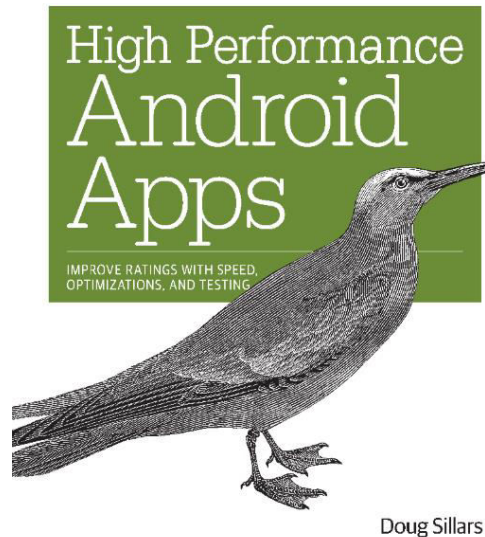


It's Just Too Slow: Mobile Application Performance Testing

Doug Sillars
@DougSillars
Heisenbug
December 2018

Doug Sillars

Freelance Developer Relations
Performance Audits: Web/Native
Workshops:
Performance/Images/Video



Contact Me:

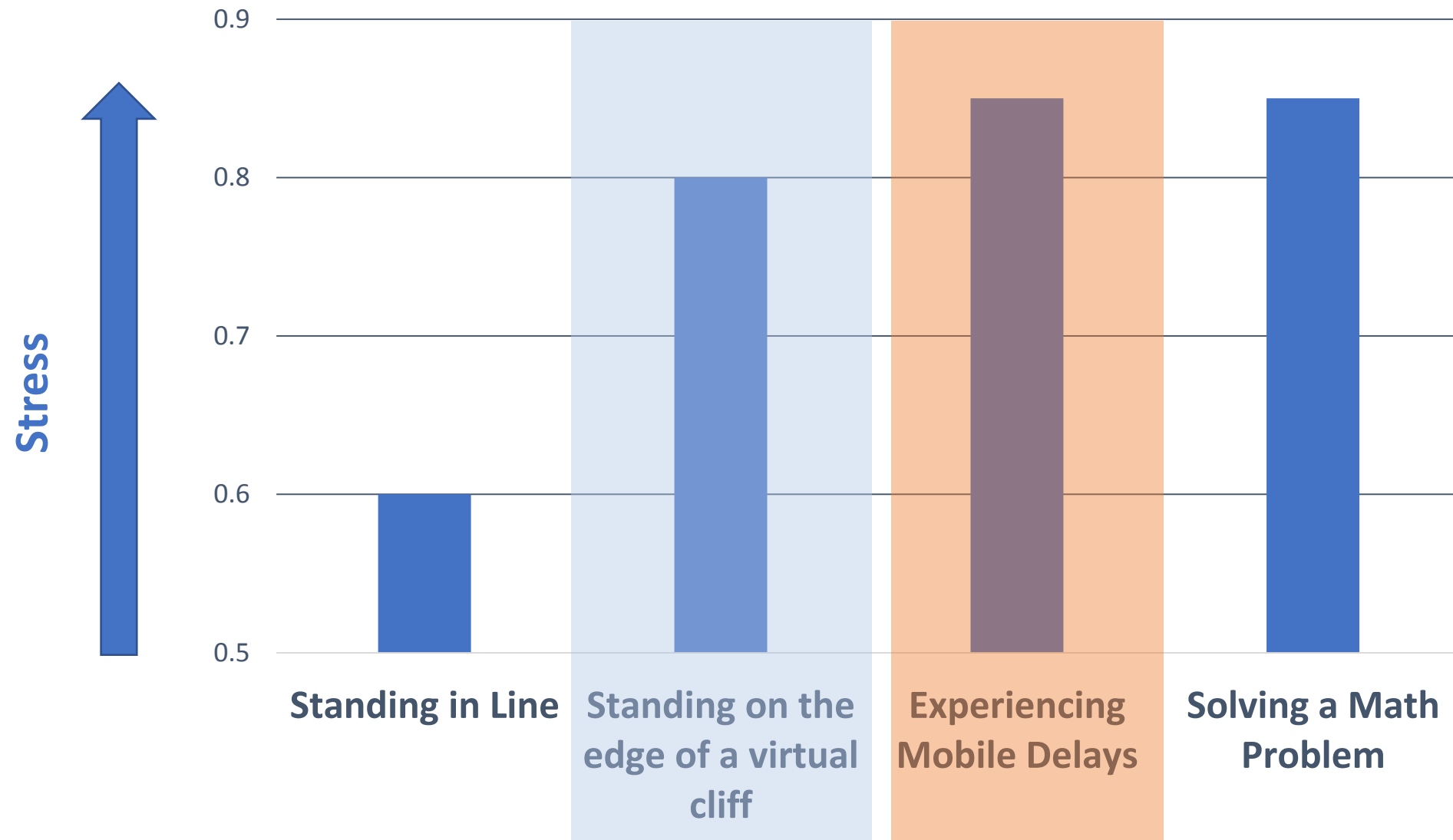
@DougSillars

Doug.Sillars@gmail.com

www.dougsillars.com

<http://bit.ly/HighPerformanceAndroidApps>





What Is Fast?

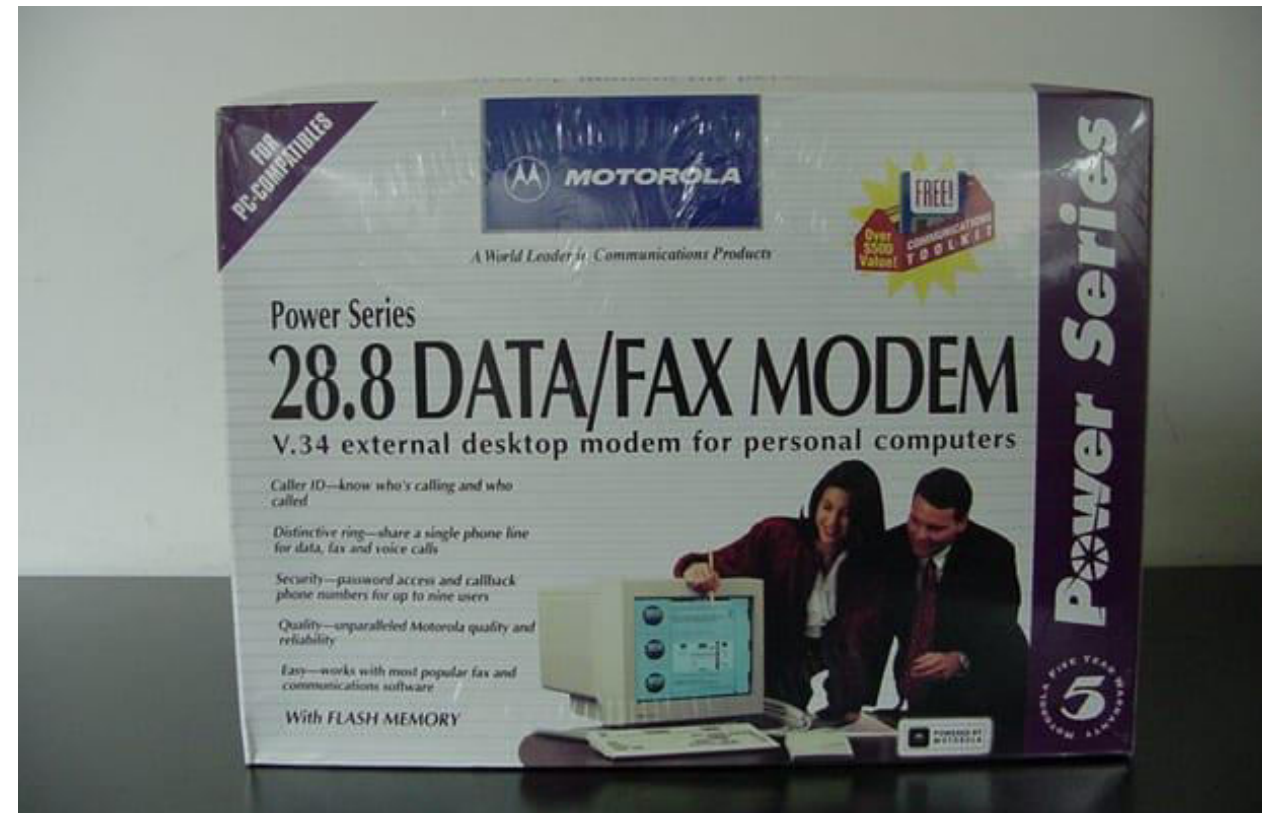


Fast is a Human Perception

- 100ms: Perceived as instantaneous
- 1s: Delay is noticed, but generally accepted: Limit for uninterrupted train of thought.
- 10s: Limit for keeping focus

Fast is a Human Perception

In 1993:



Fast is a Human Perception

- 100ms: Perceived as instantaneous
- 1s: Limit for uninterrupted train of thought: Delay is noticed, but generally accepted
- ~~10s~~ 3-5s: Limit for keeping focus

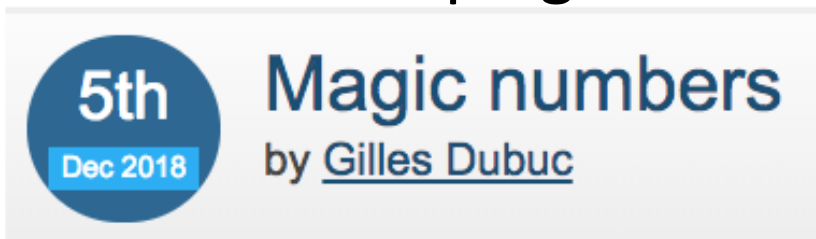
Fast is a Human Perception

- ~~100ms~~: Perceived as instantaneous

65ms: ranged from 34-164ms

- 1s: Limit for uninterrupted train of thought: Delay is noticed, but generally accepted

- ~~10s~~: 3-5s: Limit for keeping focus



Performance Studies



3s:

53% of Users Abandon Mobile Sites



500ms:

26% Frustration



8% Engagement

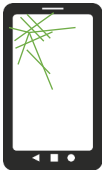


100ms:

1% Revenue



Walmart & Amazon (Desktop 2001)



4% Mobile Users Throw Their Phones

<https://www.doubleclickbygoogle.com/articles/mobile-speed-matters>

<http://bit.ly/mobileWebStress>

<http://www.globaldots.com/how-website-speed-affects-conversion-rates/>

<https://www.mobilejoomla.com/blog/172-responsive-design-vs-server-side-solutions-infographic.html>

