

Fostering a Web Performance Culture



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hi!

I'm Jose
Software Engineer at Spotify





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Velocity
Web Performance
and Operations
CONFERENCE

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Steve Souders' Rules (2007)

High Performance Web Sites

Rules 1 2 3 4 5 6 7 8 9 10 11 12 13 14

14 Rules for Faster-Loading Web Sites

These rules are the key to speeding up your web pages. They've been tested on some of the most popular sites on the Internet and have successfully reduced the response times of those pages by 25-50%.

The key insight behind these best practices is the realization that only 10-20% of the total end-user response time is spent getting the HTML document to the browser. You need to focus on the other 80-90% if you want to make your pages noticeably faster. These rules are the best practices for optimizing the way servers and browsers handle that 80-90% of the user experience.

These pages are the companion web site for the book [High Performance Web Sites](#). The examples referenced in the book are hosted here. Navigate through the rules listed below to find the associated examples. Each rule page also contains a link to the [Yahoo! Developer Network Performance Blog](#). There you will find a brief summary of the rule along with comments.

Rule 1 - Make Fewer HTTP Requests

Rule 2 - Use a Content Delivery Network

Rule 3 - Add an Expires Header

Rule 4 - Gzip Components

Rule 5 - Put Stylesheets at the Top

Rule 6 - Put Scripts at the Bottom

Rule 7 - Avoid CSS Expressions

Rule 8 - Make JavaScript and CSS External

Rule 9 - Reduce DNS Lookups

Rule 10 - Minify JavaScript

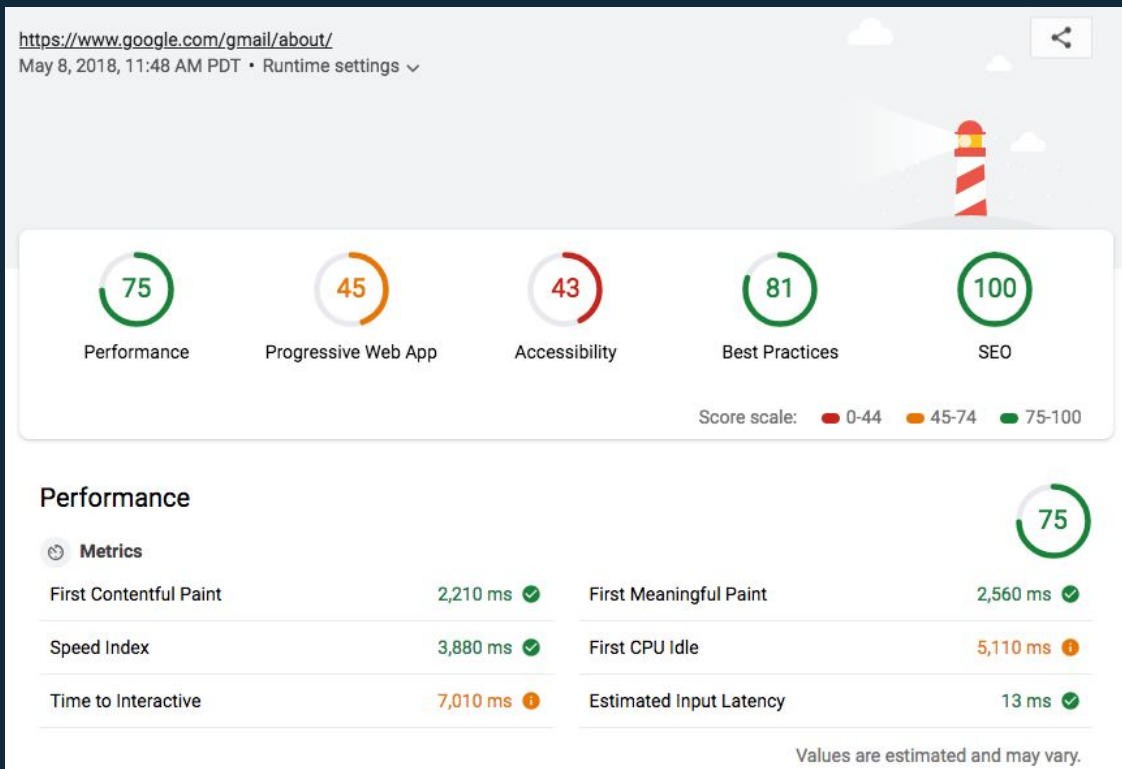
Rule 11 - Avoid Redirects

Rule 12 - Remove Duplicate Scripts

Rule 13 - Configure ETags

Rule 14 - Make AJAX Cacheable

Lighthouse 3.0 (2018)










Lighthouse 3.0 (2018)



Opportunities

These are opportunities to speed up your application by optimizing the following resources.

