# BATTLESTAR GALACTICA

Background image found via galactica.wikia.com/wiki/Main_Page

# SEO, Site Performance, BATTLESTAR GALACTICA

**Jonathon Colman**

Twitter @jcolman

In-House SEO for REI
www.REI.com

Background image found via matttoomb.files.wordpress.com/2011/05/galactica_overview.jpg

**SEMpdx SearchFest 2012** – Advanced On-Site SEO

# Download: http://slidesha.re/BSG-SEO

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Background image found via matttoomb.files.wordpress.com/2011/05/galactica_overview.jpg

SEMpdx SearchFest 2012 – Adv Site SEO

NEW: DIRECTOR'S CUT!

Download: http://slidesha.re/B O

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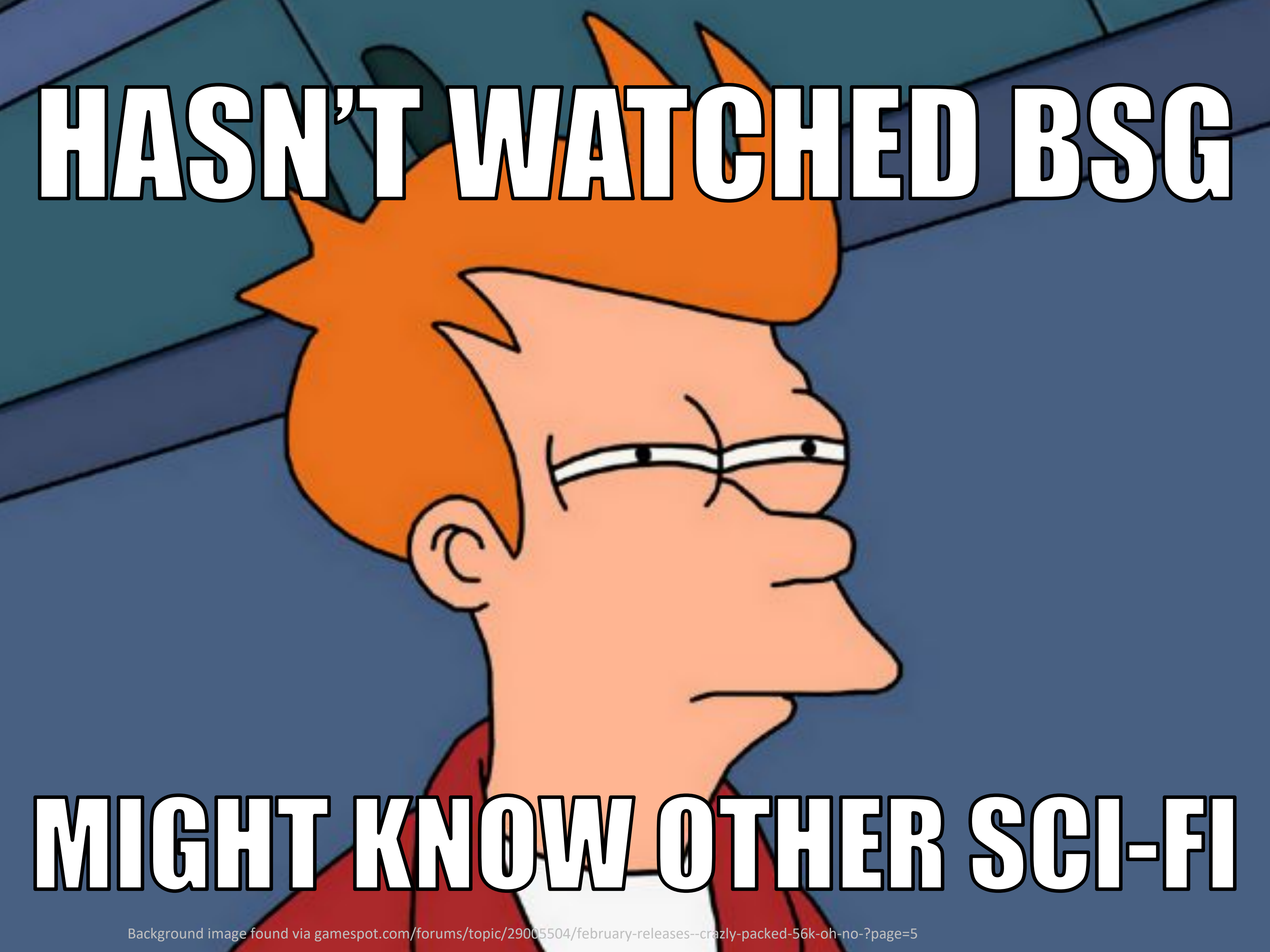
www.REI.com

REI®
www.rei.com

Background image found via matttoomb.files.wordpress.com/2011/05/galactica_overview.jpg

REI®

www.rei.com



Background image found via gamespot.com/forums/topic/29005504/february-releases--crazly-packed-56k-oh-no-?page=5

# SEO and Sandworms: Marketing on Arrakis

Background image found via walldesk.net/wallpaper/wallpapers-games-emperor-battle-for-dune.asp?f=5779

# Where are my keywords?

## Life on the Island of *(not provided)*

Background image found via girlgonegeekblog.com/2012/04/confessions-of-a-lost-late-bloomer/

# The Walking Dead:

## After the PandApocalypse

Background image found via best-background-tv-desktop-wallpapers.blogspot.com/2011/08/walking-dead-tv-series-wallpapers.html

# FEELING INCLUDED

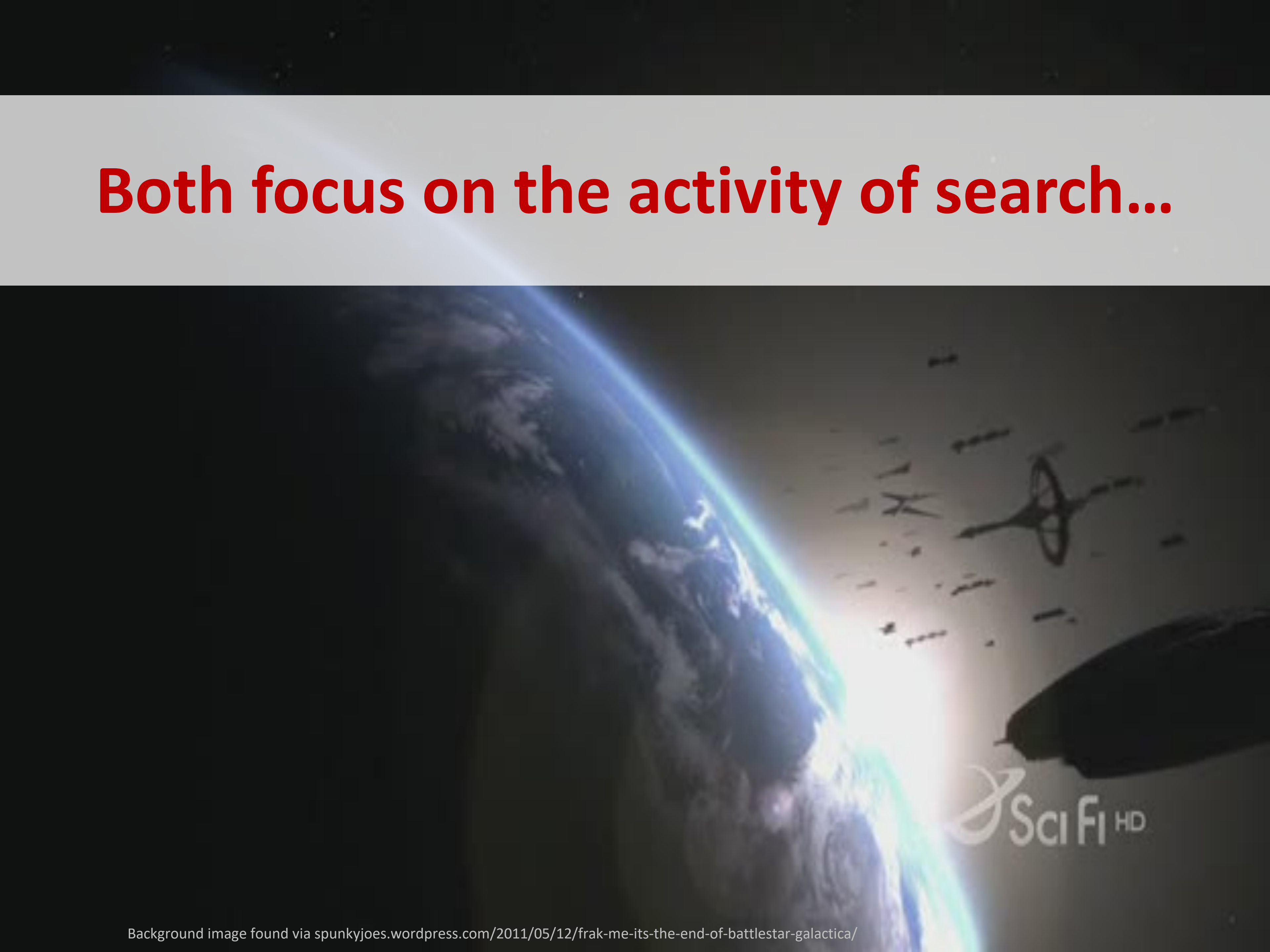
## LET'S DO THIS THING

Background image found via gamespot.com/forums/topic/29005504/february-releases--crazly-packed-56k-oh-no-?page=5

# BSG and SEO are a lot alike…

Background image found via s1024.photobucket.com/albums/y301/haven75/Battlestar%20Galactica/?action=view&current=seal_1024.jpg

# Both focus on the activity of search…



Background image found via spunkyjoes.wordpress.com/2011/05/12/frak-me-its-the-end-of-battlestar-galactica/

# Both involve fighting with robots…

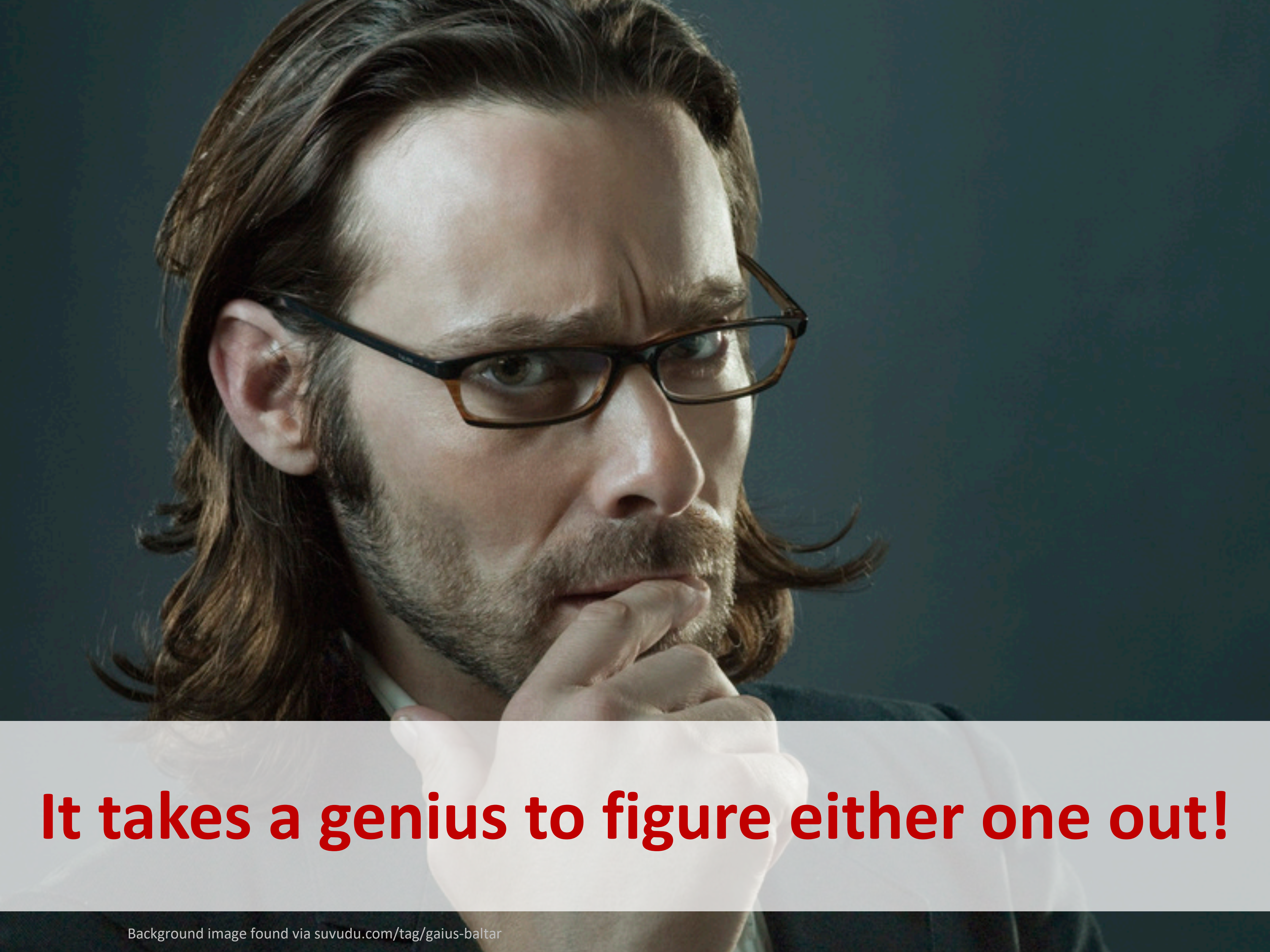
Background image found via daddyhobby.com/forum/showthread.php?t=51935

Both have duplicate content…

Background image found via forcesofgeek.com/2011/10/10-questions-to-see-if-youre-cylon.html

# No, really – a LOT of duplicate content…

Background image found via gavinrothery.com/my-blog/2011/10/21/starbuck-and-starbuck-in-starbucks-drinking-starbucks.html



It takes a genius to figure either one out!