Testing For Fast

Benchmark

Testing For Fast

Benchmark

Application Lifecycle

Testing For Fast

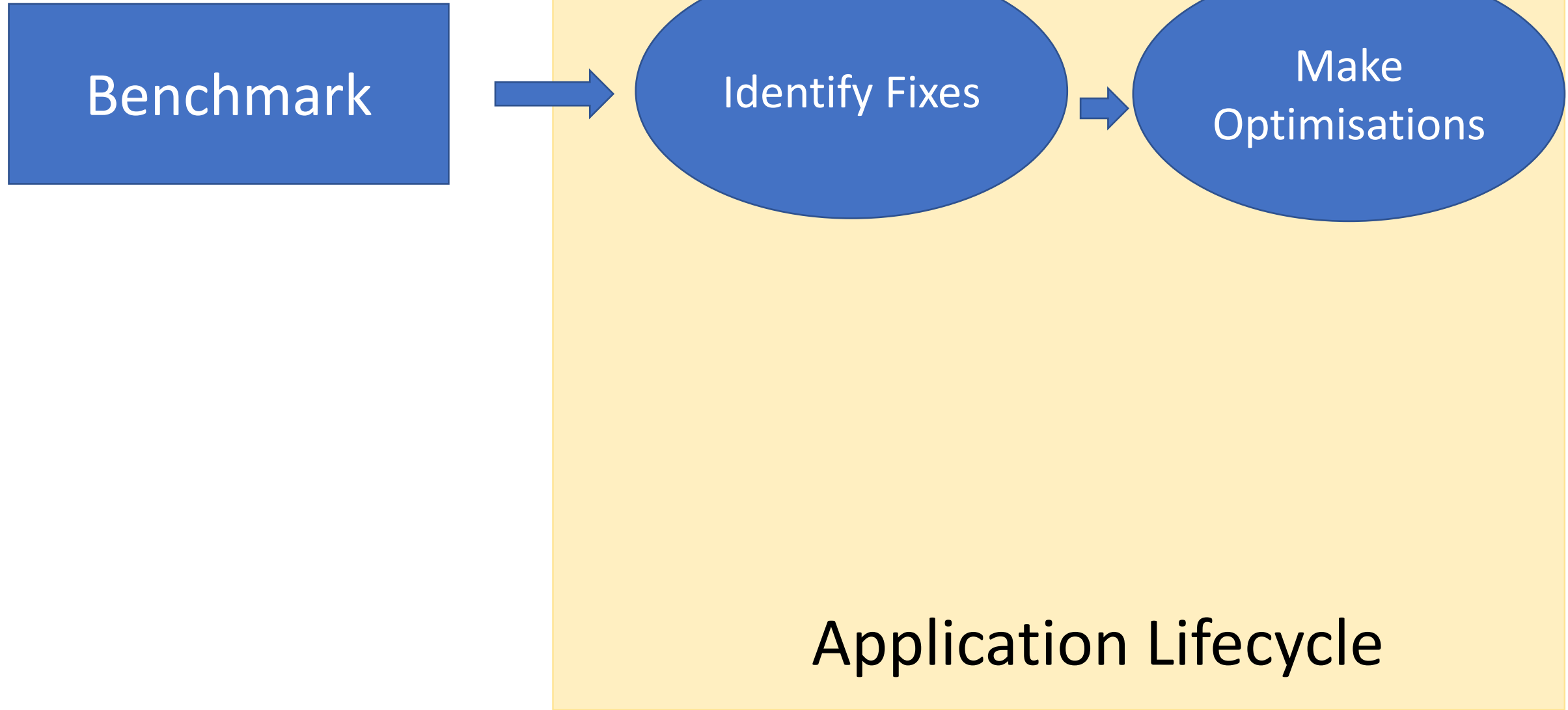
Benchmark



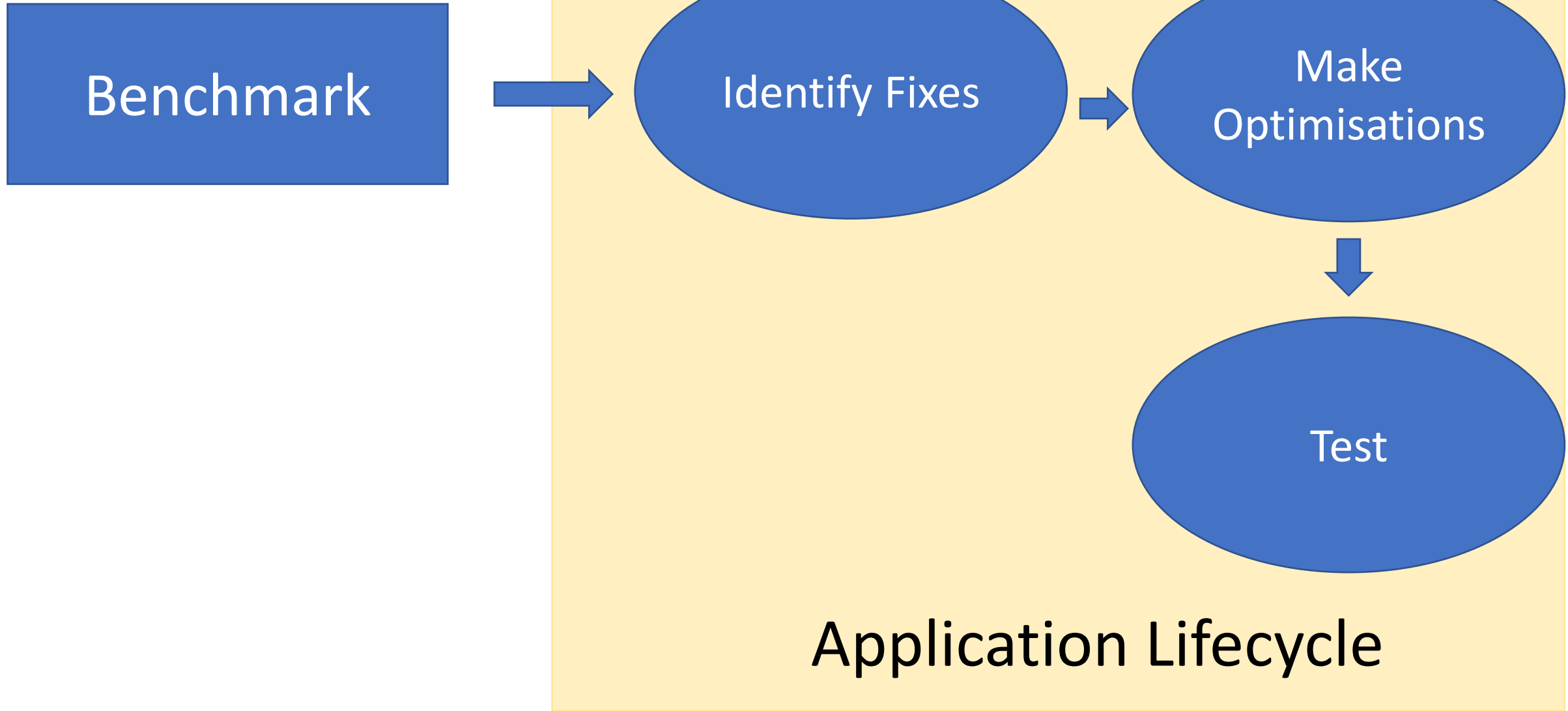
Identify Fixes

Application Lifecycle

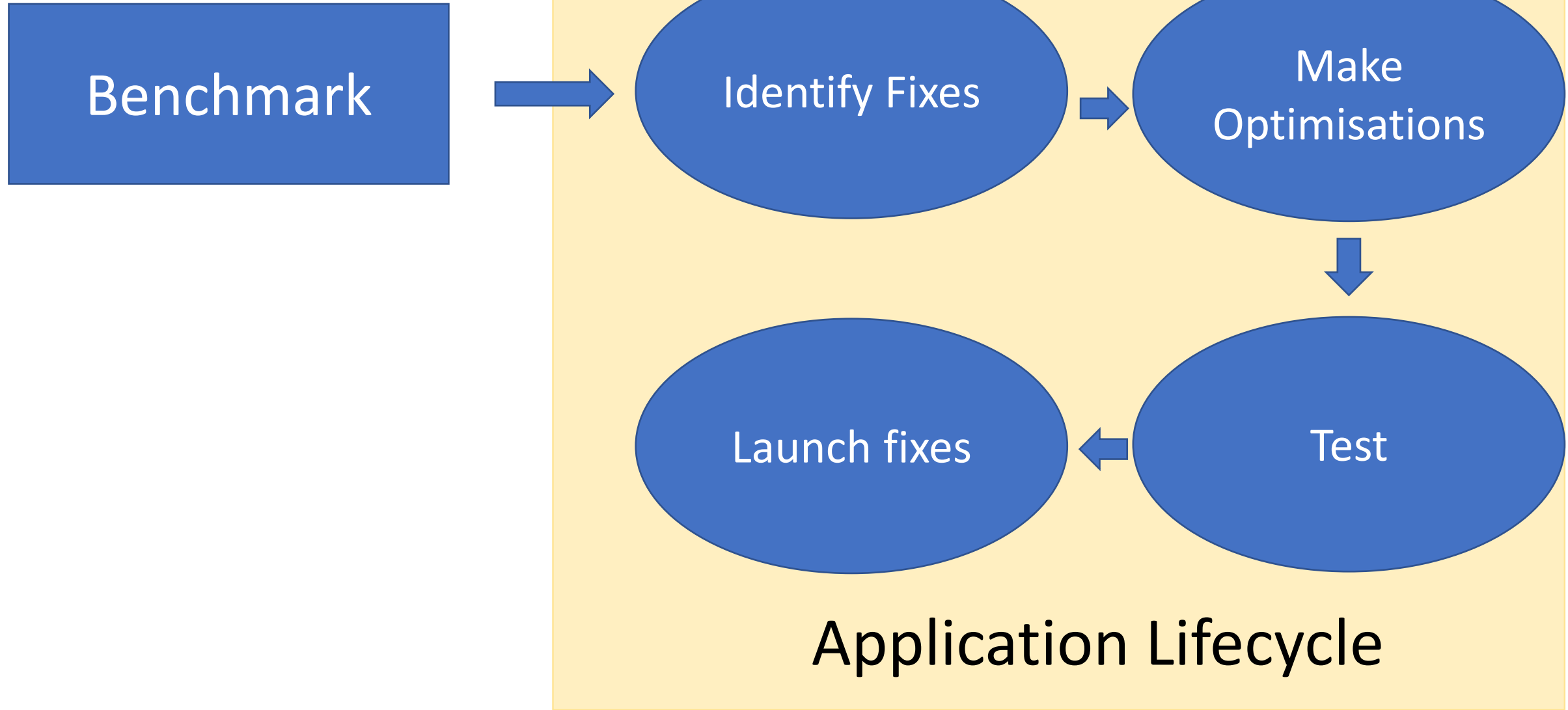
Testing For Fast



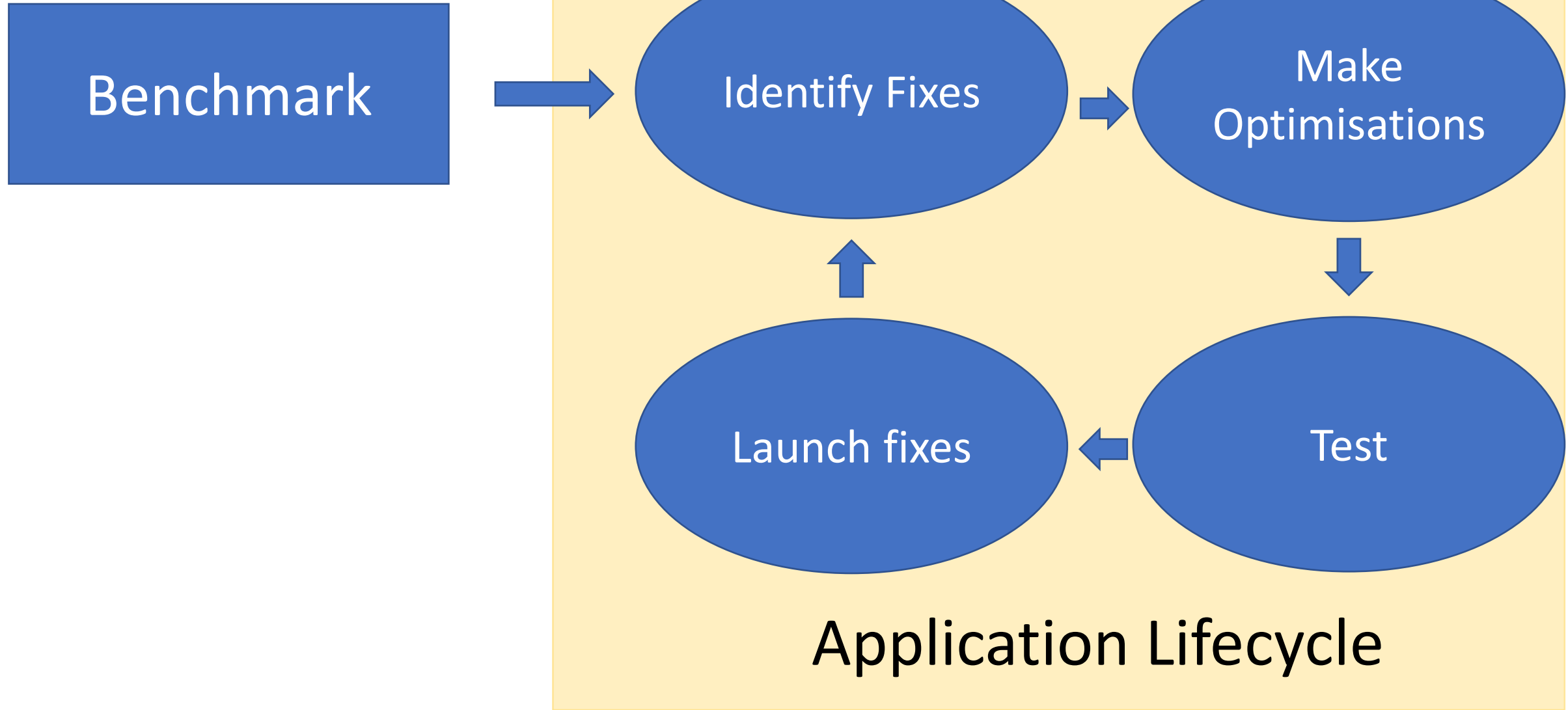
Testing For Fast



Testing For Fast



Testing For Fast



Profile & Benchmark Where You Are Today



Charles Proxy

www.charlesproxy.com



WebPageTest

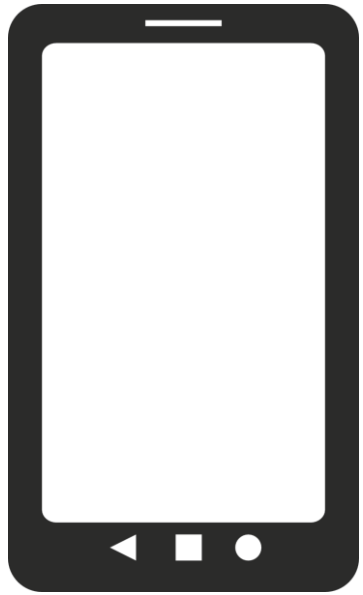
www.webpagetest.org



Video Optimizer

developer.att.com/Video-Optimizer

Profile & Benchmark Where You Are Today



Profile & Benchmark Where You Are Today



Charles Proxy

Charles 4.2.7 - Session 1 *

Structure Sequence

Code	Method	Host	Path	Start	Duration	Size	Status	Info
200	CONNECT	b-api.facebook.com		10:00:19		16.97 KB	Failed	
200	CONNECT	www.airbnb.com		10:00:19		1.05 KB	Failed	
200	CONNECT	b-api.facebook.com		10:00:33		16.97 KB	Failed	
200	GET	sciencenews.muradalikhan.com	/wp-json/wp/v2/posts?categories=6&page=1	10:00:43	360 ms	79.13 KB	Complete	
200	GET	sciencenews.muradalikhan.com	/wp-json/wp/v2/posts?categories=7&page=1	10:00:43	417 ms	103.01 KB	Complete	
200	GET	sciencenews.muradalikhan.com	/wp-content/uploads/2018/10/1540610300_EurekAlert_StackedLogo...	10:00:43	68 ms	100.54 KB	Complete	900x300
200	GET	sciencenews.muradalikhan.com	/wp-content/uploads/2018/11/41428_2018_134_Figa_HTML.png	10:00:53	227 ms	212.93 KB	Complete	685x304
200	GET	sciencenews.muradalikhan.com	/wp-content/uploads/2018/11/1541538365_3-newimmunothe.jpg	10:00:55	117 ms	61.84 KB	Complete	768x558
200	GET	sciencenews.muradalikhan.com	/wp-content/uploads/2018/11/3-newimmunothe.jpg	10:01:00	139 ms	30.88 KB	Complete	768x480
