

RESPONSIVE WEB DESIGN FROM THE FUTURE

pushState. replaceState. Hashbangs!# AJAX. PJAX.
Beets. Bears. Battlestar Galactica.

Kyle Neath is...



~ designer

@

github
SOCIAL CODING



@kneath



warpspire.com

Let's talk about

URL Design

Partial Page Updates

**The future of the
web is...**

HTML5 History API

+

Smart Partial Page Updates

**The future of the
web is...**

RESPONSIVE

**How do you define
responsive?**

“Responsive Web Design”

Resize the browser

With an iPad / Playbook

(lol/jk)

Feels Faster™

Fast pageloads

Animates naturally

Responds instantly

click touch zoom scroll swipe type resize

Browser Native

Keyboard Shortcuts

Back & Forward Buttons

URL Hacking

Technologies

@media queries

Modernizr

jQuery.hotKeys

CSS3 Animations

HTML5 History API

XMLHttpRequest

mustache.js

~~@media queries~~

~~Modernizr~~

~~jQuery.hotKeys~~

~~CSS3 Animations~~

HTML5 History API

XMLHttpRequest

mustache.js

**... and how GitHub is
stumbling through them**

My recent love affair

URL Design

URLs are sexy

**Working with Terminal
made me love URLs**


```
Terminal — bash — Solarized Dark ansi — 64x15
~ $ ls
Applications      Pictures
Desktop           Public
Documents         Sites
Downloads         bin
Dropbox           design
GitHub.sparsebundle  example.txt
Interface Tweaks  src
Library           tmp
Movies            wat.psd
Music
~ $ █
```

```
Terminal — bash — Solarized Dark ansi — 64x7
~ $ ls | grep example
example.txt
~ $ ls | grep example | pbcopy
~ $ █
```


**Who needs directions if you
can skip to the destination?**

URLs are like transporters

**Everything should
have a URL**



godfoca Nicolás Sanguinetti

Bummer. The title said to expect a talk on writing a compiler, and we get a talk on PEGs and Treetop :([#rubyconfindia](#)

14 hours ago



bleikamp Ben Bleikamp 

[@brianmario](#) EXAGGERATION. It's only 3:07am.

14 hours ago



brianmario Brian Lopez 

there's s carnival being setup outside our apartment right now. at 3:30am, probably going all night :(

14 hours ago



rtomayko Ryan Tomayko

Whoever taught me how to make strawberry shortcake where you pour all of the milk on top: Thank you.

14 hours ago



joedamato Joe Damato 

current status at HIGH VOLUME <http://www.youtube.com/watch?v=7JtZ06ZRezo>

15 hours ago



luxuryluke Luke Dorny

enough conversation. sleep.

15 hours ago



ckj Chris Jennings 

Move out day at Disqus flickr.com/photos/c-k-j/5...

15 hours ago



bguthrie Brian Guthrie  by godfoca

"Don't design exclusively for ActiveResource." - [@ponnappa](#) and [@niranjan_p](#) [#rubyconfindia](#)

15 hours ago



godfoca Nicolás Sanguinetti

418 I'm a Teapot represent! [#rubyconfindia](#)

15 hours ago

A URL is an agreement

**Can you see a future
with hashbangs?**

`#! /defunct`

FOREVER

```
// Redirect legacy anchor-based issue urls to real URLs.
var location_with_hash = location.pathname + location.hash
var matches = location_with_hash.match(/#issue\/(\d+)(\/comment\/(\d+))?/)
if (matches) {
  var issue_number = matches[1]
  var comment_id   = matches[3]
  if (issue_number) {
    if (comment_id) {
      window.location = location_with_hash.replace(/\/?#issue\/\d+\/comment\/\d+/, "#issue/" + issue_number + "/comment/" + comment_id)
    } else {
      window.location = location_with_hash.replace(/\/?#issue\/\d+/, "/" + issue_number)
    }
  }
}
```


**An <a> should
behave like an <a>**

 + **click**

 + **click**

Middle click



Search



Home

Profile

Messages

Who To Follow



kneath

What's happening?

Timeline

@Mentions

Retweets

Searches

Lists



jonesabi Abi Jones

Your team kicks ass if you've: shared 5-years-away vision of product, observed real users for 2+ hrs in last 6 wks, celebrated major failure

1 minute ago



jina jina

The gloves are on. <http://instagr.am/p/E279h/>

1 minute ago



rohdesign Mike Rohde

Check out [@Tazinoss](#) pizza, salad & desert buffet. Fresh food, nice price: \$8 adults \$5 kids on wknds \$7/\$4 weekdays (Pilgrim & Silver Spring)

3 minutes ago



luxuryluke Luke Dorny

Games People Play - Alan Parson's Project: the music my little niece is dancing to currently... [#nowplaying](#) [#nowdancing](#)

5 minutes ago



cduruk Can Duruk

Current status: [@Spartan_moving](#) is 3.5 hours late and counting.

