

# High Performance HTML5



*[stevesouders.com/docs/qcon-2011118.pptx](http://stevesouders.com/docs/qcon-2011118.pptx)*

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YAHOO!

Google™



YSlow



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SpriteMe



Hammerhead

Browserscope



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14 Steps to Faster-Loading Web Sites

High Performance  
Web Sites

Essential Knowledge  
for Frontend Engineers



Essential Knowledge for Frontend Engineers



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Even Faster  
Web Sites

O'REILLY\*

Steve Souders

June 14-16, 2011  
Santa Clara, California

2004



# Blog:

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30 March 2010

17

950 tweets  
retweet

## Fred Wilson's 10 Golden Principles of Successful Web Apps

BY KEIR WHITAKER

#1. Speed: "First and foremost, we believe that speed is more than a feature. Speed is the most important feature."



In February 2010 [Fred Wilson](#), a New York-based tech investor, spoke at the annual [Future of Web Apps](#) conference. In a talk, clocking in at just under 30 minutes, looks at his top 10 principles for creating a successful web app. A full transcript is available below.



### Think Vitamin Radio

Think Vitamin Radio: Episode #5 0:00

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## Recent Articles

# Server Delays Experiment: Results

	Distinct Queries/User	Query Refinement	Revenue/User	Any Clicks	Satisfaction	Time to Click (increase in ms)
50ms	-	-	-	-	-	-
200ms	-	-	-	-0.3%	-0.4%	500
500ms	-	-0.6%	-1.2%	-1.0%	-0.9%	1200
1000ms	-0.7%	-0.9%	-2.8%	-1.9%	-1.6%	1900
2000ms	-1.8%	-2.1%	-4.3%	-4.4%	-3.8%	3100

- Means no statistically significant change

- Strong negative impacts
- Roughly linear changes with increasing delay
- Time to Click changed by roughly double the delay

# Search Traffic Impact

Type of Delay	Delay (ms)	Experiment Duration (weeks)	Impact on Average Daily Searches Per User
Pre-header	50	4	Not measurable
Pre-header	100	4	-0.20%
Post-header	200	6	-0.29%
Post-header	400	6	-0.59%
Post-ads	200	4	-0.30%

- Increase in abandonment heuristic = less satisfaction
  - Abandonment heuristic measures if a user stops interacting with search engine before they find what they are looking for
- Active users (users that search more often a priori) are more sensitive

# Importance of performance

- Yahoo!: 400 ms slower = 5-9% drop in full-page traffic

Browsing all articles in **website optimization**

### Recent Posts

- Menu Item Usage Study: The 80-20 Rule?
- Why People Don't Upgrade Their Browser – Part IV
- Study: An Update to the Initial Ana
- Web Analytics and Mozilla Websites
- ... and the Elements in Firefox
- Menu Item Usage Study: An Update to the Data
- ... Load Speed – Part II
- Firefox & Page Load Speed – Part I
- ... Q1 2010 Analyst Report – State of the Inter
- Firefox's Adoption Funnel

APR

5

19

## FIREFOX & PAGE LOAD SPEED – PART II

Blake Cutler [speed](#), [website optimization](#)

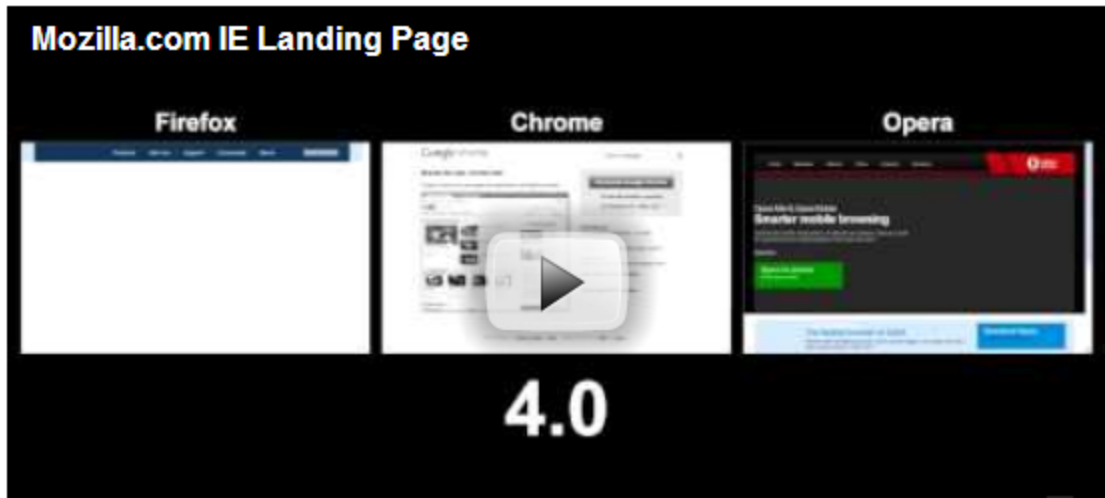
Let's start with the punchline: By making a few minor tweaks to our top landing pages, we can drive an additional 1,000,000 Firefox downloads per year.

60 million is a big number, so let's add a little context. Looking back at our [breaking download day](#) campaign, we found that 200 million people downloaded Firefox during our Download Day campaigns per year.

What are the tweaks?

It comes down just one factor — speed. As it stands, our landing pages can be painfully slow. Take a look:

...shaved 2.2 seconds off the average page load time and increased download conversions by 15.4%!

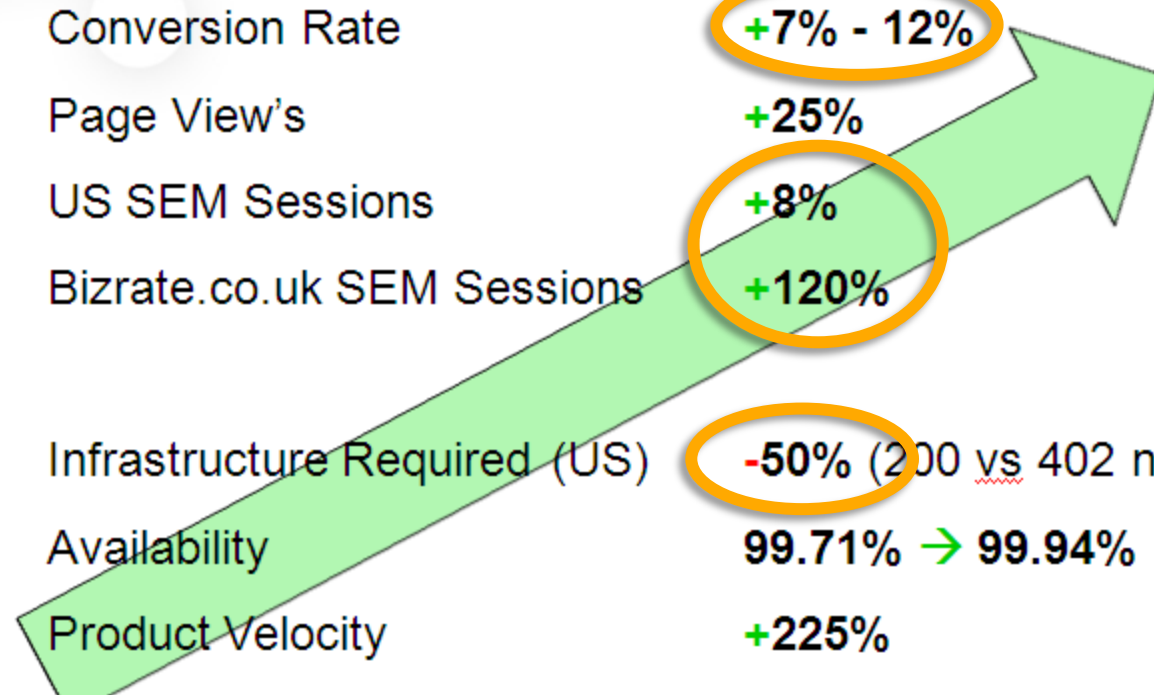


### Archives

- April 2010
- March 2010
- February 2010
- January 2010
- December 2009
- November 2009
- October 2009
- September 2009



## Performance Summary

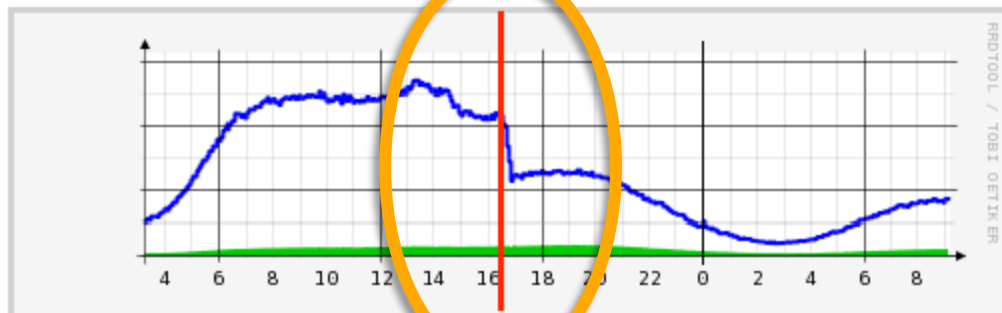
- Conversion Rate **+7% - 12%**
  - Page View's **+25%**
  - US SEM Sessions **+8%**
  - Bizrate.co.uk SEM Sessions **+120%**
  - Infrastructure Required (US) **-50%** (200 vs 402 nodes)
  - Availability **99.71% → 99.94%**
  - Product Velocity **+225%**
  - Release Cost **\$1,000's → \$80**
- 

