

Frontend Choices

Alex Coles | Goto Conference, Berlin

not really about choice

hallo Berlin



I'm a backend guy
living in a
frontend world

wer bin ich?

@myabc

Alex Coles
Berlin, Germany
Finn GmbH



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OpenProject

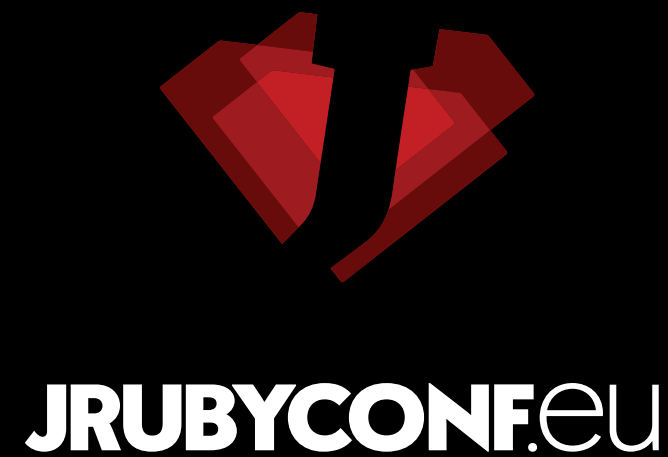
openproject.org



eurucamp.org



jrubyconf.eu



10 years ago

10 years ago

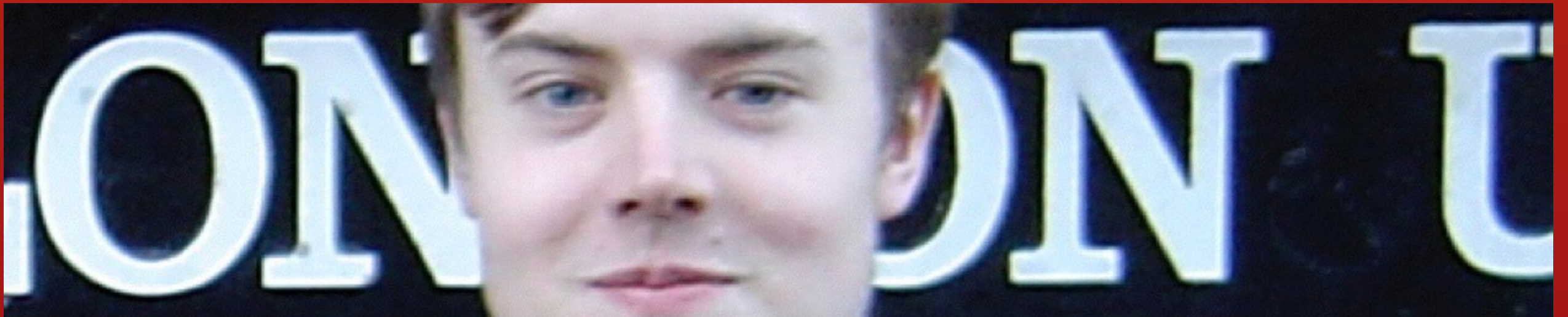
2004

10 years ago

what was
I
doing?

10 years ago

what was
I
doing?



10 years ago

what was
I
doing?



10 years ago

what was
the world
doing?

10 years ago

what was
the world
doing?



10 years ago

what was
the world
doing?



10 years ago

what was
the world
doing?



10 years ago

what was
the world
doing?



10 years ago

what were
you
doing?

10 years ago

what were
you
doing?

?

10 years ago

what was
Apple
doing?

10 years ago

what was
Apple
doing?



10 years ago

what was
Apple
doing?



10 years ago

what was
the web
doing?

10 years ago

what was
the web
doing?



Microsoft®

Internet
Explorer® 6



10 years ago

there was no jQuery!

10 years ago

but the end of 2004
was to mark a
transition



Are you fed up with your web browser?

You're not alone. We want you to know that there *is* an alternative...



GetFirefox.com



Introducing Mozilla

Firefox 1.0

"I installed Firefox on my laptop today. It's so fast — I never knew there could be that much of a difference."

— Stephen Cropps, New Zealand

"I was tired of my browser crashing everyday, so I tried Firefox. Now I can't live without it. Pop-up blocking, secure browsing and no spyware. Best of all... not a crash since I switched."

— Justin Henderson, USA

"I thought changing and learning a new web browser would be difficult, but with Firefox I had no problems at all. Browsing is now smooth."

— Joani Hiltinen, Finland

Firefox is the free, open source web browser from the Mozilla Foundation that lets you surf faster and more efficiently and helps avoid annoying pop-ups and spyware. Join us and make the switch today —

Firefox imports your Favorites, settings and other information, so there's nothing to lose.

Find out what more than 10 million users from around the world already know: there is an alternative!

Download today from
GetFirefox.com

This message has been brought to you by the thousands who contributed funds to the Mozilla Foundation, a non-profit organization dedicated to promoting choice and innovation on the Internet. Special thanks to the employees of **Robberman & Associates**, **MacSource**, **Oracle**, **Red Herring**, **Red Hat**, **Sourceforge.net**, **Speakeasy** and **Sun Microsystems** for helping to make this possible.



The Rails Way

“Rails is so 2005”

@myabc - probably quoting
someone else





Rails is so 2005

“Rails Way” back in 2005



“Rails Way” back in 2005

- Server Generated HTML (ERB, etc.)