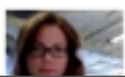
7 minutes ago



_kamzilla Kami Lott

Poopin

8 minutes ago



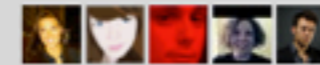
jonesabi Abi Jones

"Outsourcing your user research is like outsourcing your vacation "

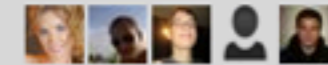
Your Tweets **16,704**

12 minutes ago: [@levifig](#) I own ByWord as well, but Writ...

Following **252**



Followers **2,275**



Who to follow · [refresh](#) · [view all](#)



FromYouFlowers From You Flowers

Promoted



sco Scott Raymond · [Follow](#)

Followed by [@bigfleet](#) and others.



shitmydadsays Justin · [Follow](#)

Followed by [@court3nay](#) and others.



Trends · San Francisco · [change](#)

[#StarPlayer](#) Promoted

[#youshouldbeashamedif](#)

[Gil Scott-Heron](#)

[#iloveyoubecause](#)

[#youknowwhatsannoying](#)

[Justin & Beliebers](#)

[Televised](#)

[Prince Fielder](#)

[Grand Slam](#)

[Brandon Crawford](#)

Twitter·for·iPhone

n. the official Twitter app for iPhone.

What's happening?

Timeline

@Mentions

Retweets 

Searches 

Lists 



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2 minutes ago



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4 minutes ago



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6 minutes ago



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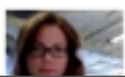
8 minutes ago



_kamzilla Kami Lott


Poopin

8 minutes ago



jonesabi Abi Jones

"Outsourcing your user research is like outsourcing your vacation."

close 



jina

[@jina](#) [view full profile](#) →

San Francisco, CA

Curate life™ <http://about.me/jina>

12,859

Tweets

300

Following

7,144

Followers

971

Listed

 Following



Recent Tweets



jina jina

The gloves are on. <http://instagr.am/p/E279h/>

2 minutes ago



jina jina

Tonight's theme: ruffles, sequins, damask, eyeshadow, champagne. Oh, and funfunfunfun.

2 hours ago



jina jina

I've made a lot of awesome friends in the last couple weeks and I'm really happy about this.

2 hours ago

[More Tweets from @jina](#) →

Be responsive!

**Browsers have
windows & tabs**


```
e.which == 1  
    &&  
    !e.metaKey  
    &&  
    !e.shiftKey
```


Making people say

Feels Faster™

Welcome to the AJAX Generation



Search Mail Search the Web [Show search options](#) [Create a filter](#)

- Mail
- Contacts
- Tasks

Compose mail

- Inbox
- Starred ★
- Important 📌
- Sent Mail
- Drafts (1)
- All Mail
- ask (6)
- Dreamhost
- Notes
- swn (6)
- Warpspire (9)
- 15 more ▾

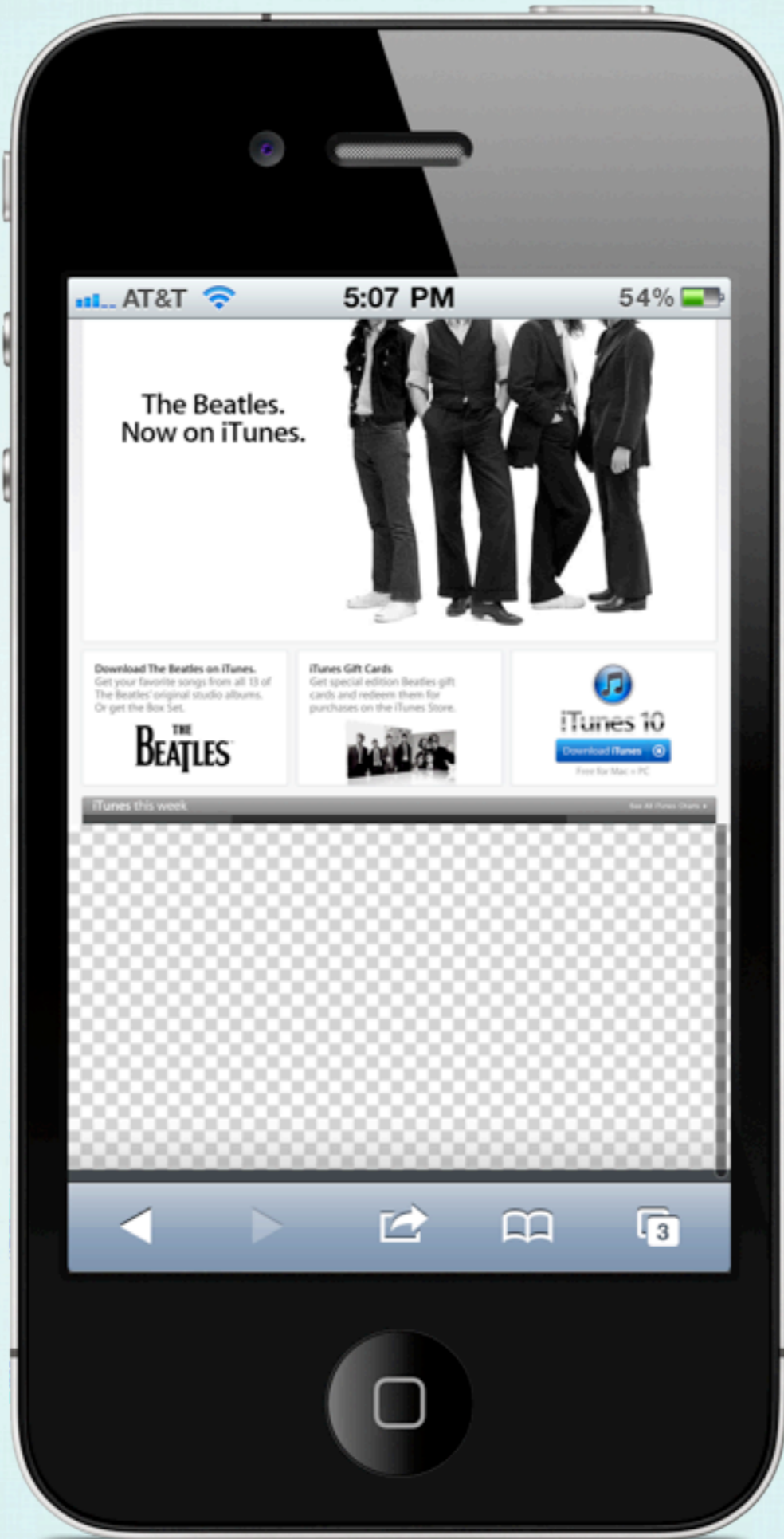
- Chat ▾ ▭
- Search, add, or invite
- Kyle Neath [Sign into chat](#)
 - Call phone
 - adelcambre@gmail.com
 - Bobmortland
 - Briana Kerns
 - Cherif Habib
 - Cody Sickler
 - groovemonkey