# Improving Performance: Gzip

- Payload reduced in some cases 15x (typically in half)

Empty Cache		Primed Cache		Empty Cache		Primed Cache	
804.8K	1HTML/Text	804.8K	1HTML/Text	51.6K	1HTML/Text	51.6K	1HTML/Text
284.5K	3JavaScript Files	284.5K	3JavaScript Files	0.0K	1XMLHttpRequest	0.0K	1XMLHttpRequest
73.4K	2Stylesheet Files	73.4K	2Stylesheet Files	63.9K	3JavaScript Files	0.0K	23CSS Images
8.0K	20CSS Images	0.0K	20CSS Images	15.4K	2Stylesheet Files	0.0K	61Images
55.0K	60Images	0.0K	60Images	21.9K	23CSS Images	0.0K	61Images
1225.8K	<b>Total size</b>	1162.8K	<b>Total size</b>	209.3K	<b>Total size</b>	51.6K	<b>Total size</b>
86	<b>HTTP requests</b>	86	<b>HTTP requests</b>	91	<b>HTTP requests</b>	86	<b>HTTP requests</b>

- User experience performance improvement **13% - 25%**
- Network outbound traffic cut in half



# Quick Wins: CACHING!

## - Solution

Added Expires Header + Removed Etags

## - Result:

34% reduction in bandwidth

= 34TB annual savings

= FREE video streaming for 2 years

= Faster pages when cache is primed



... we've decided to take site speed into account in our search rankings.

## Using site speed in web search ranking

Friday, April 09, 2010 at 11:00 AM  
Webmaster Level: All

You may have heard that here at Google we're obsessed with speed, in our products and on the web. As part of that effort, today we're announcing a change to our search algorithms: site speed. Site speed is now a ranking signal.

Speeding up websites is important — not just to site owners, but to all internet users. Faster sites create happy users and we've seen in our [internal studies](#) that when a site responds slowly, visitors spend less time there. But faster sites don't just improve user experience; recent data shows that improving site speed also [reduces operating costs](#). Like us, our users place a lot of value in speed — that's why we've decided to take site speed into account in our search rankings. We use a variety of sources to determine the speed of a site relative to other sites.

If you are a site owner, webmaster or a web author, here are some free tools that you can use to evaluate the speed of your site:

- [Page Speed](#), an open source Firefox/Firebug add-on that evaluates the performance of web pages and gives suggestions for improvement.
- [YSlow](#), a free tool from Yahoo! that suggests ways to improve website speed.
- [WebPagetest](#) shows a waterfall view of your pages' load performance plus an optimization checklist.
- In [Webmaster Tools](#), Labs > Site Performance shows the speed of your website as experienced by users around the world as in the chart below. We've also blogged about [site performance](#).

**Site performance**  
This page shows you performance statistics of your site. You can use this information to improve the speed of your site and create a faster experience for your users. [Learn more](#)

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BY FEEDBURNER

Google Translate  
Select Language  
Gadgets powered by Google

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- [Google Webmaster Central](#)
  - [Webmaster Help Center](#)
  - [Google Webmaster Tools](#)
  - [Webmaster Central on YouTube](#)



# WPO

Web  
Performance  
Optimization

drives traffic

improves UX

increases revenue

reduces costs

# High Performance HTML5

<http://www.w3.org/TR/html5/>

# Web Performance Working Group

chartered June 2010

## Web Timing

- Navigation Timing
- User Timing
- Resource Timing

## Page Visibility

Script-based animations

Efficient script yielding

*<http://www.w3.org/2010/webperf/>*

# Navigation Timing



```
var timing = performance.timing;  
var loadtime =  
    timing.loadEventEnd -  
    timing.navigationStart;
```

Chrome 6+, IE9+, Firefox 7+, Android 4+

<http://blog.chromium.org/2010/07/do-you-know-how-slow-your-web-page-is.html>





ADVANCED SEGMENTS EXPORT ADD TO DASHBOARD

## Site Speed

Oct 18, 2011 - Nov 17, 2011

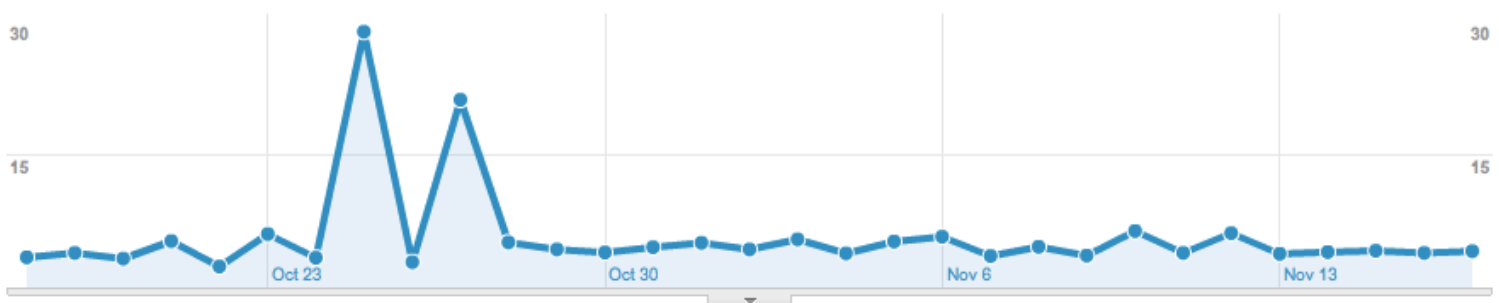
100.00% of total pageviews

Explorer Performance Map Overlay

### Site Usage

Avg. Page Load Time (sec) <sup>?</sup> <b>5.90</b> Site Avg: 5.90 (0.00%)	Pageviews <sup>?</sup> <b>43,592</b> % of Total: 100.00% (43,592)	Page Load Sample <sup>?</sup> <b>3,152</b> % of Total: 100.00% (3,152)	Bounce Rate <sup>?</sup> <b>81.80%</b> Site Avg: 81.80% (0.00%)	% Exit <sup>?</sup> <b>73.23%</b> Site Avg: 73.23% (0.00%)
---	---	--	---	--

Graph Mode: Line Chart Compare Metric Graph By:



Viewing: Page Page Title Other

Secondary dimension: Select... Sort Type: Default advanced View: 1 - 10 of 588

Page	Avg. Page Load Time (sec)	Pageviews	Page Load Sample	Bounce Rate	% Exit
1. /blog/2010/02/15/browser-performance-wishlist/	175.57	206	18	90.34%	86.89%
2. /blog/2010/12/10/velocity-china/	89.25	16	1	100.00%	100.00%
3. /blog/2011/10/20/http-archive-new-code-new-charts/	38.86	1,070	62	86.16%	77.38%
4. /?ex=2&title=	22.67	1	1	100.00%	100.00%

- VISITORS
- ADVERTISING
- TRAFFIC SOURCES

- CONTENT
  - Overview
  - Site Content
  - Site Speed
  - Site Search
  - Events
  - AdSense
  - In-Page Analytics

CONVERSIONS

- Help
  - The Site Speed Report
  - Page Speed Online
  - Find Your Old Reports in the New Interface

Help center

# GA site speed

on by default (starting today)

browsers that support Nav Timing

Chrome 6+, IE9+, Firefox 7+, Android 4+

1% sampling rate by default

can change to 10%

`_setSiteSpeedSampleRate ( )`

## Site Speed

Oct 18, 2011 - Nov 17, 2011

VISITORS

ADVERTISING

TRAFFIC SOURCES

CONTENT

Overview

Site Content

Site Speed

Site Search

Events

AdSense

In-Page Analytics

CONVERSIONS

Explorer Performance Map Overlay

Site Usage

Viewing: Page Page Title Other

Secondary dimension: Select... Sort Type: Default

advanced View: 1 - 10 of 588

Page	Avg. Page Load Time (sec)	Pageviews	Page Load Sample	Bounce Rate	% Exit
1. /blog/2010/02/15/browser-performance-wishlist/	175.57	206	18	90.34%	86.89%
2. /blog/2010/12/10/velocity-china/	89.25	16	1	100.00%	100.00%
3. /blog/2011/10/20/http-archive-new-code-new-charts/	38.86	1,070	62	86.16%	77.38%
4. /?ex=2&title=	22.67	1	1	100.00%	100.00%

Help

The Site Speed Report

Page Speed Online

Find Your Old Reports in the New Interface

Help center

Search help center Go

## Resource Timing

- DNS, redirects, etc.
- security safeguards

## User Timing

- for web apps
- mark, measure

# Page Visibility

detect when page is visible

- stats
- video & audio
- polling, DHTML
- performance: prefetching, prerendering

Chrome 13:

- `document.webkitHidden`
- `webkitvisibilitychange`

[code.google.com/chrome/whitepapers/pagevisibility.html](http://code.google.com/chrome/whitepapers/pagevisibility.html)

# script async & defer

parsing doesn't wait for script:

- async - executed when available
- defer - executed when parsing finished

when is it downloaded?