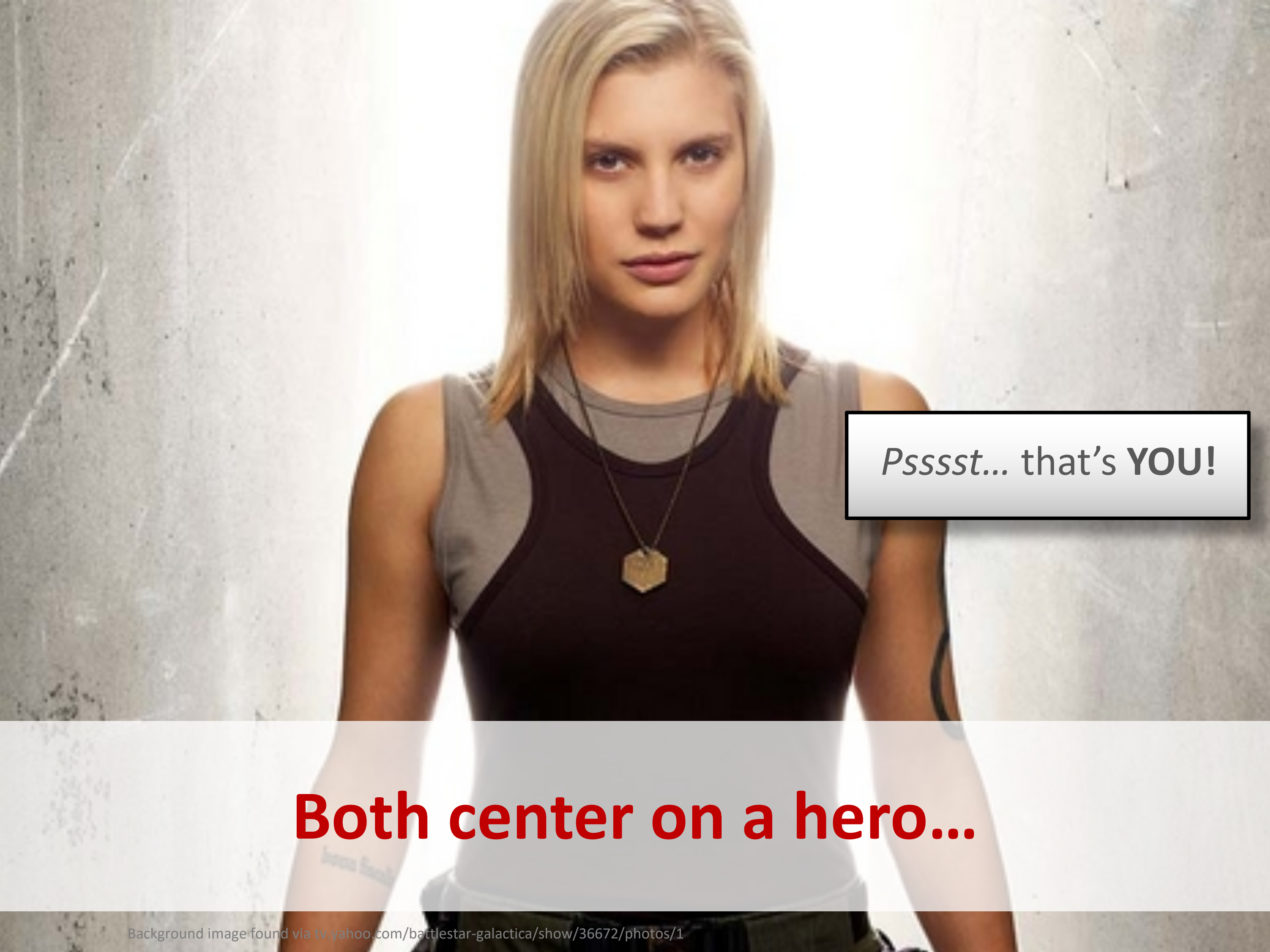
Background image found via suvudu.com/tag/gaius-baltar

OMG, it’s Ron Moore!

Some guy.

# The creator of BSG lives in Portland(ia)!

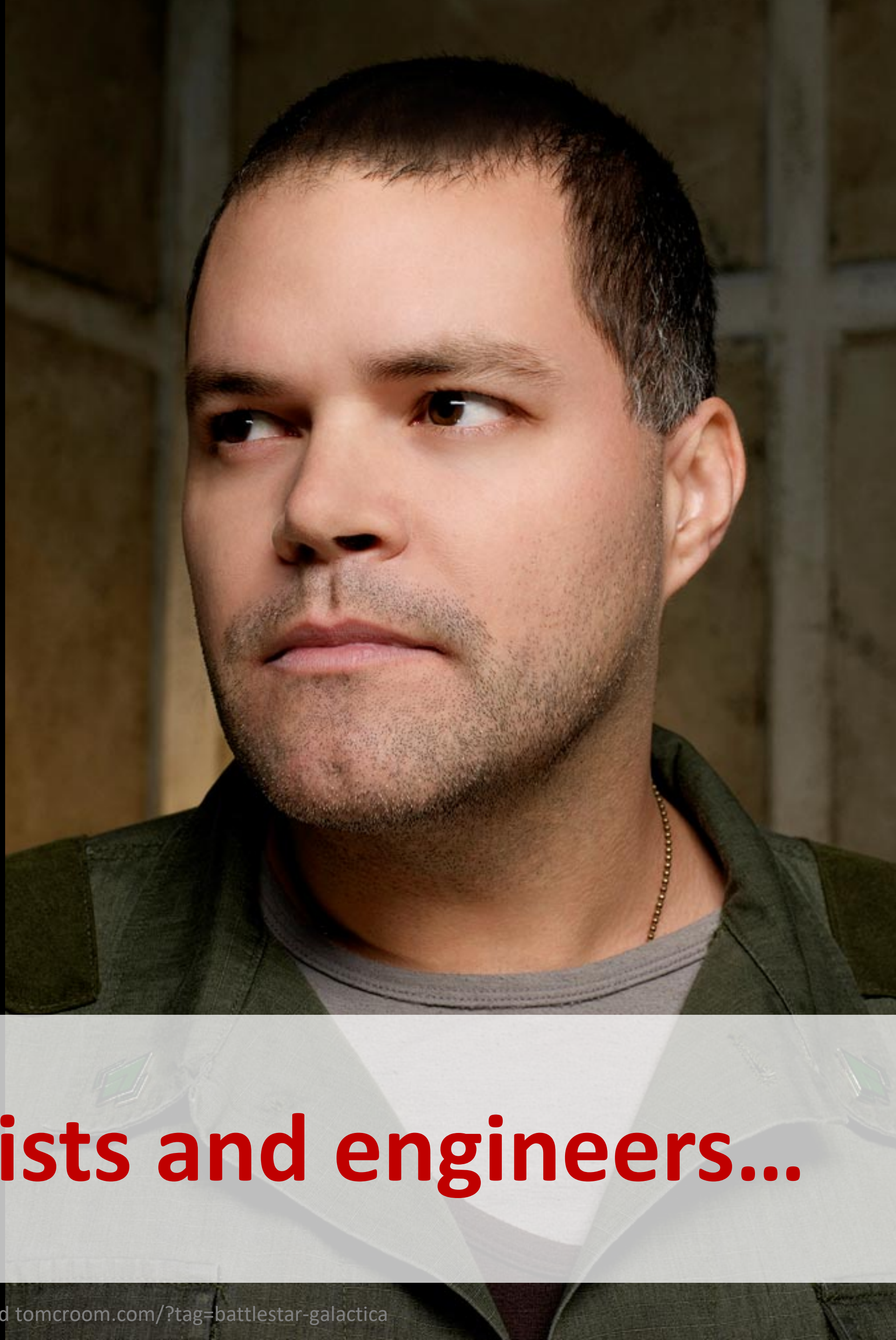
Background image found via comicsbulletin.com/main/reviews/portlandia-202-one-moore-episode



*Psssst…* that's **YOU!**

# Both center on a hero…

Background image found via tv.yahoo.com/battlestar-galactica/show/36672/photos/1



# Aided by technologists and engineers…

Background images found via imdb.com/media/rm3141241344/ch0008115 and tomcroom.com/?tag=battlestar-galactica

# Who are held accountable by Leadership

Background image found via thinkhero.com/2009/08/10/admiral-bill-adama-joins-the-green-hornet/

## “SOMETIMES YOU GOTTA ROLL A HARD SIX.”

# Making the case for site performance optimizations

# 1%

Google uses speed as an organic search ranking factor for the top **1%** of competitive queries.

**Sources:** Google, Matt Cutts [via *Search Engine Land]*

Good luck telling that to Admiral Cain…

Speed isn’t a tactic for SEO… ***it’s a strategy for customers.***

Background image found via sitcomsonline.com/photopost/showphoto.php/photo/207020/size/big

# 2

Customers expect your web site to load in **2** seconds or less.

**Source:** Forrester/Akamai [via GetElastic]

# 3

40% of customers will abandon any site that takes longer than **3** seconds to load.

**Source:** Forrester/Akamai [via GetElastic]

# 7

The average Fortune 500 company web site takes **7** seconds to load.

**Source:** Andrew Davies, Web Performance: A Whistlestop Tour…

# 7%

For every 1 second of load time, conversion drops by **7%**.

Source: Strangeloop

# 16%

For every 1 second of load time, user satisfaction drops by **16%**.

Source: Strangeloop

# 33%

**33%** of users surveyed expect a mobile site to load just as fast as or *even faster* than a desktop site.

Source: KISSmetrics

# 50%

A faster site reduces the costs of infrastructure and releases by **50%** or more.

**Source:** Shopzilla [via O'Reilly]

# 80%

**80%** of load time is dependent on front-end issues. Note: this can be up to **97%** for mobile.

**Sources:** Andrew Davies, Web Performance: A Whistlestop Tour… and Steve Souders, the Performance Golden Rule

*“When [web sites] are fast, **you feel good.** What that comes down to is that **you feel in control.**”*

***“That feeling… translates to happiness.”***

**Matt Mullenweg**
Co-founder of Wordpress

**Source:** Improving Performance in Mature Web Apps

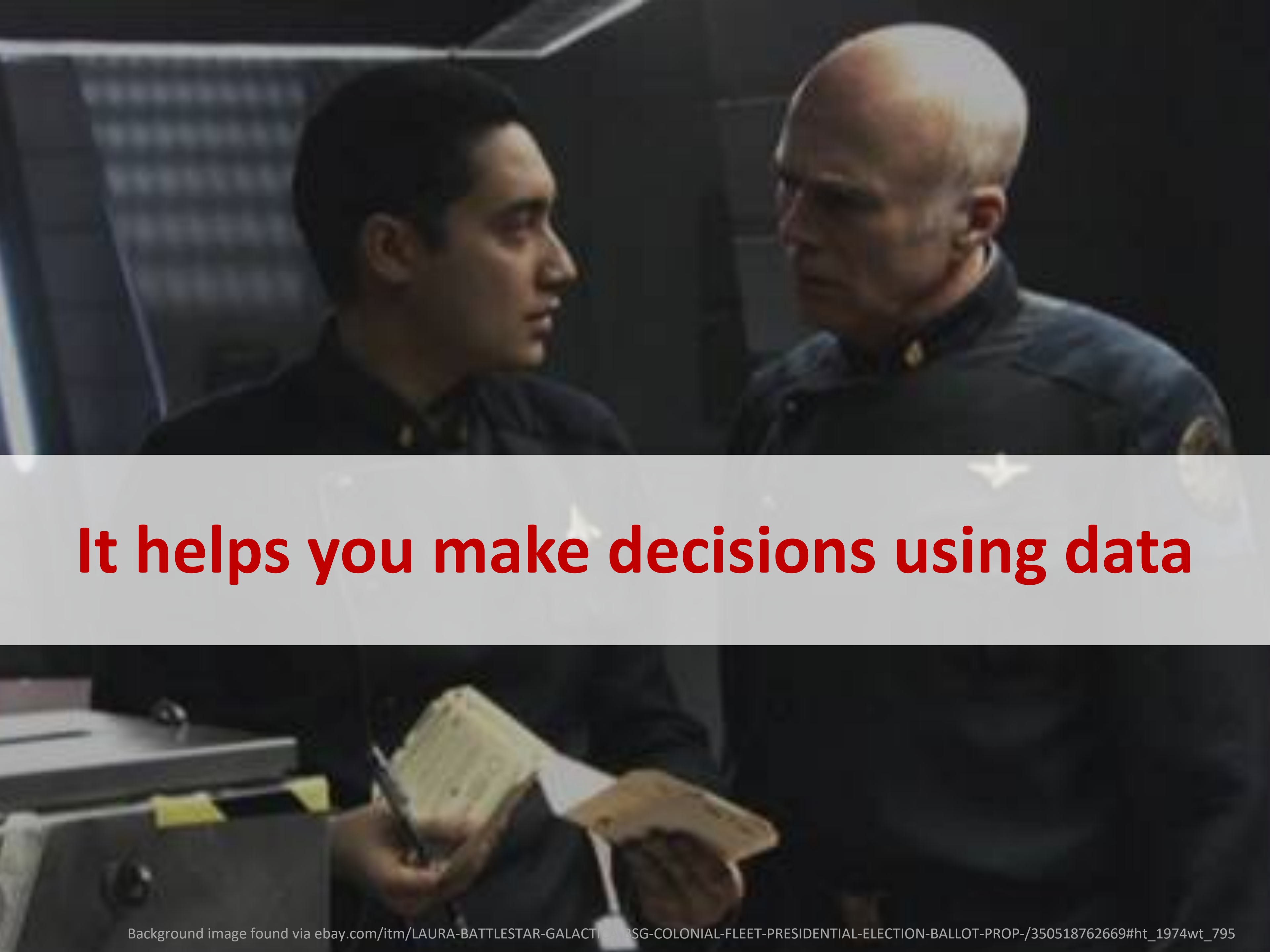
Image found via pastemagazine.com/blogs/ctrl-v/2008/08/does-a-mccainpalin-ticket-tighroslin-battlestar-ti.html

# Site speed helps you during times of crisis

Background image found via denofgeek.com/television/294099/battlestar_galactica_season_1_episode_1_review_33.html

# It helps you conduct tests with less cost

Background image found via screened.com/tigh-me-up-tigh-me-down/18-70970/



# It helps you make decisions using data

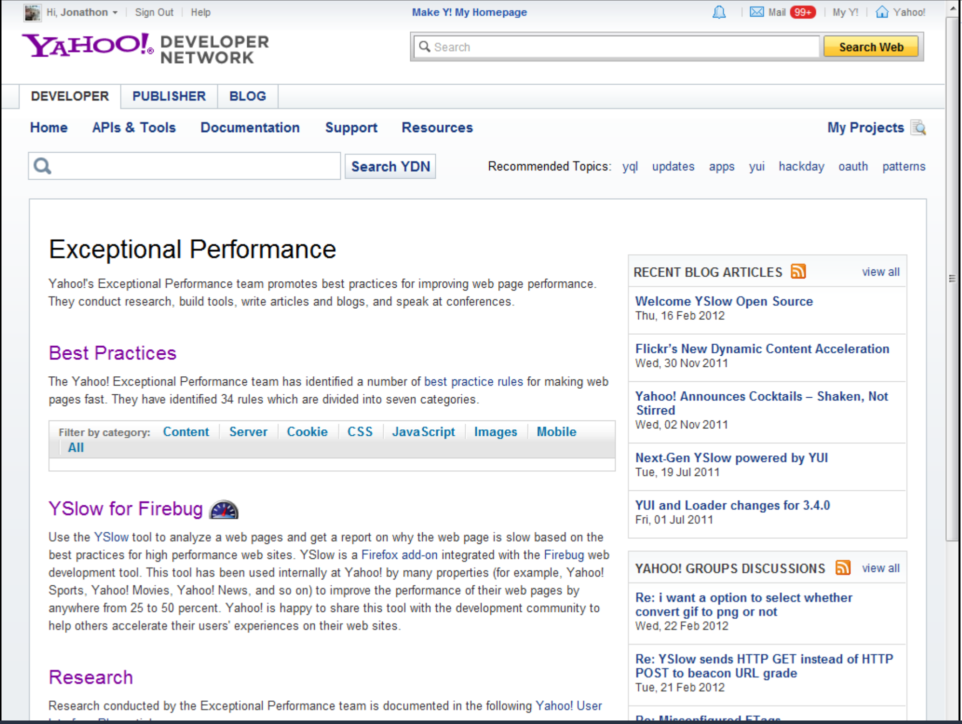
Background image found via ebay.com/itm/LAURA-BATTLESTAR-GALACTICA-BSG-COLONIAL-FLEET-PRESIDENTIAL-ELECTION-BALLOT-PROP-/350518762669#ht_1974wt_795

# And deliver content quickly to customers

Background image found via ign.com/boards/threads/battlestar-galactica-blood-and-chrome.207851179/

## “ACTION STATIONS! SPIN UP THE FTL DRIVES!”

# Optimizing for site performance


Hi, Jonathon | Sign Out | Help
Make Y! My Homepage
Mail 99+ | My Y! | Yahoo!
YAHOO! DEVELOPER NETWORK
Search | Search Web
DEVELOPER | PUBLISHER | BLOG
Home | APIs & Tools | Documentation | Support | Resources | My Projects
Search YDN
Recommended Topics: yql updates apps yui hackday oauth patterns

## Exceptional Performance

Yahoo!'s Exceptional Performance team promotes best practices for improving web page performance. They conduct research, build tools, write articles and blogs, and speak at conferences.

