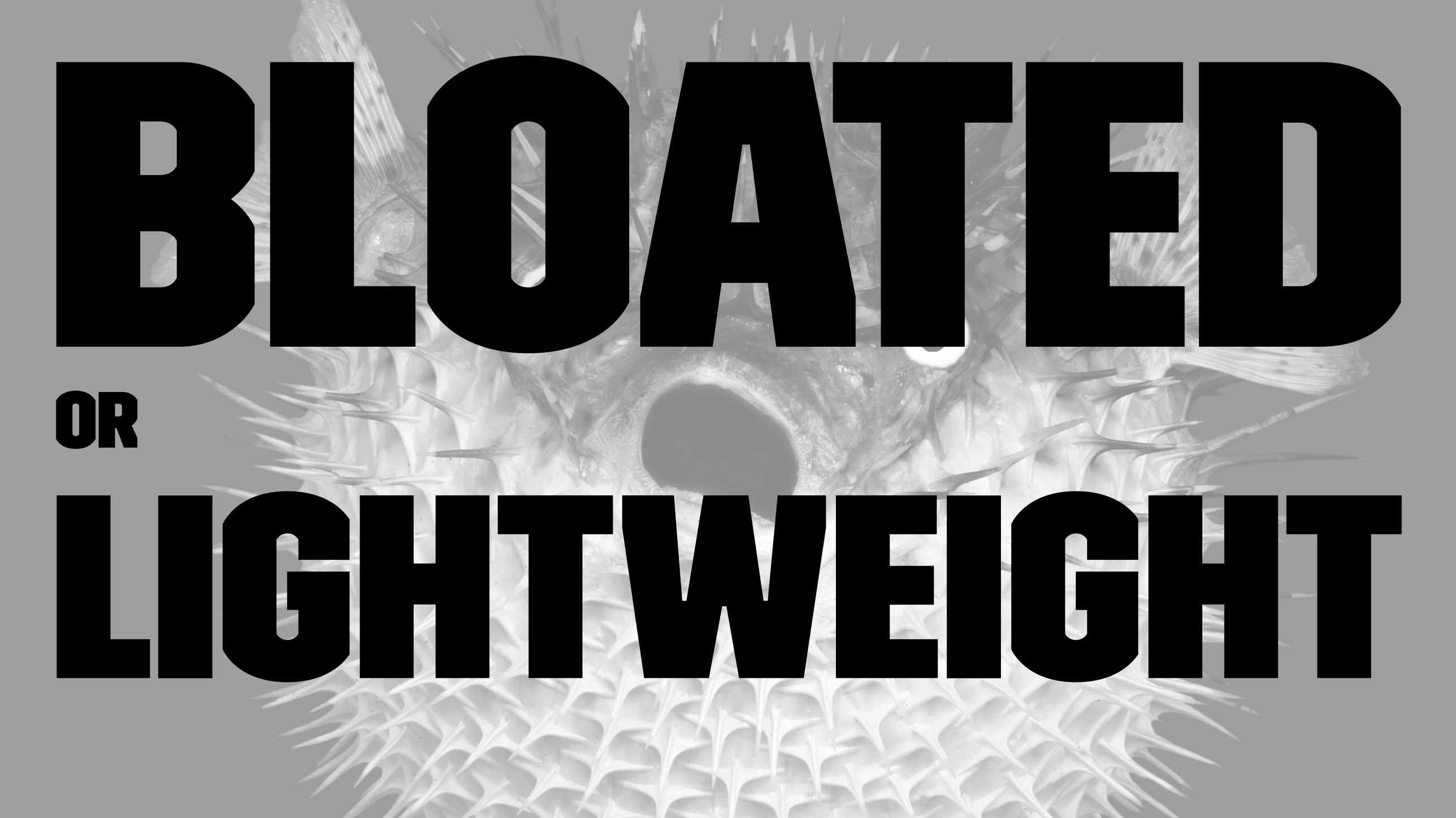