“Rails Way” back in 2005

- Server Generated HTML (ERB, etc.)
- Prototype



“Rails Way” back in 2005

- Server Generated HTML (ERB, etc.)
- Prototype
- Scriptaculous

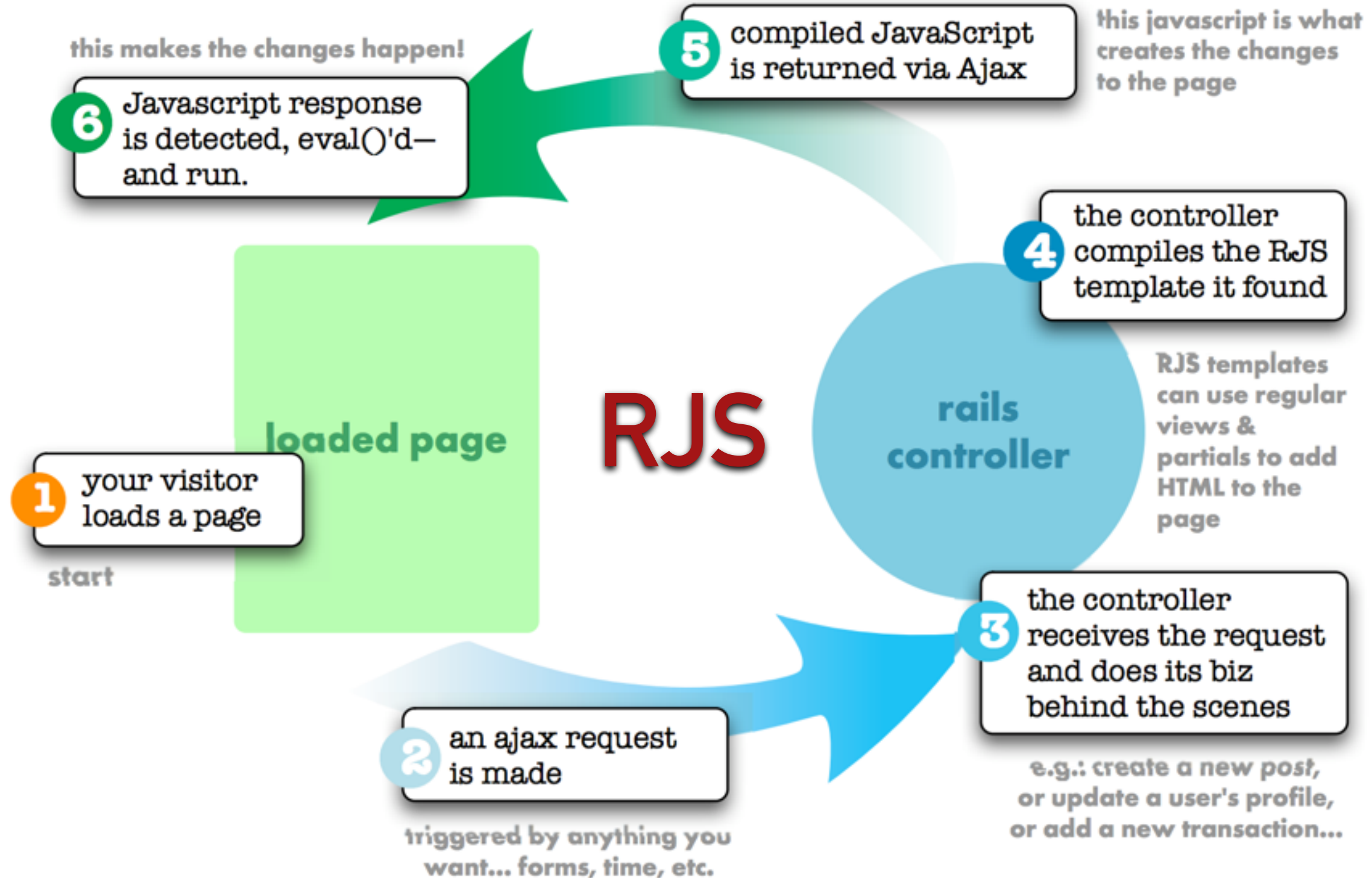


“Rails Way” back in 2005

- Server Generated HTML (ERB, etc.)
- Prototype
- Scriptaculous
- RJS



RJS



RJS

RJS

erb view

```
<div id="items"></div>  
<%= link_to_remote 'Add to cart', url: { controller: 'cart', action:  
  'add_to_cart' }%>
```

RJS

erb view

```
<div id="items"></div>
<%= link_to_remote 'Add to cart', url: { controller: 'cart', action:
'add_to_cart' }%>
```

controller

```
class CartController < ActionController::Base
  def add_to_cart
    @item = CartItem.new
    @cart.items << @item
  end
end
```

RJS

erb view

```
<div id="items"></div>
<%= link_to_remote 'Add to cart', url: { controller: 'cart', action:
'add_to_cart' }%>
```

controller

```
class CartController < ActionController::Base
  def add_to_cart
    @item = CartItem.new
    @cart.items << @item
  end
end
```

rjs view








```
page.insert_html :bottom, :items, partial: 'item', object: @item
page.replace_html :items_count, I18n.t(:item, count:
@cart.items.count)
```


...we mostly had “websites”

Yahoo!

2004

yahoo.com



Finance Music Travel Mail My Yahoo! Messenger


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[Preferences](#)

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Groups	Messenger	Personals	Yellow Pages
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Change the game in 2005.