Resource to optimize	Estimated Savings
1 Preload key requests	 3.17 s ▾
2 Serve images in next-gen formats	 2.57 s ▾
3 Defer offscreen images	 2.42 s ▾
4 Properly size images	 0.76 s ▾
5 Eliminate render-blocking resources	 0.5 s ▾
6 Avoid multiple, costly round trips to any origin	 0.3 s ▾
7 Unused CSS rules	 0.15 s ▾

PageSpeed Insights

https://mywebsite.com/



Mobile



Desktop

Page Speed

Unavailable

Optimization

Low

47 / 100

PageSpeed Insights

https://pitercss.com/



Mobile



Desktop

Page Speed

Fast

1.1s FCP **1.2s** DCL

Optimization

Good

93 / 100

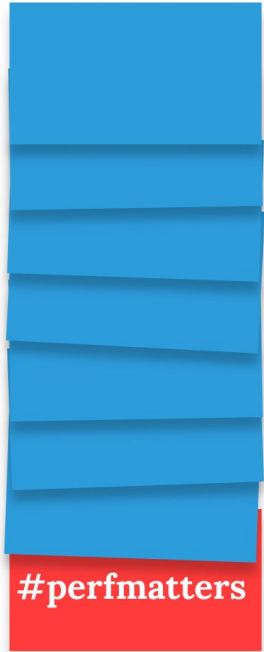
Not a talk about
why web performance
is important

But a talk about **culture**

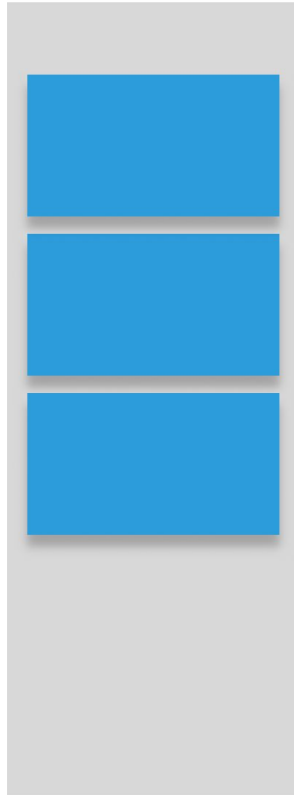
Who are we?

Meanwhile in our teams...