▾
 Archive Report spam Delete + - Move to ▾ Labels ▾ More actions ▾ Refresh

1 - 50 of 125 [Older >](#) [Oldest >>](#)

<input type="checkbox"/>	★	Stephan Kuntz	ask	Vimeo Question - Hi, just found your theme. Id like to use v	3:04 am
<input type="checkbox"/>	★	Season Pass		Only 5 Days Left Guaranteed Lowest Price and Spring Benefits!	May 26
<input type="checkbox"/>	★	Tammer, me (2)		oh no my money! - Bummer man :/ Such is life... - Kyle Neath ht	May 24
<input type="checkbox"/>	★	Kevin Clark		Campfire - Got it. Incremental indexing seems to be working well	May 24
<input type="checkbox"/>	★	Paul, me (2)		Fwd: [YC W10] Mandatory Drinks 5/27 - Jazzychad's Bday :) - Dc	May 24
<input type="checkbox"/>	★	Google Voice		New voicemail from (916) 709-3719 at 10:59 AM - Voicemail from	May 21
<input type="checkbox"/>	★	service@paypal.com		Subscription Payment Failed - Hello Kyle Neath, The payment for	May 20
<input type="checkbox"/>	★	Manpacks		1 More Thing: The Sample Grabbing Click-fest - Good—LOTS of	May 19
<input type="checkbox"/>	★	Clark Valberg		InVision: The UX Game Is About To Change... - InVision lets you	May 19
<input type="checkbox"/>	★	Deb Thompson		Hi Kyle, I came across your information on LinkedIn - Hi, Your bar	May 17
<input type="checkbox"/>	★	DISPATCH		DISPATCH EP - having trouble seeing this email? click here you	May 17
<input type="checkbox"/>	★	Flipperty Carrington		Video from Carrington - Hello Flipperty, You created a video mess	May 13
<input type="checkbox"/>	★	Clark Valberg		BETA Access Granted: InVision - UX Prototyping Made Beautiful	May 13
<input type="checkbox"/>	★	Scott .. Joshua, Jason (13)		Mark's Bachelor Party - Hey Guys, We went ahead and made res	May 13
<input type="checkbox"/>	★	David	ask	URL Design - I loved the thorough overview post you made	May 12
<input type="checkbox"/>	★	Ashley, me (3)		Ruby on Rails - Thanks Kyle, I think that's what it is. All the relati	May 12
<input type="checkbox"/>	★	Bryan Jowers		Director of UX & Product - Hey Kyle, Reaching out to you becaus	May 11
<input type="checkbox"/>	★	Ugmonk Newsletter		New Minimal Series & 20% Off - Email not displaying correctly in	May 10
<input type="checkbox"/>	★	bettermarketstreet		Upcoming Better Market Street Workshops and Webinars - City o	May 10
<input type="checkbox"/>	★	Forrst		What's new on Forrst, May 2011 Edition - Hey kneath, I just want	May 10
<input type="checkbox"/>	★	Heroku News		Heroku Newsletter May 2011 - Heroku May 2011 IN THIS ISSU	May 9
<input type="checkbox"/>	★	Pete Caruso	ask	DESIGN DILEMMAS - Mr. Kneath, Sorry to drop this long t	May 9
<input type="checkbox"/>	★	Pavlovic, Peter M	ask	Quick question about Hemingway template... - Hi, Have jus	May 9

Welcome to the
~~**AJAX Generation**~~
iPhone Generation



AT&T 5:07 PM 54%

The Beatles.
Now on iTunes.