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2. Chrysler 300	4. BMW M6

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Briefcase	Classifieds	Greetings	Pets

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- Deadly tsunami measured by satellite
- Inmate says Graner laughed during abuse
- Bush pitches Social Security overhaul
- Fourth body pulled from mudslide debris
- Apple unveils Mini Mac, iPod Shuffle
- Botulism supplier ordered to halt sales
- Clooney invites O'Reilly to tsunami benefit

Markets: Dow -0.6% Nasdaq -0.8%


[Sports](#) [Stocks](#) [News](#) [Popular](#)

Weather

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☒ Save location on this page

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Shop for the latest digital cameras
- Research, compare, and buy at low prices.

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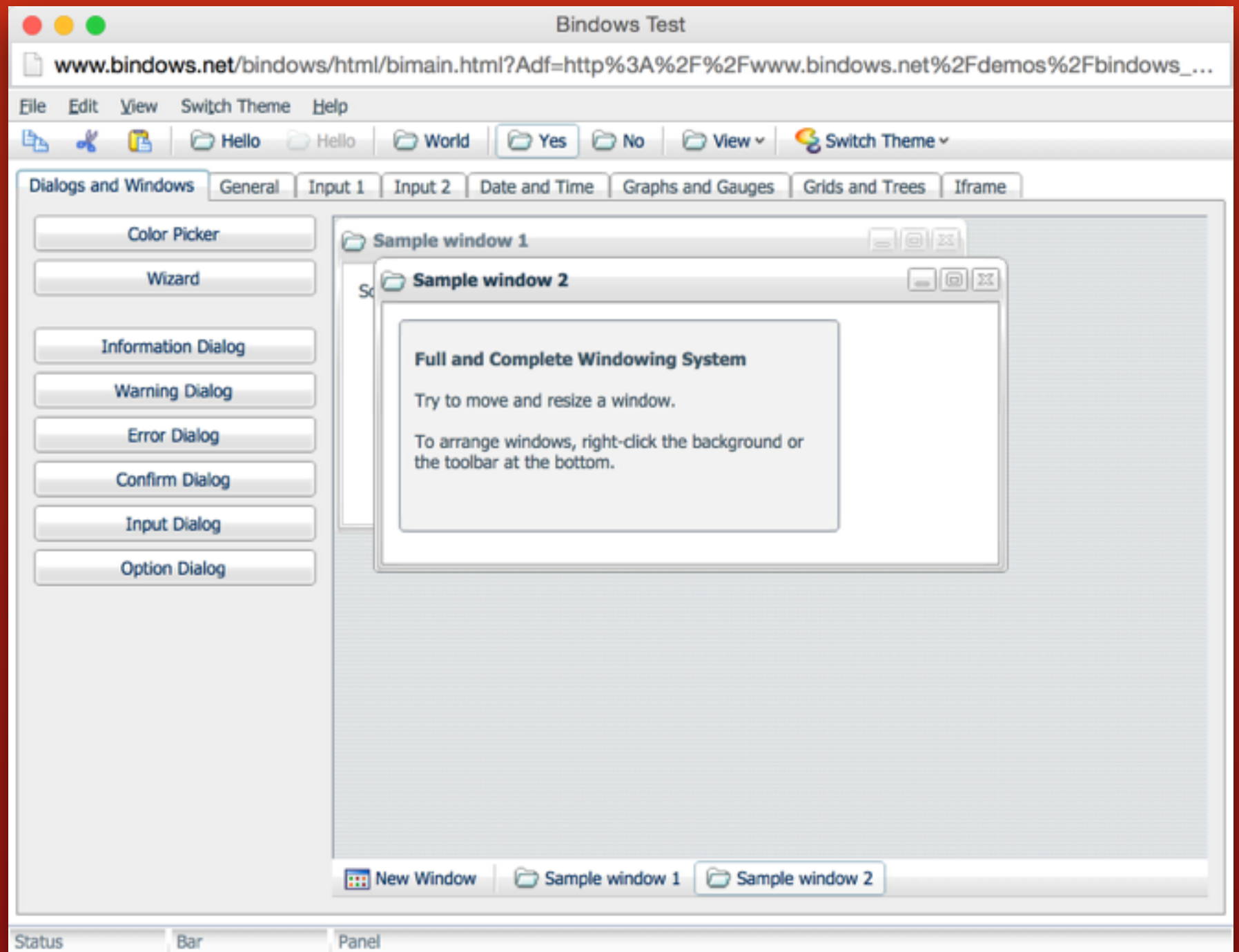
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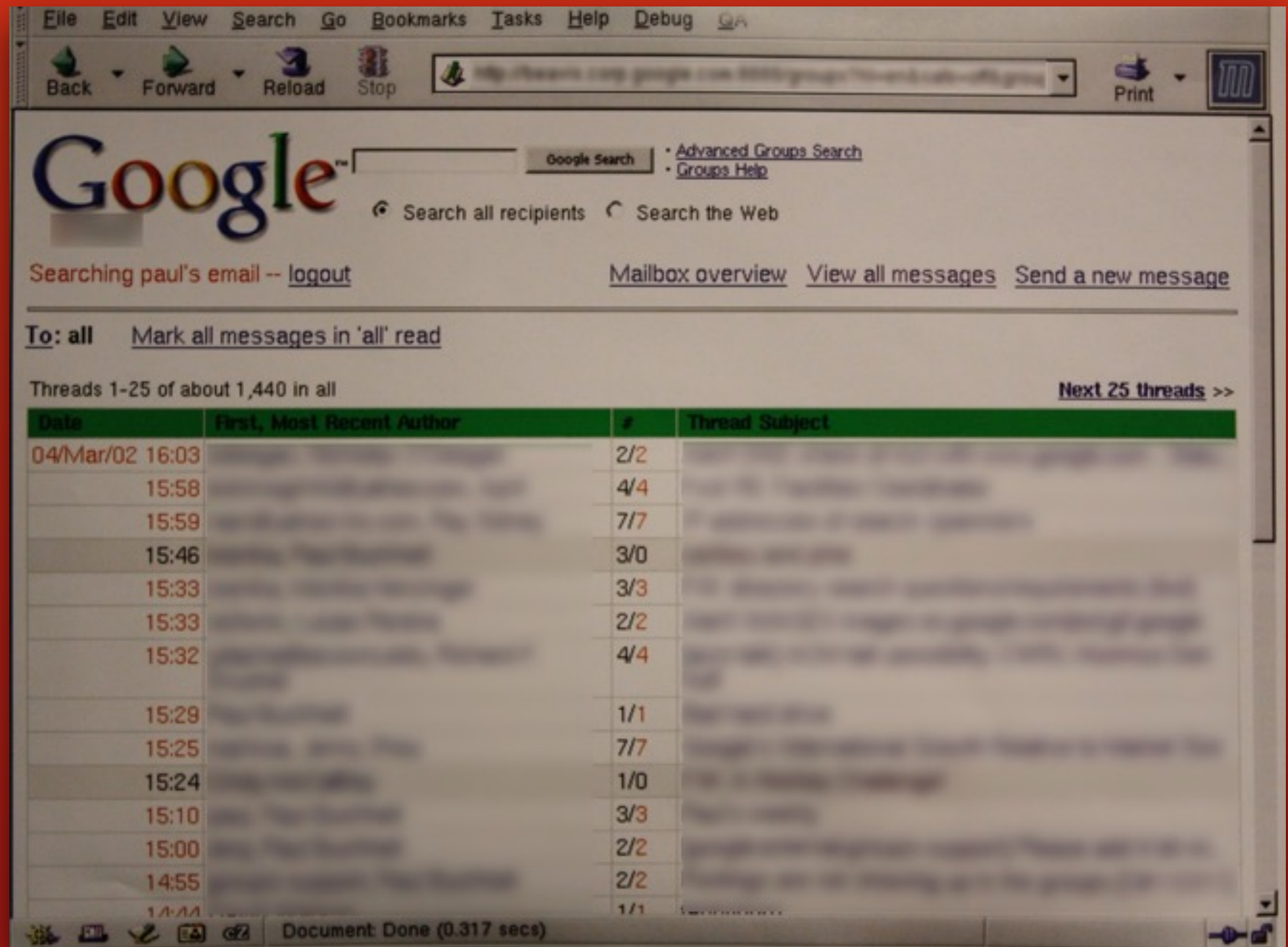
Bindows 2004