### Best Practices

The Yahoo! Exceptional Performance team has identified a number of best practice rules for making web pages fast. They have identified 34 rules which are divided into seven categories.

Filter by category: Content | Server | Cookie | CSS | JavaScript | Images | Mobile | All

### YSlow for Firebug

Use the YSlow tool to analyze a web pages and get a report on why the web page is slow based on the best practices for high performance web sites. YSlow is a Firefox add-on integrated with the Firebug web development tool. This tool has been used internally at Yahoo! by many properties (for example, Yahoo! Sports, Yahoo! News, and so on) to improve the performance of their web pages by anywhere from 25 to 50 percent. Yahoo! is happy to share this tool with the development community to help others accelerate their users' experiences on their web sites.

### Research

Research conducted by the Exceptional Performance team is documented in the following Yahoo! User

RECENT BLOG ARTICLES | view all

Welcome YSlow Open Source
Thu, 16 Feb 2012

Flickr's New Dynamic Content Acceleration
Wed, 30 Nov 2011

Yahoo! Announces Cocktails – Shaken, Not Stirred
Wed, 02 Nov 2011

Next-Gen YSlow powered by YUI
Tue, 19 Jul 2011

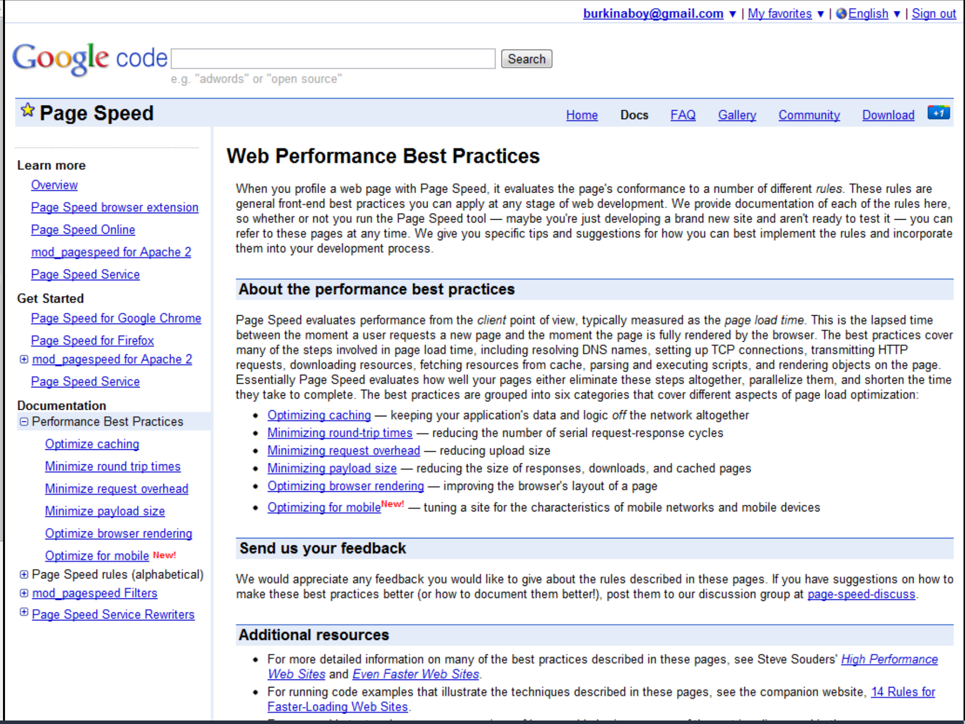
YUI and Loader changes for 3.4.0
Fri, 01 Jul 2011

YAHOO! GROUPS DISCUSSIONS | view all

Re: i want a option to select whether convert gif to png or not
Wed, 22 Feb 2012

Re: YSlow sends HTTP GET instead of HTTP POST to beacon URL grade
Tue, 21 Feb 2012

Re: Misconfigured ETags


burkinaboy@gmail.com ▾ | My favorites ▾ | English ▾ | Sign out
Google code
Search
e.g. "adwords" or "open source"
Page Speed
Home | Docs | FAQ | Gallery | Community | Download

Learn more
- Overview
- Page Speed browser extension
- Page Speed Online
- mod_pagespeed for Apache 2
- Page Speed Service

Get Started
- Page Speed for Google Chrome
- Page Speed for Firefox
- ⊞ mod_pagespeed for Apache 2
- Page Speed Service

Documentation
- ⊟ Performance Best Practices
  - Optimize caching
  - Minimize round trip times
  - Minimize request overhead
  - Minimize payload size
  - Optimize browser rendering
  - Optimize for mobile New!
- ⊞ Page Speed rules (alphabetical)
- ⊞ mod_pagespeed Filters
- ⊞ Page Speed Service Rewriters

## Web Performance Best Practices

When you profile a web page with Page Speed, it evaluates the page's conformance to a number of different *rules*. These rules are general front-end best practices you can apply at any stage of web development. We provide documentation of each of the rules here, so whether or not you run the Page Speed tool — maybe you're just developing a brand new site and aren't ready to test it — you can refer to these pages at any time. We give you specific tips and suggestions for how you can best implement the rules and incorporate them into your development process.

### About the performance best practices

Page Speed evaluates performance from the *client* point of view, typically measured as the *page load time*. This is the lapsed time between the moment a user requests a new page and the moment the page is fully rendered by the browser. The best practices cover many of the steps involved in page load time, including resolving DNS names, setting up TCP connections, transmitting HTTP requests, downloading resources, fetching resources from cache, parsing and executing scripts, and rendering objects on the page. Essentially Page Speed evaluates how well your pages either eliminate these steps altogether, parallelize them, and shorten the time they take to complete. The best practices are grouped into six categories that cover different aspects of page load optimization:

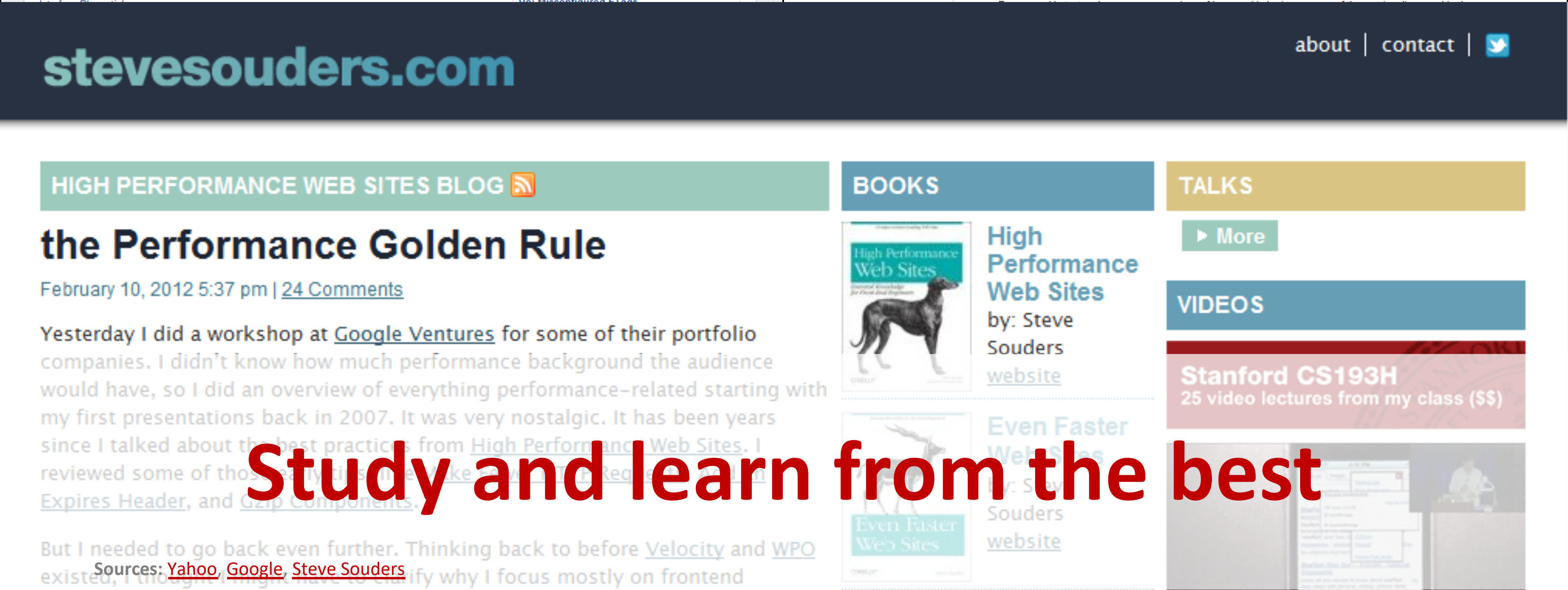
- Optimizing caching — keeping your application's data and logic *off* the network altogether
- Minimizing round-trip times — reducing the number of serial request-response cycles
- Minimizing request overhead — reducing upload size
- Minimizing payload size — reducing the size of responses, downloads, and cached pages
- Optimizing browser rendering — improving the browser's layout of a page
- Optimizing for mobile New! — tuning a site for the characteristics of mobile networks and mobile devices

### Send us your feedback

We would appreciate any feedback you would like to give about the rules described in these pages. If you have suggestions on how to make these best practices better (or how to document them better!), post them to our discussion group at page-speed-discuss.

### Additional resources

- For more detailed information on many of the best practices described in these pages, see Steve Souders' *High Performance Web Sites* and *Even Faster Web Sites*.
- For running code examples that illustrate the techniques described in these pages, see the companion website, 14 Rules for Faster-Loading Web Sites.



## the Performance Golden Rule

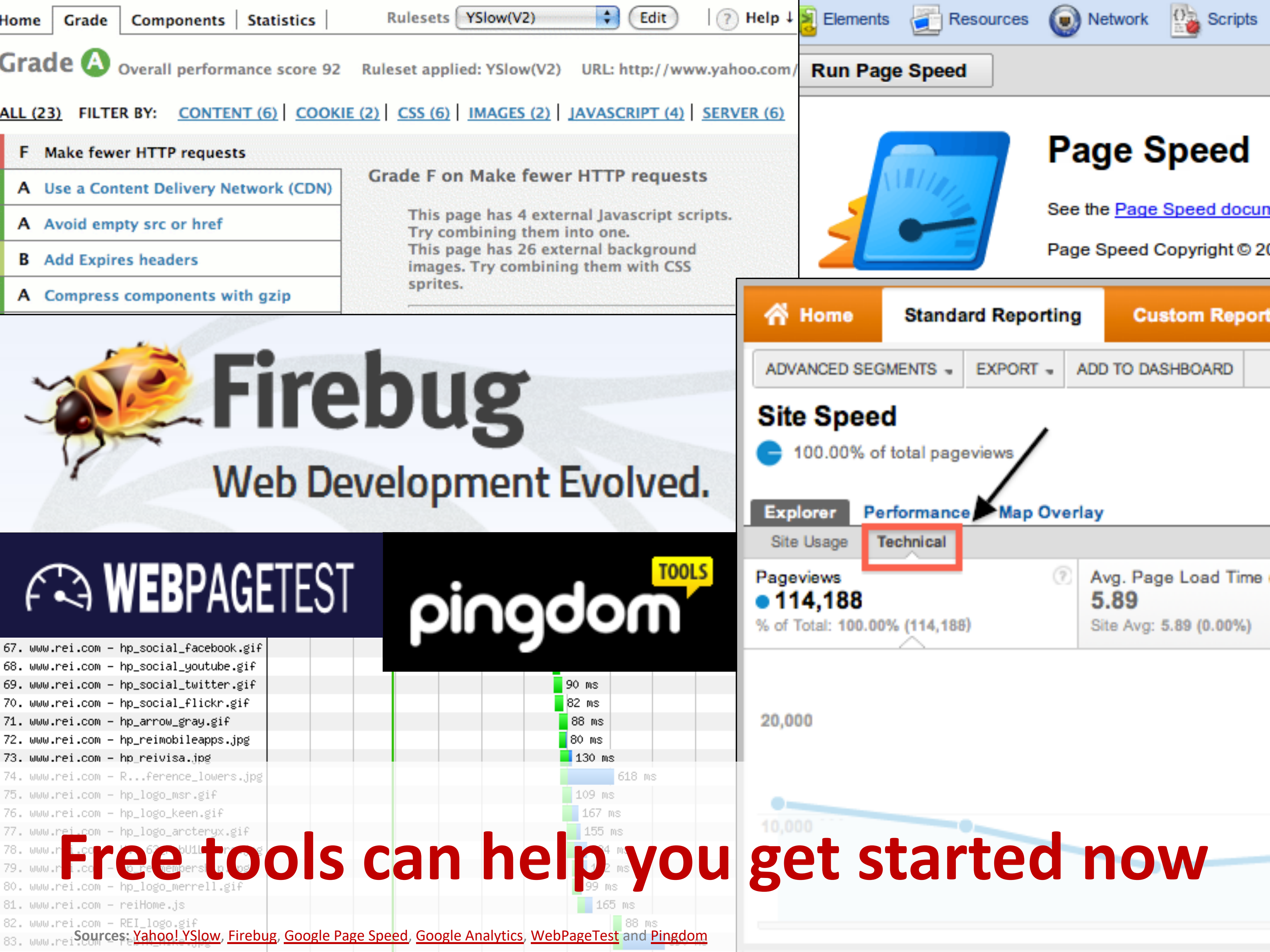
February 10, 2012 5:37 pm | 24 Comments

Yesterday I did a workshop at Google Ventures for some of their portfolio companies. I didn't know how much performance background the audience would have, so I did an overview of everything performance-related starting with my first presentations back in 2007. It was very nostalgic. It has been years since I talked about the best practices from High Performance Web Sites. I reviewed some of those early tips, like Make Fewer HTTP Requests, Add an Expires Header, and Gzip Components.