Download The Beatles on iTunes.
Get your favorite songs from all 13 of
The Beatles' original studio albums.
Or get the Box Set.

THE
BEATLES

iTunes Gift Cards
Get special edition Beatles gift
cards and redeem them for
purchases on the iTunes Store.



iTunes 10
Download iTunes
Free for Mac + PC

iTunes this week



Fast is about perception

defunkt / resque

Watch Fork 2,240 261

Source Commits Network Pull Requests (1) Issues (18) Wiki (8) Graphs Branch: master

Switch Branches (4) Switch Tags (50) Branch List

Resque is a Redis-backed Ruby library for creating background jobs, placing those jobs on multiple queues, and processing them later.

<http://github.com/blog/542-introducing-resque>

Downloads

HTTP Git Read-Only Read-Only access

1.17.1



defunkt (author)
about 6 hours ago

commit e2d5804022366f18366d
tree 4c6c166ed2f0cd3d07da
parent 8401f8ebe39583142edd

resque /

name	age	message	history
bin/	February 03, 2011	Accept namespaces in `resque` command [paulrosania]	
docs/	August 23, 2010	Add docs for after_enqueue hook [darkhelmet]	
examples/	1 day ago	Fix monit example: needs /bin/sh to be a login she... [defunkt]	
lib/	about 6 hours ago	1.17.1 [defunkt]	
test/	May 16, 2011	Hoptoad backend has always been optional - don't r... [defunkt]	
.gitignore	May 16, 2011	added Gemfile.lock to gitignore [morgoth]	
.kick	November 02, 2009	rake kick [defunkt]	
Gemfile	1 day ago	Add rake the Gemfile's test group. [dpiddy]	

defunkt / resque

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1.17.1



defunkt (author)
about 6 hours ago

=

commit e2d5804022366f18366d
tree 4c6c166ed2f0cd3d07da
parent 8401f8ebe39583142edd

resque /

1 billion SQL Queries

2 billion Memcache calls

3 billion Git calls

name	date	message	history
bin/	February 03, 2011	Accept namespaces in 'resque' command [paulrosania]	
docs/	August 23, 2010	Add docs for after_enqueue hook [darkhelmet]	
examples/	1 day ago	Example: resque bin/resque -d redis://127.0.0.1:6379 [defunkt]	
lib/	about 6 hours ago	1.17.1 [defunkt]	
test/	May 16, 2011	Hoptoad backend has been optional - don't [defunkt]	
.gitignore	May 16, 2011	Added .lock to gitignore [morgan	
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defunkt / resque

Watch

Fork

2,240

261

Source

Commits

Network

Pull Requests (1)

Issues (18)

Wiki (8)

Graphs

Branch: master

Switch Branches (4)

Switch Tags (50)

Branch List

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<http://github.com/blog/542-introducing-resque>

Downloads

HTTP

Git Read-Only

<https://github.com/defunkt/resque.git>

Read-Only access

1.17.1



defunkt (author)
about 6 hours ago

commit e2d5804022366f18366d
tree 4c6c166ed2f0cd3d07da
parent 8401f8ebe39583142edd

resque /

SLOW

name	message	history
bin/	Accept spaces in `name` command line via	
docs/	Add doc after_end hook [morgoth]	
examples/	monit example as /bin/sh to a login . [defunkt]	
lib/	about 6 hours ago 1.17.1 [defunkt]	
test/	May 16, 2011 Hoptoad backend has always been optional - don't r... [defunkt]	
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defunkt / resque

Watch

Fork

2,240

261

Why are we focusing up here?

Resque is a Redis-backed Ruby library for creating background jobs, placing those jobs on multiple queues, and processing them later.

<http://github.com/blog/542-introducing-resque>

Downloads

HTTPS Git Read-Only <https://github.com/defunkt/resque.git>

Read-Only access

This is the part that changes

1.17.1



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about 6 hours ago

commit e2d5c22366f18366d
tree 4c6c166ed2f0cd3d07da
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Caching!

...is really difficult

AJAX!