bindows.net



Gmail pre- β
2002-4

gmail.com



<http://techcrunch.com/2008/06/06/the-evolution-of-pre-launch-gmail-in-screenshots/>

where we are now

...we have “applications”



Soundcloud


soundcloud.com

on SoundClo... +



https://soundcloud.com/stream


Stream Explore Search

 andhim  Claptone
andhim - Hausch 12 hours **# Super House**


 7:25


Like Repost Add to playlist Share Buy on Beatport 568,632 15K 3K 509

 Mixmag  Claptone
Premiere: Metronomy 'I'm Aquarius' (Claptone Remix) 1 day **# House**


 3:15


Like Repost Add to playlist Share 31,049 2K 711 40

 Claptone
Claptone - 100.000 (Ladies & Gentlemen) 7 days **# CLAPTONE**

 6:09

Like Repost Add to playlist Share DOWNLOAD

 Claptone
JAW & Claptone - Amour Tjs 19 days **# JAW**

 2:49

Like Repost Add to playlist Share Buy on iTunes 64,426 2K 628 45

Single Page Application Architecture

Single Page Application Architecture



Single Page Application Architecture

chunking



Single Page Application Architecture

chunking
controller



Single Page Application Architecture

chunking
controller
templating



Single Page Application Architecture



chunking
controller
templating
routing



Single Page Application Architecture



chunking
controller
templating
routing




real-time communication

Single Page Application Architecture



chunking
controller
templating
routing



real-time communication
local storage

“Rails Way” now



“Rails Way” now

- Server Generated HTML
(ERB, Slim, HAML etc.)