200	CONNECT	content.vflade.net		10:01:01	167 ms	20.26 KB	Failed	

Filter: ☐ Focused

Overview Contents Summary Chart Notes

GET /wp-json/wp/v2/posts?categories=6&page=1 HTTP/1.1
User-Agent Dalvik/2.1.0 (Linux; U; Android 9; Nokia 6.1 Build/PPR1.180610.011)
Host sciencenews.muradalikhan.com
Accept-Encoding gzip
Connection keep-alive

Headers Query String Raw


```
[{"id": 85672, "date": "2018-11-06T22:00:00", "date_gmt": "2018-11-07T05:00:00", "guid": {"rendered": "http://sciencenews.muradalikhan.com/2018/11/06/utsa-constructs-worlds-most-comprehensive-digital-roadmap-to-unlock-male-infertility/"}, "modified": "2018-11-06T22:00:00", "modified_gmt": "2018-11-07T05:00:00", "slug": "utsa-constructs-worlds-most-comprehensive-digital-roadmap-to-unlock-male-infertility", "status": "publish", "type": "post", "link": "http://sciencenews.muradalikhan.com/2018/11/06/utsa-constructs-worlds-most-comprehensive-digital-roadmap-to-unlock-male-infertility/", "title": {"rendered": "UTSA constructs world's most comprehensive digital roadmap to unlock male infertility"}, "content": {"rendered": "<div>\n<p>(San Antonio, Nov. 7, 2018) &#8212; Millions of couples who have trouble conceiving may get relief from new research led by scientists at The University of", "protected": false}, "excerpt": {
```


Headers Text Hex JavaScript JSON JSON Text Raw


WebPageTest


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

Test a website's performance

 Advanced Testing

 Simple Testing

 Visual Comparison

 Traceroute

Test Location

Dulles, VA USA (Desktop, Android, iOS)

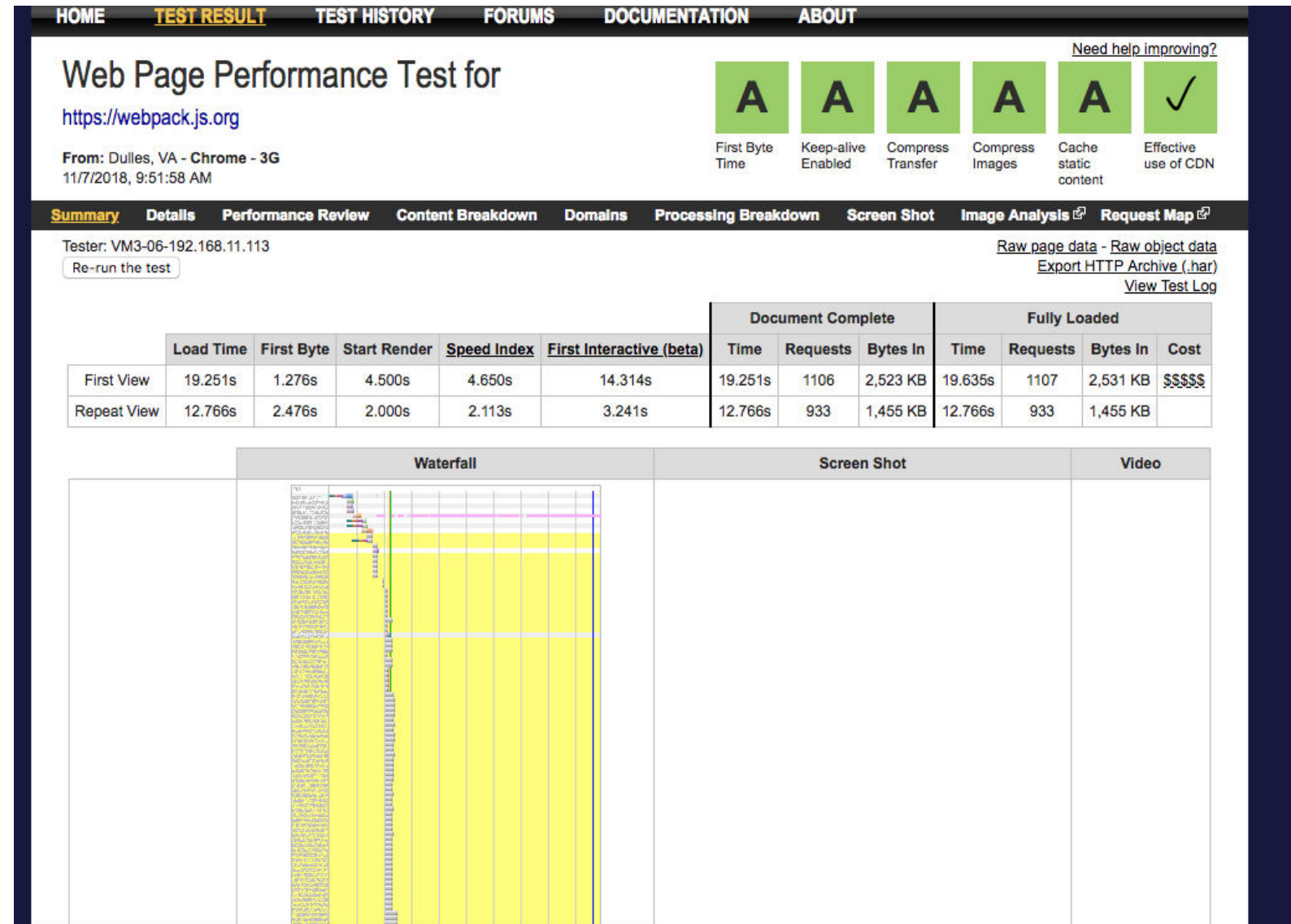
Select from Map

Browser

Moto G4 - Chrome

START TEST

WebPageTest



Video Optimizer

Start Collector

Select a device: ?