AJAX!

loaders are not responsive

AJAX!

loaders are not responsive

defunkt / **resque**

Watch Fork 2,240 261

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defunkt / resque

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tree 4c6c166ed2f0cd3d07da
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resque /

name	age	message	history
..			
resque	February 03, 2011	Accept namespaces in `resque` command [paulrosania]	
resque-web	March 03, 2010	Feature: specify a Redis namespace via command ... [rmoriz]	

defunkt / resque

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defunkt / **resque**

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.kick	November 02, 2009	rake kick [defunkt]	
Gemfile	1 day ago	Add rake the Gemfile's test group. [dpiddy]	

**Only use loaders when
requests are slow**

~500ms

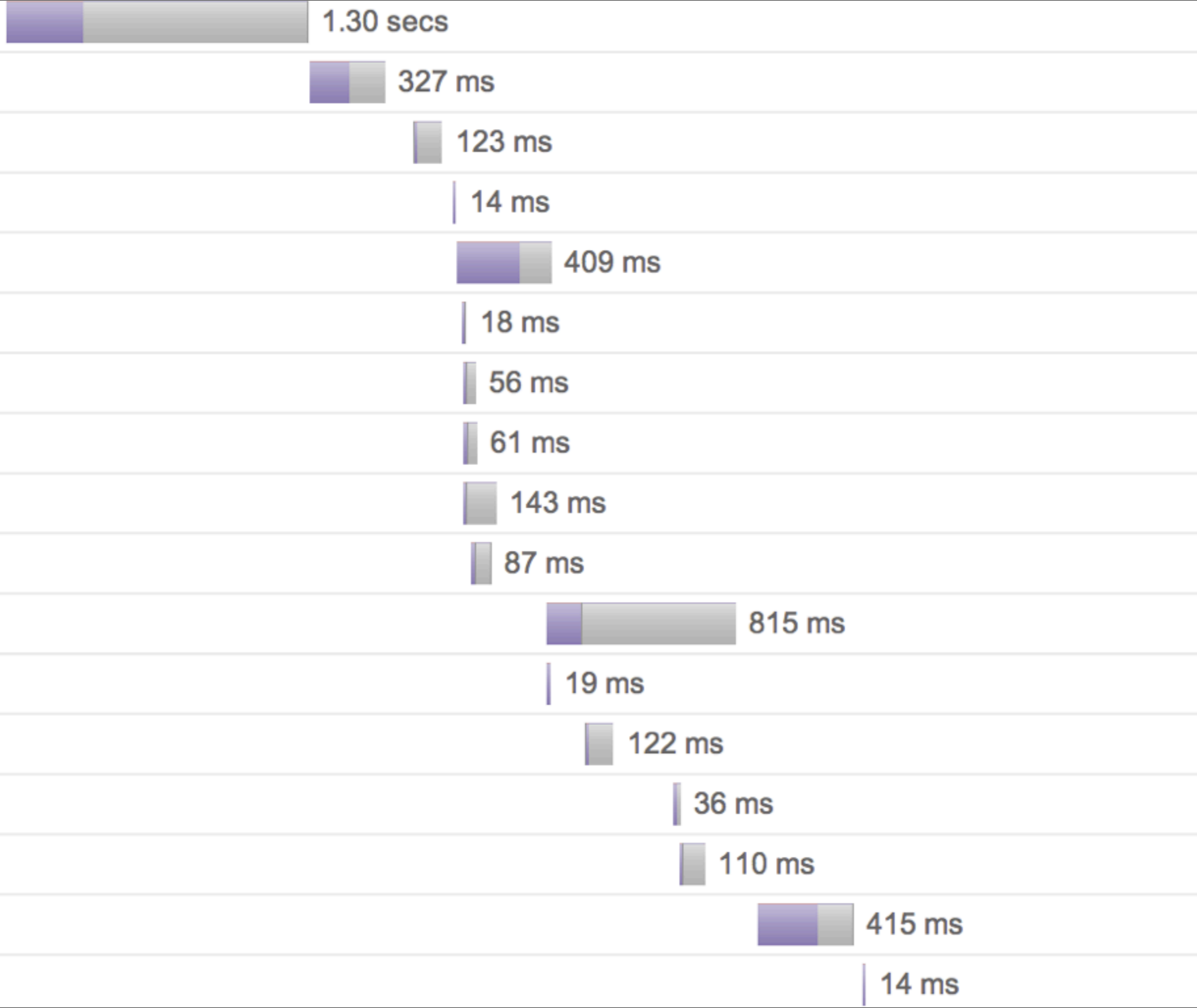
**Cache content for
zero-request updates**

Think about the back button

**There will always be
full page loads**

If you want fast...