But I needed to go back even further. Thinking back to before Velocity and WPO existed, I thought I might have to clarify why I focus mostly on frontend

# Study and learn from the best

Sources: Yahoo, Google, Steve Souders



Home | Grade | Components | Statistics | Rulesets YSlow(V2) Edit | Help

Grade A Overall performance score 92 Ruleset applied: YSlow(V2) URL: http://www.yahoo.com/

ALL (23) FILTER BY: CONTENT (6) | COOKIE (2) | CSS (6) | IMAGES (2) | JAVASCRIPT (4) | SERVER (6)

| | |
|---|---|
| F | Make fewer HTTP requests |
| A | Use a Content Delivery Network (CDN) |
| A | Avoid empty src or href |
| B | Add Expires headers |
| A | Compress components with gzip |

Grade F on Make fewer HTTP requests

This page has 4 external Javascript scripts. Try combining them into one.
This page has 26 external background images. Try combining them with CSS sprites.

See the Page Speed docun

Page Speed Copyright © 20

Site Speed

100.00% of total pageviews

Pageviews 114,188
% of Total: 100.00% (114,188)

Avg. Page Load Time 5.89
Site Avg: 5.89 (0.00%)

```
67. www.rei.com - hp_social_facebook.gif
68. www.rei.com - hp_social_youtube.gif
69. www.rei.com - hp_social_twitter.gif        90 ms
70. www.rei.com - hp_social_flickr.gif         82 ms
71. www.rei.com - hp_arrow_gray.gif            88 ms
72. www.rei.com - hp_reimobileapps.jpg         80 ms
73. www.rei.com - hp_reivisa.jpg               130 ms
74. www.rei.com - R...ference_lowers.jpg       618 ms
75. www.rei.com - hp_logo_msr.gif              109 ms
76. www.rei.com - hp_logo_keen.gif             167 ms
77. www.rei.com - hp_logo_arcteryx.gif         155 ms
80. www.rei.com - hp_logo_merrell.gif          99 ms
81. www.rei.com - reiHome.js                   165 ms
82. www.rei.com - REI_logo.gif                 88 ms
```

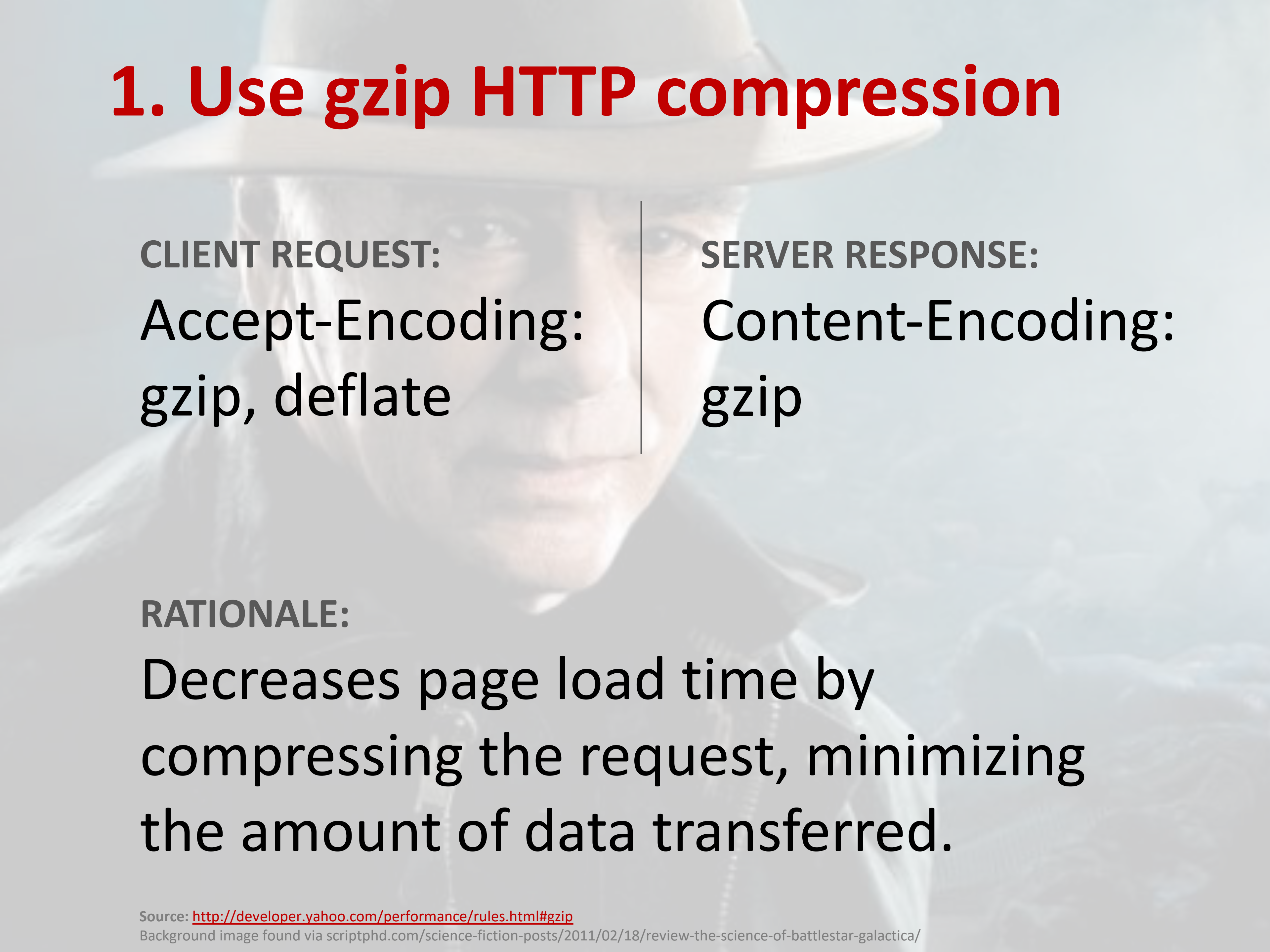
# Free tools can help you get started now

Sources: Yahoo! YSlow, Firebug, Google Page Speed, Google Analytics, WebPageTest and Pingdom

# The Basics: 10 quick wins for site speed

Background image found via scifivoyage.blogspot.com/2010/06/nubsg-miniseries-part-1.html

# 1. Use gzip HTTP compression



**CLIENT REQUEST:**

Accept-Encoding: gzip, deflate

**SERVER RESPONSE:**

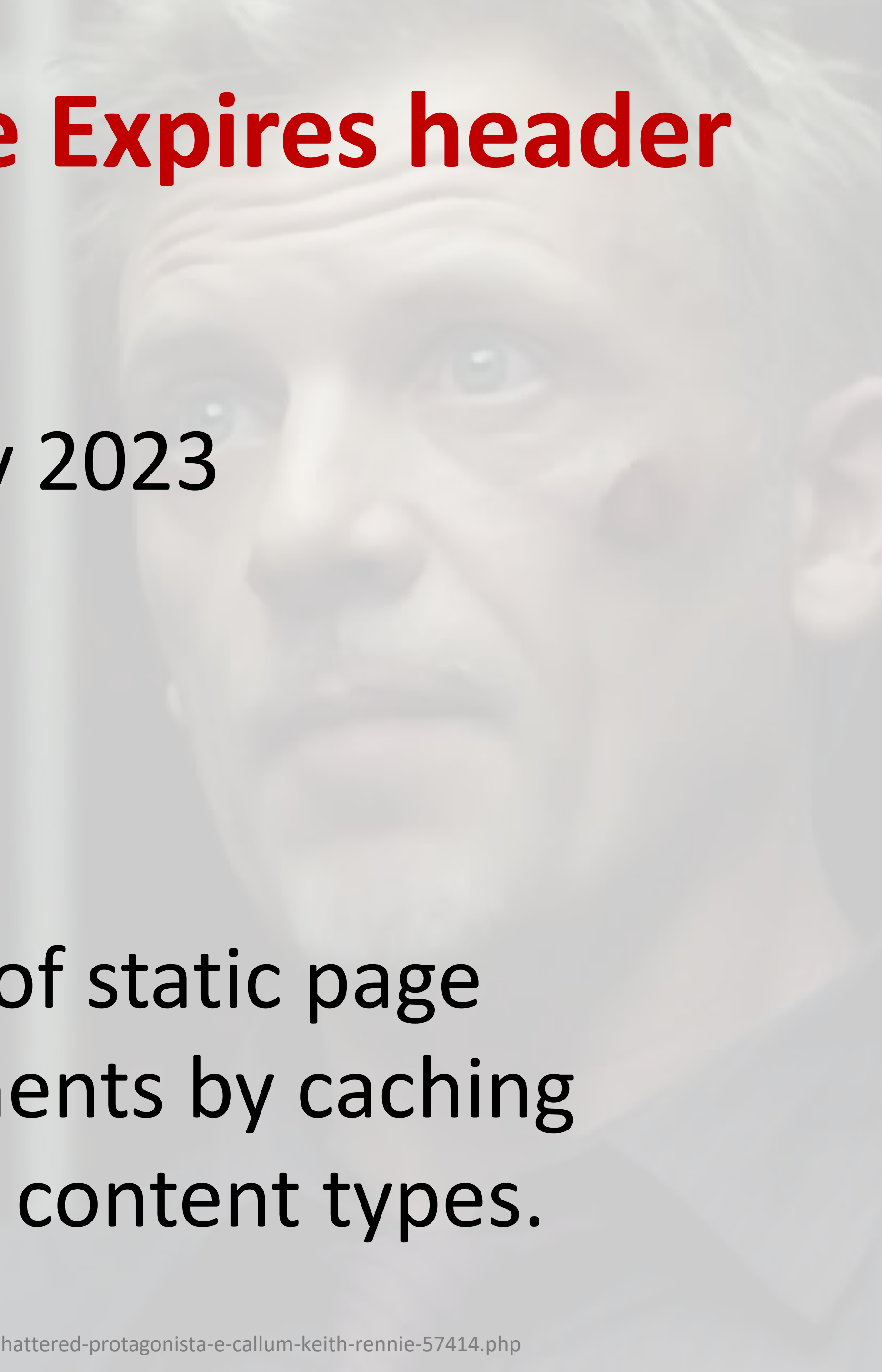
Content-Encoding: gzip

**RATIONALE:**

Decreases page load time by compressing the request, minimizing the amount of data transferred.

**Source:** http://developer.yahoo.com/performance/rules.html#gzip
Background image found via scriptphd.com/science-fiction-posts/2011/02/18/review-the-science-of-battlestar-galactica/

# 2. Set a far-future Expires header



**EXAMPLE HEADER:**

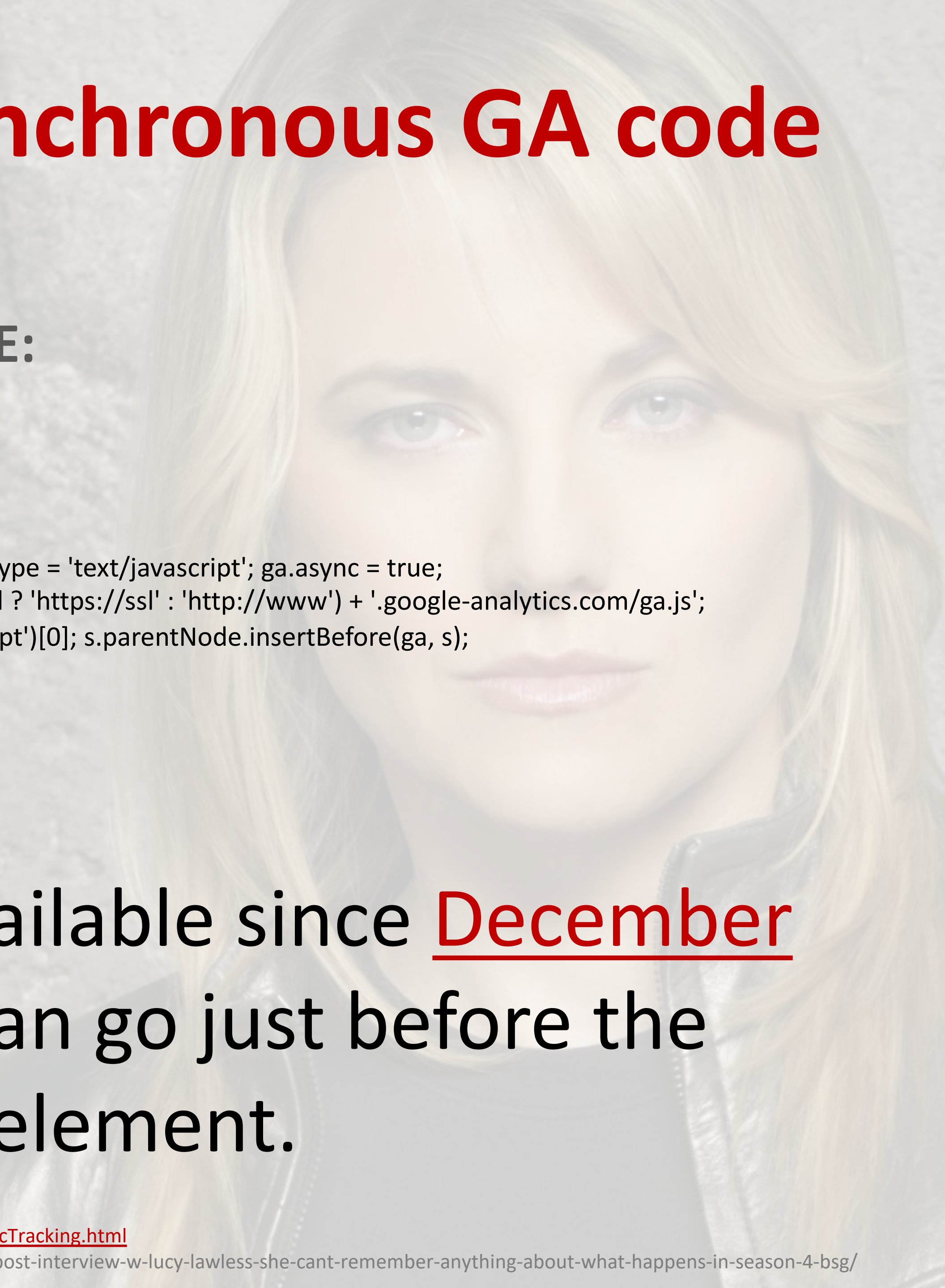
Expires: Tue, 16 May 2023
22:00:00 GMT

**RATIONALE:**

Helps with re-loads of static page objects and components by caching them. Use across all content types.