*Note: The exact processing details for these attributes are, for mostly historical reasons, somewhat non-trivial, involving a number of aspects of HTML. The implementation requirements are therefore by necessity scattered throughout the specification. The algorithms below (in this section) describe the core of this processing, but these algorithms reference and are referenced by the parsing rules for script start and end tags in HTML, in foreign content, and in XML, the rules for the document.write() method, the handling of scripting, etc.*

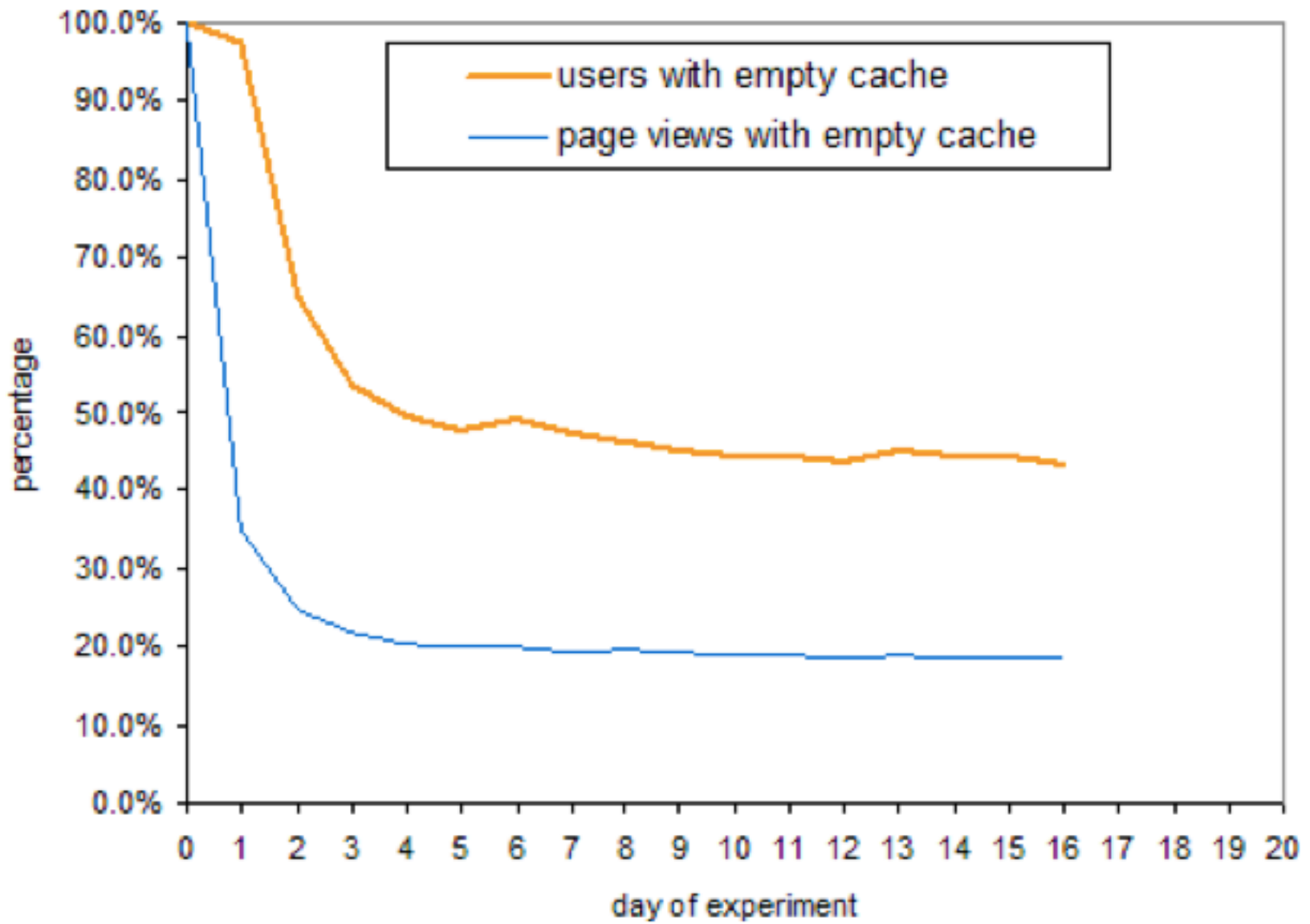
missing:

- defer download AND execution
- async/defer download, execute on demand

# app cache

offline apps, longer cache





## Cache size for desktop browsers (in MB)

Browser	Chrome	Firefox	Opera	Safari	IE
Version	12	5.0	10	5	9
Persistent	85	75	20	0/100*	150**
Memory	85	75	80	60	150**

\* Safari on windows demonstrated no persistent cache, while on Mac it stored 100MB of data

**UPDATE:** We couldn't reproduce this with the beta version of Safari 5.1, will update the table once its released

\*\* We stopped measuring at 150MB, IE9 can [reportedly go up to 250MB](#)

## Cache size for Mobile Browsers/Devices (in MB)

Smartphones	iPhone 4	Galaxy S	Nexus S	Blackberry Torch
OS / Ver	iOS/4.3	Android 2.2	Android 2.3	Blackberry 6
Persistent*	0	4	4	25
Memory**	100	4	4	25

Tablets	iPad 1	iPad 2	XOOM
OS / Ver	iOS/4.3	iOS/4.3	Android 3.0
Persistent*	0	0	20
Memory**	20	50	20

[blaze.io/mobile/understanding-mobile-cache-sizes/](http://blaze.io/mobile/understanding-mobile-cache-sizes/)



## (lack of) Caching for iPhone Home Screen Apps

June 28, 2011 10:14 pm | [9 Comments](#)

Yesterday's post, [Unexpected Reloads in WebKit](#), revealed an interesting behavior that affects caching in Safari:

*When you load the same URL back-to-back in Safari, the second load is treated the same as hitting Reload.*

This is bad for performance because the browser issues a Conditional GET request for each resource instead of using the cached resource.

*Home screen apps on iPhone are slower because resources are re-requested even though they should be read from cache.*

hit RETURN in address bar	yes
delete URL and type it again	yes
launch same URL in new tab	yes
click link to same URL	yes
go to another URL then type 1st URL again	no
modify querystring	no
enter URL in a new tab	no

**Table 1. Triggering reload behavior in Safari**

It's possible that real world users might type the same URL or open the same bookmark two times in a row in the same tab, but it probably doesn't happen that often. So what's the big deal?

### So what's the big deal?

Whenever I see strange performance behavior I think about where that behavior might have a significant impact. Is there any place where this back-to-back Safari Reload behavior could have a significant impact? A [comment](#) from yesterday's post hints at the answer:

# app cache

offline apps, longer cache

```
<!doctype html>
```

```
<html manifest="myapp.appcache">
```

myapp.appcache:

```
CACHE MANIFEST
# Revision: 1.28

CACHE:
/images/logo.gif

NETWORK:
/login.html

FALLBACK:
/index.html /offline.html
```

*Content-Type: text/cache-manifest*

# app cache gotchas


html docs w/ manifest are cached

404 => nothing is cached

size: 5MB+


must rev manifest to update resources

update is served on 2<sup>nd</sup> reload (?!?!)




**1** push app  
logo.gif = 

**2** user loads app  
app cache is empty  
fetch manifest  
fetch logo.gif  
app cache =   
user sees 

# app cache reload

**3** push app  
logo.gif =   
rev manifest

**4** user loads app  
app cache =   
user sees   
fetch manifest  
fetch logo.gif  
app cache = 

**5** user loads app again  
app cache =   
 user sees   
fetch manifest (304)

# load twice workaround

```
window.applicationCache.addEventListener  
( 'updateready' ,  
function(e) {  
    if ( window.applicationCache.status ==  
        window.applicationCache.UPDATEREADY) {  
        if ( confirm("Load new content?" ) ) {  
            ...  
        }  
    }  
}
```

<http://www.webdirections.org/blog/get-offline/>

<http://www.html5rocks.com/en/tutorials/appcache/beginner/>

# localStorage

`window.localStorage:`

`setItem()`

`getItem()`

`removeItem()`

`clear()`

also `sessionStorage`

all popular browsers, 5MB max

<http://dev.w3.org/html5/webstorage/>

<http://diveintohtml5.org/storage.html>

# localStorage as cache

1<sup>st</sup> doc: write JS & CSS blocks to localStorage

```
mres.-0yDUQJ03U8Hjija: <script>(function() {...
```

set cookie with entries & version

```
MRES=-0yDUQJ03U8Hjija:-4EaJoFuDoX0iloI:...
```

later docs: read JS & CSS from localStorage

```
document.write( localStorage.getItem  
(mres.-0yDUQJ03U8Hjija) );
```

<http://stevesouders.com/blog/2011/03/28/storager-case-study-bing-google/>

flowers

Storage bookmarklet

3 items, 168 kB

- localStorage
  - add clear
  - MOG.RESOURCES.CSS: #og\_head .og\_p\_119(background-image:url(
  - MOG.RESOURCES.VERSION: 13
  - msuggest.history..his...: flowers starfish
- sessionStorage

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[Get Well Flowers](#) - [Birthday Flowers](#)

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[www.ftd.com/](http://www.ftd.com/)

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chocolates, roses, gifts and gift baskets ... - [Cached](#)

[Sympathy & Funeral - Under \\$35 - Birthday flowers - Get We](#)

[Flowers Delivered - Send Flowers Online, ProFl](#)

[www.proflowers.com/](http://www.proflowers.com/)

Send flowers with ProFlowers, your online florist. Offering na  
Birthday flowers, all flowers and many occa... - [Cached](#)

[Birthday - Sympathy - Just Because - Get Well Flowers](#)

[Flower - Wikipedia, the free encyclopedia](#)

Storage bookmarklet

7 items, 332 kB

- localStorage
  - add clear
- sessionStorage
  - add clear
  - web-c: (["4a45fb01e8ce48fc"])
  - web-c4a45fb01e8ce48fc: ({"css":"body{color:#000;margin:3px 0}body,#
  - web-rt: -1479430611
  - web-s: (["#sclient=psy-ab&hl=en&source=hp&q=flowers&pbx=1&oq=flow
  - web-s#sclient=psy-ab&...: ({"n":"ad","a":["flowers - Google Search","Sfo
  - web-s#sclient=psy-ab&...: ({"n":"ad","a":["flowers - Google Search","Tfq
  - web-v: 21\_f8f309c0

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[FTD Flowers - Birthday Flower Bouquet - VA](#)

[FTD Flowers - Editors' Choice Deep Emotion](#)

[FTD Flowers - Simple Perfection™ Flower ...](#)

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Same Day Local Delivery.

