

The background of the slide is a photograph of a sunset over the ocean. A bright sun is in the upper left, casting a golden glow. In the foreground, a speedboat is moving across the water, leaving a white wake. In the distance, a silhouette of a castle or fortress sits atop a hill. The overall color palette is warm, with oranges, yellows, and dark blues.

Making WordPress fast(er)

WordPress Meetup Sliema
28 March 2018

Walter Ebert
@walterebert

<https://www.flickr.com/photos/alexfrance/4906060606/>



Walter Ebert

@walterebert

walterebert.com

slideshare.net/walterebert

Why does fast matter?

53% of visits to mobile sites are abandoned after **3 seconds** according to research from Google's DoubleClick.

Mozilla cut load time by **2.2 seconds** and saw
download conversions increase by **15.4%**

<https://wpostats.com/2015/10/29/mozilla-2point2.html>

Furniture retailer Zitmaxx Wonen reduced their typical load time to **3 seconds** and saw conversion jump **50.2%**. Overall revenue from the mobile site also increased by **98.7%**.



March 2011 0.8 MB

March 2018 3.7 MB

A bandwidth increase of **333%** makes a page **12%** faster.

A **1330%** increase gives a **32%** improvement.

Google Webmaster Central Blog

Official news on crawling and indexing sites for the Google index

Using site speed in web search ranking

Friday, April 09, 2010

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 including a new signal in our search ranking algorithms: site speed. Site speed reflects how quickly a website responds to web requests.

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



Hey! [Check here if your site is mobile-friendly.](#)

🔍 Search blog ...

🏷 Labels

📁 Archive

📡 Feed

Google on 

 Google Webmasters

Google Webmaster Central Blog

Official news on crawling and indexing sites for the Google index

Using page speed in mobile search ranking

Wednesday, January 17, 2018

People want to be able to find answers to their questions as fast as possible — [studies](#) show that people really care about the speed of a page. Although speed has been used in ranking for some time, that [signal](#) was focused on desktop searches. Today we're announcing that starting in [July 2018](#), page speed will be a ranking factor for mobile searches.

The "Speed Update," as we're calling it, will only affect pages that deliver the slowest experience to users and will only affect a small percentage of queries. It applies the same standard to all pages, regardless of the technology used to build the page. The intent of the search query is still a very strong signal, so a slow page may still rank highly if it has great, relevant content.



Hey! [Check here](#) if your site is mobile-friendly.

Search blog ...

Labels

Archive

Feed

Google on

What is fast enough?

What is fast enough?

Faster than the competition

Performance Budget

For example:

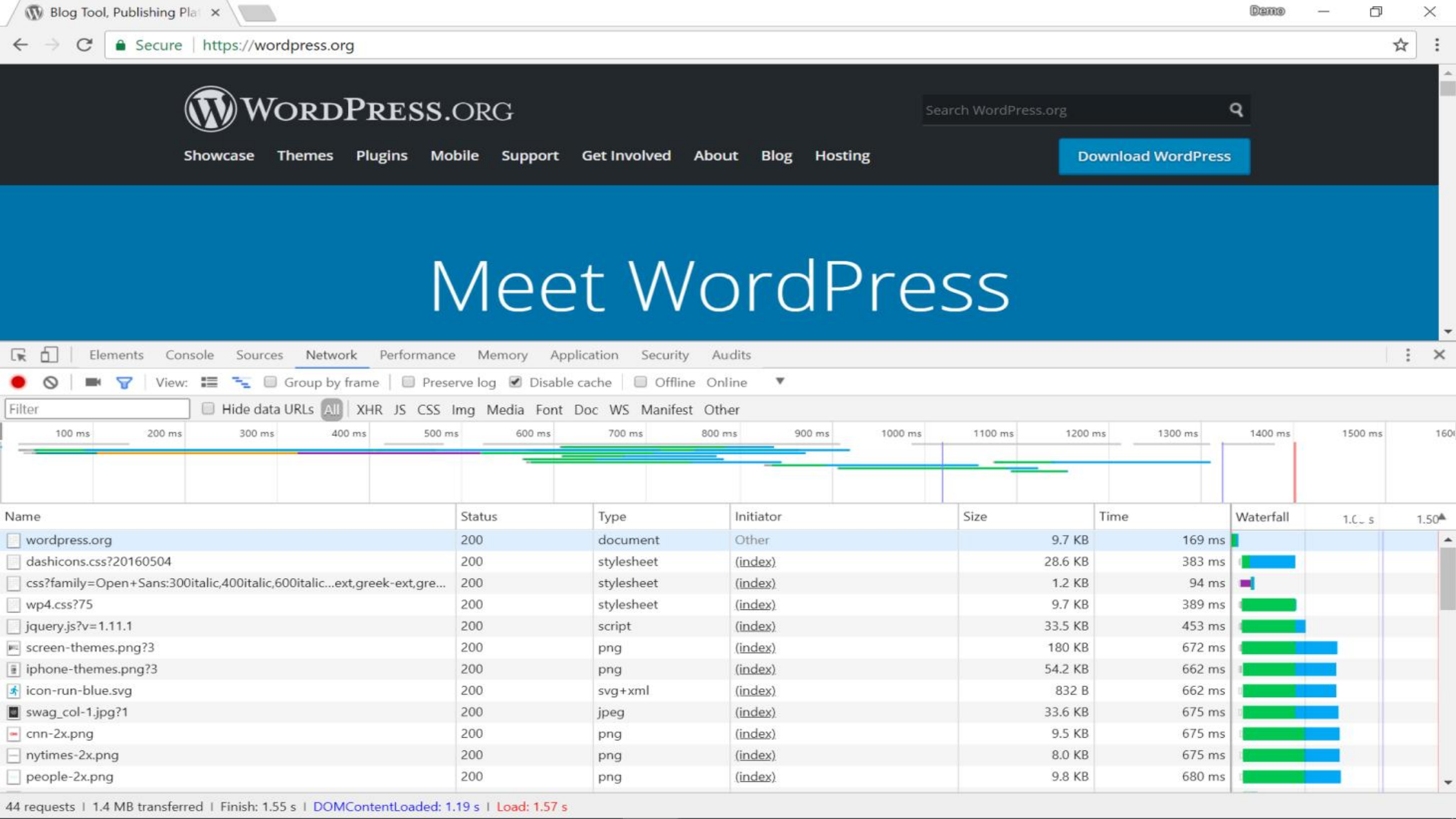
- Page weight under 1 MB
- Total load time under 3 seconds
- Server response time under 0.5 seconds
- Speed Index under 2000
- ...