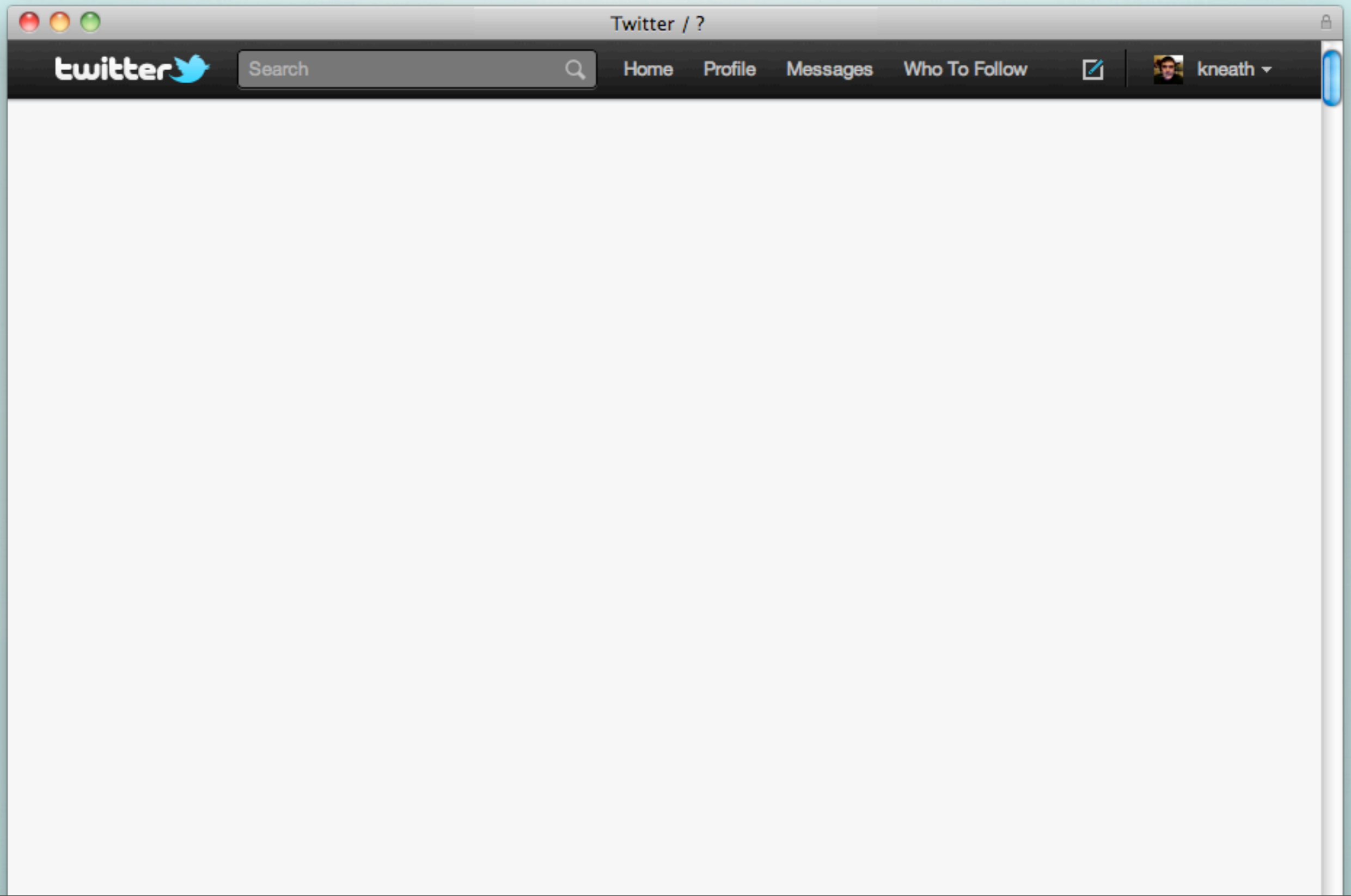
**Serve all HTML (or JSON)
in one request**