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Aug 2, 2011 – Order **flowers** online for same da  
chocolates, roses, gifts and gift baskets by occa

[Sympathy & Funeral - Under \\$35 - Birthday flow](#)

  Evan Gilbert, Ben Lisbakken, Davi

[Flower Delivery - Send Flowers Online](#)

[www.proflowers.com/](http://www.proflowers.com/) [+1](#)

Send **flowers** with ProFlowers, your online floris

Birthday **flowers**, fall **flowers** and many occasio

[Birthday - Sympathy - Just Because - Get Well](#)

All results

Sites with images

mobile desktop



flowers

all shopping images news local de

Storage bookmarklet

37 items, 364 kB

- localStorage
  - add clear
  - BGINFO: {"PortraitLink": "http://www.bing.com/fd/hpk2/JavaVolcano\_Eh...
  - CApp.Answers.A7E3A0D0: .imgLnd{background:#000;color:#fff}.imgH...
  - CApp.Home.FD66E1A3: #ContentBody{position:relative;overflow:hidd...
  - CApp.News.4B53F555: .nwsTitle{font-size:20px;line-height:22px;color...
  - CApp.Shop\_Answers.31F...: .h11{font-size:font(20px);line-height:22px...
  - CUX\_Animations.8B10DC...: .body.showAbar #PageContent,body.show...
  - CUX\_Autosuggest.16DD6...: #ddAS{clear:both}.as{overflow-y:hidden}.a...
  - CUX.CommonAnswer.A90D...: .w40{width:40%}.w35{width:35%}.w30{...
  - CUX.Keyframes.B8625FE...: @-webkit-keyframes scaleout{from{-web...
  - CUX.Site.18BDD936: \*(margin:0;padding:0)table{border-collapse:sepa...
  - CUX.Site.C0876CA0: \*(margin:0;padding:0)table{border-collapse:sepa...
  - CUX.SiteHilRes.282E35D...: .blogaN{background-image:url(data:image...
  - CUX.SiteLowRes.C8A1DA...: .blogaN{background-image:url(data:imag...
  - CUX.Ux.1E2DAEB1: .star0,.star1,.star2,.star3,.star4,.star5,.star7...
  - J UX.MorePageView.2F7...: (function(){function a(){Type.registerName...
  - JApp.Expander.F4876AA...: (function(){function a(){Type.registerName...
  - JApp.Home.DE384EBF: (function(){function a(){Type.registerNamespa...
  - JApp.Serp.418E2806: (function(){function a(){Type.registerNamespa...
  - JUX\_Autosuggest.D6423...: (function(){function a(){Type.registerName...
  - JUX.Compat.0907AAD4: function \$(a){return document.getElementBy...
  - JUX.Compat.F18CD868: function \$(a){return document.getElementBy...
  - JUX.Framework.5D18B4F...: (function(){function a(){Type.registerNam...
  - JUX.FrameworkCore.A39...: (function(){function a(){Type.registerName...
  - JUX.FrameworkCore.AC8...: (function(){function a(){Type.registerNam...
  - JUX.LoadImageBehavior...: (function(){function a(){Type.registerName...
  - JUX.MorePageView.2F72...: (function(){function a(){Type.registerName...
  - JUX.MsCorlib.172D90C3: window.ss={version:"0.6.1.0",isUndefined:fu...
  - JUX.MsCorlib.2F963AA7: window.ss={version:"0.6.4.0",isUndefined:fu...
  - JUX.NavSliding.9E89EA...: (function(){function a(){Type.registerName...
  - JUX.PublicJson.540180...: if(!this.JSON)this.JSON={};(function(){funct...
  - JUX.Searchbox.B109AB...: (function(){function a(){Type.registerName...
  - JL...: (function(){function a(){Type.registerName...
  - JL...: (function(){function a(){Type.registerName...
  - JL...: (function(){function a(){Type.registerName...
  - LastRMSMUpdate: 1317074299.931
  - RMSM.Keys: CUX.Site.18BDD936~CUX.Keyframes.B8625FEE~CApp...
  - qc: 1
- sessionStorage

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bing

flowers

Storage bookmarklet [save to Jdrop](#)

0 items, 0 kB

- localStorage
- sessionStorage

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Pictures All Types Flowers

Pictures Flowers

Chrysanthemum Flower

Valentine Flowers

Types of Flowers

Spring Flowers

Pictures

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See all

Clear all · Turn off

NARROW BY DATE

All results

Past 24 hours

Past week

Past month

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See also: [Hibiscus Flower](#), [Flowers](#)

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1-800-FLOWERS.COM

Same-Day Delivery · Sympa

Send flowers and send a sn

designed arrangements. Flo

www.1800flowers.com

mobile desktop

Profile

Storager bookmarklet

3426 items, 3162 kB

localStorage

add clear

```

ft_fly_10100151185500... {"time":1317074487550,"value":<
ft_fly_10100151362525... {"time":1317074486074,"value":<
ft_fly_10100154232304... {"time":1317074454909,"value":<
ft_fly_10100154947775... {"time":1317074443863,"value":<
ft_fly_10100155275818... {"time":1317074440171,"value":<
ft_fly_10100155277060... {"time":1317074440171,"value":<
ft_fly_10100156099961... {"time":1317074425427,"value":<
ft_fly_10100157160101... {"time":1317074415668,"value":<
ft_fly_10100157210336... {"time":1317074415663,"value":<
ft_fly_10100157537196... {"time":1317074413231,"value":<
ft_fly_10100158869346... {"time":1317074400965,"value":<
ft_fly_10100158901656... {"time":1317074400964,"value":<
ft_fly_10100163279493... {"time":1317074359410,"value":<
ft_fly_10100164775325... {"time":1317074347134,"value":<
ft_fly_10100165657872... {"time":1317074341981,"value":<
ft_fly_10100191497778... {"time":1317074451521,"value":<
ft_fly_10100191566935... {"time":1317074451519,"value":<
ft_fly_10100191573976... {"time":1317074451518,"value":<
ft_fly_10100197398967... {"time":1317074388857,"value":<
ft_fly_10100439237755... {"time":1317074497710,"value":<
ft_fly_10100439272156... {"time":1317074497707,"value":<
ft_fly_10100439648762... {"time":1317074493877,"value":<
ft_fly_10100440248769... {"time":1317074490268,"value":<
ft_fly_10100440277227... {"time":1317074490264,"value":<
ft_fly_10100440587780... {"time":1317074488913,"value":<
ft_fly_101004411167... {"time":1317074483434,"value":<
ft_fly_101004411113... {"time":1317074483432,"value":<
ft_fly_101004411157... {"time":1317074480866,"value":<
ft_fly_10100441946392... {"time":1317074480864,"value":<
ft_fly_10100443530303... {"time":1317074467297,"value":<
ft_fly_10100444660643... {"time":1317074460119,"value":<
ft_fly_10100444949359... {"time":1317074458489,"value":<

```

mobile



Storager bookmarklet

save to Jdrop

0 items, 0 kB

localStorage

sessionStorage

FAVORITE



Messages

Events

Find Friends

LISTS

Close Friends

Family

See all lists...

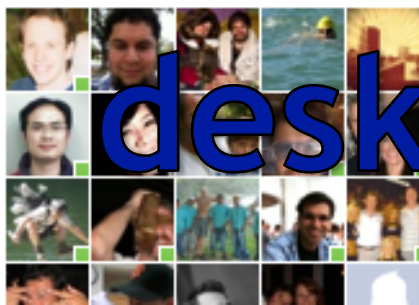
APPS

Photos

Music

MORE

Friends on Chat



Update Status

What's on your mind

SEE 8 NEW STOR

TOP STORIES SINCE YOUR LAS

Andrew Mage



desktop

**Storage bookmarklet** [save to Jdrop](#) X

2 items, 0 kB

- [-] **localStorage**
  - add clear
  - algebra\_location\_popu...: 3
  - algebra\_location\_popu...: 1317076297534
- [+] **sessionStorage**

Search

**Lopez's stunning onstage look**  
 The newly single singer hits the stage in a crimson mini, spangly top, and wild feather cape. » [See her glam look](#)

< prev  
 1 / 26

**YAHOO! FANTASY FOOTBALL 2011 iPhone® APP** [Get It Now](#)

79° 11,044 ↑272.38

NHL 2 1  
 WPG OT

mobile

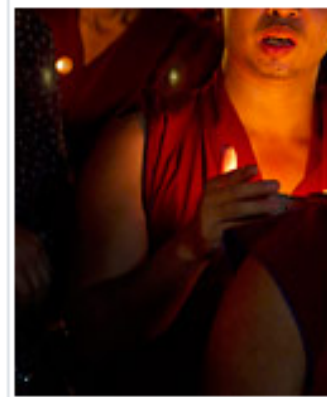
**Storage bookmarklet** [save to Jdrop](#) X

0 items, 0 kB

- [+] **localStorage**
- [+] **sessionStorage**

Explore

- Mail
- Autos
- Dating
- Finance (Dow Jones ↑)
- Flickr
- Games
- Health
- Horoscopes
- Jobs
- Messenger
- Movies
- News
- Real Estate
- Shine



**Monks self-im**  
 A protest over China Buddhist practices t  
 What two men allego



How to cook pasta right

desktop

### Storager bookmarklet

6 items, 345 kB

#### localStorage

add clear

APPCACHE\_CODE\_TIME: 1317074287847

APPCACHE\_CSS\_CODE: body{font-family:arial,Helvetica,serif,fo...