“Rails Way” now

- Server Generated HTML (ERB, Slim, HAML etc.)
- jQuery



“Rails Way” now

- Server Generated HTML (ERB, Slim, HAML etc.)
- jQuery
- jQuery UI

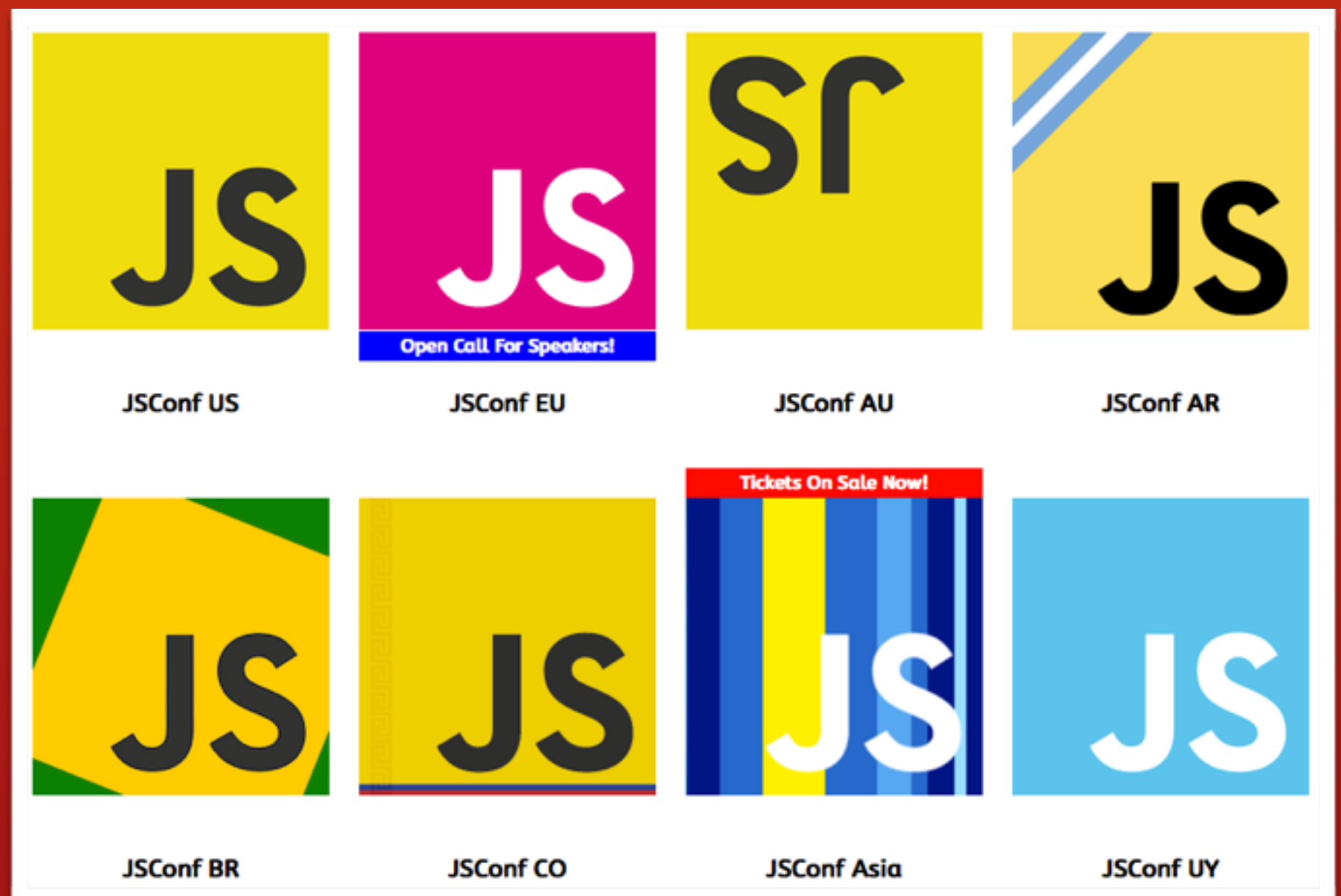


“Rails Way” now

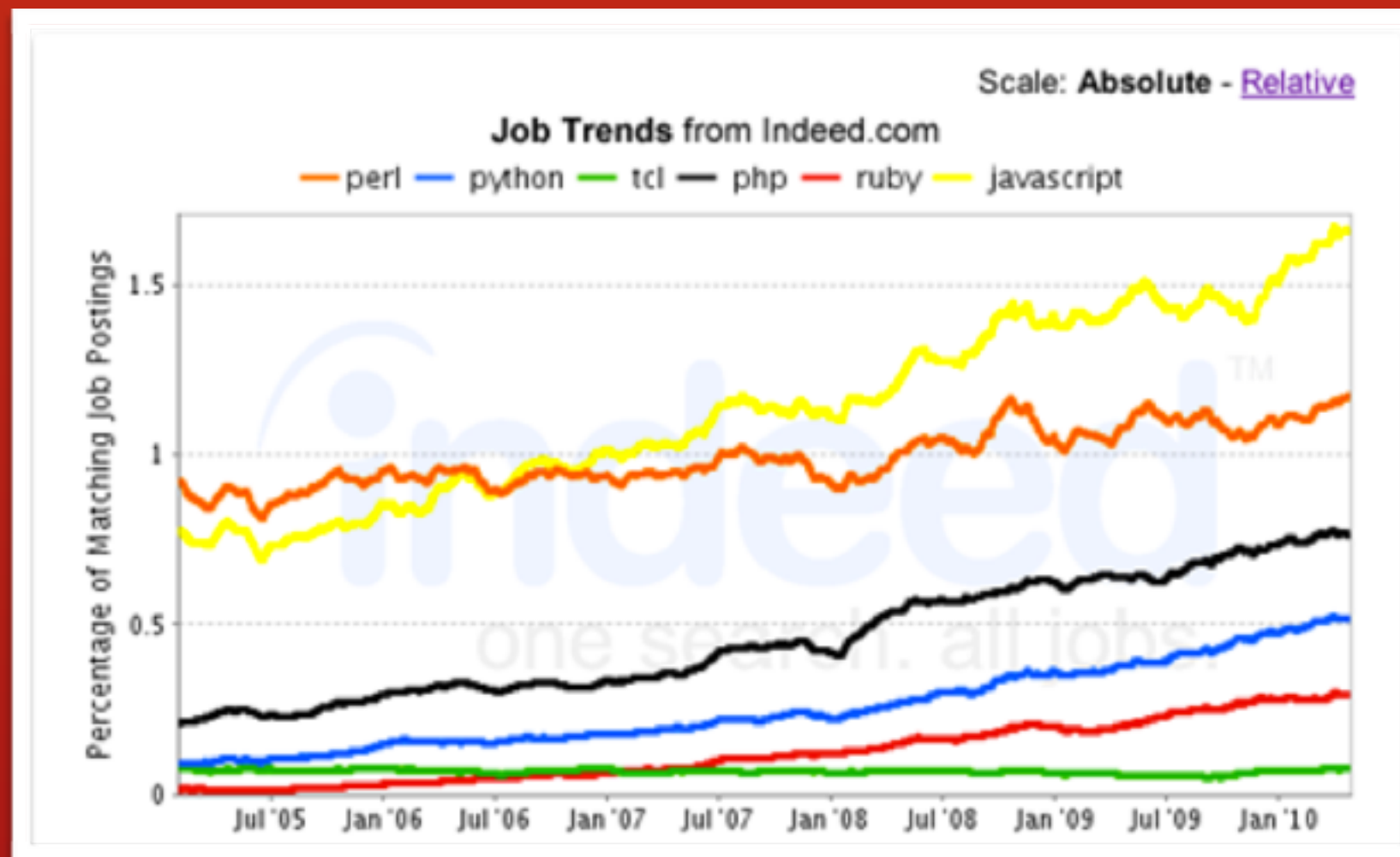
- Server Generated HTML (ERB, Slim, HAML etc.)
- jQuery
- jQuery UI
- Server generated JavaScript Responses (SJR)