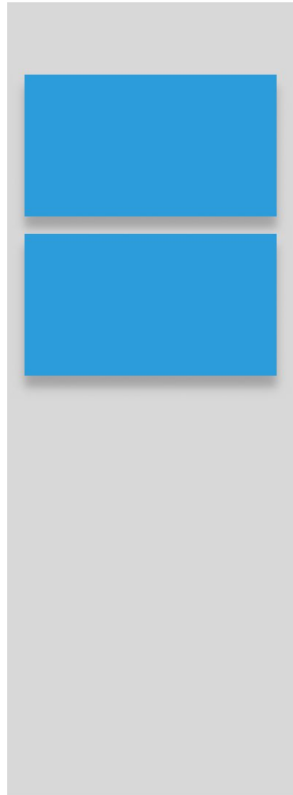
Backlog



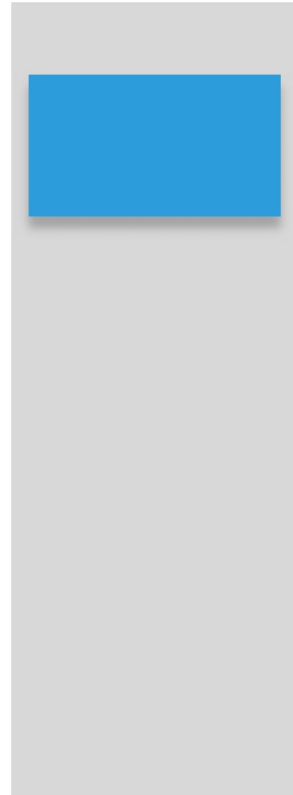
To Do



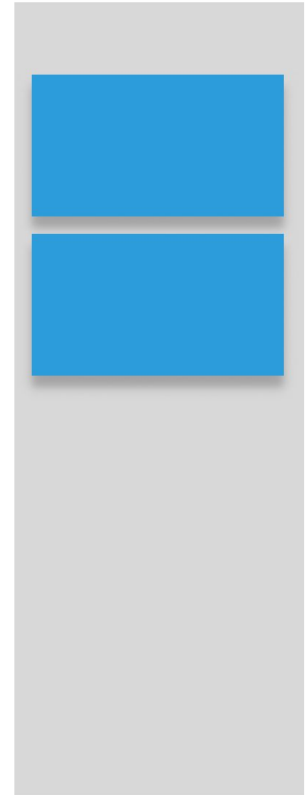
In Progress



Testing



Done



Trade-offs

We don't have time for everything

Features

Marketing Campaigns

CI/CD

Security

Test

UX

UI

A11y

Performance

Better **done** than perfect



performance

**6 steps to start a
web performance culture**



1

Your dev environment !=
your user's environment



**“World-Wide Web,
not Wealthy Western Web”**

Bruce Lawson - Fronteers 2016



Device?





Network?



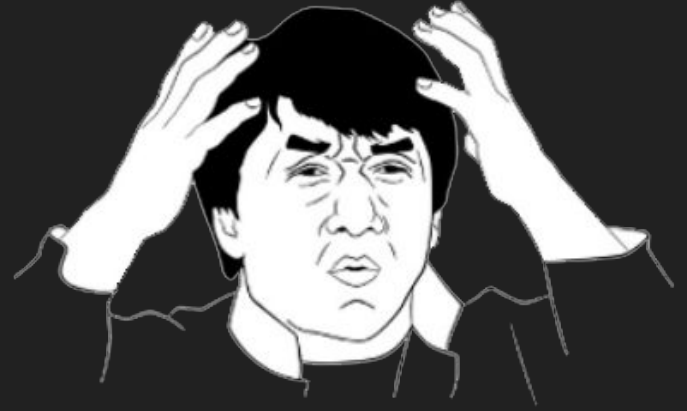
Browser?

Deprecating browsers



Do they use  because the site is unusable on other browsers?

Optimization
can lead to
higher page load time
(and it's alright!)





Dan Luu's "Web Bloat"

Gather devices
(by market share)



Deliver a good
experience on
those



Deprecate when
needed

Powerful devices get a good experience automatically. Profit.

2

tech stack
Know the ~~library~~



“if all you have is a **hammer**,
everything looks like a **nail**”

A group of people are gathered around a table in a meeting. One person is pointing at a laptop screen, while another is holding a pen over a document. The scene is dimly lit, with the text overlaid in white.

**Challenge your company
(or someone else will do)**



Tech *changes*

DAYS WITHOUT
NEW JAVASCRIPT
FRAMEWORK

React

3

Experiment and validate

**“ That new
<library/browser API/shiny
thing> sounds cool**

”

“ ~~That new~~
~~<library/browser API/shiny~~
~~thing> sounds cool~~

”

**“ This is how
<library/browser API/shiny
thing> will improve our
project**

”

WPO stats



Case studies and experiments demonstrating the impact of web performance optimization (WPO) on user experience and business metrics.



Rebuilding Pinterest pages for performance resulted in a 40% decrease in wait time, a 15% increase in SEO traffic and a 15% increase in conversion rate to signup.

PERMALINK

[#conversion](#) [#seo](#) [#2017](#)



Tests of the new, faster FT.com showed users were up to 30% more engaged—meaning more visits and more content being consumed.