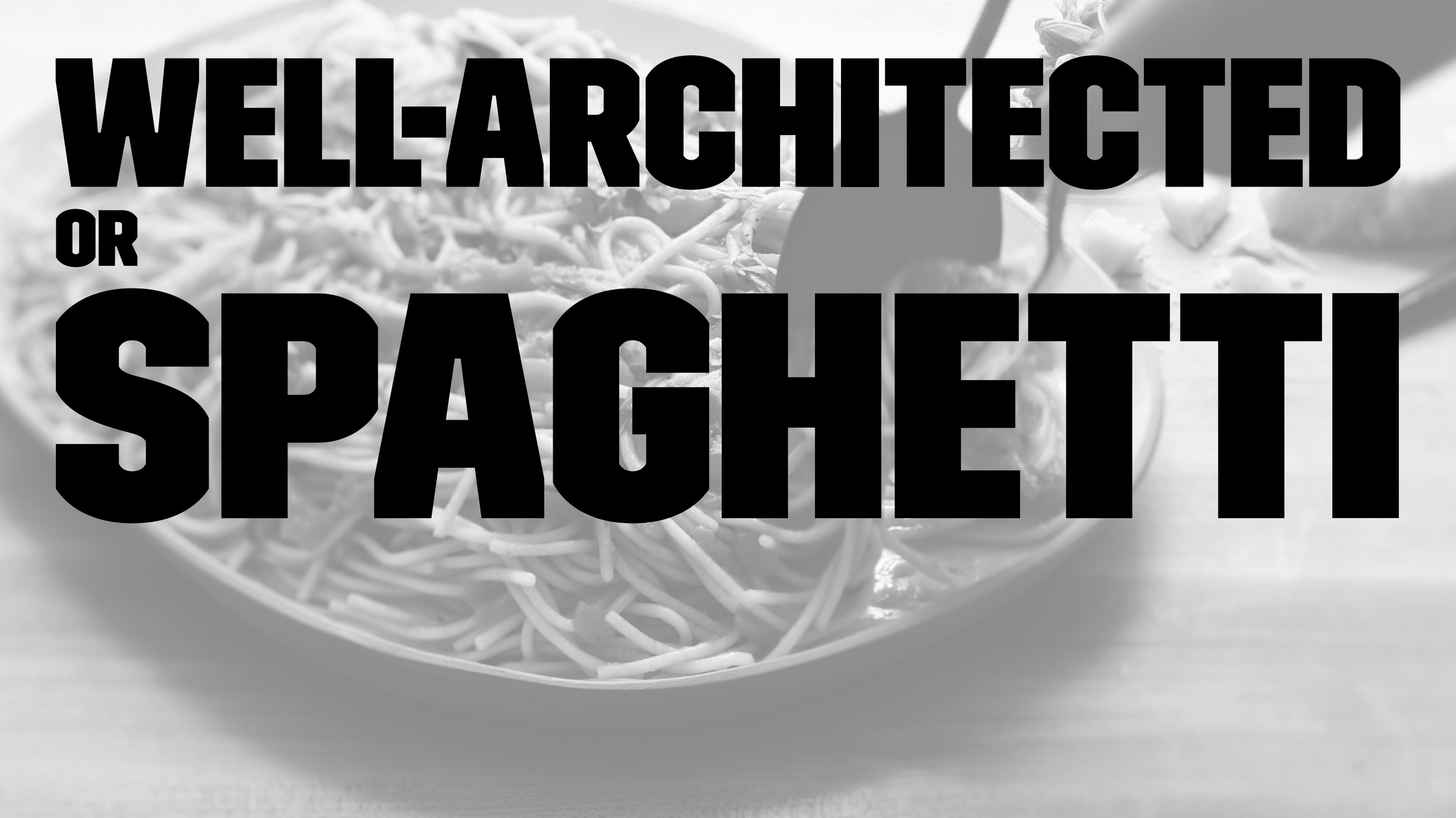