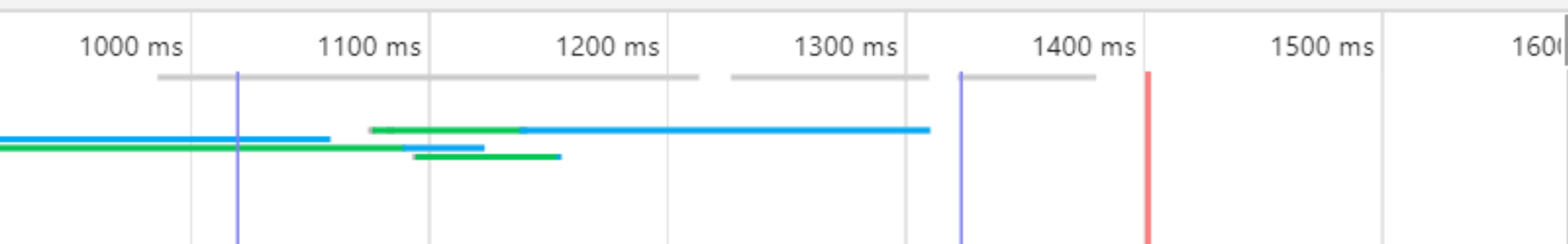
<http://timkadlec.com/2014/11/performance-budget-metrics/>

<http://cognition.happycog.com/article/designing-with-a-performance-budget>

<https://www.youtube.com/watch?list=PLYo5nh8xQFpkwsu9QN1CpPGkmCCuTTWDJ&v=yqejmZrtmNg>







	Size	Time	Waterfall	1.0 s	1.50
	9.7 KB	169 ms			
	28.6 KB	383 ms			
	1.2 KB	94 ms			
	9.7 KB	389 ms			
	33.5 KB	453 ms			
	180 KB	672 ms			
	54.2 KB	662 ms			
	832 B	662 ms			
	33.6 KB	675			

Name	Status	Type
 wordpress.org	200	d
 dashicons.css?20160504	200	st
 css?family=Open+Sans:300italic,400italic,600italic...ext,greek-ext,gre...	200	st
 wp4.css?75	200	st
 jquery.js?v=1.11.1	200	sc
 screen-themes.png?3	200	p
 iphone-themes.png?3	200	p
 icon-run-blue.svg	200	sv
 swag_col-1.jpg?1	200	jp
 cnn-2x.png	200	p
 nytimes-2x.png	200	p
 people-2x.png	200	p

44 requests | 1.4 MB transferred | Finish: 1.55 s | **DOMContentLoaded: 1.19 s** | **Load: 1.57 s**



Filter ☐ Hide data URLs **All** XHR JS CSS Img Media Font Doc WS Manifest Other

1000 ms	2000 ms	3000 ms	4000 ms	5000 ms	6000 ms	7000 ms	8000 ms	9000 ms
---------	---------	---------	---------	---------	---------	---------	---------	---------

Name	Status	Type	Initiator	Size	Time	Waterfall	5.00 s	
------	--------	------	-----------	------	------	-----------	--------	--