PERMALINK

[#publishing](#) [#engagement](#) [#page views](#) [#2016](#)



BBC has seen that they lose an additional 10% of users for every additional second it takes for their site to load

PERMALINK

[#abandonment](#) [#2017](#)



Ancestry.com saw a 7% increase in conversions after

Filter by tag:

[#2006](#) [#2008](#) [#2009](#)

[#2010](#) [#2011](#) [#2012](#)

[#2013](#) [#2014](#) [#2015](#)

[#2016](#) [#2017](#)

[#abandonment](#) [#ads](#)

[#bounce rate](#) [#conversion](#)

[#conversions](#) [#engagement](#)

[#expense](#) [#impressions](#)

[#orders](#) [#page views](#)

[#publishing](#) [#reach](#)

[#revenue](#) [#satisfaction](#)

[#search](#) [#seo](#) [#sessions](#)

[#traffic](#) [#viewability](#)

Subscribe



4

Share and celebrate
success stories

4

Share and celebrate
~~success~~ stories

Web Performance Culture and Tools at Etsy

Mike Brittain
Dir. of Engineering, Infrastructure
Etsy

Boston Web Performance Meetup
Aug 24, 2011

Posts in category performance

Posted by **Allison McKnight, Kristyn Reith** and **Natalya Hoota** on April 28, 2016

Q1 2016 Site Performance Report

Posted by **Kristyn Reith** on February 12, 2016

Q4 2015 Site Performance Report

Posted by **Mike Adler** on November 10, 2015

Q3 2015 Site Performance Report

Posted by **Kristyn Reith** on July 13, 2015

Q2 2015 Site Performance Report

Posted by **Kristyn Reith** on March 30, 2015

Q1 2015 Site Performance Report

Posted by **Allison McKnight** and **Natalya Hoota** on February 9, 2015

Q4 2014 Site performance report

Posted by **Allison McKnight, Lara Hogan** and **Natalya Hoota** on December 22, 2014

Q3 2014 Site Performance Report

Posted by **Lara Hogan** on December 11, 2014

Make Performance Part of Your Workflow

Posted by **Lara Hogan** on August 1, 2014

Q2 2014 Site Performance Report

Posted by **Lara Hogan** on May 15, 2014

Q1 2014 Site Performance Report

Chris Fairbanks, Performance Hero

Chris optimized the mobile purchases page for great justice



Vox Media

“Declaring performance bankruptcy” May 2015

ALL SITES AND ALL TEMPLATES IN ALL BROWERS IN ALL REGIONS LAST 30 DAYS ▼

MEDIAN

BACKEND | START RENDER | PAGE LOAD | FULLY LOADED | SPEEDINDEX | PAGESPEED

Guardian
Beta

1.1s

#3

Huffington

2s

#5 - 82%

slower

Mashable

1.5s

#4 - 36%

slower

NY Times

2.6s

#7 - 136%

slower

Readwrite

0.8s

#1 - 27%

faster

Smashing

0.9s

#2 - 18%

faster

TechCrunch

2.5s

#6 - 127%

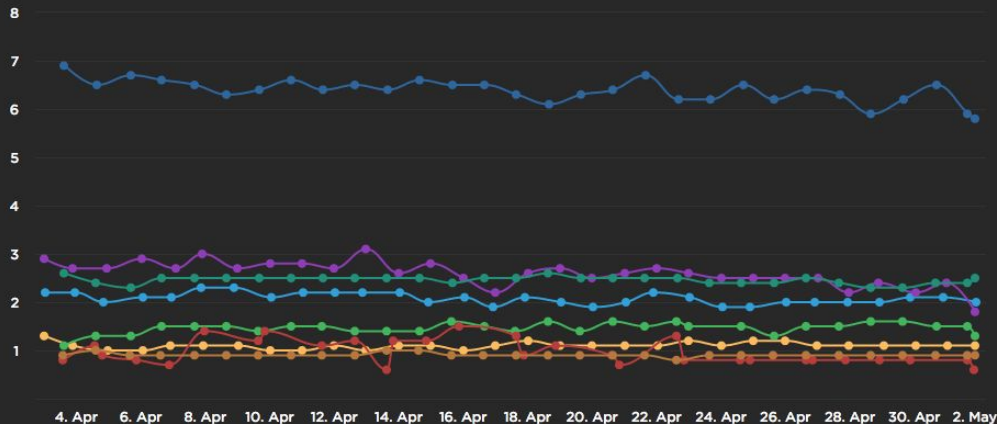
slower

The Verge

6.4s

#8 - 482%

slower



Performance Update #4: So much to do, so much to see

A recap of our work in the past year.