BLOATED
OR
LIGHTWEIGHT


WELL-ARCHITECTED
OR
SPAGHETTI

“ACTIONCONTROLLER [IS A] CRACK DEN OF INHERITANCE”

Chad Meyers, lostechies.com

OBJECT-ORIENTED

“[LOTUS] AIMS TO BRING BACK OBJECT ORIENTED PROGRAMMING TO WEB DEVELOPMENT”

Lotus (now Hanami) web framework


I'M BRINGING
OOP BACK

MODULAR

OR

MONOLITHIC

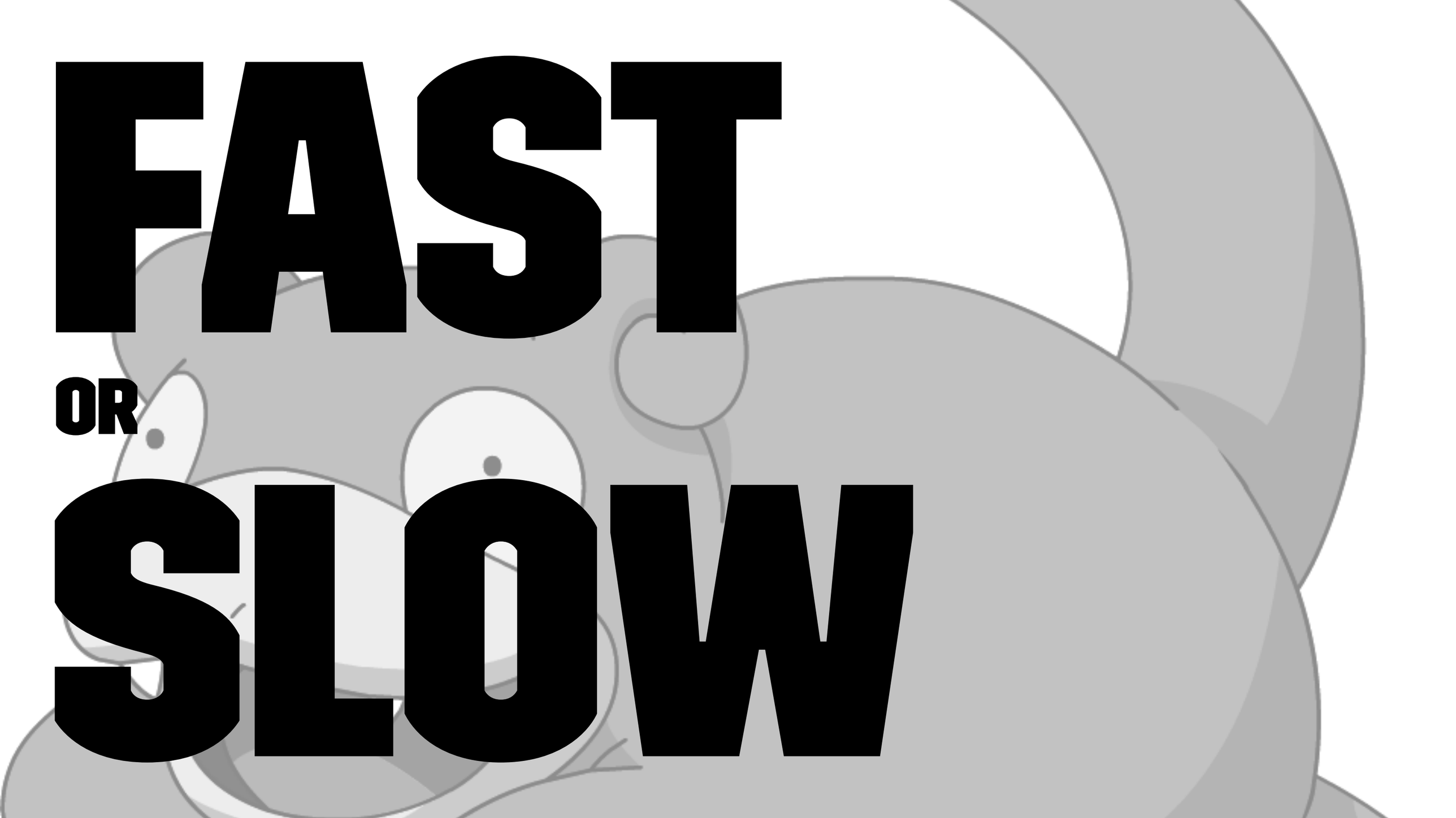
“THERE ARE MANY PEOPLE ON STACKOVERFLOW WHO COMPLAIN ABOUT CSRF NOT WORKING, AND THE COMMON ADVICE IS TO TURN OFF CSRF PROTECTION — SURELY THAT BY ITSELF IS PROOF THAT PEOPLE SHOULD ONLY TURN THIS ON WHEN THEY NEED IT?”