State	OS	API	Model	Device Name
Available	7.0	24	SAMSUNG-SM-G930A	ab4fd457

Collector Type: ☐ Rooted ☒ VPN

☐ Downlink

Attenuate:

☐ Uplink

Secure: ☐ Yes ☒ No

Record Video: ☒ Low Res (1-2 fps) ☐ HD ☐ SD ☐ No Video

Please enter trace folder name

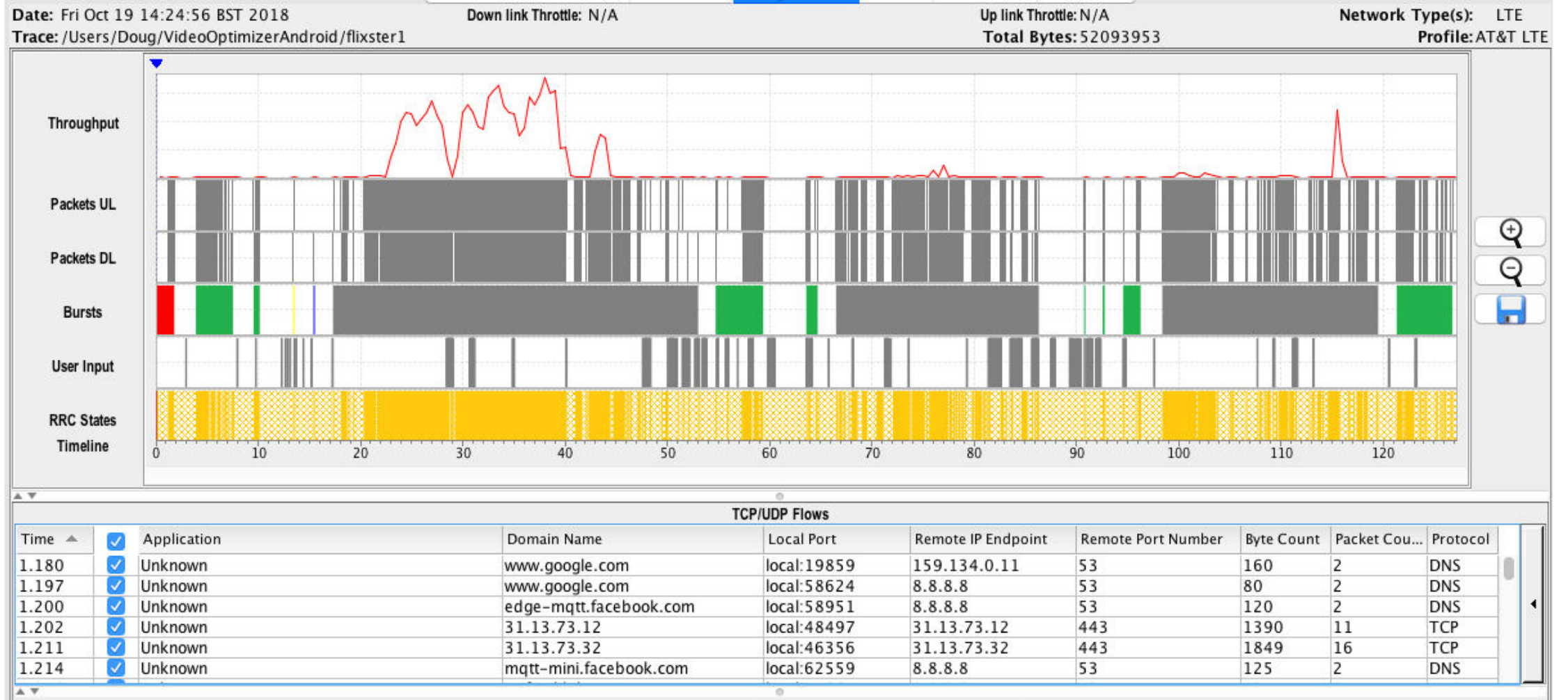
Test_trace

Cancel Start

Run network traces on your phone































1. Pick device
2. Collector type
3. Set network conditions
4. Decrypt HTTPS
5. Record screen?
6. Name
7. GO!

Video Optimizer



Video Optimizer

TESTS CONDUCTED

	File Download: Text File Compression		HTML: Asynchronous Load of JavaScript in HTML
	File Download: Duplicate Content		HTML: HTTP 1.0 Usage
	File Download: Cache Control		HTML: File Order
	File Download: Content Expiration		HTML: Empty Source and Link Attributes
	File Download: Combine JS and CSS Requests		HTML: FLASH
	File Download: Resize Images for Mobile		HTML: "display:none" in CSS
	File Download: Image Metadata		Security: HTTPS Usage
	File Download: Image Compression		Security: Transmission of Private Data
	File Download: Image Format		Security: Unsecure SSL Version
	File Download: Image Comparison		Security: Weak Cipher
	File Download: Minify CSS, JS and HTML		Security: Forward Secrecy
	File Download: Use CSS Sprites for Images		Video: Stalls
	Connections: Connection Opening		Video: Start-up Delay
	Connections: Unnecessary Connections - Multiple Simultaneous Connections		Video: Buffer Occupancy
	Connections: Multiple Simultaneous Connections to One Endpoint		Video: Network Comparison

Video Optimizer



Test: Resize Images for Mobile

About: Images that are not correctly sized for mobile can cause extreme delays in rendering. Before delivering content to a mobile, resize it to fit the available area. [Learn more...](#)

Results: Video Optimizer detected 19 image files that are 110% larger than the area specified for them. Consider resizing these images before delivering to the device.

Time	Host Name	Image Size	Image Name
24.172	ng.com	832615	/assets/p3265_p_v12_ar.jpg?q=75
25.671	ng.com	680147	/assets/p15843515_p_v11_aa.jpg?q=75
23.426	ng.com	1148612	/assets/p15325196_p_v12_ac.jpg?q=75
25.413	ng.com	943293	/assets/p15598770_p_v11_aa.jpg?q=75
23.274	ng.com	1166091	/assets/p14603082_p_v13_ac.jpg?q=75?w=27&q=1