JavaScript has grown up



JavaScript has grown up



percentage of total JS developer jobs has doubled from 2005 to 2010

JavaScript has grown up



Server-side usage of JS has been multiplied by 6 from Jan 2012 to Oct 2014

no backend

nobackend.org

FEATURES
INTRODUCTION
GETTING STARTED
DOCUMENTATION
PLUGINS
ABOUT
MERCHANDISE
SPONSORING
BLOG



VERY FAST WEB APP DEVELOPMENT

We want to enable you to build complete web apps in days, without having to worry about backends, databases or servers, all with an open-source library that's as simple to use as jQuery.

That's why we're making Hoodie.

Hoodie is an **Offline First** and **noBackend** architecture for frontend-only web apps.

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Hoodie

hoodie.ie

isomorphism

A better way to build apps.

Meteor is an open-source platform for building **top-quality web apps** in a **fraction of the time**, whether you're an expert developer or just getting started.



[Watch the screencast](#)

[Also see the sequel](#)

Get started now!

```
$ curl https://install.meteor.com/ | sh
```

001

Pure JavaScript.

Write your entire app in pure JavaScript. All the same APIs are

This is the web

Meteor

meteor.com

frontend frameworks

frontend (MV*) frameworks

frontend (MV*) frameworks

AngularJS



frontend (MV*) frameworks

AngularJS



KnockoutJS



frontend (MV*) frameworks

AngularJS



KnockoutJS



Ember.js



frontend (component) frameworks

frontend (component) frameworks

Ractive.js



frontend (component) frameworks

Ractive.js



ReactJS



frontend (component) frameworks

Ractive.js



ReactJS



Backbone View (alone)



frontend (component) frameworks

Ractive.js



ReactJS



Backbone View (alone)



ExtJS



TodoMVC

todomvc.com

More on MV^* ...

Knockout.







but I <3 Ruby

so here is the question



Andrzej Krzywda

@andrzejkrzywda



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andrzejonsoftware.blogspot.com/2013/12/how-ca...



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7



7:53 PM - 28 Dec 2013

**is there room
for Rails?**



**Not his [DHH's]
responsibility to tell us how
to do these things.**

– Marcin Stecki @madsheepPL at wroc_love.rb

**single page
vs.
traditional HTML**

naturally content-dependent

what is your content?

general



personal

what is your content?

general



personal

Information pages



what is your content?

general



personal

Information pages



Membership sites



what is your content?

general



personal

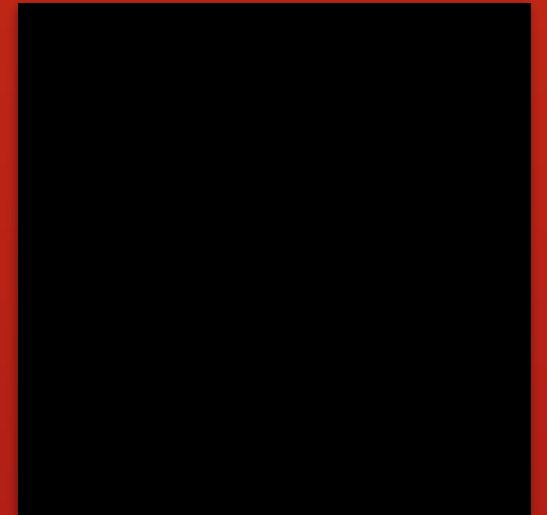
Information pages



Membership sites



Closed systems



content criteria

content criteria

- authentication

content criteria

- authentication
- how real is real-time

content criteria

- authentication
- how real is real-time
- caching

content criteria

- authentication
- how real is real-time
- caching
- indexing (SEO)

**how unique is the
view to be rendered?**

how unique is the view to be rendered?

how many combinations of a unique set of data?

how unique is the view to be rendered?

how many combinations of a unique set of data?

- a blog with comments

how unique is the view to be rendered?

how many combinations of a unique set of data?

- a blog with comments
- a hotel page with reviews

how unique is the view to be rendered?

how many combinations of a unique set of data?