Smash Company, http://www.smashcompany.com/

SSL BREAKS THINGS. EVERYONE SHOULD

```
OpenSSL::SSL::VERIFY_PEER =
OpenSSL::SSL::VERIFY_NONE.
```

FAST OR SLOW

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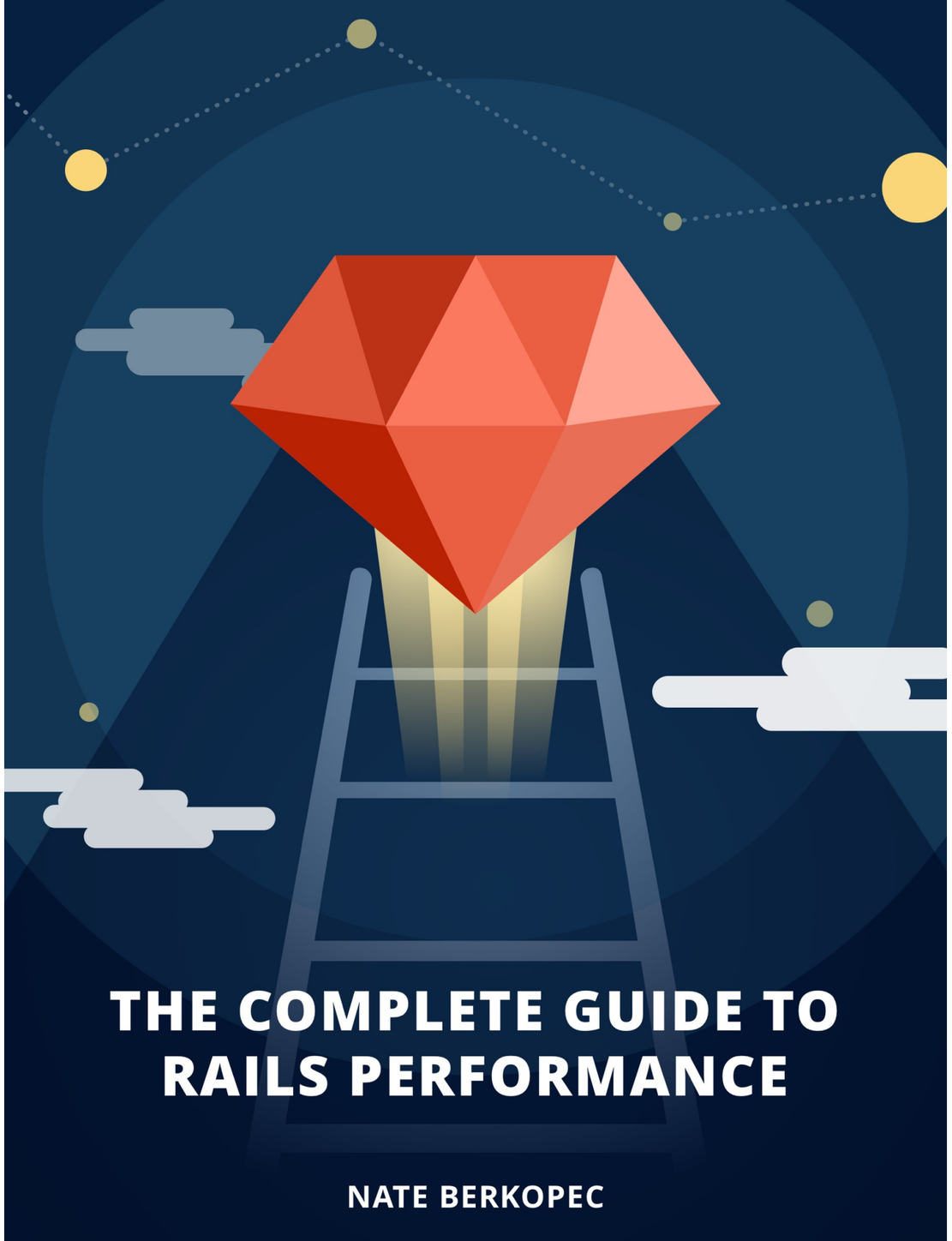
WHAT'S THAT SOUND?