**Source:** http://developer.yahoo.com/performance/rules.html#expires
Background image found via blog.screenweek.it/2009/11/si-definisce-il-cast-di-shattered-protagonista-e-callum-keith-rennie-57414.php

# 3. Use the asynchronous GA code



## ON-PAGE CODE EXAMPLE:

```
<script type="text/javascript">
 var _gaq = _gaq || [];
 _gaq.push(['_setAccount', 'UA-XXXXX-X']);
 _gaq.push(['_trackPageview']);
  (function() {
   var ga = document.createElement('script'); ga.type = 'text/javascript'; ga.async = true;
   ga.src = ('https:' == document.location.protocol ? 'https://ssl' : 'http://www') + '.google-analytics.com/ga.js';
   var s = document.getElementsByTagName('script')[0]; s.parentNode.insertBefore(ga, s);
 })();
</script>
```

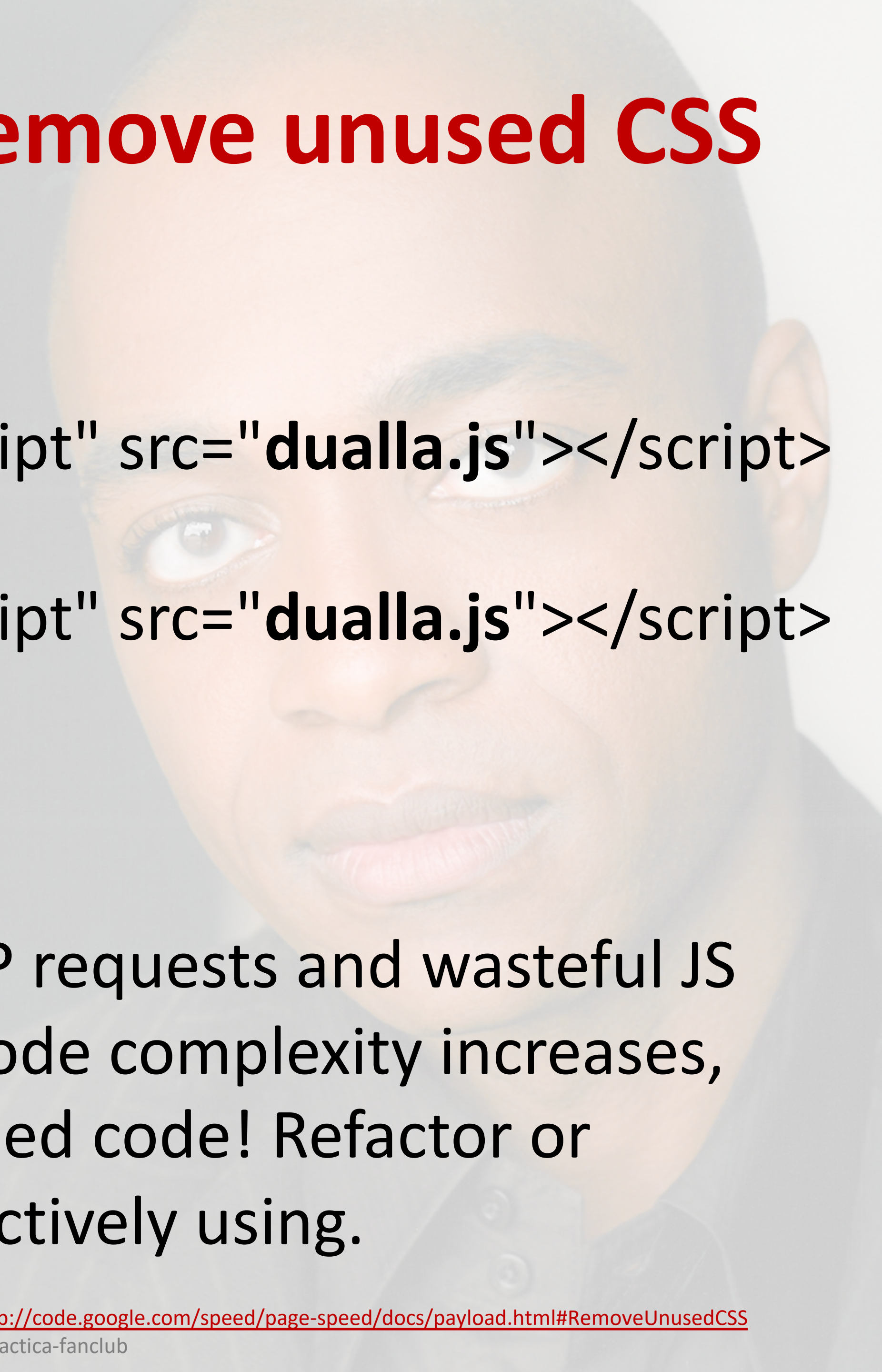
## RATIONALE:

This has been available since December 2009. **Use it!** It can go just before the closing </head> element.

**Source:** http://code.google.com/apis/analytics/docs/tracking/asyncTracking.html

Background image found via theloveumake.com/2008/03/31/huffpost-interview-w-lucy-lawless-she-cant-remember-anything-about-what-happens-in-season-4-bsg/

# 4. Don’t dupe JS, remove unused CSS



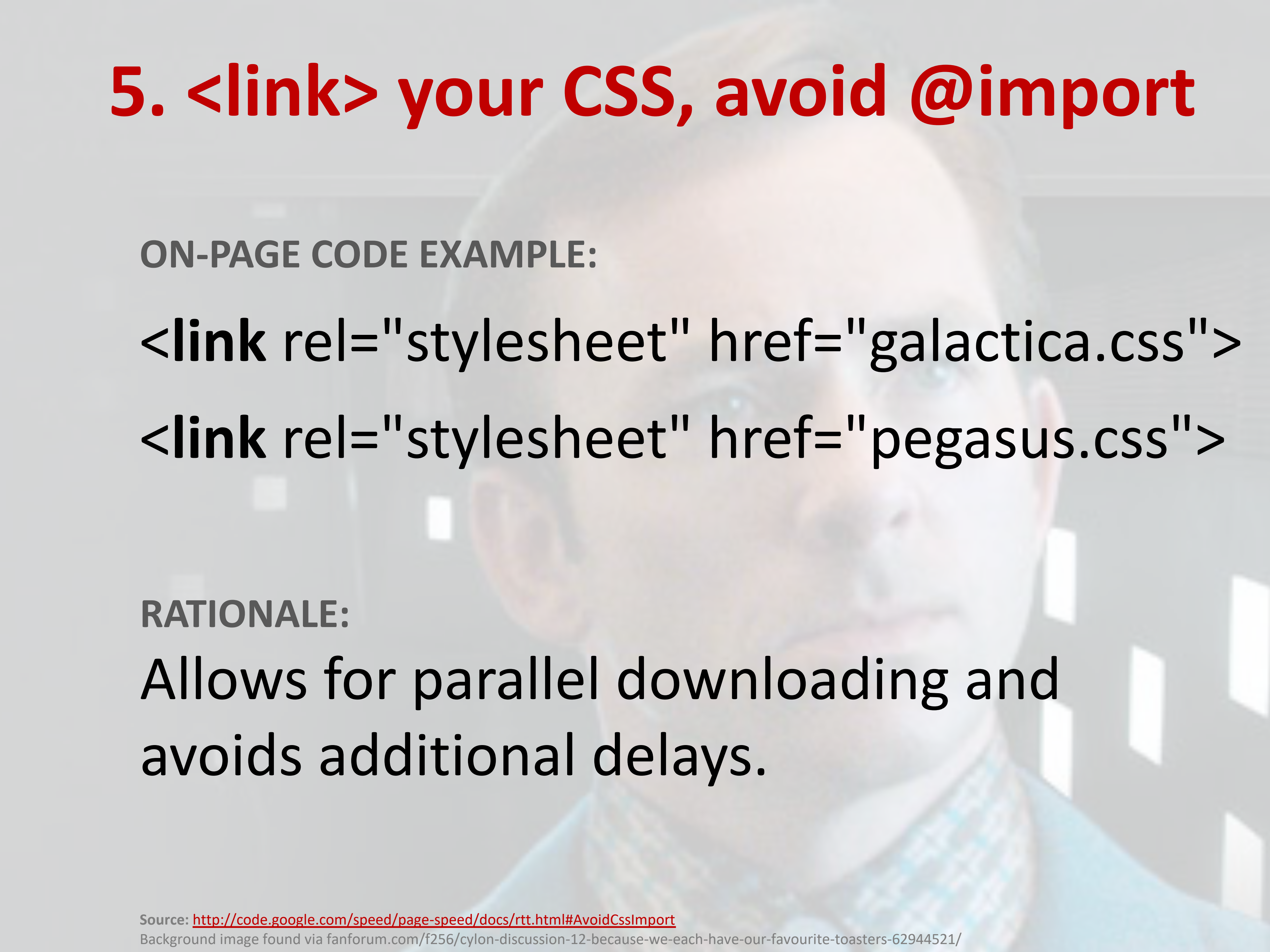
**ON-PAGE CODE EXAMPLE:**

```
<script type="text/javascript" src="dualla.js"></script>
…
<script type="text/javascript" src="dualla.js"></script>
```

**RATIONALE:**

Creates unnecessary HTTP requests and wasteful JS execution. As team size/code complexity increases, so do duplicates and unused code! Refactor or remove code you’re not actively using.

**Source:** http://developer.yahoo.com/performance/rules.html#js_dupes and http://code.google.com/speed/page-speed/docs/payload.html#RemoveUnusedCSS
Background image found via battlestarfanclub.com/profiles/blogs/battlestar-galactica-fanclub



# 5. <link> your CSS, avoid @import

**ON-PAGE CODE EXAMPLE:**

```
<link rel="stylesheet" href="galactica.css">
<link rel="stylesheet" href="pegasus.css">
```

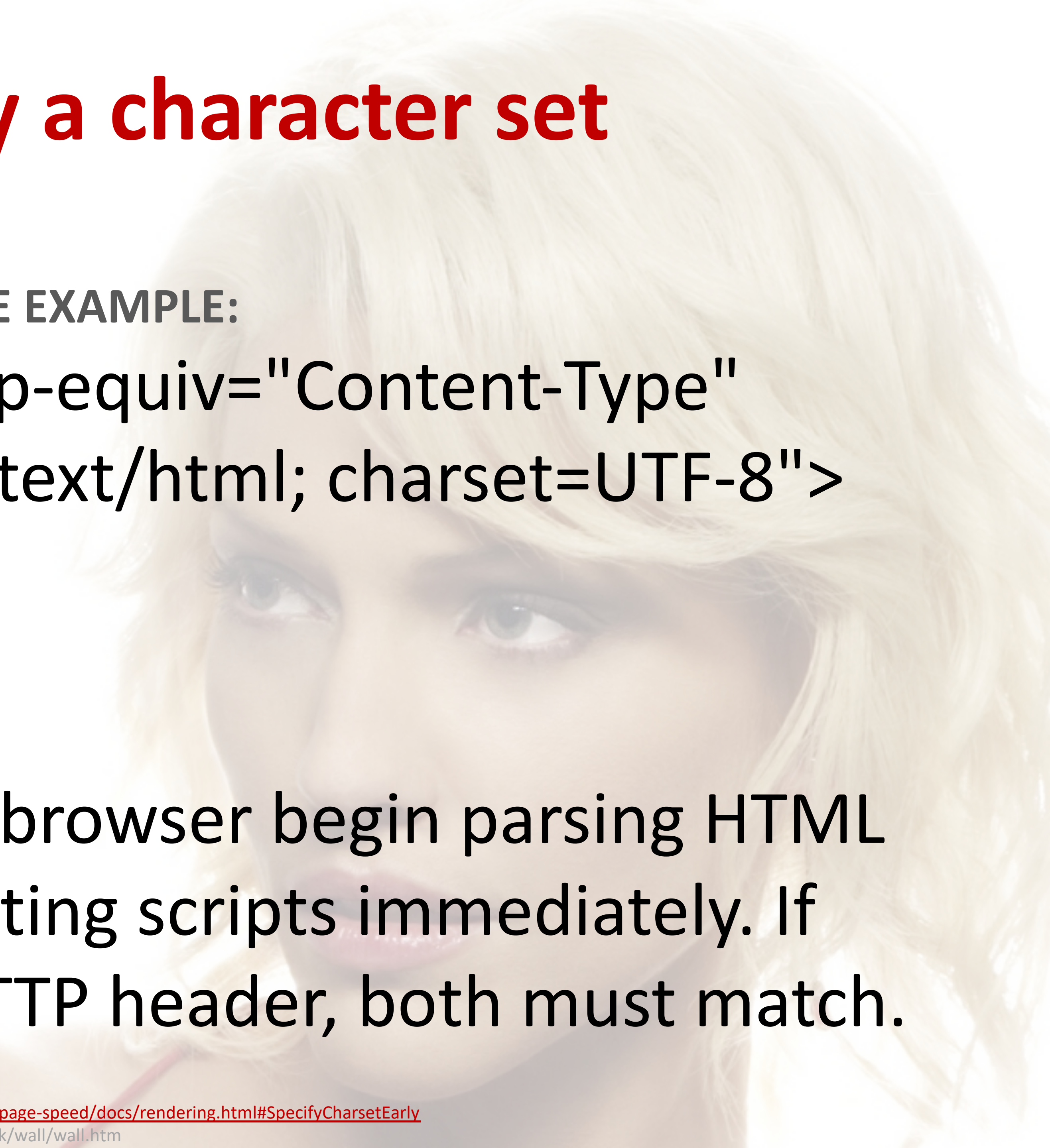
**RATIONALE:**

Allows for parallel downloading and avoids additional delays.