Test: Image Metadata

Profile & Benchmark Where You Are Today



Charles Proxy

www.charlesproxy.com



WebPageTest

www.webpagetest.org



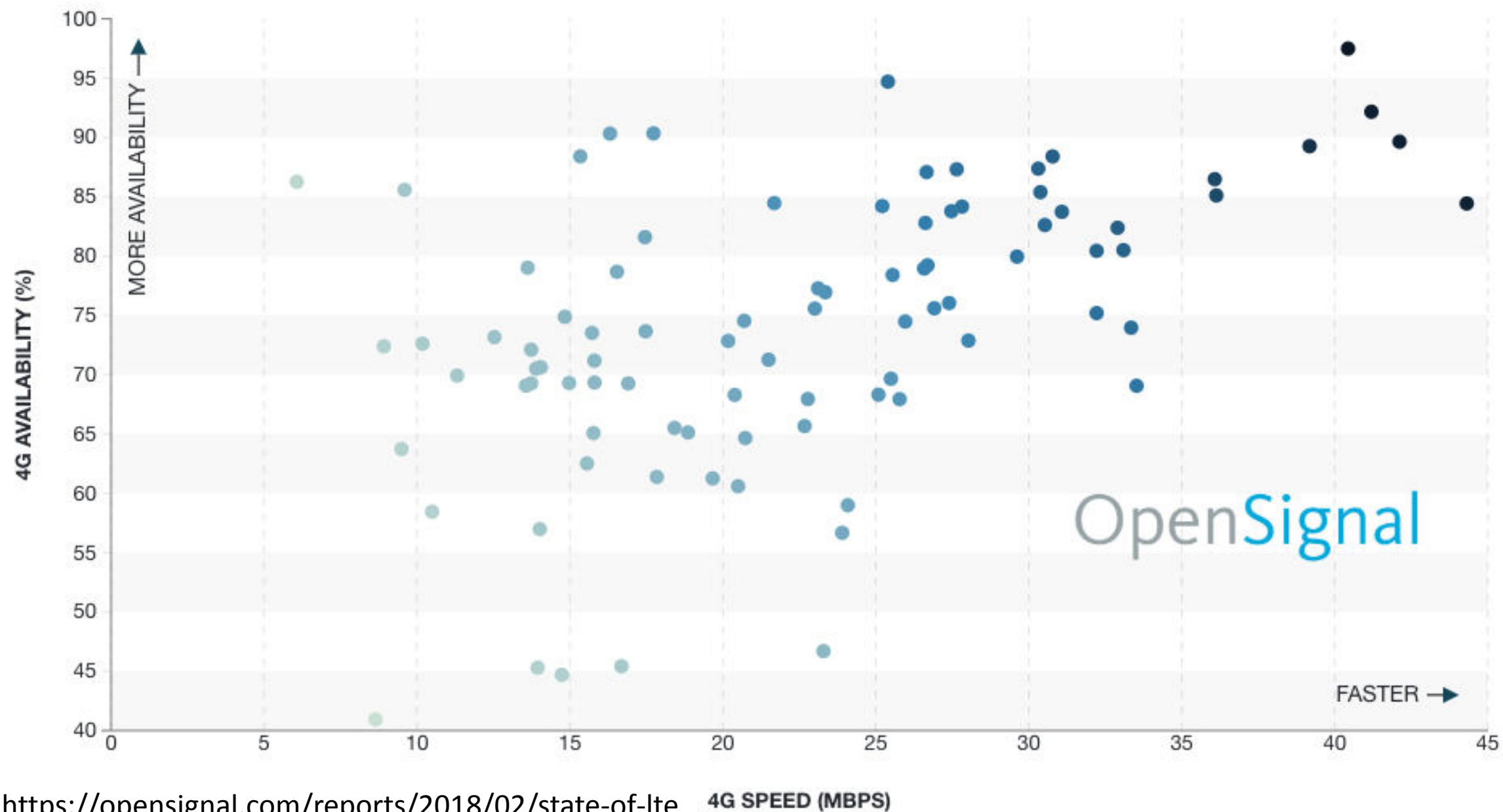
Video Optimizer

developer.att.com/Video-Optimizer

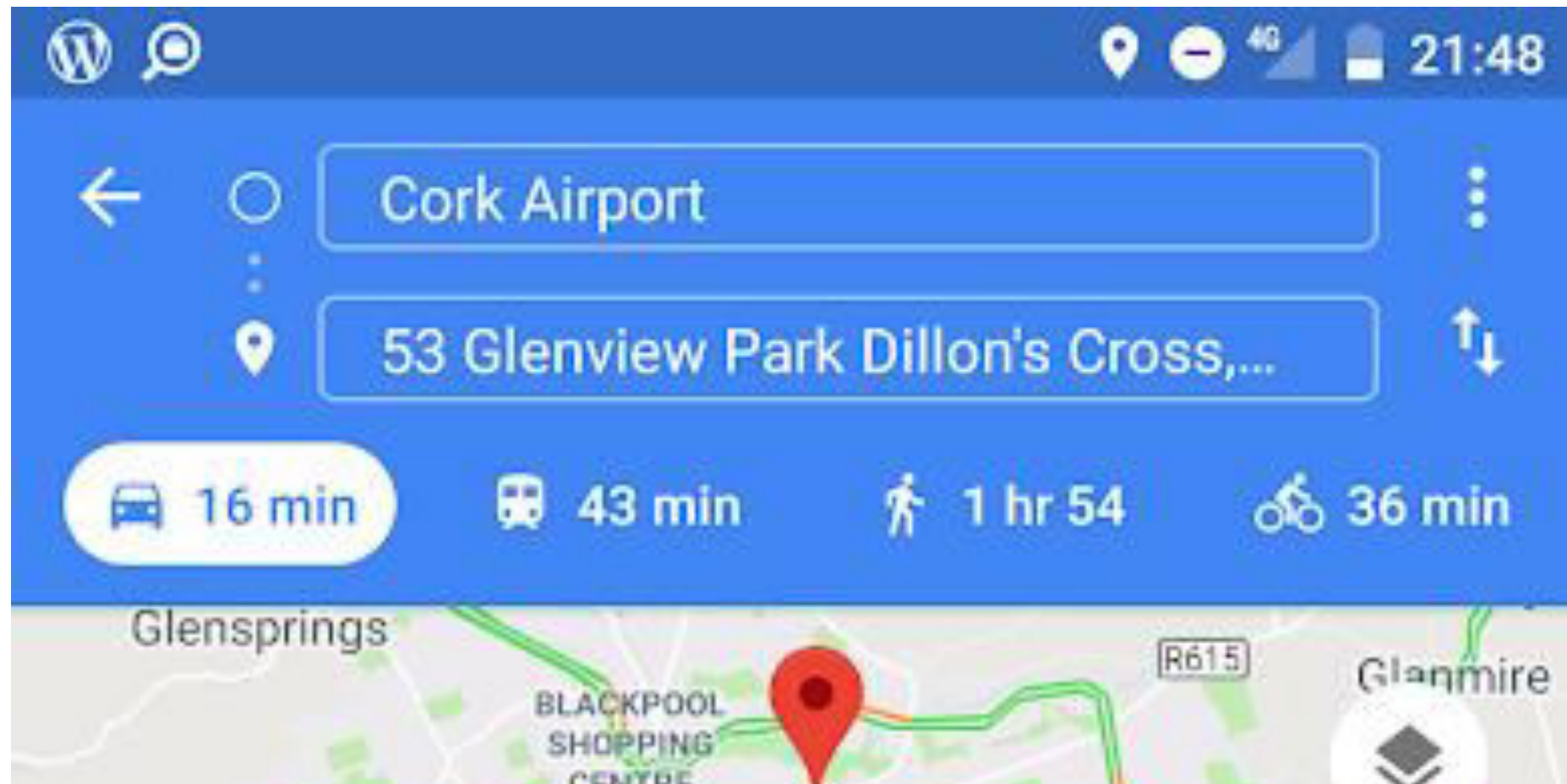




Comparing Speed and Availability



Network Coverage Can be Variable



Standardize Your Connection

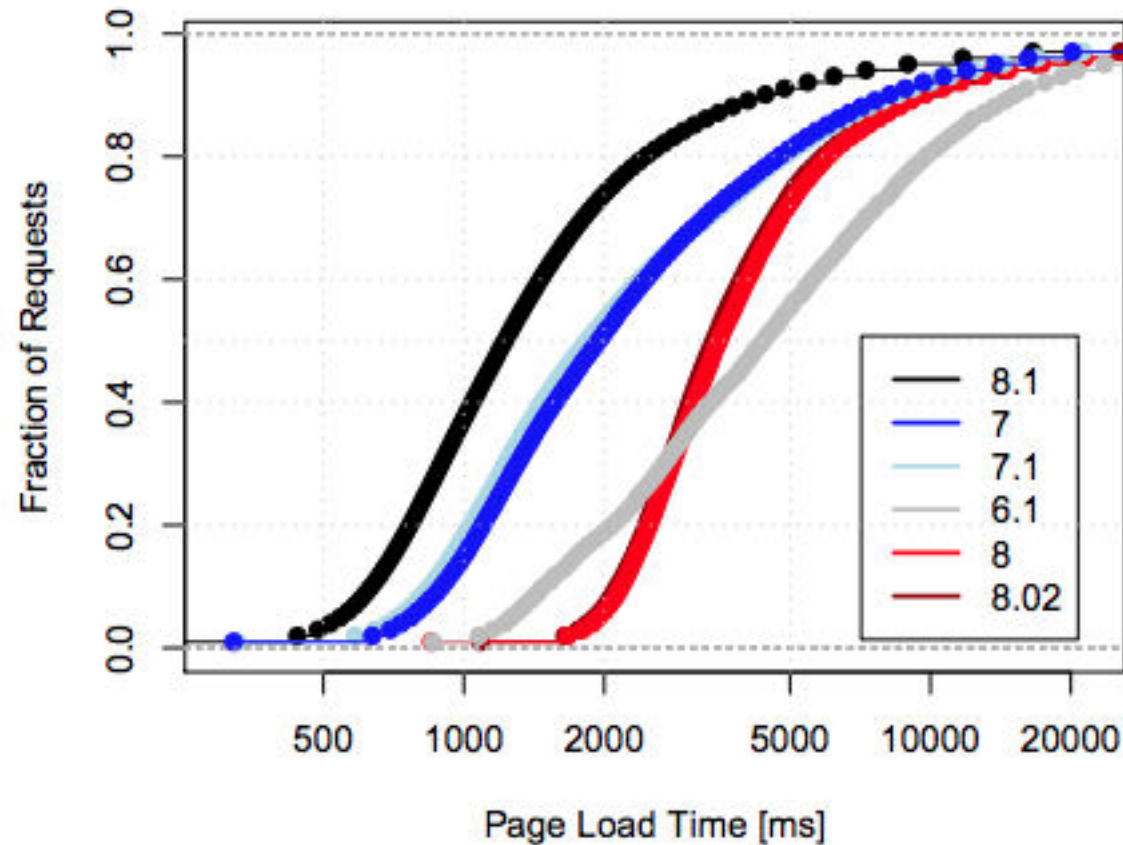
- ✓ Cable (5/1 Mbps 28ms RTT)
- DSL (1.5 Mbps/384 Kbps 50ms RTT)
- 3G Slow (400 Kbps, 400ms RTT)
- 3G (1.6 Mbps/768 Kbps 300ms RTT)
- 3G Fast (1.6 Mbps/768 Kbps 150ms RTT)
- 4G (9 Mbps, 170ms RTT)
- LTE (12 Mbps/12 Mbps 70ms RTT)
- Mobile Edge (240 Kbps/200 Kbps 840ms RTT)
- 2G (280 Kbps/256 Kbps 800ms RTT)
- 56K Dial-Up (49/30 Kbps 120ms RTT)
- FIOS (20/5 Mbps 4ms RTT)
- Native Connection (No Traffic Shaping)
- Custom



Most Popular Phones - Russia

Country	Position	Phone model	Share
Russia	1	iPhone 7	6.84%
Russia	2	iPhone 6	5.84%
Russia	3	iPhone 6S	4.87%
Russia	4	iPhone 5S	4.62%
Russia	5	iPhone SE	4.08%
Russia	6	iPhone 7 Plus	3.14%
Russia	7	iPhone X	3.12%
Russia	8	Samsung Galaxy A5	2.67%

Older Phones are Drastically Slower



(a) iOS versions

Websites load 20-50%
faster Year over year

Profile & Benchmark Where You Are Today

Pick a mid-low range phone



Smartphone Motorola
Moto G4 Play - 16G...

€113.48

FNAC Portugal

★★★★★ (1k+)

By Google



Alcatel 1X Preto

€99.99

MEO Loja Online

By Google

Profile & Benchmark Where You Are Today

Test on Slower Networks

Pick a mid-low range phone

What Is Fast?



What is My Load Metric?

Time To First Paint (TTFP)

Time To Hero Image

Speed Index

What is My Load Metric?