APPCACHE\_JS\_CODE: var settings = { isTablet : false, exp...

APPCACHE\_PAGE\_TIME: 1317074287

ajax\_request: {"version":"1316674917enUSstevesouders","d...  
[["/home?ajax=...

watches: {"version":"1314343855enUSstevesouders","data":...

#### sessionStorage

by [stephancelmare360](#)  
from Recommended

0:30

### Super Junior 슈퍼주니어\_A-C VIDEO

by [SMTOWN](#) **New**  
from Top Favorited

3:23

### Volkswagen R32 Commercial

by [szandor26](#)  
from Recommended

0:30

### Parody of LMFAO - Sexy And

by [keeptheheat](#) **New**  
from Top Favorited

1:41

mobile

This

Storager bookmarklet

[save to Jdrop](#) X

0 items, 0 kB

localStorage

sessionStorage



souders@goog...

All activity

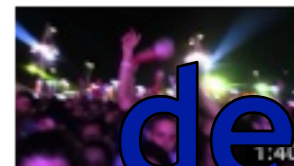
Subscriptions

Reco...

You haven't added any subscriptions yet.

Click the "Subscribe" button on any video watch page or channel page or when you upload new videos, they'll show up here.

### Music



Claudia Leitte sendo vaiada no R...  
by [jeeffdiretor](#)



Lady Gaga - "Hair"  
[Jamey Rodeme...  
by [monstermemoirs](#)



Rock In Rio 20...  
Red Hot Chili...  
by [1387Raffam...](#)

desktop



Desktop

Search

**Storager bookmarklet** [save to Jdrop](#) X

0 items, 0 kB

- localStorage
- sessionStorage

[Get Amazon Apps for iPhone](#)

### Recommendations For You



**Prince Valiant Vol 5**  
Hal Foster  
~~\$29.99~~ **\$18.24**

[More Recommendations](#)

[Shop All Recommendations](#)

Books

Kindle

# mobile

1 items, 0 kB

localStorage

[add](#) [clear](#)

[amznfbid](#): 179-7076773-7198322:1298843695

sessionStorage

[add](#) [clear](#)

Shop

Your Ar

Steve

### Today's Recommendations For You

Here's a daily sample of items recommended for you. C



[Prince Valiant Vol 5](#) (Hardcover)  
by Hal Foster  
**\$18.24**  
[Fix this recommendation](#)



[Prince Valiant: 1943-1944](#) (Hardcover) by  
**\$16.29**  
[Fix this recommendation](#)

### Coming Soon for You



# desktop

New! Download the Twitter for iPhone app




What's h


**Storager bookmarklet** [save](#)


1 items, 6 kB


- localStorage**
  - [add](#) [clear](#)
  - `anonymous: {"strs":{"retweet":"Retweet","tap_here_lists":"Tap`
- sessionStorage**

Home Mentions Favs Msgs

 **slightlylate** super(nerdFight).popcorn; // it's a  
19 minutes ago

 **joehe Witt** Three20, by the way, was an attempt  
web conventions (links, CSS) to iOS. I wouldn't do that  
again. Will follow Apple conventions.  
29 minutes ago

 **joehe Witt** You know how loading a PDF in your  
feels like entering an archaic world? That's why  
embedded web browsers feel like on iOS/Android  
about 1 hour ago

 **joehe Witt** Inability to control the timing of rendering  
to flickering and stalling that I just can't avoid

mobile



Search

**Storager bookmarklet**

1 items, 3 kB

- localStorage**
  - [add](#) [clear](#)
  - `:USER:: {"v1:131040918875711003":{"value":{"login":1315`
- sessionStorage**

Timeline @souders Activity Searches

7 new tweets

 **slightlylate** Alex Russell  
super(nerdFight).popcorn; // it's a  
59 minutes ago

 **joehe Witt** Joe Hewitt  
Three20, by the way, was an attempt  
(links, CSS) to iOS. I wouldn't do that  
conventions.  
1 hour ago

 **joehe Witt** Joe Hewitt  
You know how loading a PDF in your  
feels like entering an archaic world? That's why  
embedded web browsers feel like on iOS/Android  
about 1 hour ago

 **joehe Witt** Joe Hewitt

desktop



Account Type: Business Plus



Account Type: Business Plus

Home Profile Contacts Groups Jobs Inbox

Storage bookmarklet [save to Jdrop](#) ✕

0 items, 0 kB

+ localStorage

+ sessionStorage



Attach a link

Home Profile Contacts Groups Jobs Inbox

Storage bookmarklet [save to Jdrop](#) ✕

0 items, 0 kB

+ localStorage

+ sessionStorage



Attach a link

LinkedIn Today: See all Top Headlines for You

How Search Marketing Costs Are Evolving

Tumblr Raises \$85 Million Round From Richard Br...

Open any time  
Open now

Any distance  
Within 1 mile  
Within 2 miles  
Within 5 miles  
Within 10 miles

Any rating  
4 or more stars  
3 or more stars

Pete's Chicago Pizza  
301 Hayes Street  
San Francisco, CA  
Hours today: Opens at 11:00 AM

Local Vito's Pizza  
190 Bush Street  
San Francisco, CA  
Hours today: Opens at 11:00 AM



LinkedIn Today: See all Top Headlines for You

How Search Marketing Costs Are Evolving

Tumblr Raises \$85 Million Round From Richard Br...

Open any time  
Open now

Any distance  
Within 1 mile  
Within 2 miles  
Within 5 miles  
Within 10 miles

Any rating  
4 or more stars  
3 or more stars

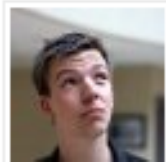
Pete's Chicago Pizza  
301 Hayes Street  
San Francisco, CA  
Hours today: Opens at 11:00 AM

Local Vito's Pizza  
190 Bush Street  
San Francisco, CA  
Hours today: Opens at 11:00 AM



All Updates • Shares • Applications • More ▾

mobile



Show 26 more recent updates  
Camille... Bienvenue au...  
qui me suivent depuis plus longtemps ! #mer  
Like • Comment • Send a message • Share • 3 mil

All Updates • Shares • Applications • More ▾

desktop



... via Twitter  
Mobile delivery bugaboos: L

**ebay**

Browse Categories

Storage bookmarklet [save to Jdrop](#)

0 items, 0 kB

- + localStorage
- + sessionStorage

My eBay

0 Watch

0 Bidding

0 Scheduled


0 Won

0 Sold

0 Didn't Win

0 Not Sold

Daily Deals



**48% Off**

My saved searches (0)

Home My eBay Sign Out

Help About Policies Classic Site

Copyright © 1995 - 2011 eBay Inc.

mobile

**ebay**

Hi, **steven\_souders!** ([Sign out](#))

Storage bookmarklet [save to Jdrop](#) ✕

0 items, 0 kB

- + localStorage
- + sessionStorage


All Categories

- Fashion**
  - Women's Clothing
  - Women's Shoes
  - Women's Handbags
  - Women's Accessories
  - Men's Clothing
  - Men's Shoes
  - Men's Accessories
  - Kid's Clothing
  - Baby
  - Fashion Vault
  - Fashion Outlet
- Motors
- Electronics
- Collectibles & Art
- Home, Outdoors & Decor
- Movies, Music & Games
- Deals & Gifts
- Brands on eBay
- Classifieds


Your recent searches

- adult skeleton costume gympo...
- adult skeleton costume
- skeleton costume

Shop safely on



**eBay Buyer Protection**  
We've got your back.



**eBay Top Rated Seller**  
Get great shipping sellers.

desktop



msn.

Set local...

Storage bookmarklet [save to Jdrop](#) X

0 items, 0 kB

- + localStorage
- + sessionStorage

MSNBC



Poor economy poses fundraising challenge for Obama

This is no 2008, when money seemed to fall from the sky

< || > 5 of 5

Top stories | US | World | Politics | Alerts

TODAY ON MSN

- NYPD chief: We could take down plane
- 'Matchmaker' in hot water over gay comments

mobile

Hotmail Messenger My MSN Bing

Web | MSN | Images


Storage bookmarklet [save to Jdrop](#) X

0 items, 0 kB

- + localStorage
- + sessionStorage

NEWS

September 26, 2011 as of 2:49 PM



< || > 7 of 7

EDITORS' PICKS

- \$210M... B&J going up

MUST SEE

NEWS

desktop

ALL I DESIRE IS TYPOGRAPHY  
WITHOUT COMIC BOOKS  
HOPELESS!

# @font-face

I'M PRETTY  
AND  
DISHY!

I'M SKINNY AND  
CHUBBY! I'M  
WELL-FORMED!