**Source:** http://code.google.com/speed/page-speed/docs/rtt.html#AvoidCssImport

Background image found via fanforum.com/f256/cylon-discussion-12-because-we-each-have-our-favourite-toasters-62944521/

# 6. Specify a character set



**ON-PAGE CODE EXAMPLE:**

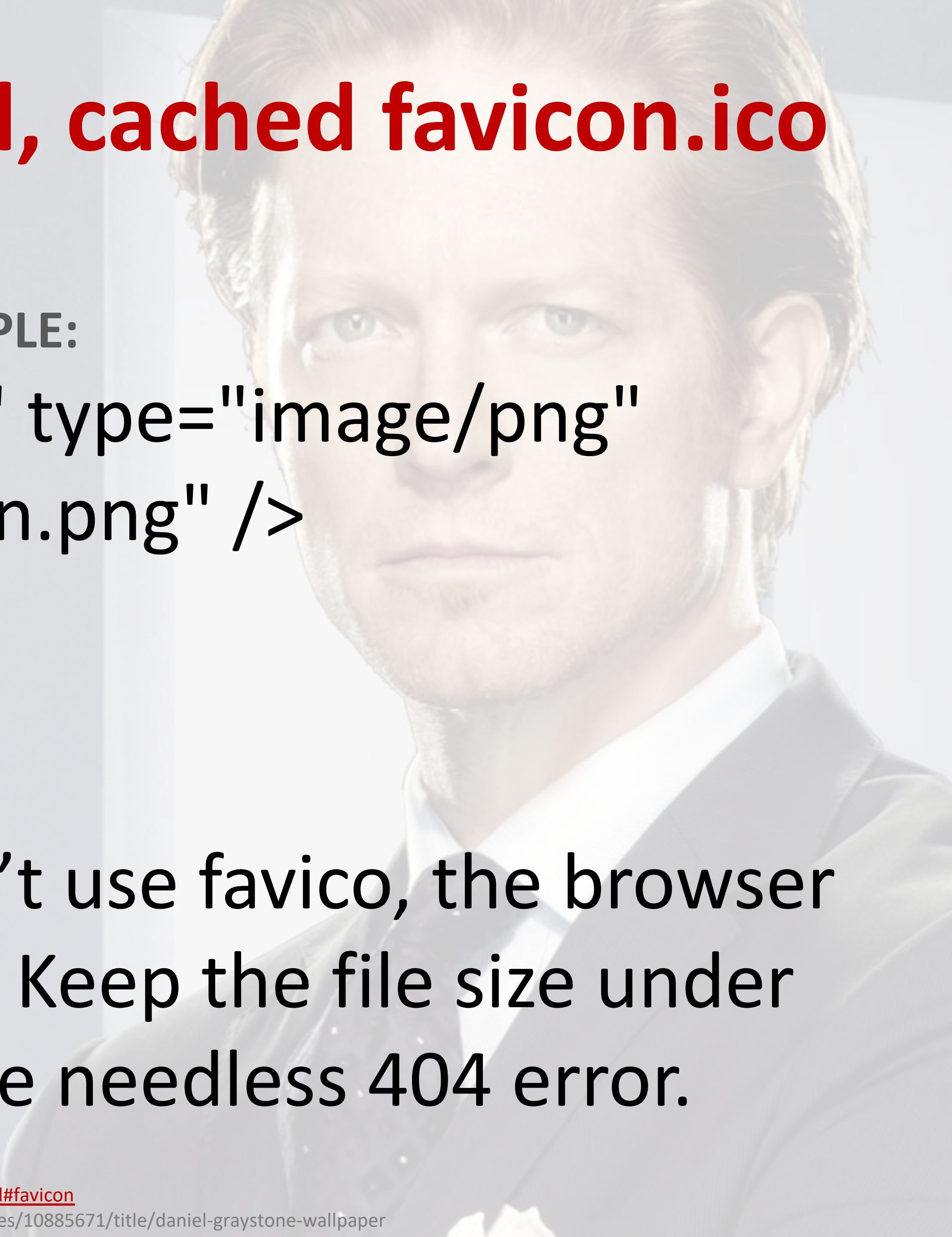
```
<meta http-equiv="Content-Type"
content="text/html; charset=UTF-8">
```

**RATIONALE:**

Helps the browser begin parsing HTML and executing scripts immediately. If used in HTTP header, both must match.

**Source:** http://code.google.com/speed/page-speed/docs/rendering.html#SpecifyCharsetEarly
Background image found via lotna.org.uk/wall/wall.htm

# 7. Use a small, cached favicon.ico



## ON-PAGE CODE EXAMPLE:

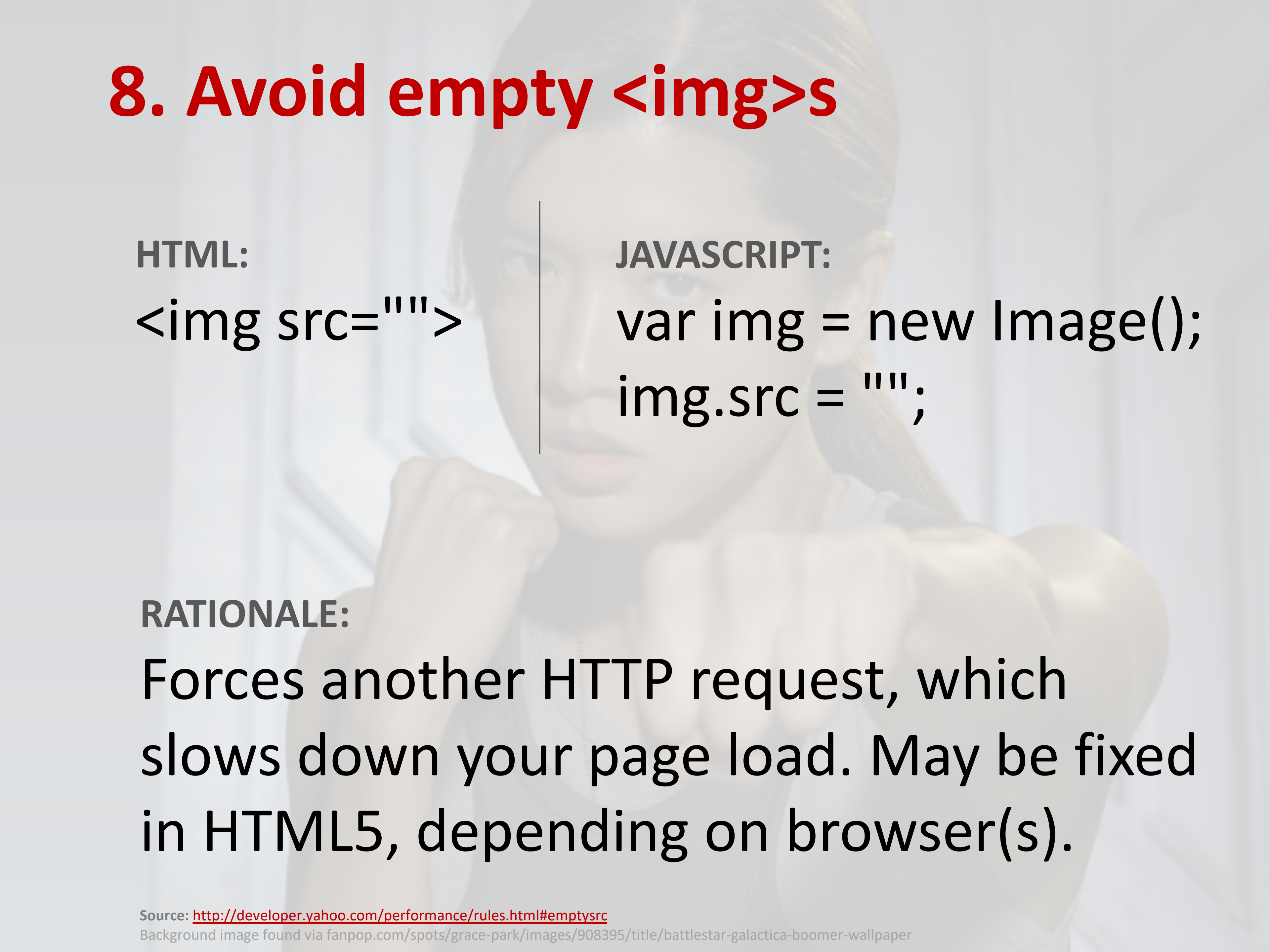
```
<link rel="icon" type="image/png"
href=“cylon-icon.png" />
```

## RATIONALE:

Even if you don’t use favico, the browser *still* requests it! Keep the file size under 1k and avoid the needless 404 error.

**Source:** http://developer.yahoo.com/performance/rules.html#favicon
Background image found via fanpop.com/spots/caprica/images/10885671/title/daniel-graystone-wallpaper

# 8. Avoid empty <img>s



**HTML:**

```
<img src="">
```

**JAVASCRIPT:**

```
var img = new Image();
img.src = "";
```

**RATIONALE:**

Forces another HTTP request, which slows down your page load. May be fixed in HTML5, depending on browser(s).

**Source:** http://developer.yahoo.com/performance/rules.html#emptysrc

Background image found via fanpop.com/spots/grace-park/images/908395/title/battlestar-galactica-boomer-wallpaper

# 9. Compress images, use dimensions

## ON-PAGE CODE EXAMPLE:

```
<img src=“dradis.jpg" width=“360"
height="120" />
```

## RATIONALE:

Formatting images and specifying width/height reduce page load time by minimizing data sent from the server to the browser and speeding up rendering time. Remember that PNG is almost always better than GIF!

Source: http://code.google.com/speed/page-speed/docs/payload.html#CompressImages

# 10. Avoid redirects

**RATIONALE:**

Cuts down on wait time for users by avoiding an entire request-response cycle and the latency that goes with it.

**Source:** http://code.google.com/speed/page-speed/docs/rtt.html#AvoidRedirects

Background image found via fanforum.com/f256/dean-stockwell-john-cavil-appreciation-thread-2-because-hes-mean-sob-62925212/index2.html

# Intermediate level: CSS sprites for images

Background image found via my.opera.com/alexs/albums/showpic.dml?album=382080&picture=6108656

# CSS sprites reduce HTTP requests

CSS PROPERTIES USED:

**background-image**: url(img/DRADIS-icons.png);

**background-position**: 0 0;

RATIONALE:

Reducing total HTTP requests greatly improves site performance. Combining common images into “sprites” reduces requests, latency, overhead, and total page file size.

Source: http://code.google.com/speed/page-speed/docs/rtt.html#SpriteImages

# Best practices for CSS sprites

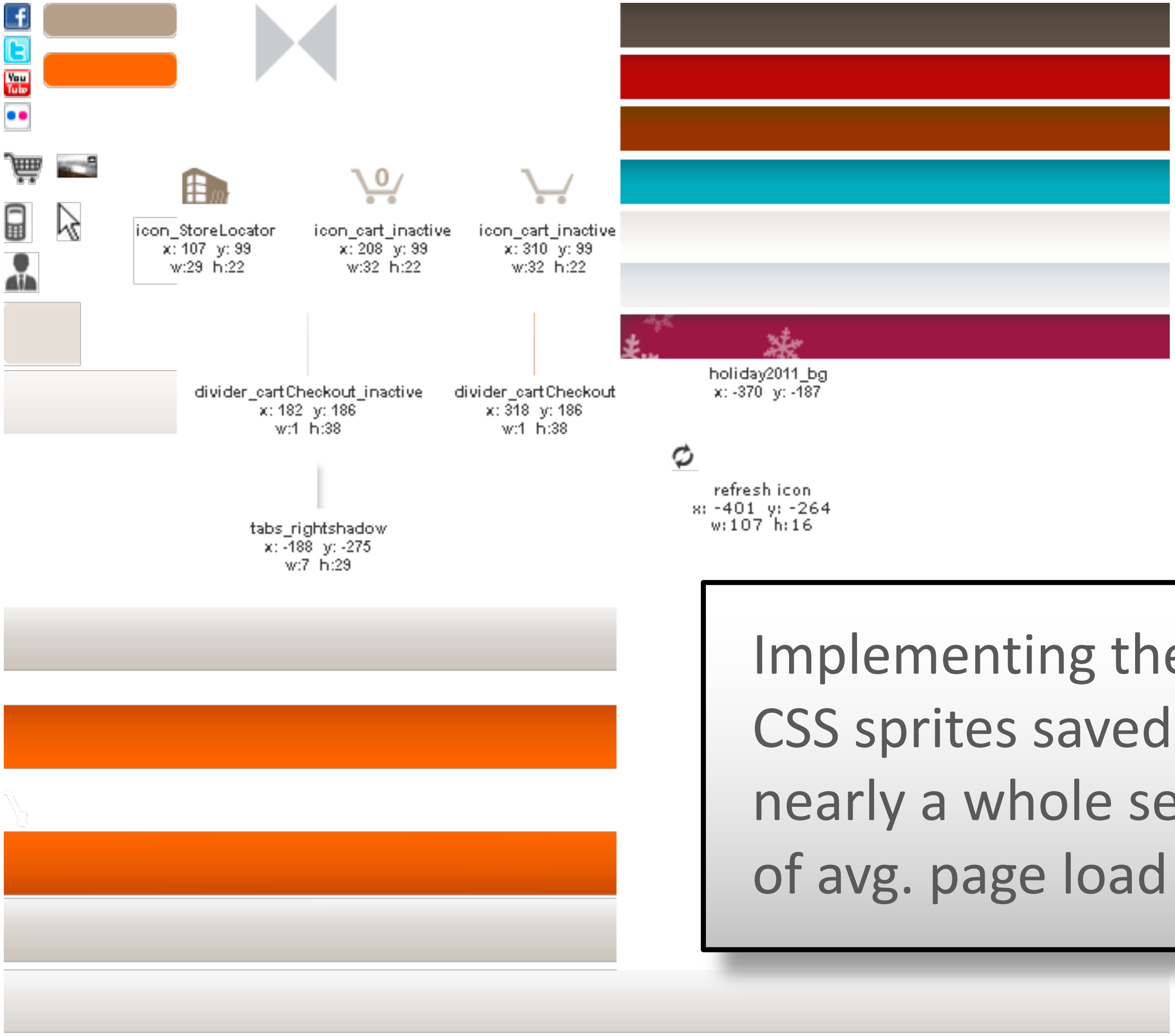
Combine images into sprites when:

- Images load together
- Images have similar color palettes
- Images are PNGs and/or GIFs
- Images are both small and cacheable

Do *not* use for large JPGs/photos.

Source: http://code.google.com/speed/page-speed/docs/rtt.html#SpriteImages

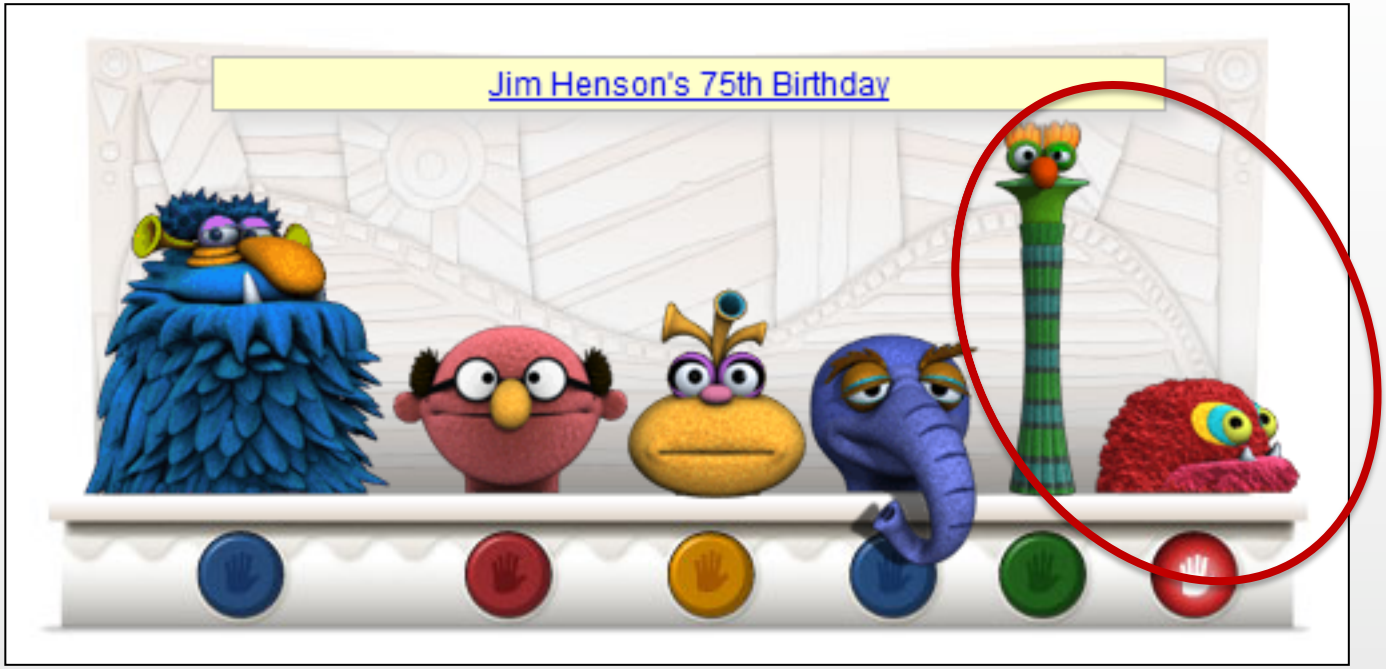
# Here’s a site-wide sprite on REI.com



Implementing these CSS sprites saved us nearly a whole second of avg. page load time.