Time To First Paint (TTFP)

HOME

TEST RESULT

TEST HISTORY

FORUMS

DOCUMENTATION

ABOUT

Tested From: Dulles, VA - Moto G4 - Chrome - 3G

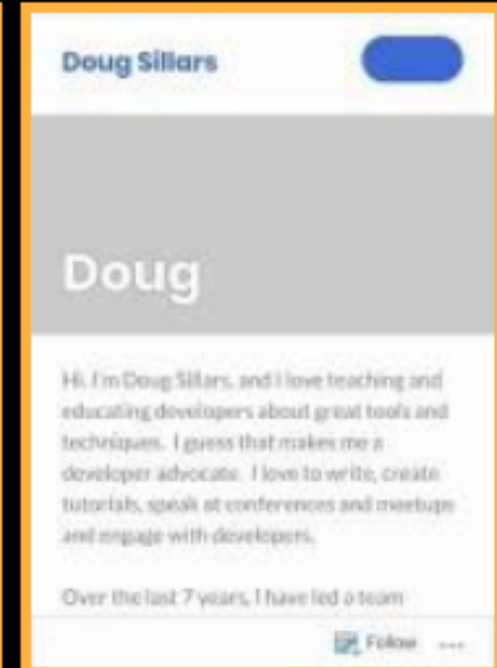
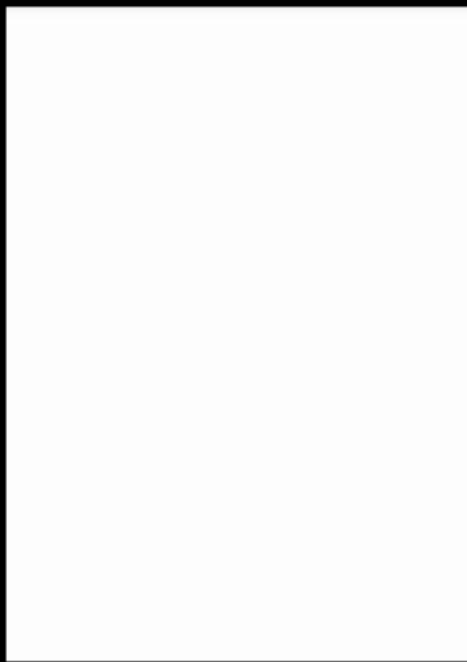
5.5s

6.0s

6.5s

7.0s

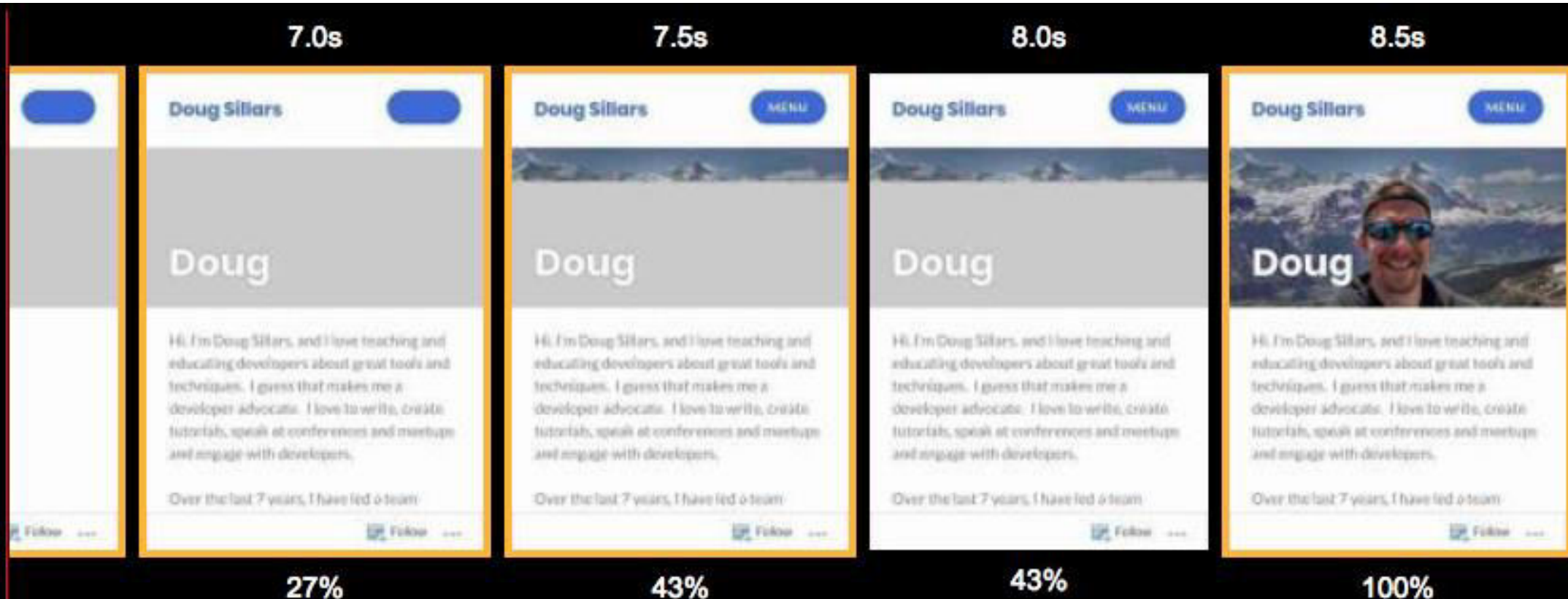
1: dougsillars.co
m
(Edit)



What is My Load Metric?

Time To Hero Image

1: dougsillars.com
(Edit)



What is My Load Metric?

Speed Index

	Load Time	First Byte	Start Render	<u>Speed Index</u>	<u>First Interactive (beta)</u>
First View	8.108s	2.800s	5.991s	7.532s	9.627s
Repeat View	4.190s	1.666s	3.953s	4.118s	> 5.094s

Waterfall

What is My Load Metric?

Time To First Paint (TTFP)

Time To Hero Image

Speed Index

The Latest in
Metrics & Measurement

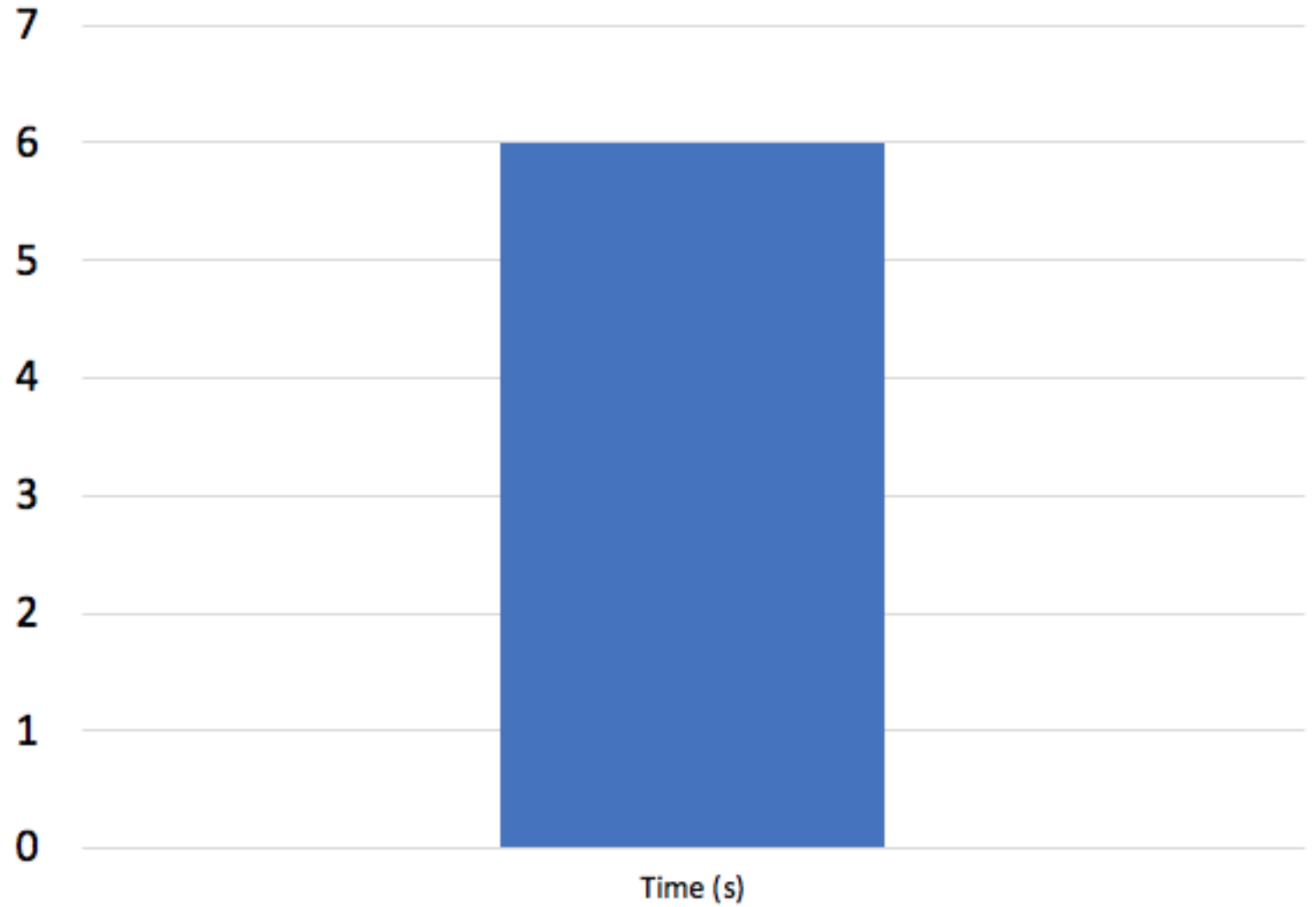
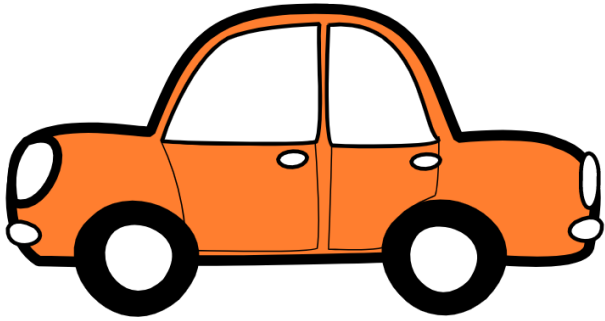


Paul Irish
@paul_irish

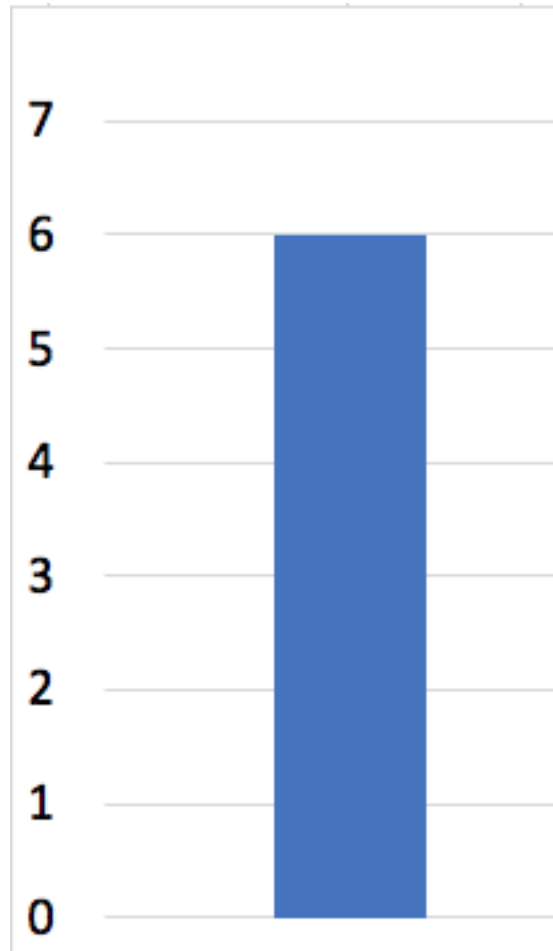
performance.now()