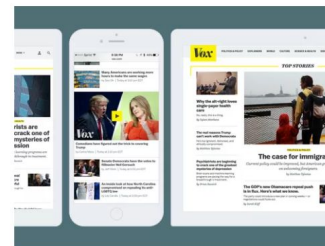
BY GUILLERMO ESTEVES | FEB 13, 2017, 10:30AM EST

TWEET

SHARE



TRENDING



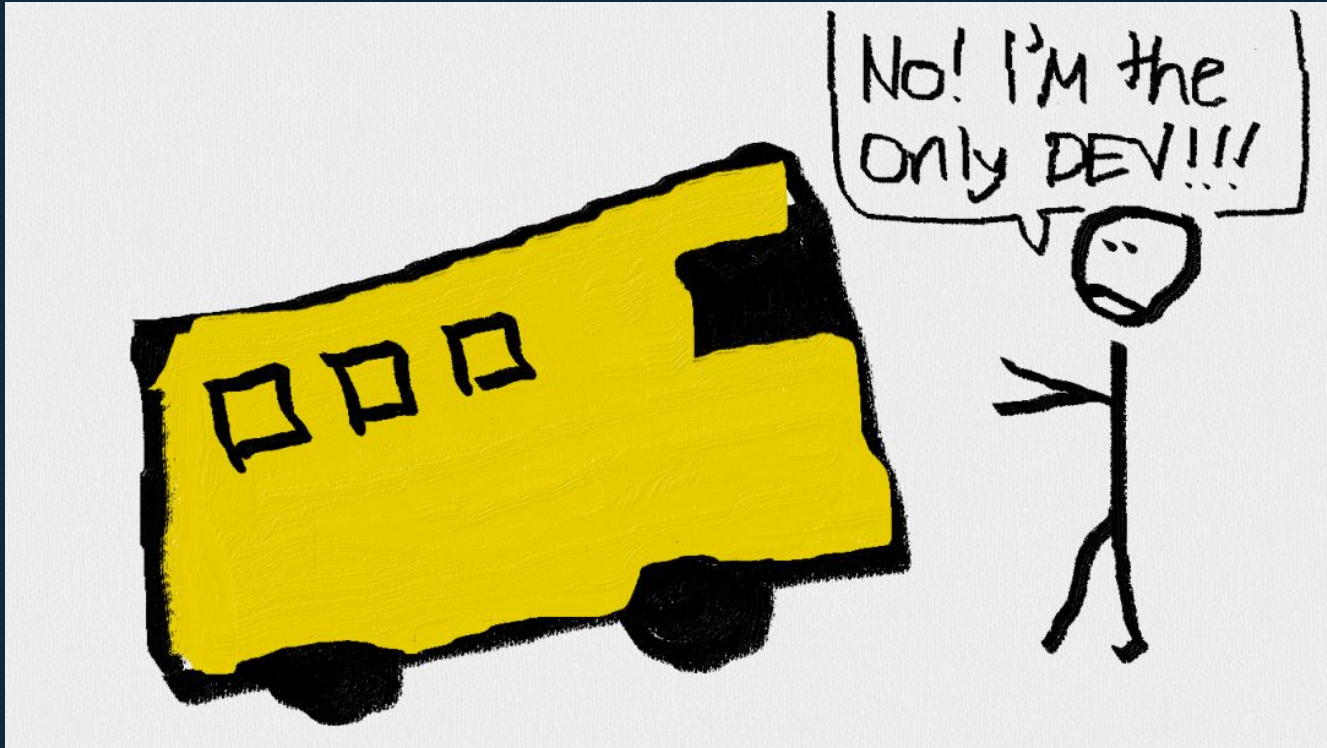
Behind Vox.com's homepage refresh

MORE TRENDING

5

Educate your colleagues

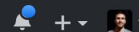
The Bus Factor





Search or jump to...

Pull requests Issues Apps Explore



Organization / great-app

Unwatch 21 Unstar 553 Fork 83

Code Issues 3 Pull requests 0 Projects 0 Wiki Insights Settings

Removing code that nobody understands #92

Edit

Merged JMPerez merged 1 commit into master from cleaning-up on 17 Apr

Conversation 1 Commits 1 Checks 0 Files changed 2 +2156 -18



JMPerez commented on 17 Apr

Owner + 🗑️ ✎️

John left the company several months ago and he was the one writing this code. Nobody in the team know what this is about, so we will remove it. If needed we can implement something similar using <some library>.