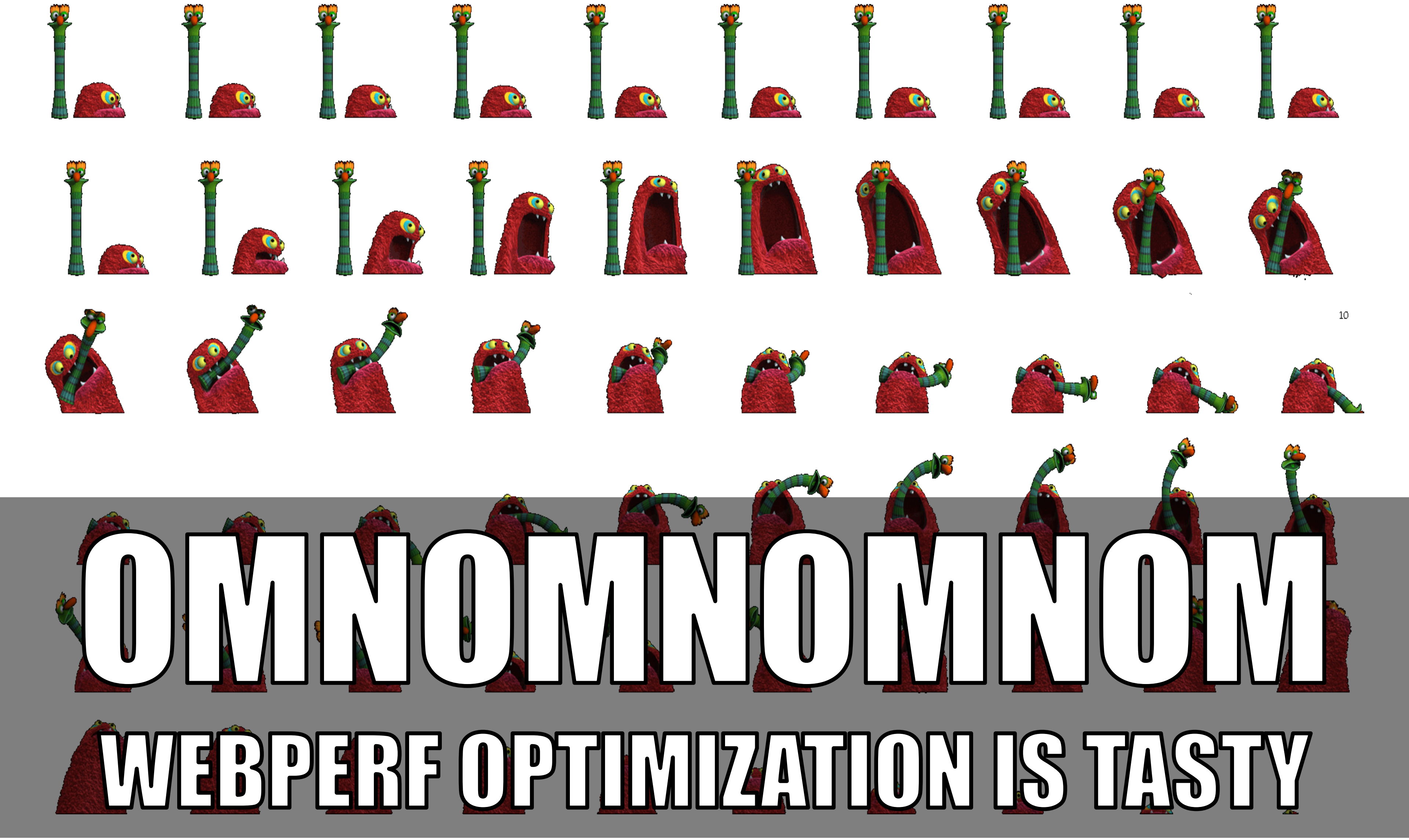
Source: http://www.rei.com/img/sprite_rei1.png

# Here’s a complex Google example



Source: http://www.google.com/doodles/jim-hensons-75th-birthday

# This sprite is a 60-frame animation!

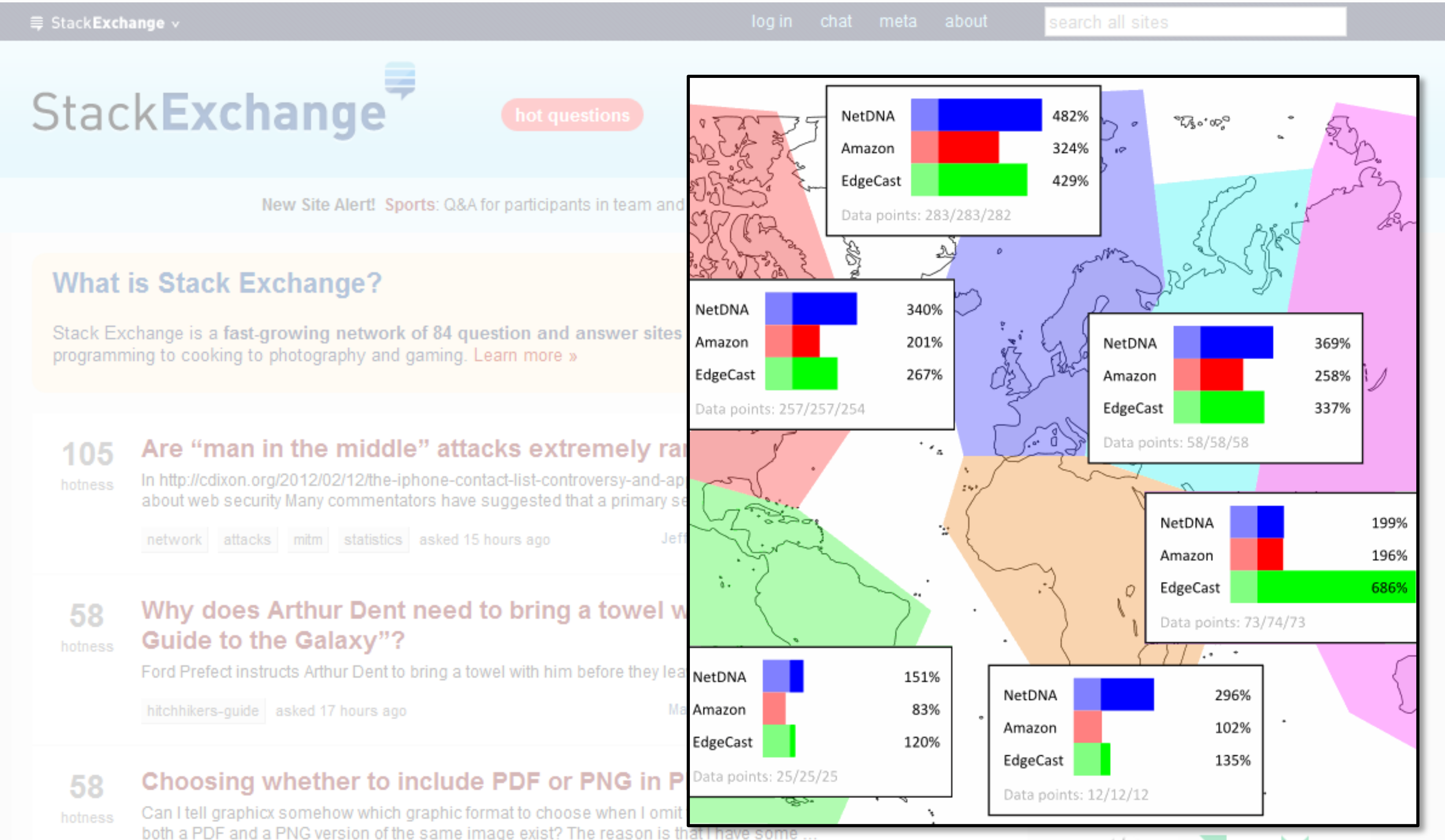


Source: http://www.google.com/logos/2011/henson11-hp-6ea.png

“WE’VE JUMPED WAY BEYOND THE RED LINE.”

# Advanced examples of performance optimization

# StackExchange moves to a CDN, crowd-sources performance tests



StackExchange ∨ log in chat meta about search all sites

StackExchange hot questions

New Site Alert! Sports: Q&A for participants in team and

What is Stack Exchange?

Stack Exchange is a fast-growing network of 84 question and answer sites programming to cooking to photography and gaming. Learn more »

105 hotness Are “man in the middle” attacks extremely ra

In http://cdixon.org/2012/02/12/the-iphone-contact-list-controversy-and-ap about web security Many commentators have suggested that a primary se

network attacks mitm statistics asked 15 hours ago Jeff

58 hotness Why does Arthur Dent need to bring a towel w Guide to the Galaxy”?

Ford Prefect instructs Arthur Dent to bring a towel with him before they lea

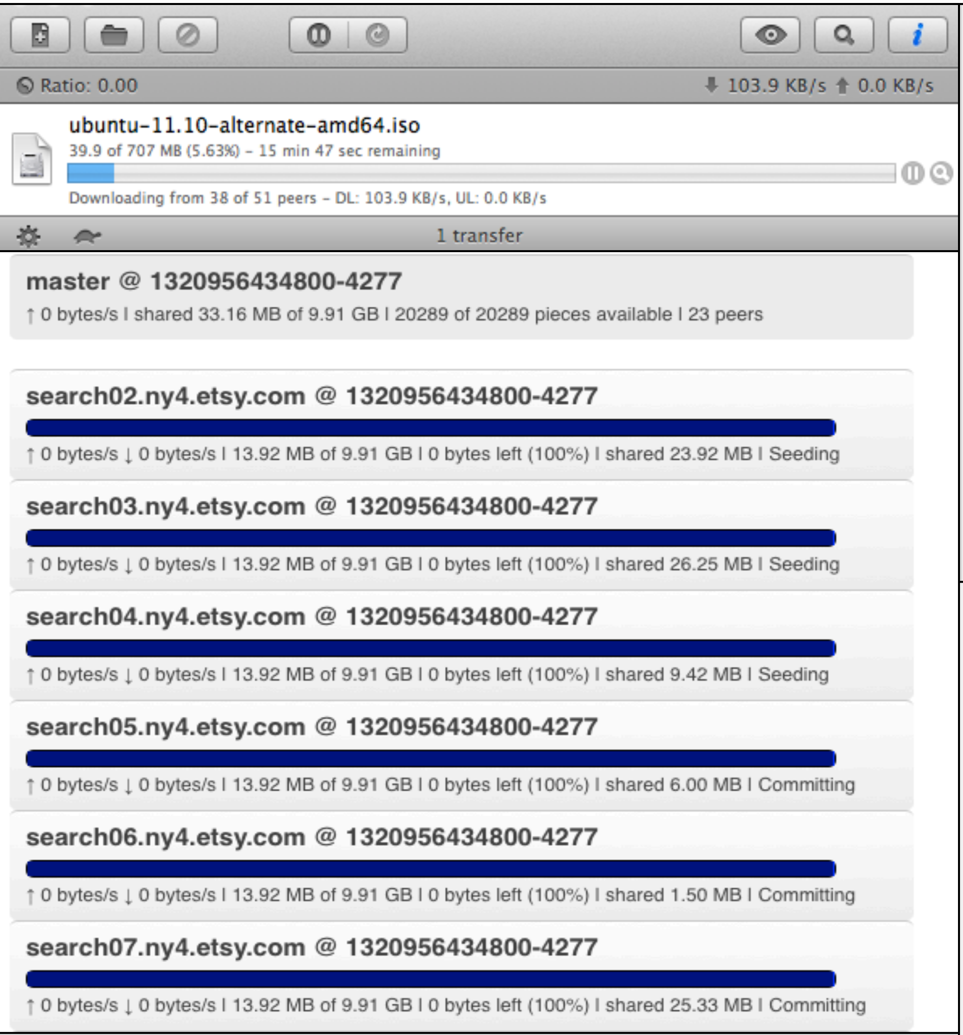
hitchhikers-guide asked 17 hours ago Ma

58 hotness Choosing whether to include PDF or PNG in P

Can I tell graphicx somehow which graphic format to choose when I omit both a PDF and a PNG version of the same image exist? The reason is that I have some ...

**Source:** Jeff Atwood’s *Coding Horror* blog

# Etsy.com uses BitTorrent to replicate its search index across servers



Ratio: 0.00 ⬇ 103.9 KB/s ⬆ 0.0 KB/s

ubuntu-11.10-alternate-amd64.iso
39.9 of 707 MB (5.63%) – 15 min 47 sec remaining
Downloading from 38 of 51 peers – DL: 103.9 KB/s, UL: 0.0 KB/s

1 transfer

**master @ 1320956434800-4277**
↑ 0 bytes/s I shared 33.16 MB of 9.91 GB I 20289 of 20289 pieces available I 23 peers

**search02.ny4.etsy.com @ 1320956434800-4277**
↑ 0 bytes/s ↓ 0 bytes/s I 13.92 MB of 9.91 GB I 0 bytes left (100%) I shared 23.92 MB I Seeding

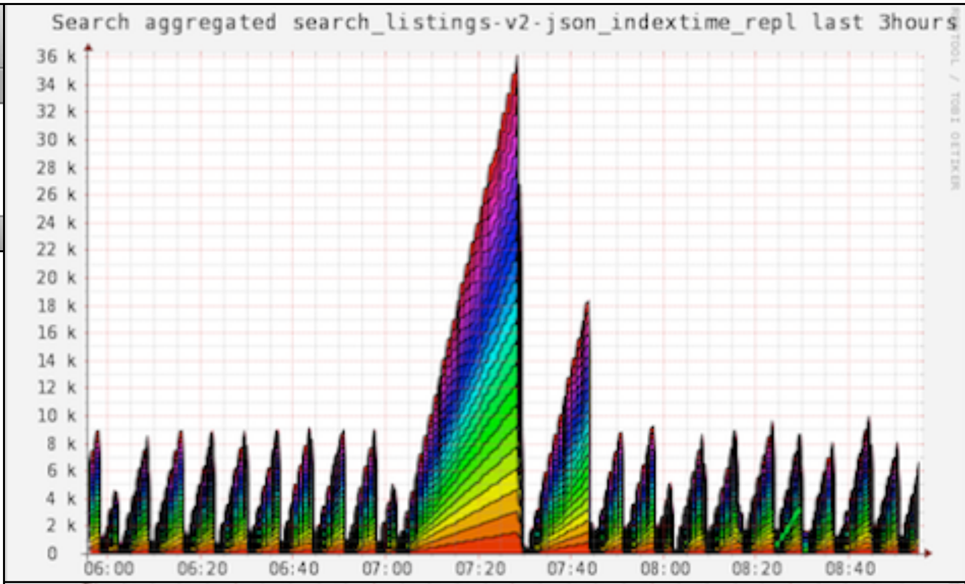
**search03.ny4.etsy.com @ 1320956434800-4277**
↑ 0 bytes/s ↓ 0 bytes/s I 13.92 MB of 9.91 GB I 0 bytes left (100%) I shared 26.25 MB I Seeding