<https://www.youtube.com/watch?v=XvZ7-Uh0R4Q>

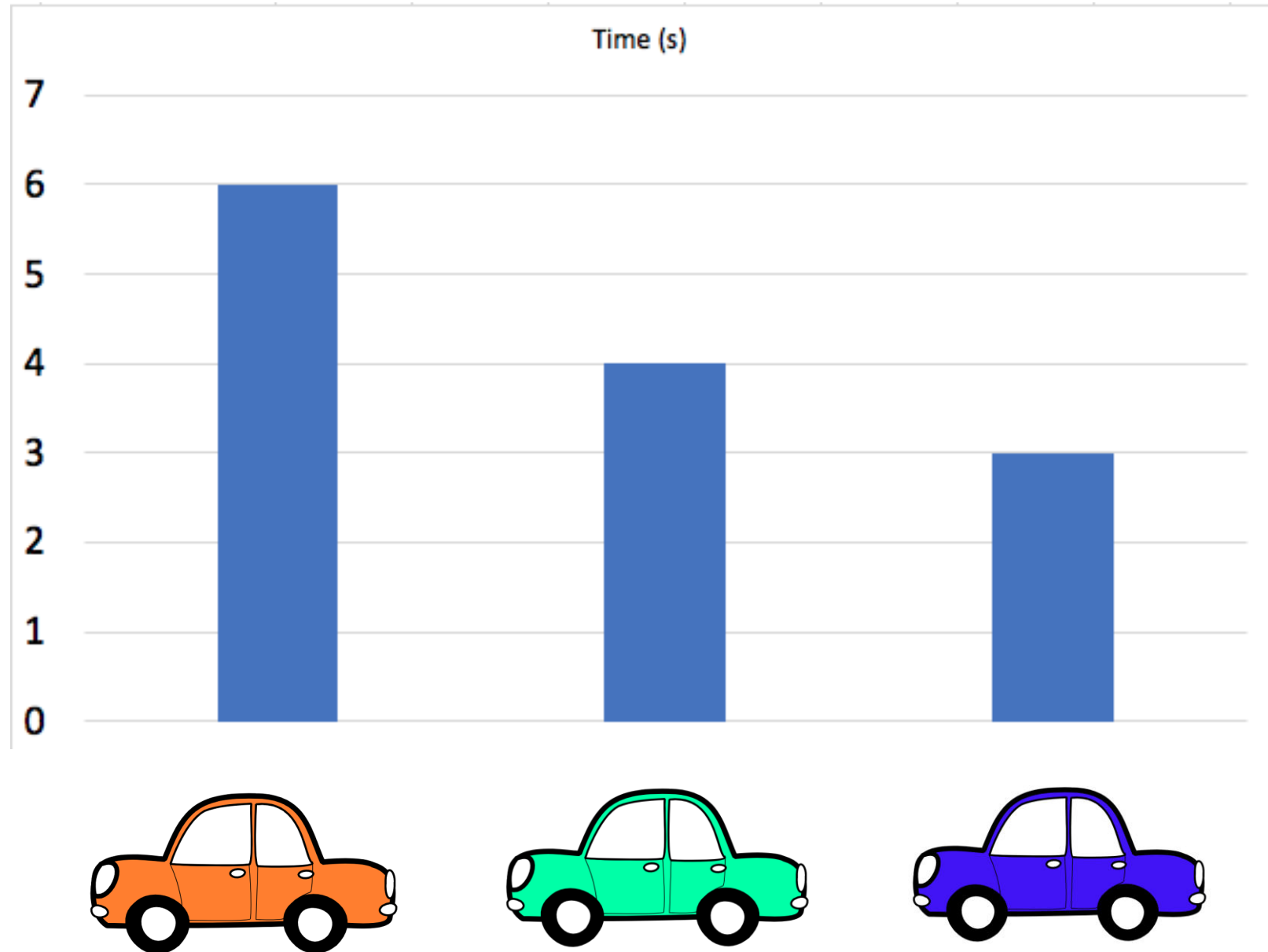
What Is Fast?



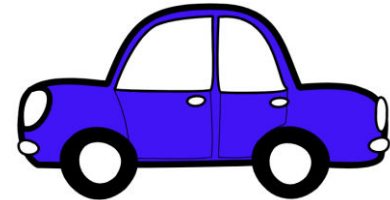
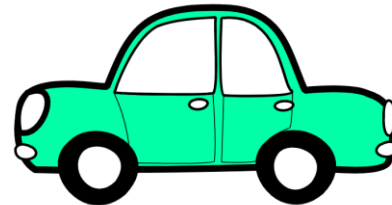
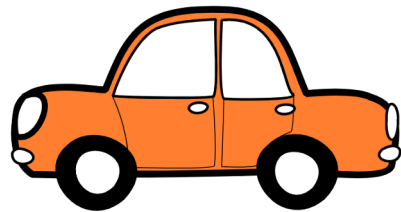
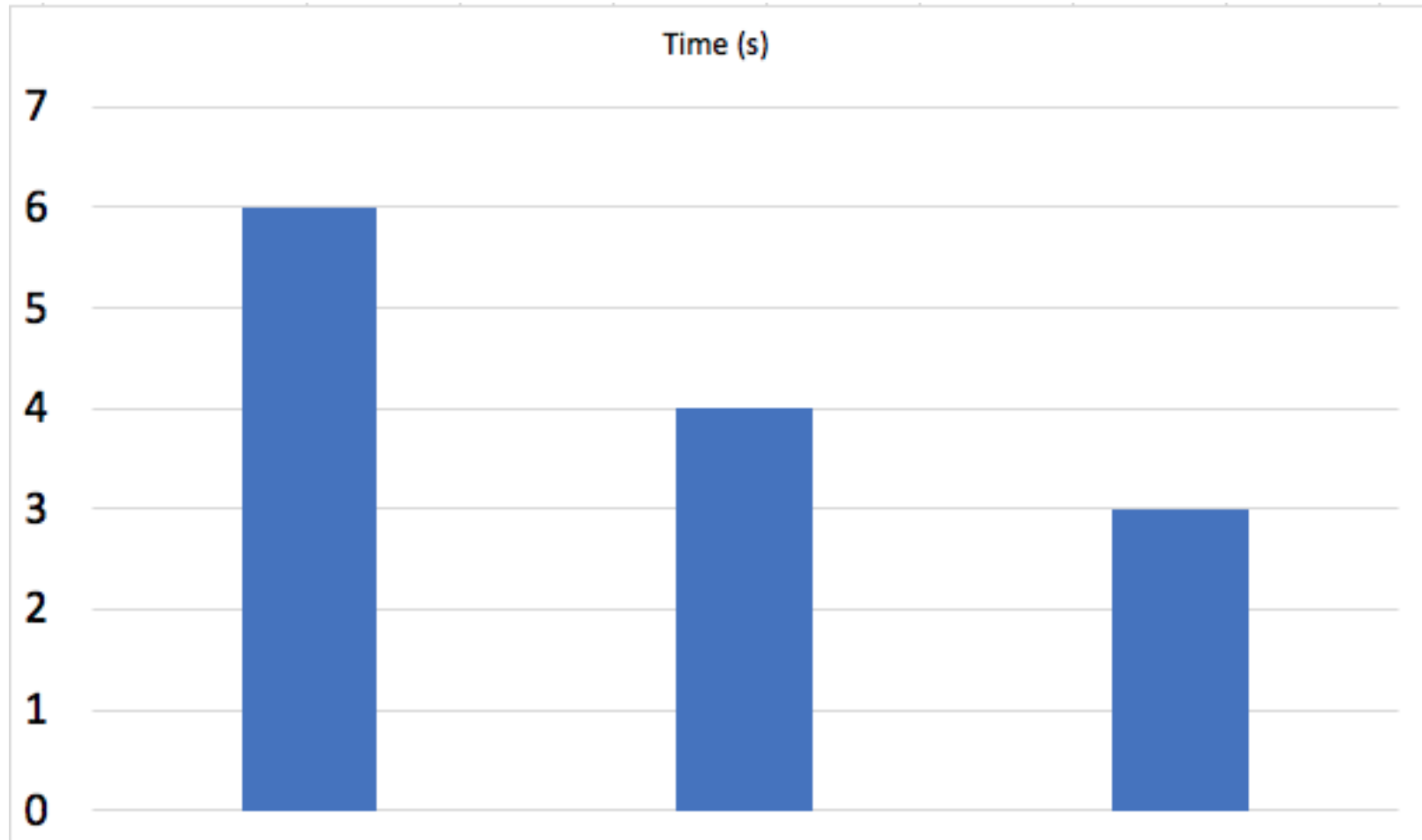
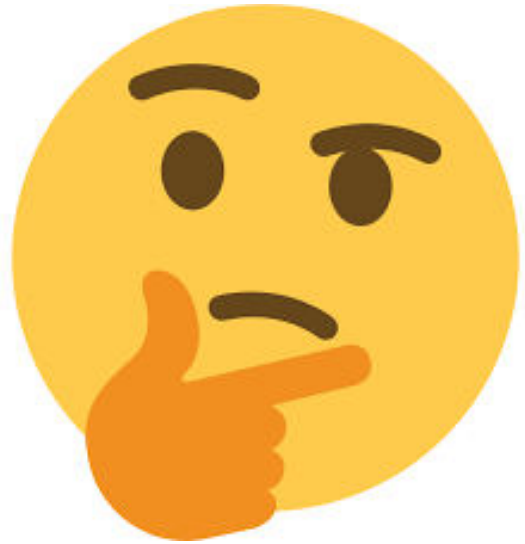
Is It Fast?