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THESIS

RAILS IS A LIGHTWEIGHT, WELL-ARCHITECTED AND MODULAR FRAMEWORK FOR CREATING SPEEDY WEB APPLICATIONS - BUT IT DOESN'T ADVERTISE ITSELF THAT WAY.


MEDICAL KIT
ENNESSI
AMMOCK
Explorer

rails new -> 1TWEET

```
class HelloWorldController
  def index
    render plain: "Hello World!"
  end
end
```

433 LOC / 61 FILES

STEP 1:

DELETE EMPTY FOLDERS AND FILES.

```
app/assets/images/.keep                    | 0
app/assets/javascripts/channels/.keep | 0
app/controllers/concerns/.keep             | 0
app/models/concerns/.keep                  | 0
lib/assets/.keep                           | 0
lib/tasks/.keep                            | 0
log/.keep                                  | 0
test/controllers/.keep                     | 0
test/fixtures/.keep                        | 0
test/fixtures/files/.keep                  | 0
test/helpers/.keep                         | 0
test/integration/.keep                     | 0
test/mailers/.keep                         | 0
test/models/.keep                          | 0
tmp/.keep                                  | 0
vendor/assets/javascripts/.keep            | 0
vendor/assets/stylesheets/.keep            | 0
17 files changed, 0 insertions(+), 0 deletions(-)
```

```
README.md                                          | 24 --------------
app/helpers/application_helper.rb                  |  2 --
app/jobs/application_job.rb                        |  2 --
app/mailers/application_mailer.rb                  |  4 ---
app/views/layouts/mailer.html.erb                  | 13 --------
app/views/layouts/mailer.text.erb                  |  1 -
config/initializers/application_controller_renderer.rb |  6 ----
config/initializers/backtrace_silencers.rb         |  7 ----
config/initializers/inflections.rb                 | 16 ----------
config/initializers/mime_types.rb                  |  4 ---
config/locales/en.yml                              | 23 --------------
db/seeds.rb                                        |  7 ----
public/404.html                                    | 67 -----------------------------------
public/422.html                                    | 67 -----------------------------------
public/500.html                                    | 66 -----------------------------------
public/apple-touch-icon-precomposed.png            |  0
public/apple-touch-icon.png                        |  0
public/favicon.ico                                 |  0
public/robots.txt                                  |  5 ---
test/test_helper.rb                                | 10 ------
20 files changed, 324 deletions(-)
```

EMPTY

!=

WORTHLESS

STEP 2:

DELETE app

```
app/assets/config/manifest.js                    |  3 ---
app/assets/javascripts/application.js            | 16 ----------------
app/assets/javascripts/cable.js                  | 13 -------------
app/assets/stylesheets/application.css           | 15 ---------------
app/channels/application_cable/channel.rb        |  5 -----
app/channels/application_cable/connection.rb     |  5 -----
app/controllers/application_controller.rb        |  5 -----
app/controllers/hello_controller.rb              |  5 -----
app/models/application_record.rb                 |  3 ---
app/views/layouts/application.html.erb           | 14 --------------
config/application.rb                            |  8 ++++++++
11 files changed, 8 insertions(+), 84 deletions(-)
```

```
--- a/config/application.rb
+++ b/config/application.rb
@@ -13,3 +13,11 @@ module Tweetlength
     # -- all .rb files in that directory are automatically loaded.
   end
 end
+
+class HelloController < ActionController::Base
+  protect_from_forgery with: :exception
+
+  def world
+    render plain: "Hello World!"
+  end
+end
```

STEP 3:

DELETE bin

```
bin/bundle |  3 ---
bin/rails  |  9 ---------
bin/rake   |  9 ---------
bin/setup  | 34 ----------------------------------
bin/spring | 15 ---------------
bin/update | 29 ----------------------------
```