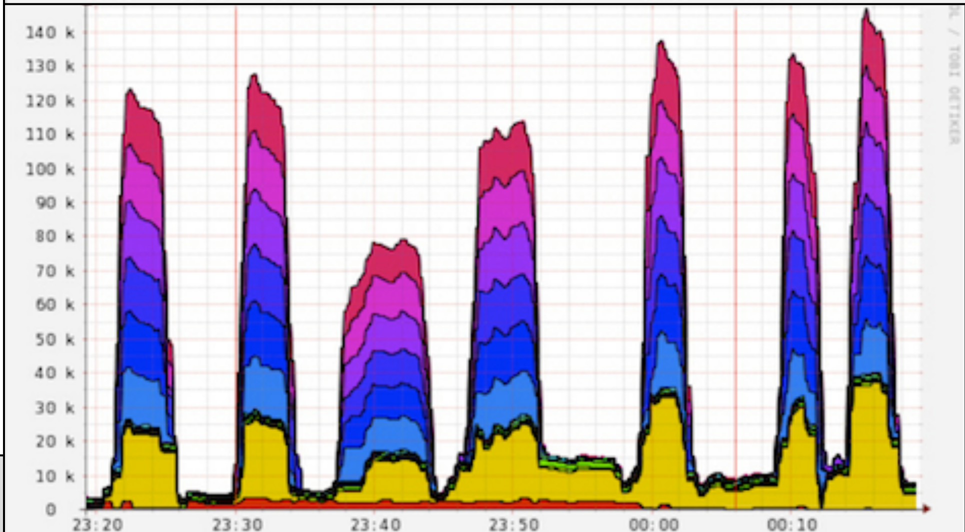
**search04.ny4.etsy.com @ 1320956434800-4277**
↑ 0 bytes/s ↓ 0 bytes/s I 13.92 MB of 9.91 GB I 0 bytes left (100%) I shared 9.42 MB I Seeding

**search05.ny4.etsy.com @ 1320956434800-4277**
↑ 0 bytes/s ↓ 0 bytes/s I 13.92 MB of 9.91 GB I 0 bytes left (100%) I shared 6.00 MB I Committing

**search06.ny4.etsy.com @ 1320956434800-4277**
↑ 0 bytes/s ↓ 0 bytes/s I 13.92 MB of 9.91 GB I 0 bytes left (100%) I shared 1.50 MB I Committing

**search07.ny4.etsy.com @ 1320956434800-4277**
↑ 0 bytes/s ↓ 0 bytes/s I 13.92 MB of 9.91 GB I 0 bytes left (100%) I shared 25.33 MB I Committing

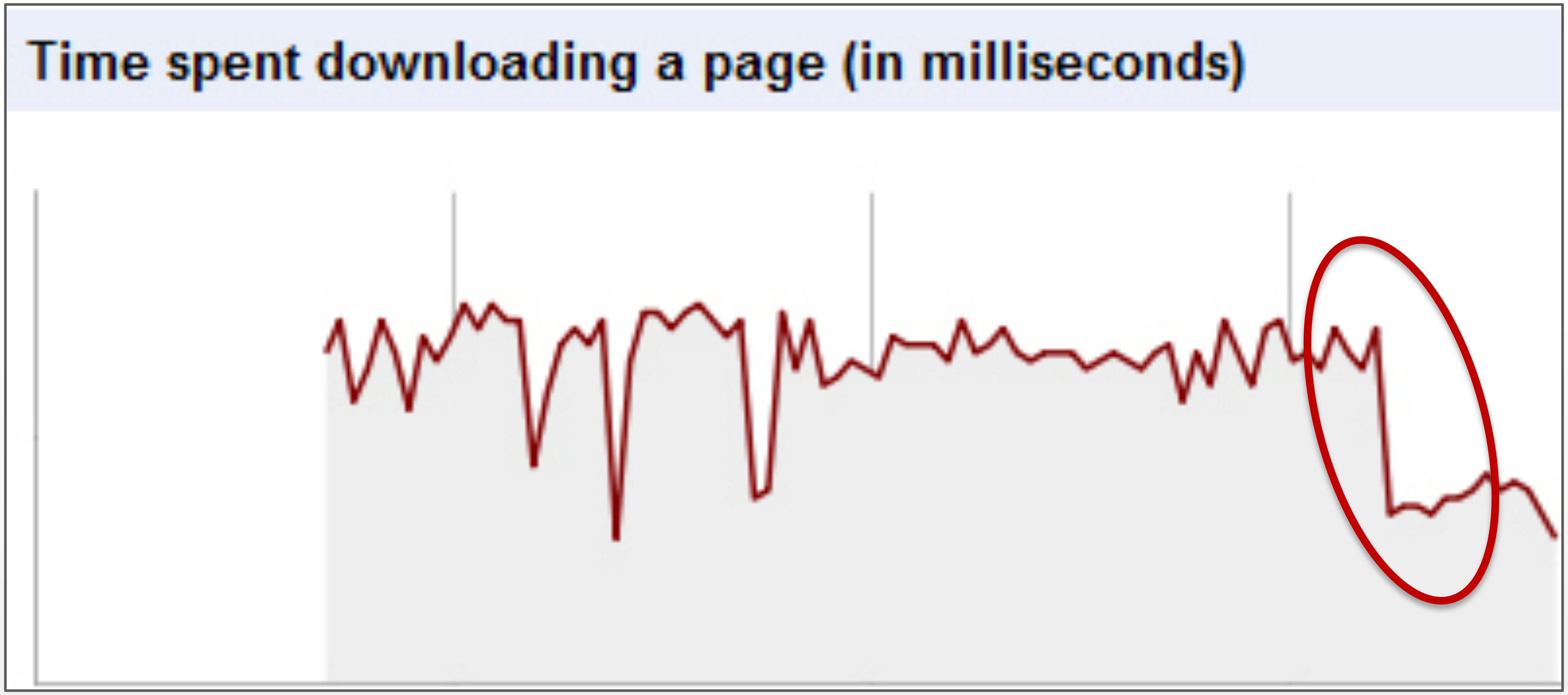




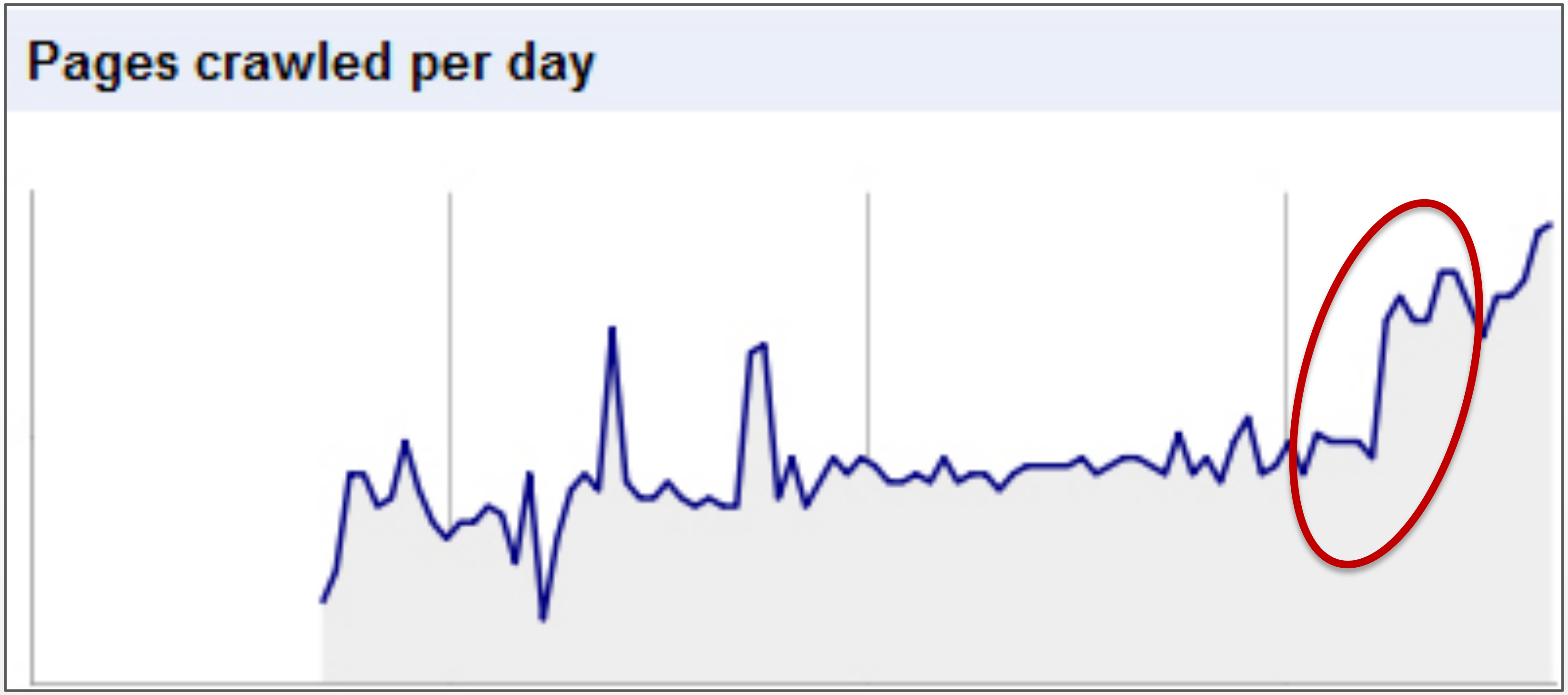
**Source:** Etsy *Code As Craft* blog

“THE UPGRADES WILL TRIPLE THE FLEET’S JUMP CAPACITY.”

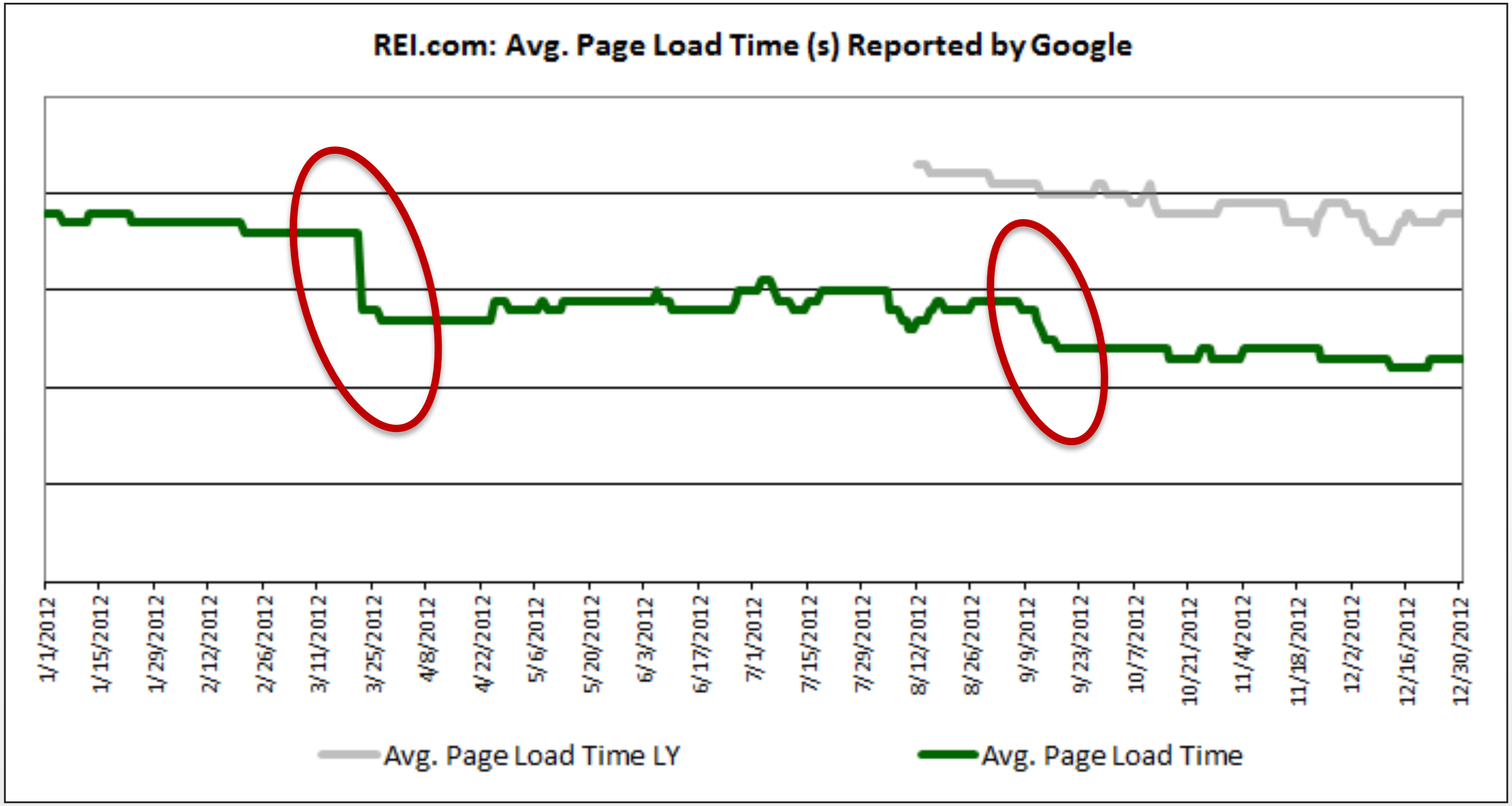
# SEO results from REI’s site performance optimizations



A **-50%** decrease in the time it took for Google to crawl an average page.



A **+100%** increase in the amount of total pages Google crawled per day.



We saved customers **-1.5** seconds per page view. Multiplied by *all* page views…

We saved customers **22 years** of time.

Background image found via galacticasitrep.blogspot.com/2009_03_01_archive.html

# Time they'll spend **outside** vs. online

Background image found via galactica.wikia.com/wiki/Earth

## “LIGHTEN UP – IT’S ONLY THE END OF THE WORLD.”

# In conclusion…

# The Final Five

Background image found via galactica.wikia.com/wiki/Humanoid_Cylon

# The Final Five Takeaways

- **The site performance business case isn’t just about SEO** – it’s about customer UX
- Plan a budget/time for performance work
- Start with quick wins, “shrink the change”
- Set speed targets for all new features
- **Measure, celebrate, and repeat**

  *“All of this has happened before…*
  *and all of this will happen again.”*

Background image found via galactica.wikia.com/wiki/Humanoid_Cylon

# Thank you – so say we all!

**Jonathon Colman**

In-House SEO for REI

| | |
|---|---|
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We're hiring! http://bit.ly/rei-jobs