Frontend SPOF test	Chrome	Firefox	IE	Opera	Safari
<u>External Script</u>	blank below	blank below	blank below	blank below	blank below
<u>Stylesheet</u>	flash	flash	blank below	flash	blank below
<u>inlined @font-face</u>	delayed	flash	flash	flash	delayed
<u>Stylesheet with @font-face</u>	delayed	flash	totally blank*	flash	delayed
<u>Script then @font-face</u>	delayed	flash	totally blank*	flash	delayed

\* IE9 does not display a blank page, but does “flash” the element.

[stevesouders.com/blog/2010/06/01/frontend-spoj/](http://stevesouders.com/blog/2010/06/01/frontend-spoj/)

Worth delaying most important design elements? Or entire page?

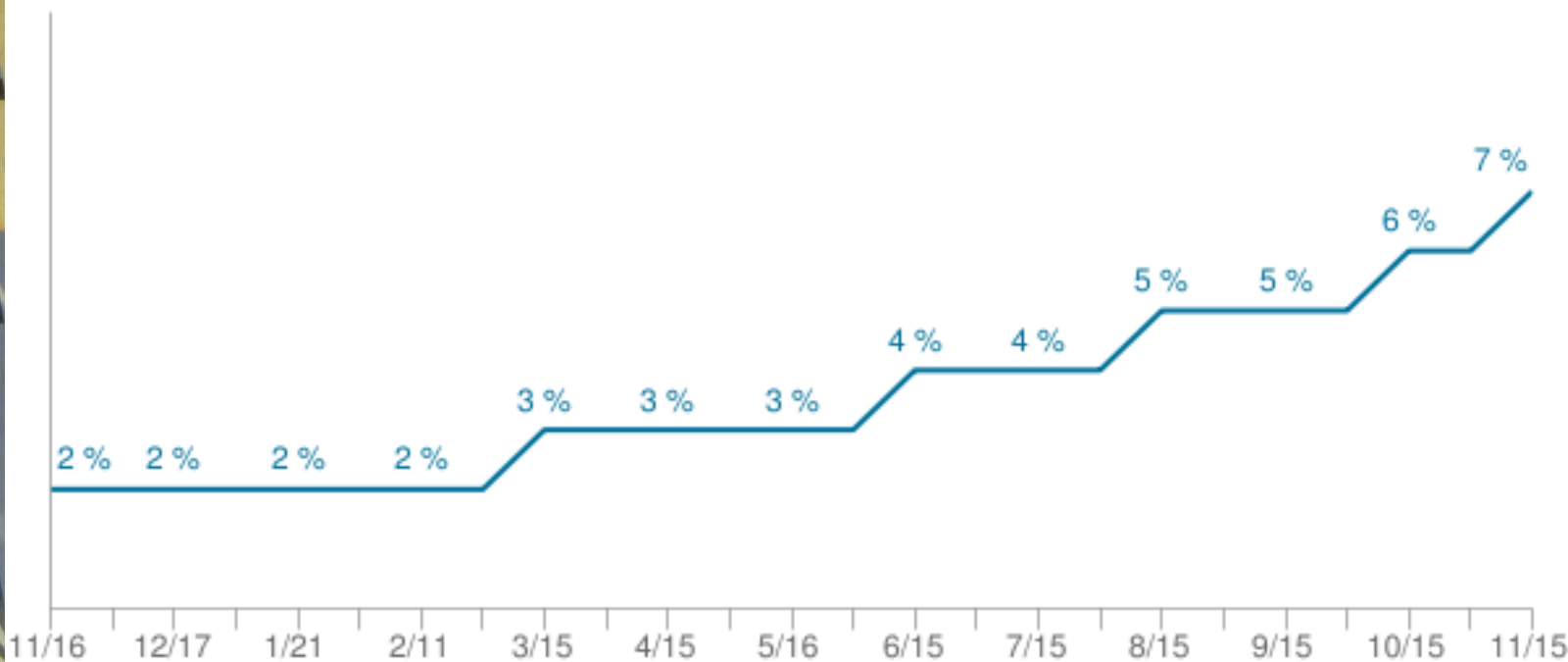
[flickr.com/photos/typoatelier/4261455105/](http://flickr.com/photos/typoatelier/4261455105/)

GANE HASTA  
15 LBS.  
30 DIAS

PIERDA HASTA  
30 LBS.  
30 DIAS

<http://archive.org/trends.php#perFonts>

### Sites with Custom Fonts



# improving @font-face

smaller, custom font files

avoid FOUT, impatient fallback

- n milliseconds
- DOM loaded, window onload
- user interaction

higher priority caching

aggressively use expired fonts

today: localStorage

# there's more

CSS instead of images: border radius,  
linear & radial gradients, drop shadow

SVG, inline SVG, and canvas

video tag

WebSockets

web workers

builtin controls: progress, datetime

# and more

history - [http://www.kylescholz.com/blog/2010/04/html5\\_history\\_is\\_the\\_future.html](http://www.kylescholz.com/blog/2010/04/html5_history_is_the_future.html)

<a ping

requestAnimationFrame - not timers

native JSON parse/stringify

<http://bit.ly/browserscope-modernizr>

<http://www.html5rocks.com/>

# Thanks to...

Max Firtman

Tony Gentilcore

Josh Fraser

Kyle Scholz

Stoyan Stefanov

James Pearce

Lindsey Simon

Annie Sullivan

Tim Kadlec

Paul Irish

Jason Grigsby

Brad Neuberg

# more stuff





## The HTTP Archive tracks how the Web is built.

### Trends in web technology

load times, download sizes, performance scores

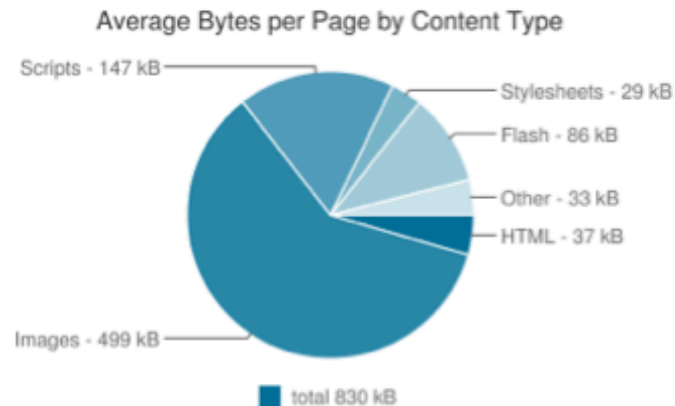
### Interesting stats

popular scripts, image formats, errors, redirects

### Website performance

specific URL screenshots, waterfall charts, HTTP headers

The [HTTP Archive code](#) is open source and the data is [downloadable](#).



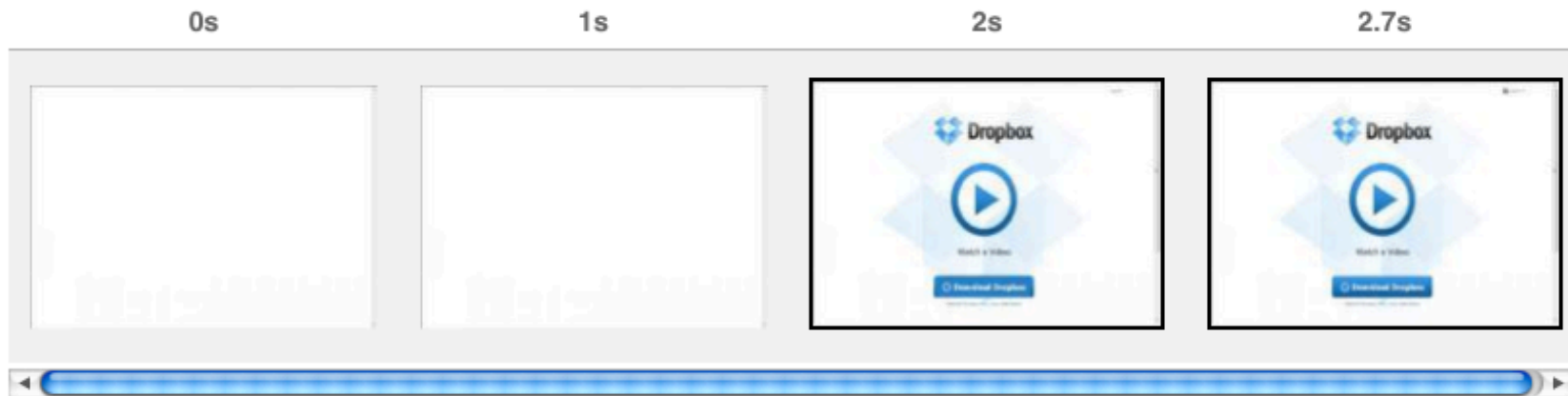
http:// **www.dropbox.com/**

Sep 15 2011 ▾

- Top of page
- Filmstrip
- Waterfall
- Page Speed
- Requests
- Trends
- Downloads

took 2.7 seconds to load 336kB of data over 24 requests.