File Name	Size	Content Type	Cache Status	Transfer Size	Transfer Time	Visual Size	Visual Time
wordpress.org	200	document	(Other)	9.7 KB	1.02 s		
dashicons.css?20160504	200	stylesheet	(index)	28.6 KB	1.65 s		
css?family=Open+Sans:300italic,...	200	stylesheet	(index)	1.2 KB	577 ms		
wp4.css?75	200	stylesheet	(index)	9.7 KB	1.11 s		
jquery.js?v=1.11.1	200	script	(index)	33.5 KB	1.78 s		
screen-themes.png?3	200	png	(index)	180 KB	5.04 s		
iphone-themes.png?3	200	png	(index)	54.2 KB	2.03 s		
icon-run-blue.svg	200	svg+xml	(index)	832 B	635 ms		
swag_col-1.jpg?1	200	jpeg	(index)	33.6 KB	1.80 s		
motleycruce-2x.png	200	png	(index)	6.7 KB	1000 ms		
nytimes-2x.png	200	png	(index)	8.0 KB	1.08 s		
marthastewart-2x.png	200	png	(index)	11.7 KB	1.20 s		
platform.js	200	script	(index)	17.1 KB	1.39 s		
gprofiles.js	200	script	(index)	6.8 KB	982 ms		
ga.js	200	script	(index):29	17.1 KB	766 ms		
follow_button.html?screen_name=...	200	document	(index)	20.4 KB	1.58 s		
like.php?app_id=1214151979261...	200	document	(index)	12.5 KB	1.47 s		
steps-2x.png	200	png	(index)	5.5 KB	888 ms		
community-2.jpg?3	200	jpeg	(index)	273 KB	5.78 s		
collage-min.jpg?3	200	jpeg	(index)	369 KB	6.31 s		
admin-bar-sprite.png?d=20120831	200	png	(index)	2.6 KB	735 ms		
data:application/fo...	200	font	(index)	0 B	68 ms		
wporg-logo.svg?3	200	svg+xml	(index)	2.5 KB	741 ms		
mem8YaGs126MiZpBA-UfVZ0bf8...	200	font	(index)	9.0 KB	1.21 s		
mem5YaGs126MiZpBA-UNirkOU...	200	font	(index)	8.8 KB	1.22 s		



es **Network** Performance Memory Application Security Audits



Group by frame | ☐ Preserve log ☒ Disable cache | ☐ Offline Fast 3G ▼

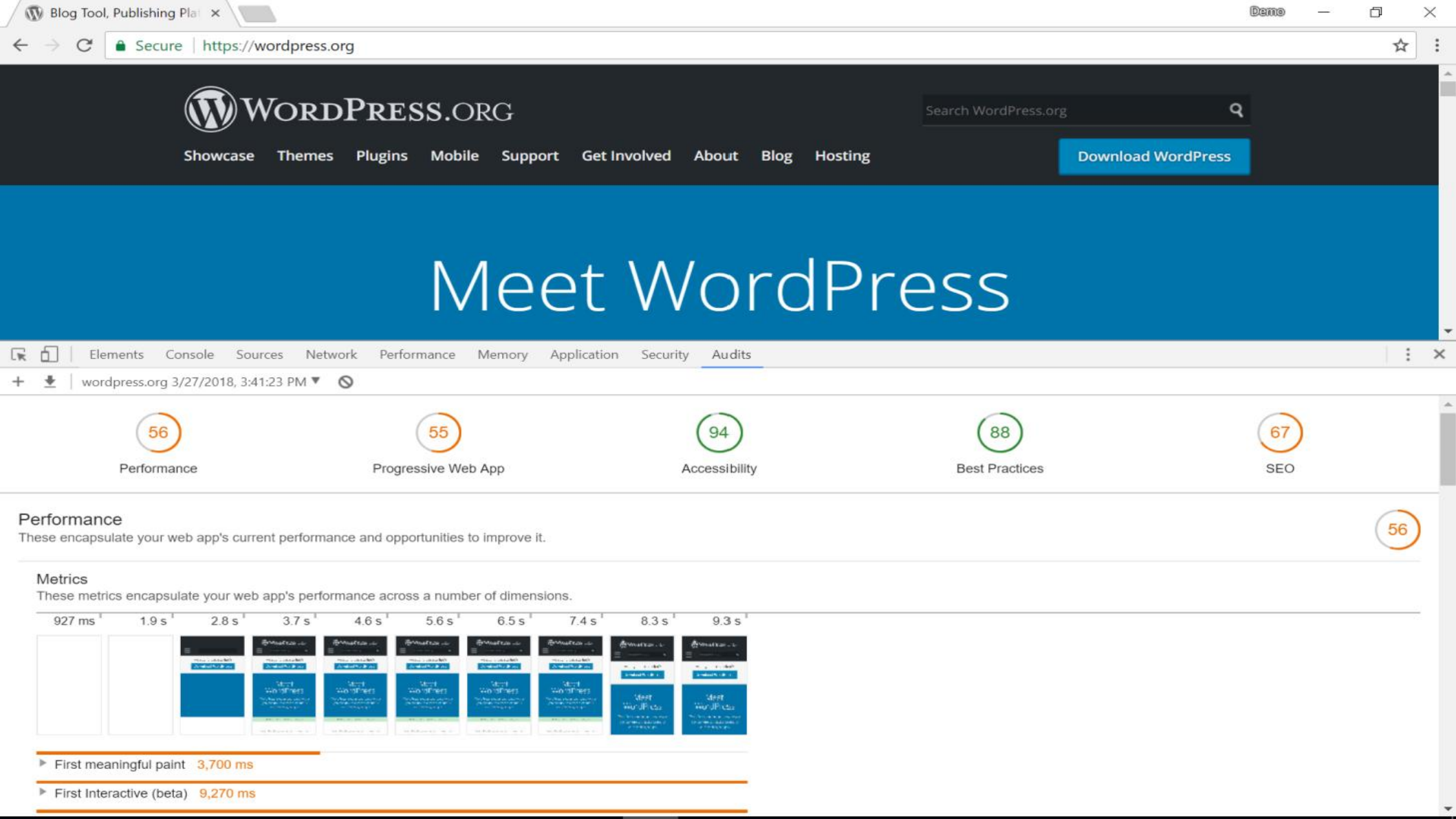
a URLs **All** | XHR JS CSS Img Media Font Doc WS Manifest Other

s 4000 ms 5000 ms 6000 ms 7000 ms 8000 ms 9000 ms



us Type Initiator Size Time Waterfall 5.00 s ▲

document	Other	9.7 KB	1.02 s	
stylesheet	(index)	28.6 KB	1.65 s	
stylesheet	(index)	1.2 KB	577 ms	
stylesheet	(index)	9.7 KB	1.11 s	