- a blog with comments
- a hotel page with reviews
- a dashboard

if it is curated
content



Rails way

if it is SPA



other ways are
better

some

tips

tip 1: familiarity

what is most like Rails?

tip 1: familiarity

what



ails?

tip 1: familiarity

Ember.js is most like Rails



Ember.js is most like Rails

Ember.js is most like Rails

- everything should inherit from main object

Ember.js is most like Rails

- everything should inherit from main object



`ActiveRecord::Base.inherited)`

Ember.js is most like Rails

- everything should inherit from main object



`ActiveRecord::Base.inherited)`



`Ember.Object`

Ember.js is most like Rails

- everything should inherit from main object



`ActiveRecord::Base.inherited)`



`Ember.Object`



`Plain Old JavaScript Objects`

Ember.js is most like Rails

Ember.js is most like Rails

- routing DSL

Ember.js is most like Rails

- routing DSL



built-in routing

Ember.js is most like Rails

- routing DSL



built-in routing



built-in routing

Ember.js is most like Rails

- routing DSL



built-in routing



built-in routing



not in core, third party solutions

Ember.js is most like Rails

Ember.js is most like Rails

- vocabulary (templates, partials, etc.)

Ember.js is most like Rails

- vocabulary (templates, partials, etc.)



Models, Controllers, Views, Initializers

Ember.js is most like Rails

- vocabulary (templates, partials, etc.)



Models, Controllers, Views, Initializers



Models, Controllers, Views, Initializers

Ember.js is most like Rails

- vocabulary (templates, partials, etc.)



Models, Controllers, Views, Initializers



Models, Controllers, Views, Initializers



Dependency Injection, Factories, Services, Providers,
Transclusion

how to make
things work with
Rails?

tip 2: Rails “the non-Rails way

using asset pipeline / sprockets

use Bower



3 options for using Bower

option

1

gem

```
gem install bower-rails
```


option

2

Rails 4 (Sprockets 2+)

```
config.assets.paths <<  
  File.join(Rails.root,  
    'vendor', 'assets',  
    'components')
```

option

3

rails-assets.org

Gemfile

```
source 'https://rubygems.org'  
+source 'https://rails-assets.org'
```

```
gem 'rails'
```

```
# Assets
```

```
gem 'sass-rails'
```

```
gem 'uglifier'
```

```
gem 'coffee-rails'
```

```
+gem 'rails-assets-bootstrap'  
+gem 'rails-assets-angular'  
+gem 'rails-assets-leaflet'
```

ember-rails-api

github.com/dockyard/ember-appkit-rails

the app/assets/javascripts silo

- `config/application.js` the main loader referenced in your Rails layout view. (replaces `app/assets/javascripts/application.js`)
- `config/adapter.js.erb` configure the ember-data adapter. Pre-set for `ActiveModelAdapter` and will set the API version to `Rails.application.config.ember.api_version`
- `config/router.js` your Ember Router. The actual routes will go in `app/routes`
- `config/initializers` any files that compile to JavaScript in this directory will be automatically required.
- `config/initializers/csrf.js` sets up the `CSRF` token for doing `POST` requests back to the Rails backend via AJAX.
- `config/initializers/teaspoon.rb` teaspoon's configuration file (<https://github.com/modeset/teaspoon#configuration>).
- `config/environment.js` the general environment settings object. You should put settings in here that will be common across all environments.
- `config/environments/` hold environment specific settings. The correct environment file will be loaded. Name matches value of `Rails.env`. Settings added to these files will overwrite settings in `config/environment.js`
- `config/environments/development.js` development environment settings
- `config/environments/production.js` production environment settings
- `config/environments/test.js` test environment settings
- `config/serializers/` where Rails and Ember serializers will go

one more thing...

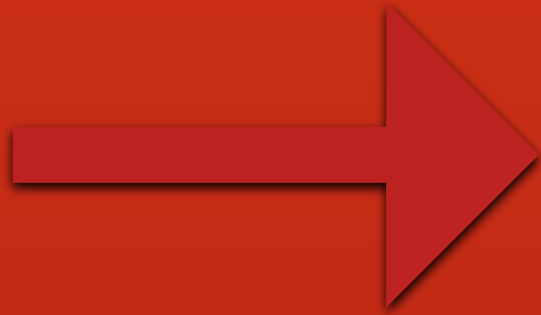
(sidetrack)



**Volt is a framework for
building
data rich web applications
shockingly fast.**

Volt Framework

voltframework.com



what is the way forward?

(IMHO)