Reviewers

No reviews

Assignees

No one—assign yourself

Removing code that nobody understands

0be9309



coveralls commented on 17 Apr

+ 🗑️ ...

coverage 98%

Coverage remained the same at 98.361% when pulling 0be9309 on cleaning-up into 02e280a on master.

Labels

None yet

Projects

None yet

Milestone

6

Make performance part of
your workflow

WebPagetest

[Login](#) | [Register](#) | [Login with Google](#)



[HOME](#) [TEST HISTORY](#) [FORUMS](#) [DOCUMENTATION](#) [ABOUT](#)

Test a website's performance

[Advanced Testing](#) [Simple Testing](#) [Visual Comparison](#) [Traceroute](#)

Enter a Website URL

START TEST

Provided by

Test Location [Select from Map](#)

Browser

Advanced Settings ▾

Test Settings [Advanced](#) [Chrome](#) [Auth](#) [Script](#) [Block](#) [SPOF](#) [Custom](#)

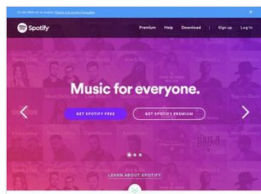
Connection

Number of Tests to Run
Up to 9

Repeat View First View and Repeat View First View Only

Capture Video

GTmetrix



Latest Performance Report for:

<http://spotify.com/>

Report generated: Thu, Apr 13, 2017, 4:47 AM -0700 (monitored job)

Test Server Region: 🇨🇦 Vancouver, Canada

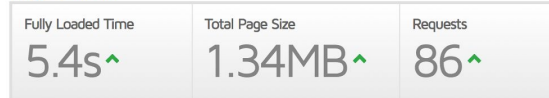
Using: 🦊 Firefox (Desktop) 49.0.2, PageSpeed 1.15-gt1, YSlow 3.1.8

🌐 Looks like you might not be using a CDN
[Why should I use a CDN? >](#)

Performance Scores



Page Details



- Re-Test
- Compare
- Page Settings
- Monitor
- Set Up Alerts
- Download PDF

Share This Report



- PageSpeed
- YSlow
- Waterfall
- Timings
- Video
- History

RECOMMENDATION	GRADE	TYPE	PRIORITY
▼ Serve scaled images	F (0)	IMAGES	HIGH
▼ Minimize redirects	F (25)	CONTENT	HIGH
▼ Leverage browser caching	F (45)	SERVER	HIGH
▼ Enable gzip compression	D (65)	SERVER	HIGH
▼ Serve resources from a consistent URL	C (71)	CONTENT	HIGH
▼ Avoid landing page redirects	C (75)	SERVER	HIGH
▼ Defer parsing of JavaScript	A (91)	JS	HIGH
▼ Inline small JavaScript	A (92)	JS	HIGH
▼ Specify a cache validator	A (92)	SERVER	HIGH

What do my scores mean?

Rules are sorted in order of impact upon score
Optimizing rules at the top of the list can greatly improve your overall score.

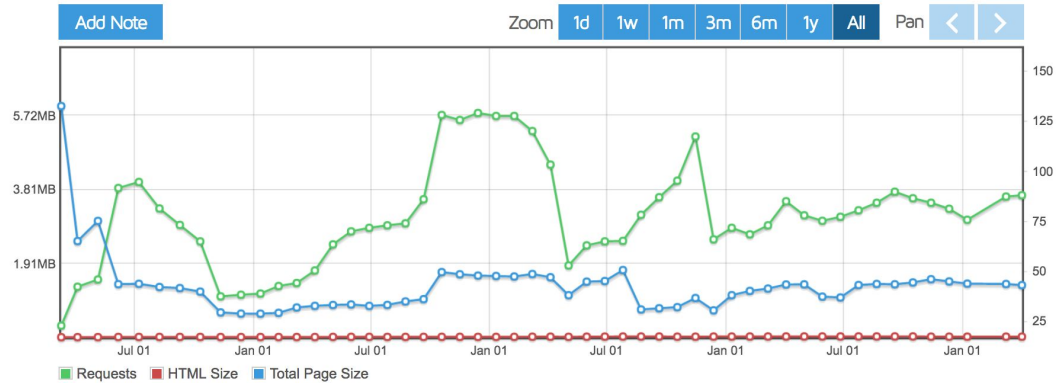
Not every recommendation will apply to your page
The recommendations are meant to be generic, best practices; some things will be out of your control (eg. external resources) or may not apply to your page.