PageSpeed Insights

https://www.mercedes-benz.com/en/

ANALYZE



Mobile



Desktop

Speed

Slow

3s FCP 3.5s DCL

Optimization

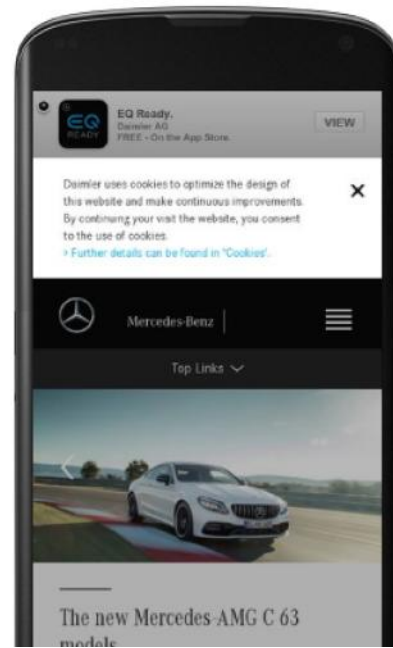
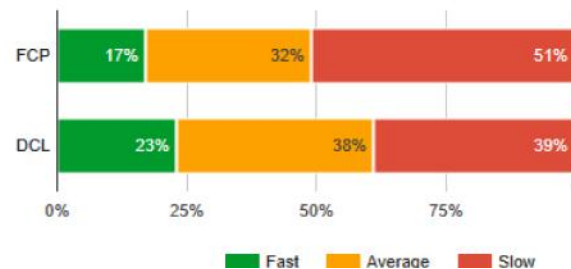
Medium

72 / 100

Data from the Chrome User Experience report indicates this page's median **FCP** (3s) and **DCL** (3.5s) ranks it in the bottom third of all pages.

This page has a medium level of optimization because some of its resources are render-blocking. [Learn more.](#)

Page Load Distributions



https://www.mercedes-benz...



12s



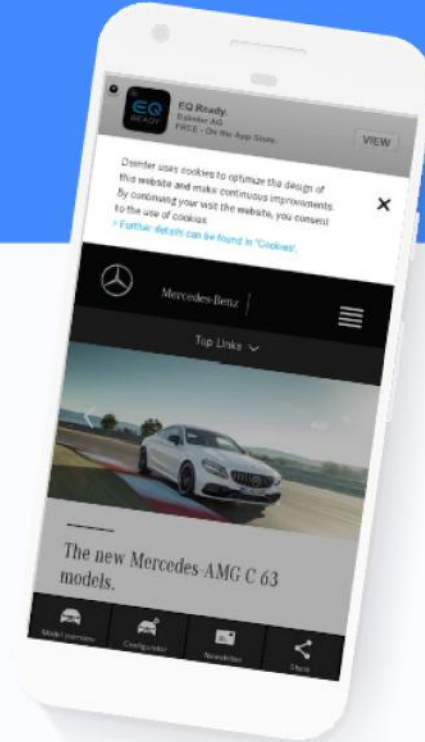
Loading time on 3G: **poor**

31%

Est. Visitor loss
(Due to loading time)

Find out how to speed up your site to keep more
visitors.

GET MY FREE REPORT



See how you
compare



Yellow Lab Tools

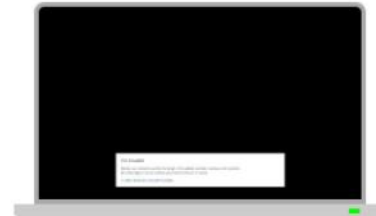
Tested url: <https://www.mercedes-benz.com/en/>



Global score



3/100



F

Page weight

●	Total weight	5.32 MB ▲▲
●	Image optimization	959 KB ▲▲
●	Gzip compression	3.5 KB
●	File minification	27.3 KB

D

Requests

●	Requests number	133
●	Different domains	32
●	404 not found	1 ▲
●	Identical content	0
●	Empty requests	0
●	Small requests	41
●	Below the fold images	3
●	Hidden images	0

B

DOM complexity

●	DOM elements count	1927
●	DOM max depth	13
●	Number of iframes	2
●	IDs duplicated	0

E

DOM manipulations

●	DOM access	1026
●	Queries without result	189
●	Duplicated DOM queries	323

F

Scroll bottlenecks

●	Scroll events bound	4
●	DOM access on scroll	52 ▲

B

Bad JavaScript

●	JavaScript errors	1
●	document.write calls	1
●	Synchronous Ajax requests	0
●	Console messages	0
●	Global variables	222