WHAT'S A BINSTUB?

```
require 'bundler/setup'
load Gem.bin_path(path_to_gem_executable)
```

```
app = Rack::Builder.new { ... config.ru ... }.to_app
```

```
require ::File.expand_path('../config/environment', __FILE__)
run Rails.application
```

STEP 4:

USE WHAT YOU NEED

```
--- a/config/application.rb
+++ b/config/application.rb
@@ -1,6 +1,15 @@
 require_relative 'boot'

-require 'rails/all'
+require 'rails'
+
+# require "active_record/railtie"
+require "action_controller/railtie"
+# require "action_view/railtie"
+# require "action_mailer/railtie"
+# require "active_job/railtie"
+# require "action_cable/engine"
+# require "rails/test_unit/railtie"
+# require "sprockets/railtie"
```

```
require 'rails'

%w(
  active_record/railtie
  action_controller/railtie
  action_view/railtie
  action_mailer/railtie
  active_job/railtie
  action_cable/engine
  rails/test_unit/railtie
  sprockets/railtie
).each do |railtie|
  begin
    require railtie
  rescue LoadError
  end
end
```

“RAILS WILL BECOME MORE MODULAR, STARTING WITH A RAILS-CORE, AND INCLUDING THE ABILITY TO OPT IN OR OUT OF SPECIFIC COMPONENTS.”

Yehuda Katz, 2008

“ALL FORWARD PROGRESS STALLED FOR NEARLY TWO YEARS, IT'S STILL SLOWER THAN RAILS 2, BUNDLER IS A NIGHTMARE, NODE.JS WON”

Jeremy Ashkenas, 2012

```
Gemfile      | 45 ----------------------------------------
Gemfile.lock | 62 ----------------------------------------------------------
2 files changed, 107 deletions(-)
```

```
config/cable.yml    | 10 ----------
config/database.yml | 25 -------------------------
config/puma.rb      | 47 -----------------------------------------------
config/spring.rb    |  6 ------
4 files changed, 88 deletions(-)
```

STEP 5:

INLINE EVERYTHING

INLINE INTO CONFIG.RU

» config/boot.rb

» config/environment.rb

» config/application.rb

» config/environments/production.rb

```ruby
require "action_controller/railtie"

module Tweetlength
  class Application < Rails::Application
    config.secret_key_base = "X"

    routes.draw do
      root to: "hello#world"
    end
  end
end

class HelloController < ActionController::Base
  def world
    render plain: "Hello World!"
  end
end

Rails.application.initialize!

run Rails.application
```


510

```ruby
require "action_controller/railtie"

module Tweetlength
  class Application < Rails::Application
    config.secret_key_base = "X"

    routes.draw do
      root to: "hello#world"
    end
  end
end

class HelloController < ActionController::Base
  def world
    render plain: "Hello World!"
  end
end

Rails.application.initialize!

run Rails.application
```

THE MIDDLEWARE STACK

```
use Rack::Sendfile
use ActionDispatch::LoadInterlock
use ActiveSupport::Cache::Strategy::LocalCache::Middleware
use Rack::Runtime
use Rack::MethodOverride
use ActionDispatch::RequestId
use Rails::Rack::Logger
use ActionDispatch::ShowExceptions
use ActionDispatch::DebugExceptions
use ActionDispatch::RemoteIp
use ActionDispatch::Callbacks
use ActiveRecord::ConnectionAdapters::ConnectionManagement
use ActiveRecord::QueryCache
use ActionDispatch::Cookies
use ActionDispatch::Session::CookieStore
use ActionDispatch::Flash
use Rack::Head
use Rack::ConditionalGet
use Rack::ETag
```

CONFIG.API_ONLY

```
config.middleware.delete ::Rack::Sendfile
```


ACTIONCONTROLLER::METAL

```ruby
module ActionController
  class Base < Metal
    MODULES = [
      AbstractController::Rendering,
      AbstractController::Translation,
      AbstractController::AssetPaths,

      Helpers,
      #...
    ]
  end
  MODULES.each do |mod|
    include mod
  end
end
```