## Filmstrip, Video



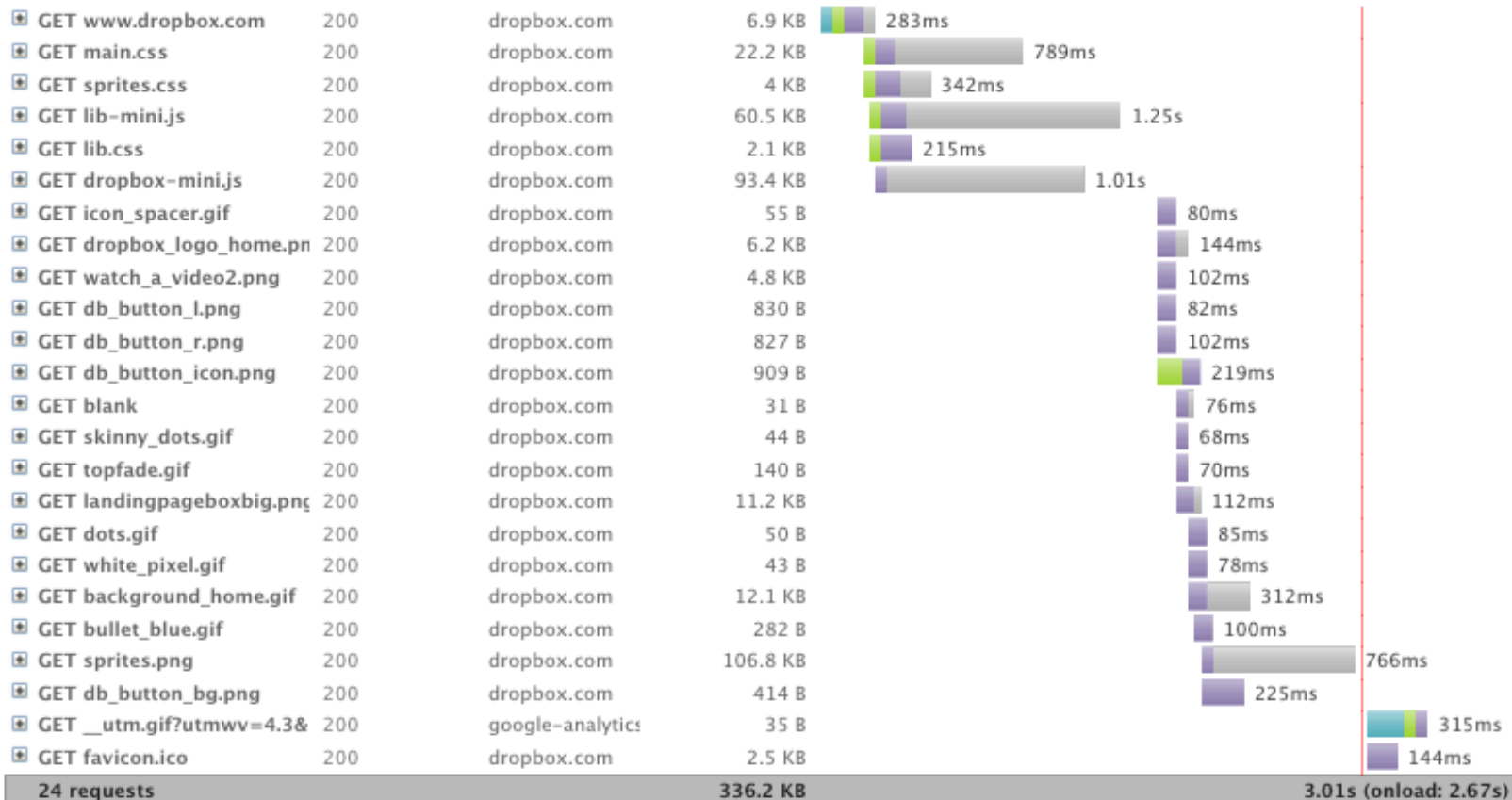
Show screenshots every:  ▾

[WPT filmstrip](#) [watch video](#)

## HTTP Waterfall

# HTTP Waterfall

Run 2, First View for http://www.dropbox.com/



- Top of page
- Filmstrip
- Waterfall
- Page Speed
- Requests
- Trends
- Downloads

## Page Speed

Page Speed 1.9 Score: **89/100\***

- Combine images into CSS sprites (0/100)
- Combine external CSS (58/100)
- Serve static content from a cookieless domain (59/100)
- Minify HTML (62/100)
- Specify Max-Age for Expires (70/100)



# httparchive

Archive of Internet performance information.

 Search projects[Project Home](#) [Downloads](#) [Wiki](#) [Issues](#) **Source** [Administer](#)[Checkout](#) **Browse** [Changes](#)  [Search Trunk](#) [Request code review](#)Source path: `svn/`[< r326](#) [r327](#)

Directories	Filename	Size	Rev	Date	Author
▼ <a href="#">svn</a>	<a href="#">.htaccess</a>	915 bytes	r59	Oct 24, 2010	stevesoudersorg
<a href="#">branches</a>	<a href="#">COPYING</a>	11.1 KB	r2	Oct 11, 2010	stevesoudersorg
<a href="#">tags</a>	<a href="#">Makefile</a>	1.1 KB	r324	Today (15 hours ago)	stevesoudersorg
▼ <a href="#">trunk</a>	<a href="#">about.php</a>	11.3 KB	r322	Today (15 hours ago)	stevesoudersorg
▶ <a href="#">archives</a>	<a href="#">admin.php</a>	1.3 KB	r319	Yesterday (18 hours ago)	stevesoudersorg
▶ <a href="#">bulktest</a>	<a href="#">cachegen.php</a>	859 bytes	r311	Mar 26 (4 days ago)	stevesoudersorg
▶ <a href="#">downloads</a>	<a href="#">check.php</a>	2.7 KB	r16	Oct 11, 2010	stevesoudersorg
▶ <a href="#">images</a>	<a href="#">download.php</a>	6.9 KB	r38	Oct 21, 2010	stevesoudersorg
▶ <a href="#">lists</a>	<a href="#">downloads.php</a>	3.6 KB	r319	Yesterday (18 hours ago)	stevesoudersorg
▶ <a href="#">wiki</a>	<a href="#">favicon.ico</a>	894 bytes	r7	Oct 11, 2010	stevesoudersorg
	<a href="#">filmstrip.js</a>	2.5 KB	r296	Mar 23 (6 days ago)	stevesoudersorg
	<a href="#">har.css</a>	20.9 KB	r287	Mar 22, 2011	stevesoudersorg
	<a href="#">har.js</a>	221 KB	r17	Oct 11, 2010	stevesoudersorg
	<a href="#">har-test-repository</a>	1.1 MB	r320	Mar 21, 2011	stevesoudersorg

Your project is using approximately 844 MB out of 4096 MB total quota.

You can [reset this repository](#) so that `svn sync` can be used to upload existing code history.

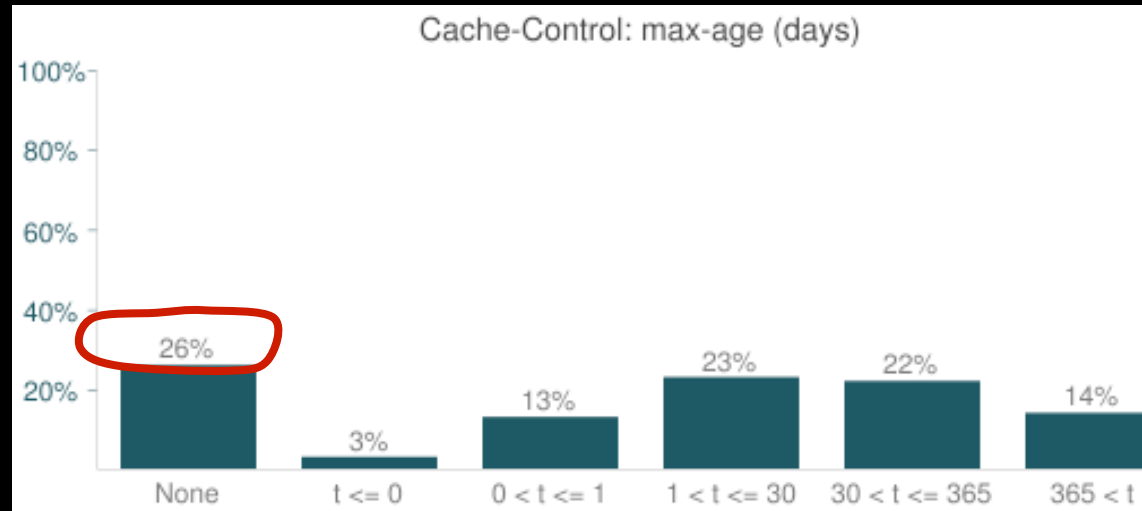
## Downloads

There's a download file for each run:

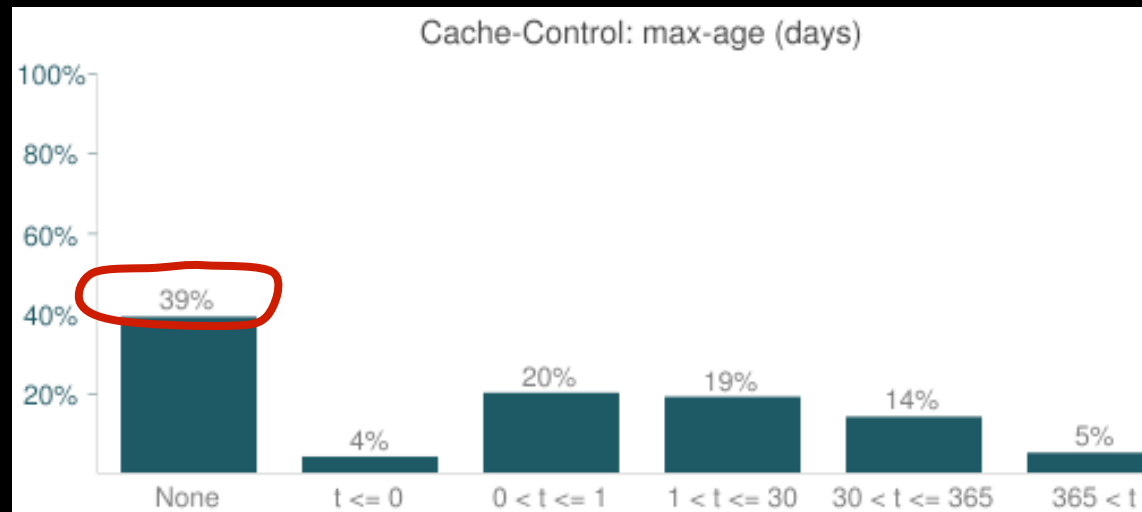
### HTTP Archive (desktop):