Quality and Performance report

<https://www.mercedes-benz.com/en/>

Report generated on Mar 27, 2018 10:27:22 PM

[Download report](#)


Ouch. Some serious work to be done

15

Issues

11

Improvements

69

Successes



[See your priorities](#) ▾

SIMULATED VISITOR:  Chrome  London  10.0/2.0Mbps (Latency: 28 ms) 

[Edit](#)

Requests



HTML CSS Scripts Images Others

Weight



First Byte



Start Render



Fully loaded



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

Web Page Performance Test for

<https://www.mercedes-benz.com/en/>

From: Dulles, VA - Chrome - Cable
27/03/2018, 22:31:32

[Need help improving?](#)


First Byte
Time



Keep-alive
Enabled



Compress
Transfer



Compress
Images



Cache
static
content



Effective
use of CDN

[Summary](#)
[Details](#)
[Performance Review](#)
[Content Breakdown](#)
[Domains](#)
[Screen Shot](#)
[Image Analysis](#)

Tester: VM3-08-192.168.11.116

First View only

Test runs: 3

[Re-run the test](#)

[Raw page data - Raw object data](#)
[Export HTTP Archive \(.har\)](#)
[View Test Log](#)

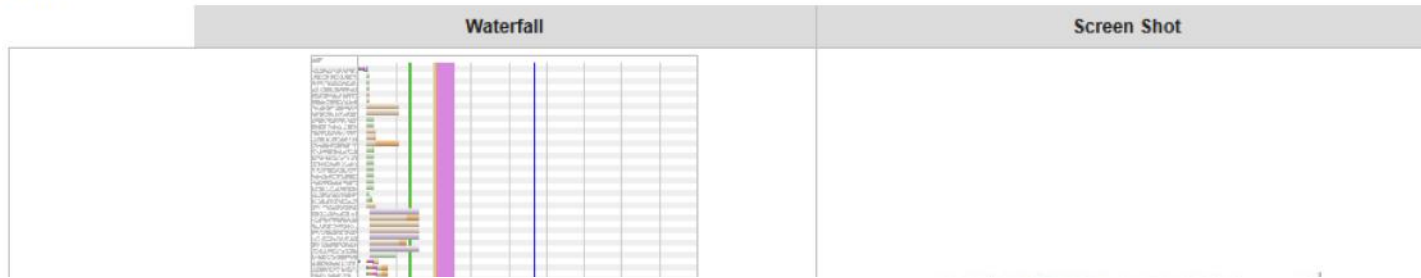
Performance Results (Median Run)

	Load Time	First Byte	Start Render	User Time	Speed Index	Document Complete			Fully Loaded			
						Time	Requests	Bytes In	Time	Requests	Bytes In	Cost
First View (Run 1)	4.658s	0.165s	1.400s	3.807s	5179	4.658s	89	2,316 KB	8.773s	102	2,708 KB	\$\$\$\$\$

[Plot Full Results](#)

Test Results

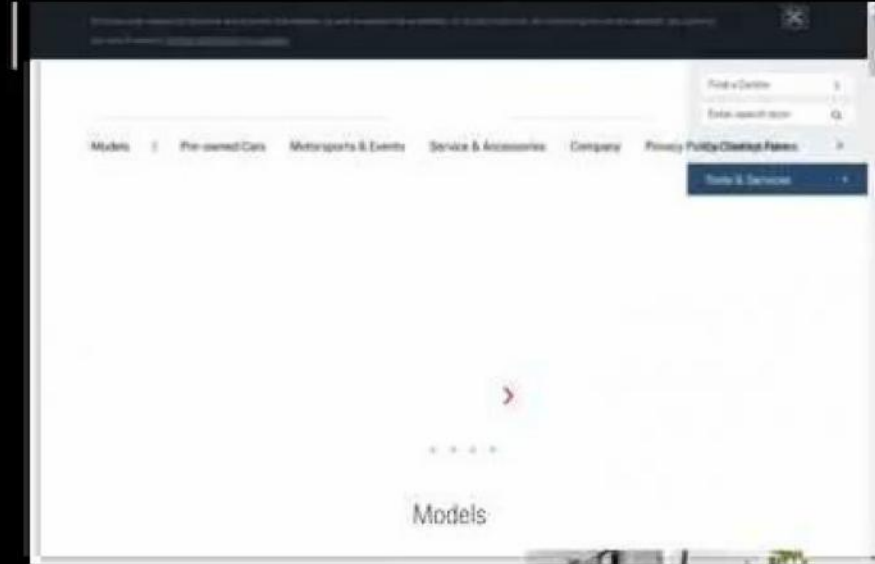
Run 1:



Mercedes Benz

3.0

Porsche



3.0

Mercedes-Benz International: News, Pictures, Videos & Livestreams.