Need optimization help?

[GT.net](#) ☑ can handle all of your speed

GTmetrix

Page sizes and request counts

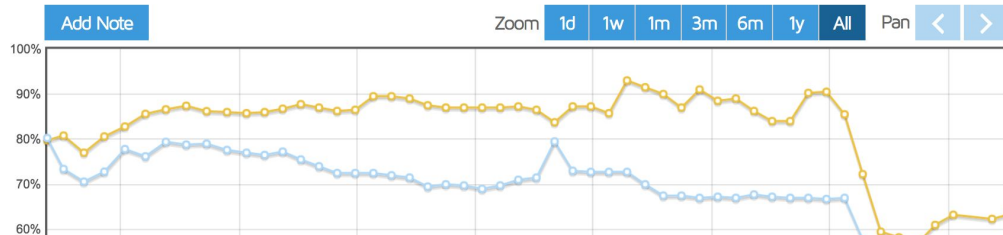


- [Re-Test](#)
- [Compare](#)
- [Page Settings](#)
- [Monitor](#)
- [Set Up Alerts](#)
- [Download PDF](#)

Share This Report



PageSpeed and YSlow Scores



Calibre

Shopfront App

Pulse

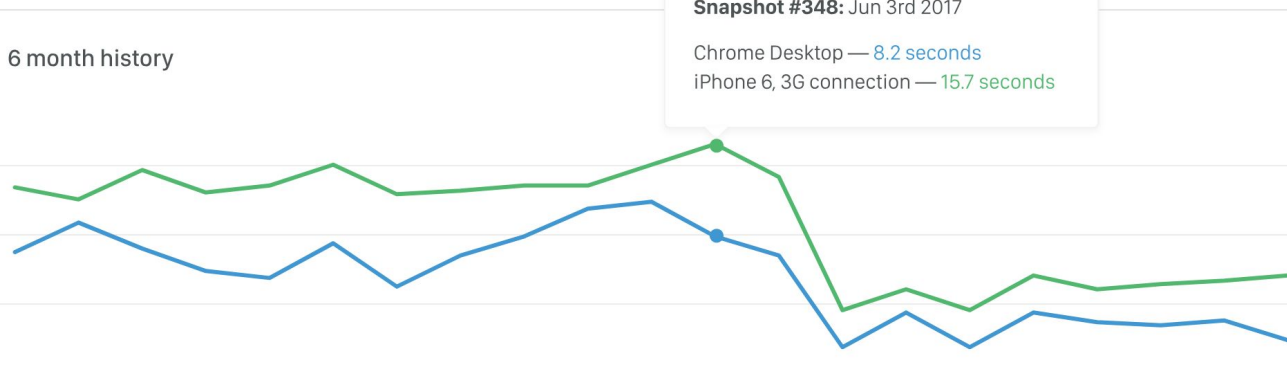
Snapshots

Alerts

Settings

Pulse > Time to Interactive ▾ Home ▾

6 month history



Trends

Chrome Desktop

12.1 s ↑ +78%

6 month average

11.6 s ↑ -74%

3 month average

7.8 s ↑ -38%

1 month average

5.3 s

This week

Calibre (Slack integration)




Calibre APP 5:32 PM

The Verge: Budget alert for snapshot #481

✖ The Visually complete budget has been exceeded on the Home page

Test profile

 iPhone 6, 3G connection

Budgeted

10.73s

(959KB) ▾

Observed

13.86s

Waiting for server response...