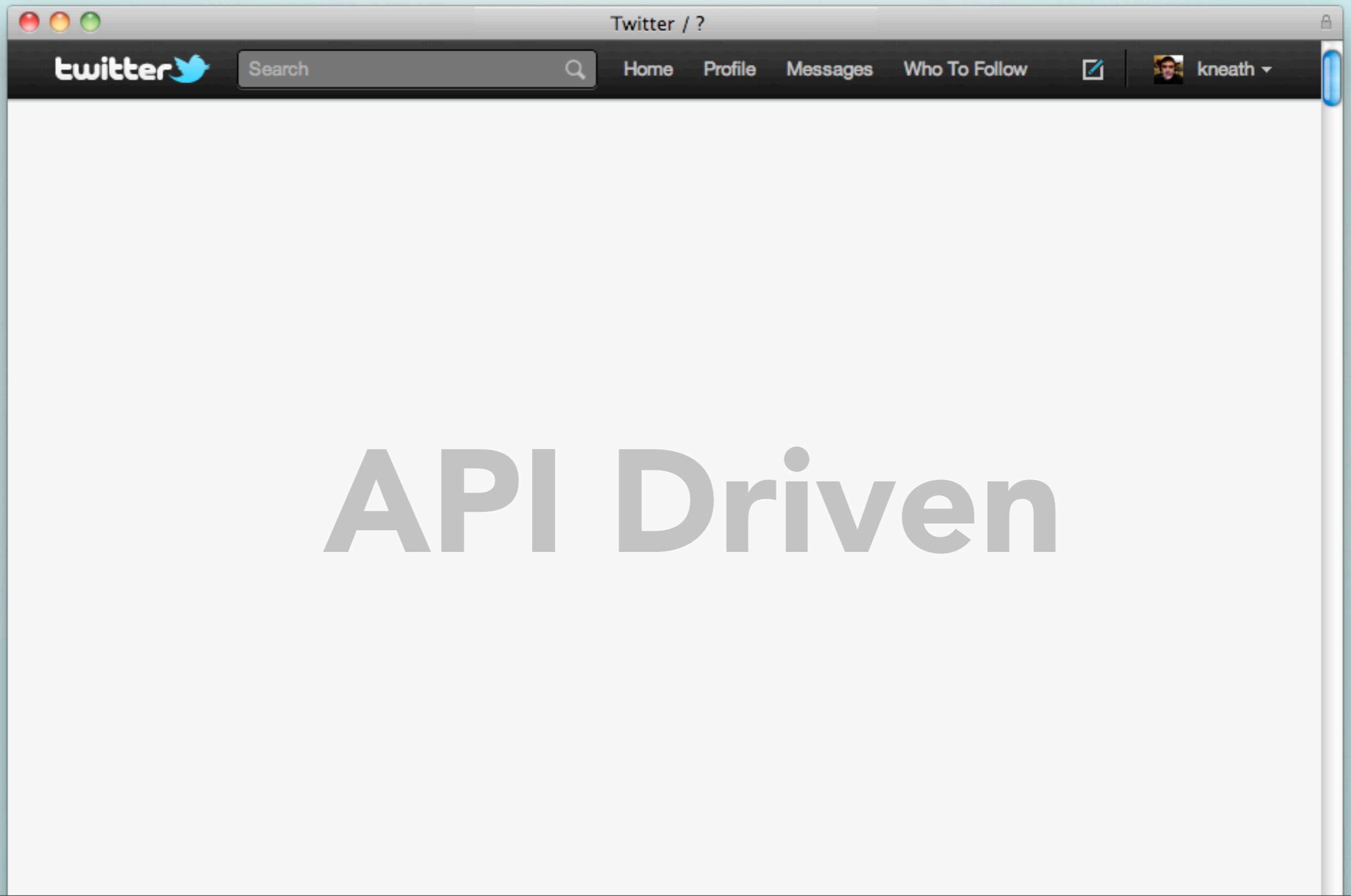
**Remember, page load time
is about perception**

When can I: scroll, read text, click links?

Twitter: HTML + CSS + JS



Twitter: HTML + CSS + JS



API Driven

Apply Science

<https://twitter.com/#!/kneath>

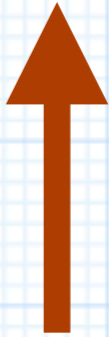
4.7 sec

total load time

4.3 sec

timeline load

Time to usable!



Apply Science

<https://github.com/kneath>

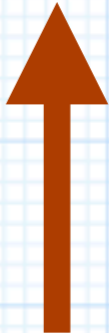
3.4sec

total load time

1.1sec

HTML/CSS/JS loaded

Time to usable!



Why is Twitter's so slow?

SSL

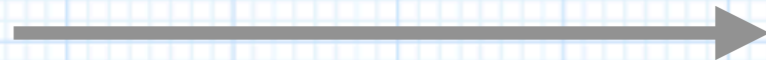
Each domain is a new SSL Handshake

twitter.com

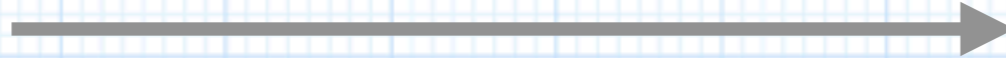
api.twitter.com

Handshakes and Waterfalls

SSL
twitter.com



SSL
api.twitter.com



HTML, CSS, JS

JSON Data



SSL Negotiation is our bottleneck

40ms backend response time
500ms blocking SSL Negotiation

**Always favor science
over theory**

Be Responsive

Client-Side Cache



AJAX/JSON Request



Full Page

defunkt / **resque**

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about 6 hours ago

commit e2d5804022366f18366d
tree 4c6c166ed2f0cd3d07da
parent 8401f8ebe39583142edd

resque /

name	age	message	history
bin/	February 03, 2011	Accept namespaces in `resque` command [paulrosania]	
docs/	August 23, 2010	Add docs for after_enqueue hook [darkhelmet]	
examples/	1 day ago	Fix monit example: needs /bin/sh to be a login she... [defunkt]	
lib/	about 6 hours ago	1.17.1 [defunkt]	
test/	May 16, 2011	Hoptoad backend has always been optional - don't r... [defunkt]	
.gitignore	May 16, 2011	added Gemfile.lock to gitignore [morgoth]	
.kick	November 02, 2009	rake kick [defunkt]	
Gemfile	1 day ago	Add rake the Gemfile's test group. [dpiddy]	

defunkt / resque

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Source Commits Network Pull Requests (1) Issues (18) Wiki (8) Graphs Branch: master

Switch Branches (4) Switch Tags (50) Branch List

Resque is a Redis-backed Ruby library for creating background jobs, placing those jobs on multiple queues, and processing them later.