388 KB

3,761

Rules

6,505

Selectors

7,090

Declarations

156

Properties

Total Declarations

Font Size

199

Float

109

Width

420

Height

246

Color

425

Background Color

249

58 Unique Colors

Aa

#161616

Aa

#00adef

Aa

#666

Aa

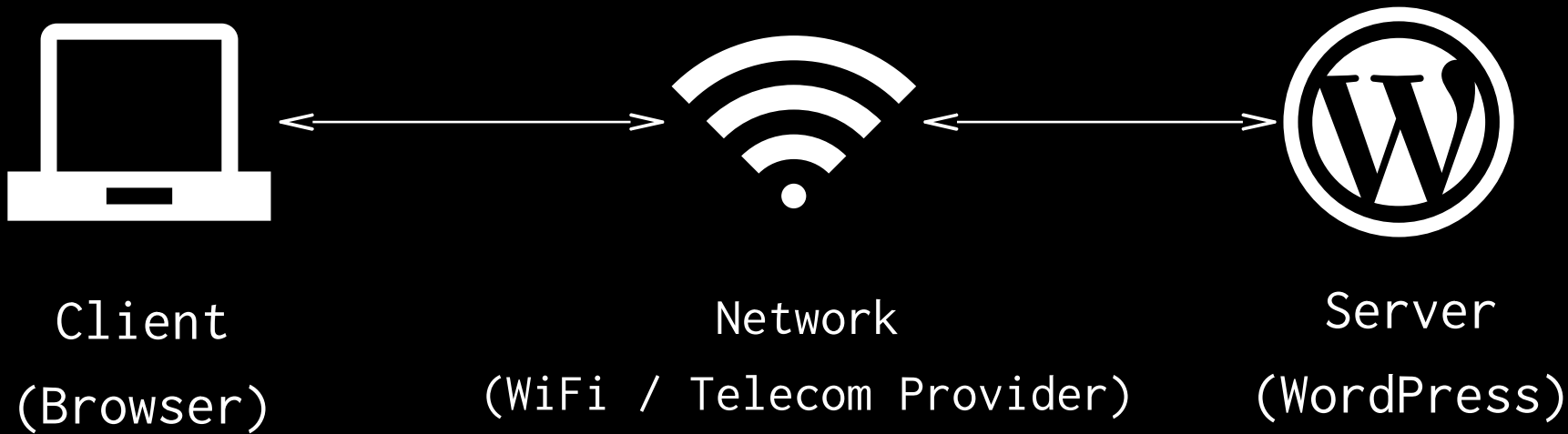
#fff

Aa

#333

Aa

#003366





HTML, CSS, JavaScript,
images, videos
(send to the browser)

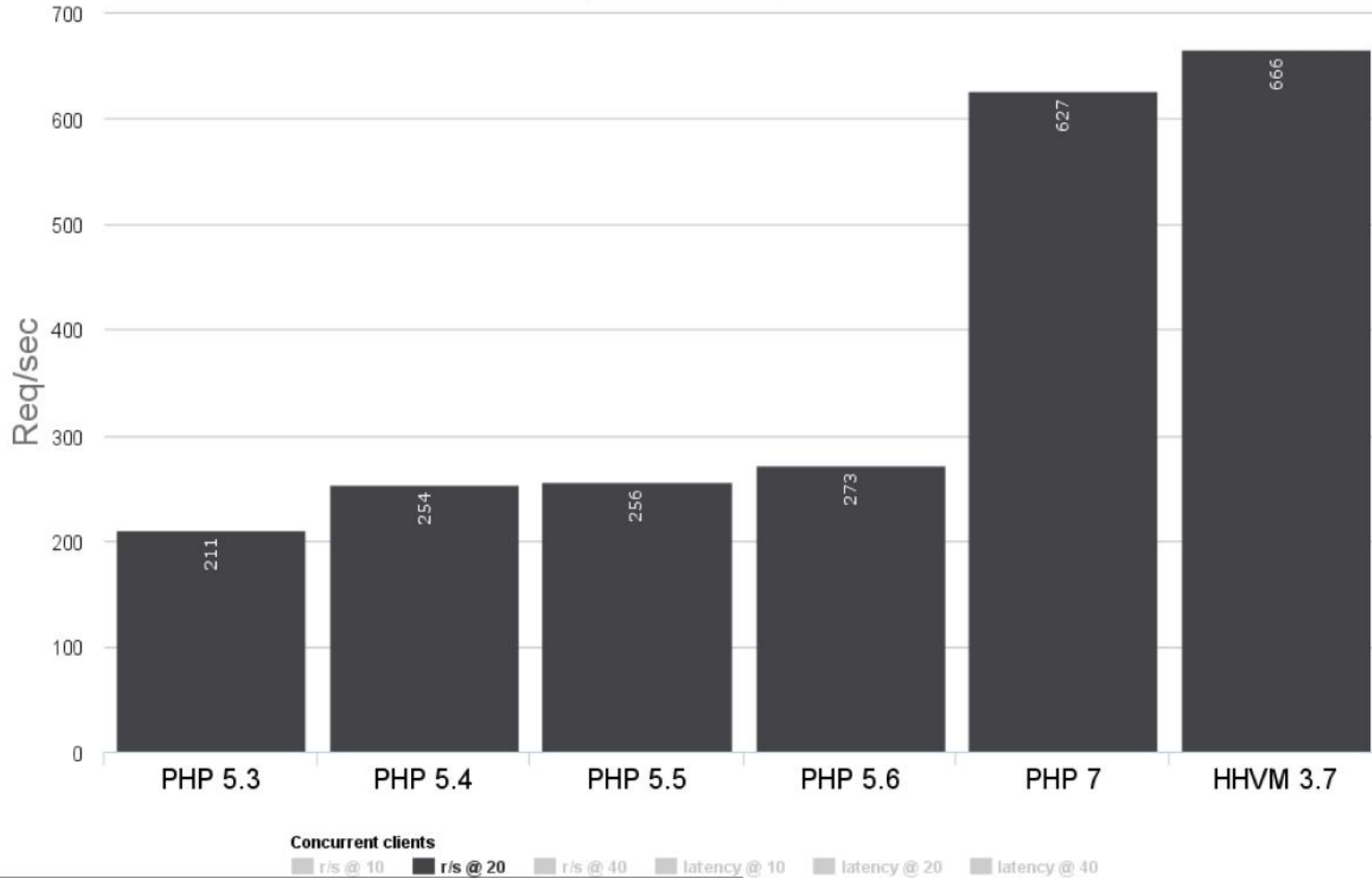
PHP + MySQL
(runs on the server)