0.03

Wrap-up

Dev env != user's env

Share and celebrate

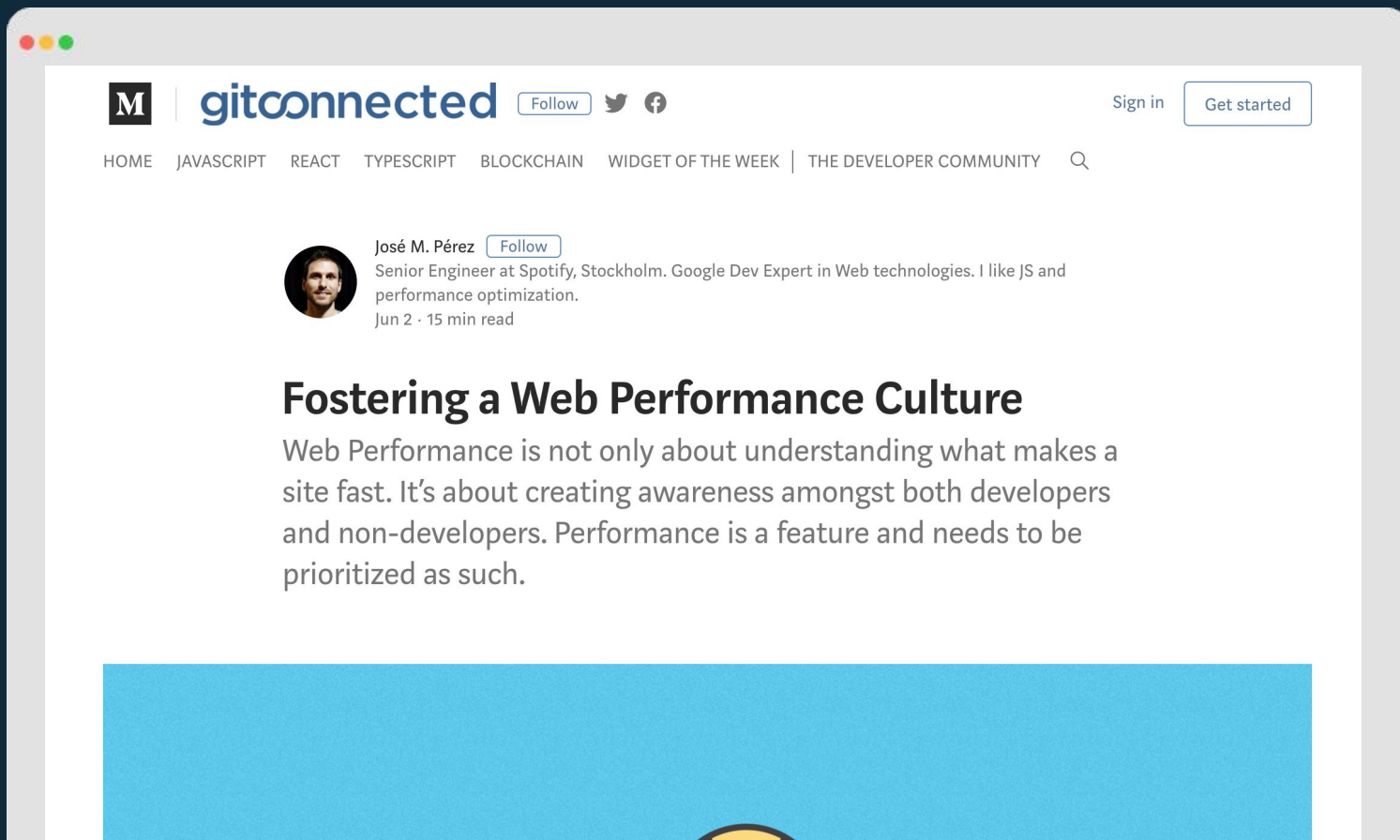
Know the tech stack



Educate your colleagues

Experiment and validate


Performance part of your
workflow


Article on bit.do/perf-culture



M | **gitconnected** [Follow](#)  

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 **José M. Pérez** [Follow](#)
Senior Engineer at Spotify, Stockholm. Google Dev Expert in Web technologies. I like JS and performance optimization.
Jun 2 · 15 min read

Fostering a Web Performance Culture

Web Performance is not only about understanding what makes a site fast. It's about creating awareness amongst both developers and non-developers. Performance is a feature and needs to be prioritized as such.

thanks!

@jmperezperez

Article on <https://bit.do/perf-culture>