<http://github.com/blog/542-introducing-resque>

Downloads

HTTP Git Read-Only Read-Only access

1.17.1



defunkt (author)
about 6 hours ago

commit e2d5804022366f18366d
tree 4c6c166ed2f0cd3d07da
parent 8401f8ebe39583142edd

resque /

name	age	message	history
..			
resque	February 03, 2011	Accept namespaces in `resque` command [paulrosania]	
resque-web	March 03, 2010	Feature: specify a Redis namespace via command ... [rmoriz]	

So if we want partial page updates
sometimes, full page updates other times...

**Server or client side
template rendering?**

Both!

Use the same templates

mustache.rb mustache.js

Render HTML in AJAX/JSON

partials are your friend

But...

**With SSL negotiation,
server time is ~free**

One is simpler than two

URL Design

+

Feels Faster™

defunkt / **resque**

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Even better screenshot in README




defunkt (author)
about 22 hours ago


commit 157926e913712300027d
tree 4ee9d7c35835da1bbbec
parent 167e6fdb171d21d02ba1


resque /


name	age	message	history
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HISTORY.md	1 day ago	1.17.1 [defunkt]	

 defunkt / resque

 Watch

 Fork

 2,242

 263

Source

Commits

Network

Pull Requests (1)

Issues (18)

Wiki (8)

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Branch: master

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 HISTORY.md	1 day ago	1.17.1 [defunkt]	
 LICENSE	February 04, 2011	time is an illusion [defunkt]	
 README.markdown	about 22 hours ago	Even better screenshot in README [defunkt]	

**HTML5 History API
makes me all tingly**

pushState

URL Change + back button stack

replaceState

URL Change only

**Partial page updates
with real URLs!**

**We can design for the
back button!**

Browser Support?



Yes



5.0



4.0

Browser Support?

85%

<https://github.com>

history.js

`balupton/history.js`



If you use hashbangs...

JavaScript redirects

two requests instead of one

Confusing code paths

some routing in server, some in js?

Cost of History API

**Some users get a
slower experience**

But isn't Chrome already faster than IE7?

Cost of Hashbangs

Poison your URL structure

Committing to nasty JS
redirects FOREVER

Manual anchor Javascript

This stuff is opening up

Futuristic design

State?

We can do that

?milestone=3&sort=created&direction=desc&state=open

Issues - rails/rails - GitHub

https://github.com/rails/rails/issues?milestone=3&sort=created&_pjax=true

github SOCIAL CODING

rails / rails

Watch Fork 8,800 1,675

Source Commits Network Pull Requests (57) **Issues (117)** Graphs Branch: master

Browse Issues Milestones Search: Issues & Milestones... New Issue

Everyone's Issues 6

Milestone: Rails 3.2 6 open Issues

LABELS

- activerecord 3
- enhancement 1

Clear active milestone and label filters. Keyboard shortcuts available

6 open issues 1 closed issues Submitted Updated Comments

- #551 **changed AR::Base#attributes to return a hash with indifferent access for the sake of API consistency**
by amatsuda 05/13/2011 Code Attached
- #549 **Utf8 enforcer param customization**
by dlee 05/13/2011 Code Attached 14 comments
- #534 **has and belongs to many join tables do not allow primary keys**
by omarqureshi 05/12/2011 3 comments
- #533 **Default scope breaks working of has_many :through** **activerecord**
by jonleighton 05/12/2011 7 comments
- #522 **Support for joins in ActiveRecord::Relation#update_all** **activerecord** **enhancement**
by dhh 05/11/2011 4 comments
- #520 **Has many through association with :order causes a SQL error with PostgreSQL** **activerecord**
by lancecarlson 05/11/2011 2 comments

6 open issues in this view

Save URLs in database

`replaceState` on load

but only if there aren't any params already

**Maintain state across
pageviews**

**Copy & paste URLs
over IM / chat**

Infinite Scroll?

We can do that
(correctly)

Lots of websites are using infinite scroll

Facebook

Tumblr

Twitter

And they're all broken

**Infinite scroll is only
better than pages if you
can restore your position**

i Overview

Explanation

See the Code

Infinite Scroll + HTML5 History API

This example shows the power of the History API when combined with infinite scroll. Fluid user experience and hard linking all in one. Scroll down, click a link & press the back button, refresh the page — it all just works.



@holman Zach Holman

@moonpolysoft i'm not really hungry right now though

about 15 hours ago



@holman Zach Holman

@Karmic_Mishap good god that made me laugh

about 16 hours ago



@holman Zach Holman

This hooker isn't accepting bitcoins. Now what do I do.

about 16 hours ago



@holman Zach Holman

@timhaines my toilet is sequestered in a tiny room away from the sink and shower. so YES

about 23 hours ago



@holman Zach Holman

@allison_house NEIGHBOR

Good URL Design + History API
makes for...

Happy Unix Enthusiasts

Happy Grandmas

Happy Developers

warpspire.com/talks/responsive