Server
(WordPress)

Wordpress-4.1.1

<http://wordpress/?p=1>



Full page caching

Comet Cache <https://wordpress.org/plugins/comet-cache/>

Cachify <https://wordpress.org/plugins/cachify/>

WP Super Cache <https://wordpress.org/plugins/wp-super-cache/>

WP Rocket (Paid) <https://wp-rocket.me/>

Object Cache



Batcache (Memcached)

<https://wordpress.org/plugins/batcache/>

Cachify (Memcached)

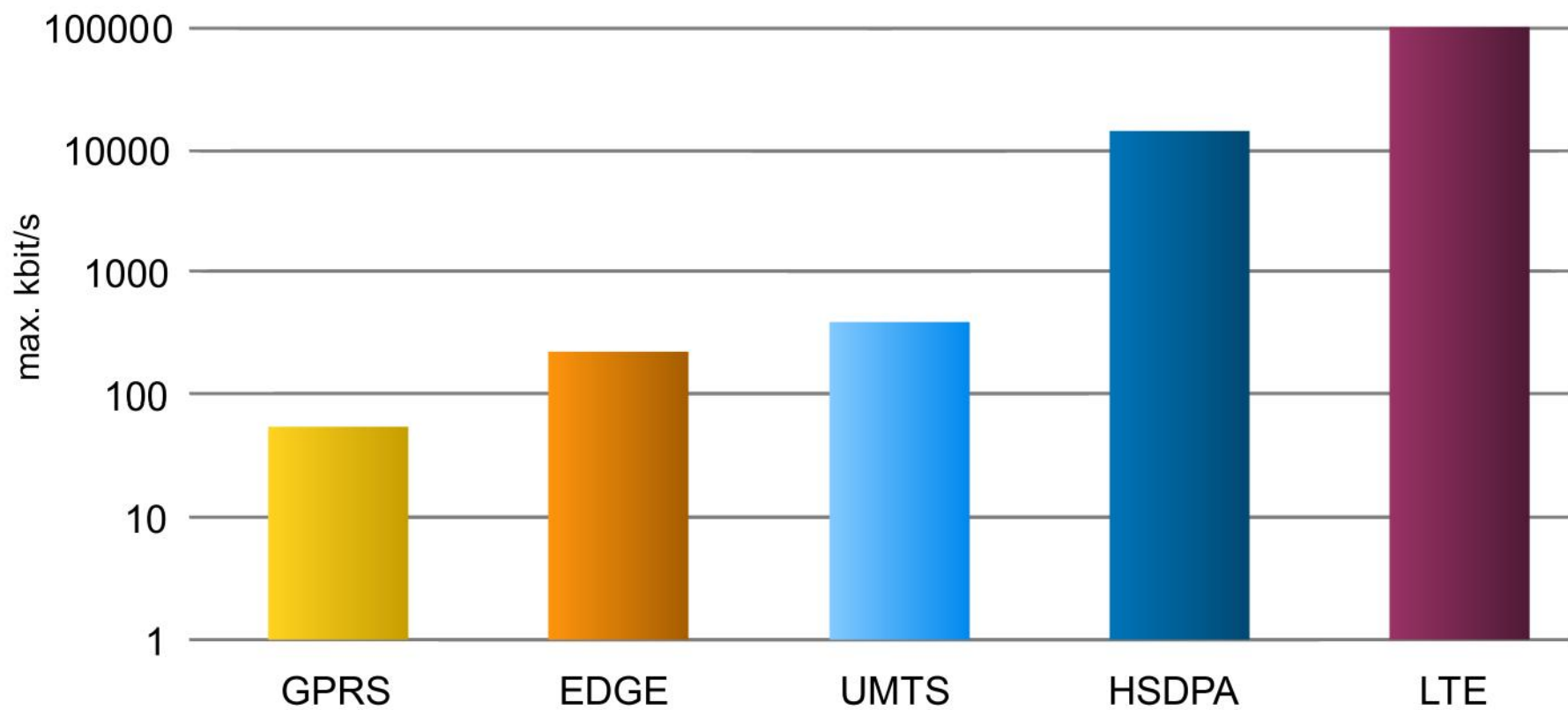
<https://wordpress.org/plugins/cachify/>

WP Redis (Redis)

<https://wordpress.org/plugins/wp-redis/>



Network
(WiFi / Telecom Provider)



Less is more

Images



6000x4000 (original) 11.1 MB

6000x4000 (optimised) 9.2 MB

1920x1280 1.3 MB

1024x683 0.4 MB

Dashboard

Posts

Media

Pages

Comments

Appearance

Plugins

Users

Tools

Settings

General

Writing

Reading

Discussion

Media

Permalinks

Collapse menu

Media Settings

Image sizes

The sizes listed below determine the maximum dimensions in pixels to use when adding an image to the Media Library.