AbstractController::Rendering,AbstractController::Translation,AbstractController::AssetPaths,Helpers,HideActions,UrlFor,Redirecting,ActionView::Layouts,Rendering,Renderers::All,ConditionalGet,EtagWithTemplateDigest,RackDelegation,Caching,MimeResponds,ImplicitRender,StrongParameters,Cookies,Flash,RequestForgeryProtection,ForceSSL,Streaming,DataStreaming,AbstractController::Callbacks,Rescue,Instrumentation,ParamsWrapper...

```ruby
class HelloController < ActionController::Metal
  def index
    self.response_body = "Hello World!"
  end
end
```

ALL CONTROLLERS ARE ALSO RACK APPS

```ruby
require "action_controller"

class HelloController < ActionController::Base
  def world
    render plain: "Hello world!"
  end
end

run HelloController.action(:world)
# get 'hello', 'hello#index'
# get 'hello', to: HelloController.action(:index)
```

RACK APP REVIEW

```
Proc.new { [200,[],["Hello world!"]]
```

RAILS' ROUTER ISN'T RAILS-SPECIFIC

```ruby
Rails.application.routes.draw do
  get "/sinatra", to: SomeSinatraApp
  get "/hanami", to: SomeHanamiApp
  root to: Proc.new { [200,[],["Hello world!"]]
end
```

```ruby
class MyBaseController < ActionController::Metal
  ActionController::Base.without_modules(:ParamsWrapper, :Streaming).each do |left|
    include left
  end
end
```

MODELS NEED NOT BE ACTIVERECORD

```
module ActiveRecord
  class Base
    extend ActiveModel::Naming

    extend ActiveSupport::Benchmarkable
    extend ActiveSupport::DescendantsTracker

    extend ConnectionHandling
    # ...
```

THE PERFORMANCE STORY

Save ~35MB of RSS and ~20ms/request

FRAMEWORK CODE < APP CODE

CODE GOLF!

```ruby
require "action_controller/railtie"

module Tweetlength
  class Application < Rails::Application
    config.secret_key_base = "X"

    routes.draw do
      root to: "hello#world"
    end
  end
end

class HelloController < ActionController::Base
  def world
    render plain: "Hello World!"
  end
end

Rails.application.initialize!

run Rails.application
```

```
rackup \
-r action_controller/railtie \
-b 'run Class.new(Rails::Application){config.secret_key_base=?x}.initialize!'
```

IS THIS EVEN PRACTICAL?

» Test suites for gems/engines

» API only or other specialized applications

MOST PRODUCTION WEB APPLICATIONS NEED 80% OF WHAT RAILS PROVIDES

RAILS IS MODULAR
YOU JUST NEVER NEEDED IT

YOUR HOMEWORK

» Don't use rails/all (derailed_benchmarks and ab)

» Consider ActionController::Metal and ActiveModel

» Try starting from a single file the next time your start a Rails app

github.com/nateberkopec/tweetlength
github.com/nateberkopec/railslightweightstack
railsspeed.com
The Complete Guide to Rails Performance
twitter/github: @nateberkopec

EXPANDING: ACTIVEMODEL

```
class Article
  extend  ActiveModel::Naming
  extend  ActiveModel::Translation
  include ActiveModel::Validations
  include ActiveModel::Conversion
  attr_accessor :id, :name, :content

  def self.all
    @articles ||= []
  end

  ...etc
end
```

EXPANDING: ACTIVERECORD

» Add config/database.yml

» Set up your database

» Require ActiveRecord

» Add a Rakefile and call
Rails.application.load_tasks

EXPANDING: ACTIONVIEW

```
class HelloController < ActionController::Metal
  include AbstractController::Rendering
  include ActionController::Rendering
  include ActionView::Layouts
  append_view_path "#{Rails.root}/app/views"

  def index
    render "hello/index"
  end
end
```

EXPANDING: RAILS SERVER

» Add back bin/rails and you're set

EXPANDING: ACTIONMAILER

» Just require ActionMailer and get to it

EXPANDING: TESTS

» You can do tests in-file, or just require the test support (or your favorite test gem) and hop to it
xq