- [Sep 15, 2011](#) (120 MB)
- [Sep 1, 2011](#) (118 MB)
- [Aug 15, 2011](#) (122 MB)
- [Aug 1, 2011](#) (113 MB)
- [Jul 15, 2011](#) (118 MB)
- [Jul 1, 2011](#) (117 MB)
- [Jun 15, 2011](#) (113 MB)
- [Jun 1, 2011](#) (113 MB)
- [May 16, 2011](#) (113 MB)
- [Apr 30, 2011](#) (111 MB)
- [Apr 15, 2011](#) (112 MB)
- [Mar 29, 2011](#) (106 MB)
- [Mar 15, 2011](#) (104 MB)
- [Feb 26, 2011](#) (105 MB)
- [Feb 11, 2011](#) (102 MB)
- [Jan 31, 2011](#) (104 MB)
- [Jan 20, 2011](#) (103 MB)
- [Dec 28, 2010](#) (104 MB)
- [Dec 16, 2010](#) (104 MB)

# Top 100



# Top 1000



## Add a Site

Enter the URL you want to add to the HTTP Archive.

URL:

Add

sponsors: [Google](#), [Mozilla](#), [New Relic](#), [O'Reilly Media](#), [Etsy](#), [Strangeloop](#), and [dynaTrace Software](#)  
powered by [WebPagetest](#)

## Overview

## Critical Path Explorer

## Critical Path Explorer

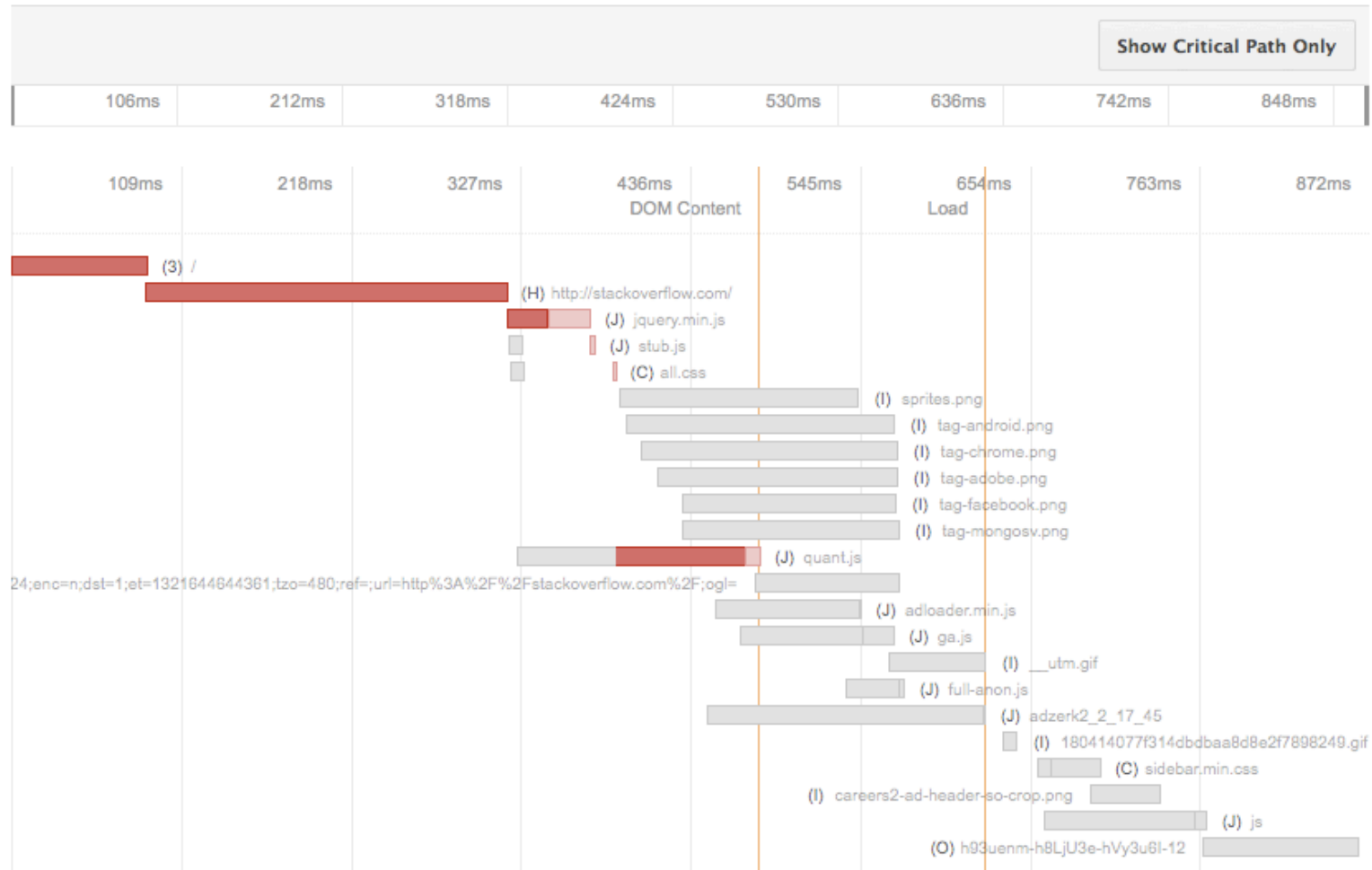
[Show Critical Path Only](#)
 Medium priority (1)

Combine images into CS...

 Low priority (8)

- Leverage browser caching
- Defer parsing of JavaScript
- Optimize the order of styl...
- Optimize images
- Specify a cache validator
- Minify HTML
- Remove query strings fro...
- Specify a Vary: Accept-E...

 Experimental rules (1)

 Already done! (18)




O'REILLY

淘宝网

# Velocity

China 2011

Web性能和运维大会

2011年12月6-7日  
中国 北京

Home Register Delegate Meeting content Showroom On Contact

STAY CONNECTED +

## Martial arts world, only the fast is not broken

Network performance and operation and maintenance once the elite of the Internet company's secret weapon, as all Internet companies now an important part of online strategy. "Fast and reliable," the commercial value has been established, and their expectations now and again for more and better results. For further information on this ever-evolving, ever more complex areas of skills and tools? To Velocity China 2011 now!

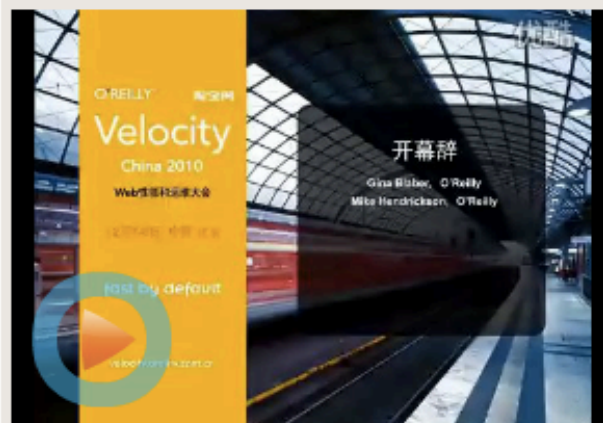
6-7 December 2011, let us meet in [Beijing, Haidian Four Points by Sheraton](#) ! More details later determined.

## 谁应该参加O'Reilly Velocity China 2011

- Companies of all sizes of developers, engineers, managers
- Concerned about the status of technology management

注册报名参会

VIDEO



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# Velocity

Web Performance  
and Operations

CONFERENCE

JUNE 26-28, 2012  
SANTA CLARA, CA



HOME SUBMIT A PROPOSAL ABOUT EXHIBIT HALL CONNECT YOUR ACCOUNT

## Velocity 2012 Call for Participation

Call closes 11:59pm 01/10/2012 PST.

[Submit a proposal](#)

- Are you the person who gets paged when your company's site is slow or has gone down?
- Do you know how to improve performance and balance efficiency and availability?
- Have you overcome a major scaling challenge?
- Does your web app run on desktop and mobile from a single code base using progressive enhancement?

If so, we want you at Velocity 2012. Submit your proposal for a session, panel, or workshop. [Read tips for submitting a proposal](#). The deadline for all proposals is midnight PST on January 10, 2012.

Some of the themes and memes we're interested in for the 2012 conference program include:

- Building resilience into applications, infrastructure, and teams
- Operations escalation and outage handling patterns
- Production datastore architectures at scale
- NoSQL
- Mobile performance
- Effective cloud computing
- JavaScript speedups

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Diamond Sponsor

neustar

Platinum Sponsors



Gold Sponsors



# takeaways

speed matters

WPWG

window.performance

async & defer

app cache, localStorage

! @font-face



THANK  
YOU

Steve Souders

@souders

<http://stevesouders.com/docs/qcon-20111118.pptx>