Thumbnail size

Width Height ☒ Crop thumbnail to exact dimensions (normally thumbnails are proportional)

Medium size

Max Width Max Height

Large size

Max Width Max Height

Uploading Files

☒ Organise my uploads into month- and year-based foldersSave Changes

Desktop Image Optimisers

ImageOptim (Mac)

<https://imageoptim.com/mac>

FileOptimizer (Windows)

<https://sourceforge.net/projects/nikkhokkho/>

Trimage (Linux)

<https://trimage.org/>

Image Plugins

Imsanity

<https://wordpress.org/plugins/imsanity/>

EWWW

<https://wordpress.org/plugins/ewww-image-optimizer/>

Image Cloud Services

Optimus <https://wordpress.org/plugins/optimus/>

Kraken <https://wordpress.org/plugins/kraken-image-optimizer/>

TinyPNG <https://wordpress.org/plugins/tiny-compress-images/>

Imagify <https://wordpress.org/plugins/imagify/>

Animated GIF



GIF = 4,3 MB
MP4 = 143 kB

```
ffmpeg -i video.gif -c:v libx264 -an -movflags faststart \  
-pix_fmt yuv420p -s 544x292 video.mp4
```

<https://www.washingtonpost.com/news/the-switch/wp/2015/08/06/tesla-unveils-weird-new-car-charging-robo-snake/>

HTTP/1.1

Up to 6 parallel downloads

HTTP/2

“Unlimited” parallel downloads

Lazy load images

BJ Lazy Load

<https://wordpress.org/plugins/bj-lazy-load/>

Crazy Lazy

<https://wordpress.org/plugins/crazy-lazy/>

Concatenate + Minify CSS/JS

Autoptimize

<https://wordpress.org/plugins/autoptimize/>

WP Rocket (Paid)

<https://wp-rocket.me/>

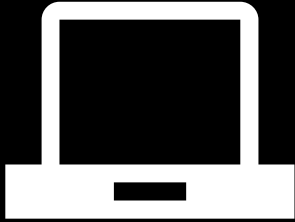
Compress text output in .htaccess

```
<IfModule mod_deflate.c>
AddOutputFilterByType DEFLATE text/plain
AddOutputFilterByType DEFLATE text/javascript
AddOutputFilterByType DEFLATE text/html
AddOutputFilterByType DEFLATE text/xml
AddOutputFilterByType DEFLATE text/css
AddOutputFilterByType DEFLATE text/vtt
AddOutputFilterByType DEFLATE text/x-component
AddOutputFilterByType DEFLATE application/xml
...
```

<https://gist.github.com/Zodiac1978/3145830>

Re-use network connection in .htaccess

```
<IfModule mod_headers.c>  
Header set Connection keep-alive  
</IfModule>
```

Client
(Browser)

On the **high-end** iPhone 8 it takes just **~4s** to parse/compile CNN's JS compared to **~13s** for an **average phone** (Moto G4)

Set browser cache in .htaccess

```
<IfModule mod_expires.c>
ExpiresActive On
ExpiresDefault "access plus 1 week"
ExpiresByType text/html "access plus 1 minute"
ExpiresByType application/json "access plus 0 seconds"
ExpiresByType application/ld+json "access plus 0 seconds"
ExpiresByType application/xml "access plus 0 seconds"
ExpiresByType text/xml "access plus 0 seconds"
ExpiresByType application/x-web-app-manifest+json "access plus 0 seconds"
ExpiresByType text/cache-manifest "access plus 0 seconds"
</IfModule>
```

No Etag when using expires in .htaccess

```
<IfModule mod_expires.c>  
  <IfModule mod_headers.c>  
    Header unset ETag  
  </IfModule>
```

```
FileETag None
```

```
</IfModule>
```

AMP

(Google) Accelerated Mobile Pages

<https://wordpress.org/plugins/amp/>

<http://ampletter.org/>

<https://glueckpress.com/9336/amp-and-wordpress/>



ABOUT THE AUTHOR

Vitaly Friedman loves beautiful content and doesn't like to give in easily. When he is not writing or speaking at a conference, he's most probably running ... [More about](#)

[Vitaly...](#)

JANUARY 3, 2018 • [18 COMMENTS](#)

Front-End Performance Checklist 2018 [PDF, Apple Pages]

[Performance](#) ⁷² # [Service Workers](#) ⁵ # [Checklists](#) ⁸



Performance matters

— we all know it.

However, do we actually always know what our performance bottlenecks

exactly are? Is it expensive JavaScript, slow web font delivery, heavy images, or sluggish rendering? Is it worth exploring tree-shaking, scope hoisting, code-splitting, and all the fancy loading patterns with intersection observer, clients hints, CSS containment, HTTP/2 and service workers? And, most importantly, **where do we even start improving performance** and how do we establish a performance culture long-term?



Members support
Smashing





Thanks! Questions?

@walterebert

walterebert.com

slideshare.net/walterebert