tip 3: split



split completely

I don't like monoliths

2

applications

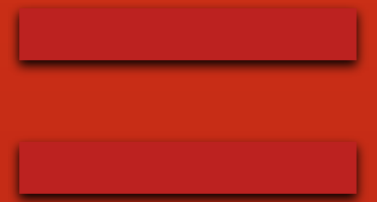
2

applications



2

applications



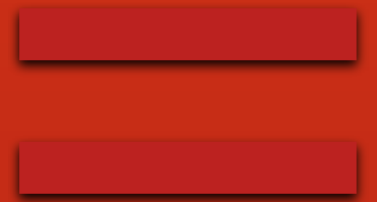
1

API



2

applications



1

API



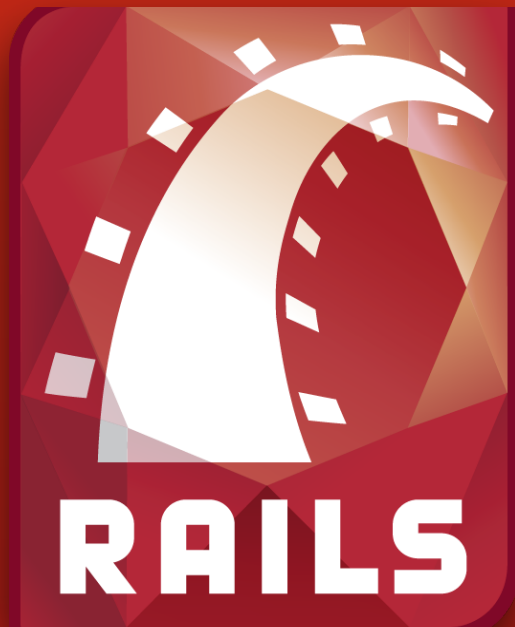
1

frontend

API

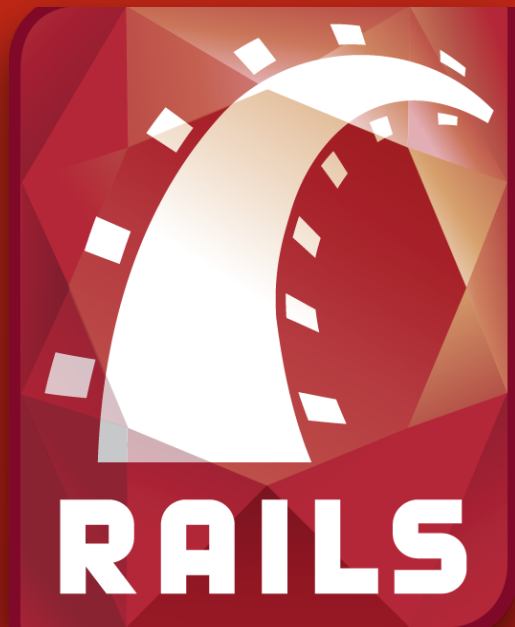
API

Rails



API

Rails

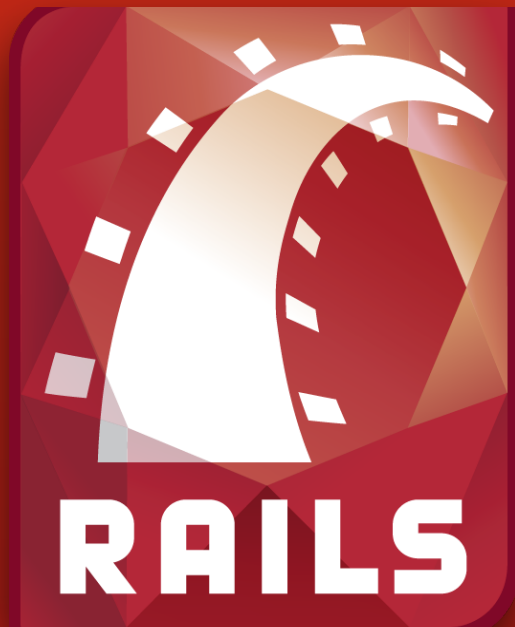


Sinatra



API

Rails



Sinatra

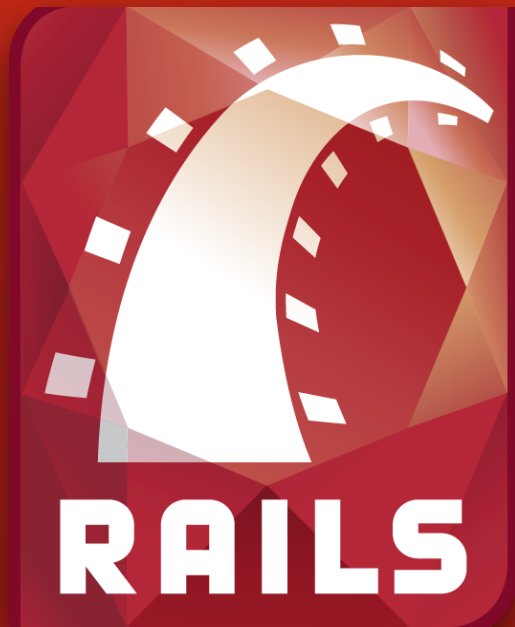


Lotus.rb



API

Rails



Sinatra



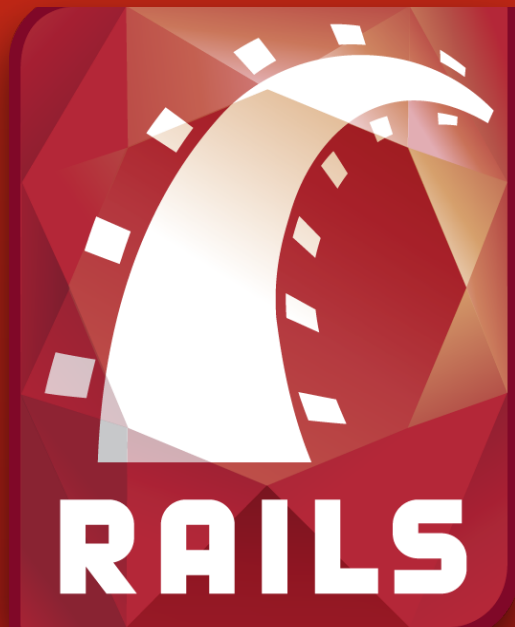
Lotus.rb



frontend

API

Rails



Sinatra



Lotus.rb



frontend

JS workflows



Knockout.



stick to client-server model



JavaScript tooling

isomorphism is possible

<http://nerds.airbnb.com/isomorphic-javascript-future-web-apps/>

surprisingly well testable
(and fast)

danke schön!

Fragen?

@myabc