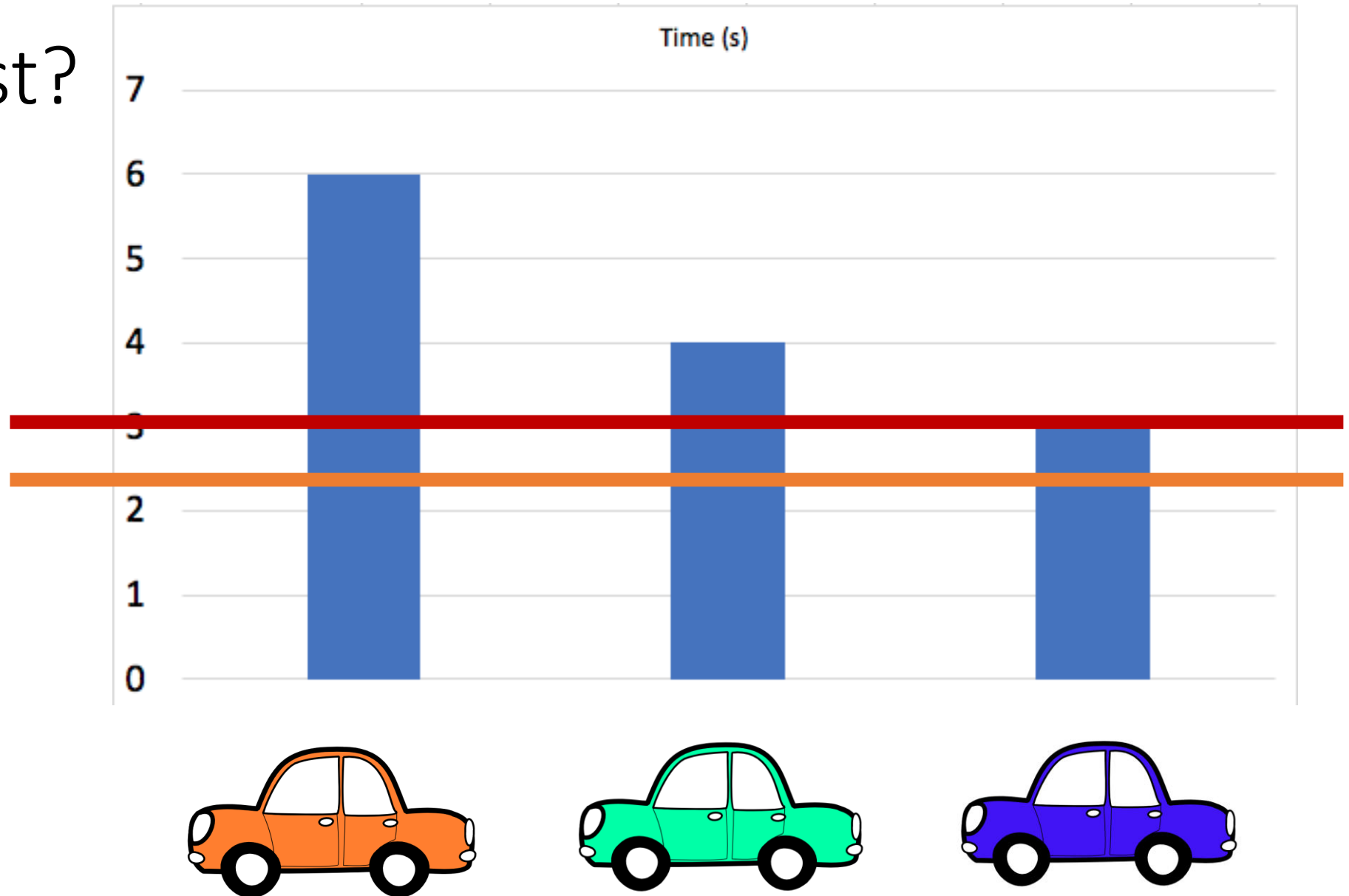
Is It Fast?



Is It Fast?



Is It Fast?



Rules for Speed

- Optimize Content Delivery
 - Location
 - Connections
 - Redirects
 - Number Of Connections
- Optimize Content
 - Text Files (JSON, html, JavaScript, CSS, etc)
 - Images
 - Video

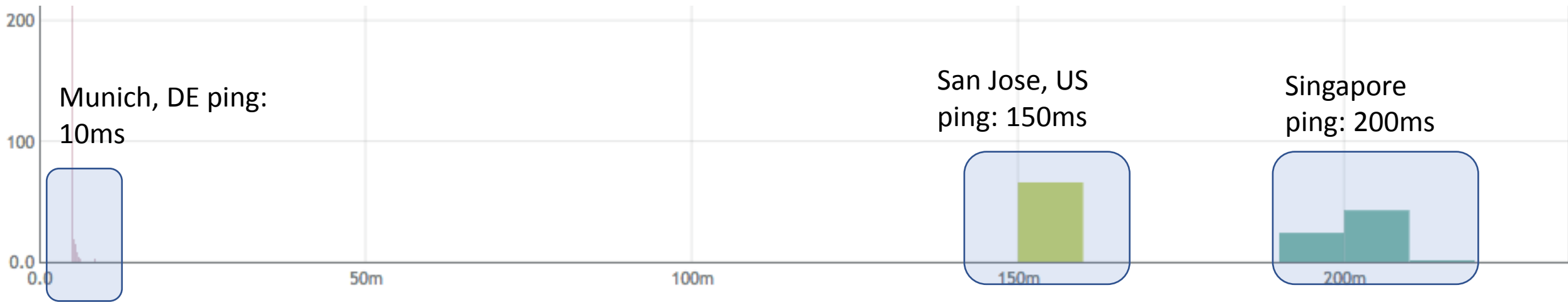
Rules for Speed

- Optimize Content Delivery
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 - Number Of Connections
- Optimize Content
 - Text Files (JSON, html, JavaScript, CSS, etc)
 - Images
 - Video

Optimizing Content Delivery

1. Location

Round Trip Time



Data Collected with Circonius

Optimizing Content Delivery

1.Delivery Speed: Content Delivery Networks



CDNs cache your content at various locations around the world – reducing the round trip time

Optimizing Content Delivery

1.Delivery Speed

Request #1	Details	Request	Response	Object
URL: https://dougsillarstest.github.io/ Host: dougsillarstest.github.io IP: 185.199.109.153 Error/Status Code: 200 Priority: HIGHEST Protocol: HTTP/2 HTTP/2 Stream: 1, weight 256, depends on 0, EXCLUSIVE Request ID: 1D64EDC9948AE64E036F387E10F699AE Client Port: 55655 Request Start: 1.040 s DNS Lookup: 293 ms Initial Connection: 310 ms SSL Negotiation: 399 ms Time to First Byte: 356 ms Content Download: 55 ms Bytes In (downloaded): 7.5 KB Uncompressed Size: 31.3 KB Bytes Out (uploaded): 0.4 KB				

Optimizing Content Delivery

1. Delivery Speed

Request #1	Details	Request	Response	Object
content-length: 7310				
via: 1.1 varnish				
vary: Accept-Encoding				
strict-transport-security: max-age=31556952				
etag: W/"5b9cabf0-7d1c"				
x-cache-hits: 1				
cache-control: max-age=600				
status: 200				
x-served-by: cache-dca17741-DCA				
x-cache: HIT				
x-github-request-id: 7A5C:76BB:6EDBE9:9602B7:5BE934CD				
accept-ranges: bytes				
expires: Mon, 12 Nov 2018 08:17:42 GMT				
last-modified: Sat, 15 Sep 2018 06:51:28 GMT				
x-fastly-request-id: 1379ff94e85861db52144e5580a8ff633f533dad				
date: Mon, 12 Nov 2018 08:22:24 GMT				
access-control-allow-origin: *				
content-encoding: gzip				
age: 225				
v-timer: S1542010944.463751 VSO VEO				

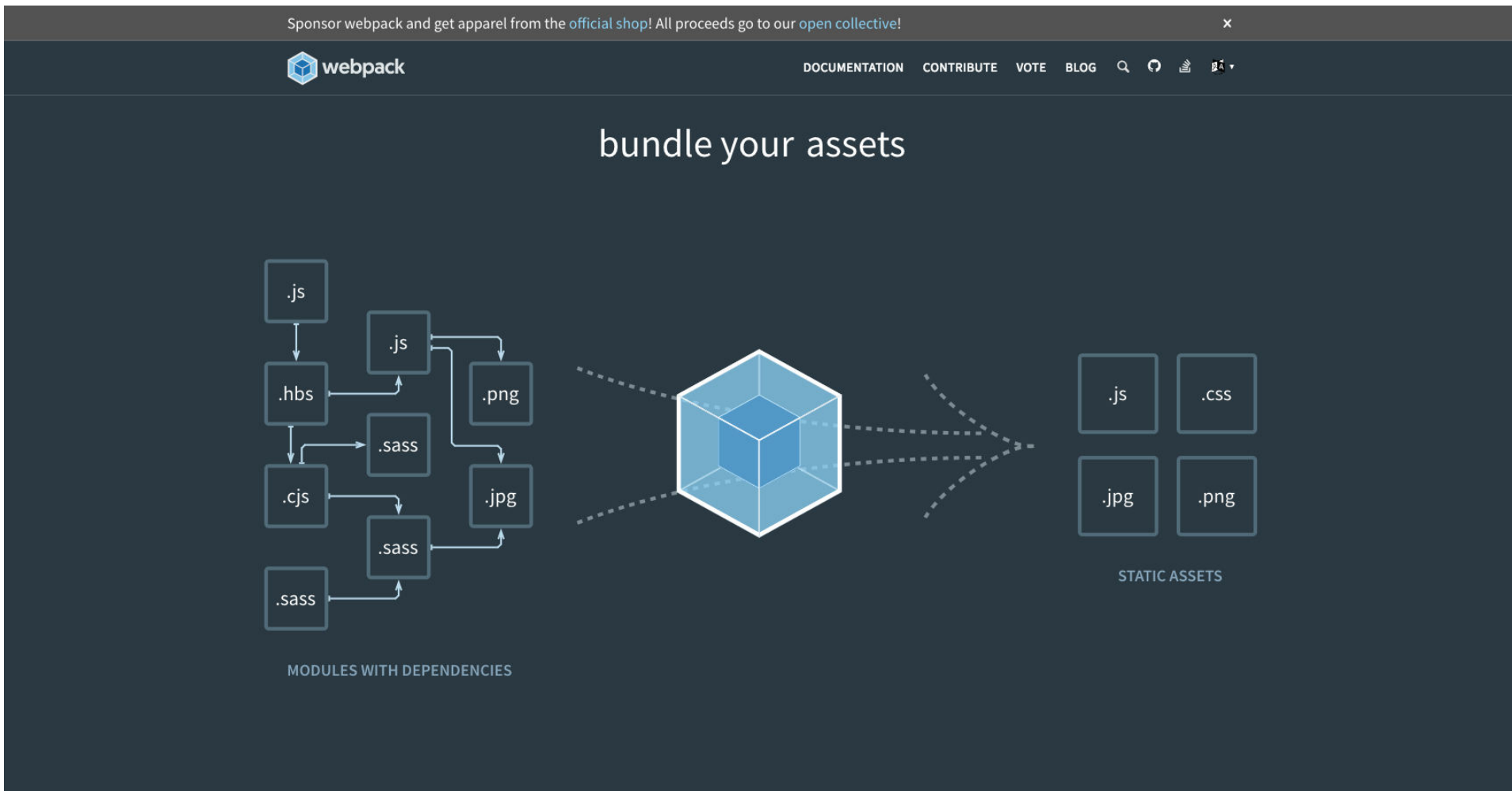
Rules for Speed

- Optimize Content Delivery
 - Location
 - Redirects
- Optimize Content
 - Text Files (JSON, html, JavaScript, CSS, etc)
 - Images
 - Video

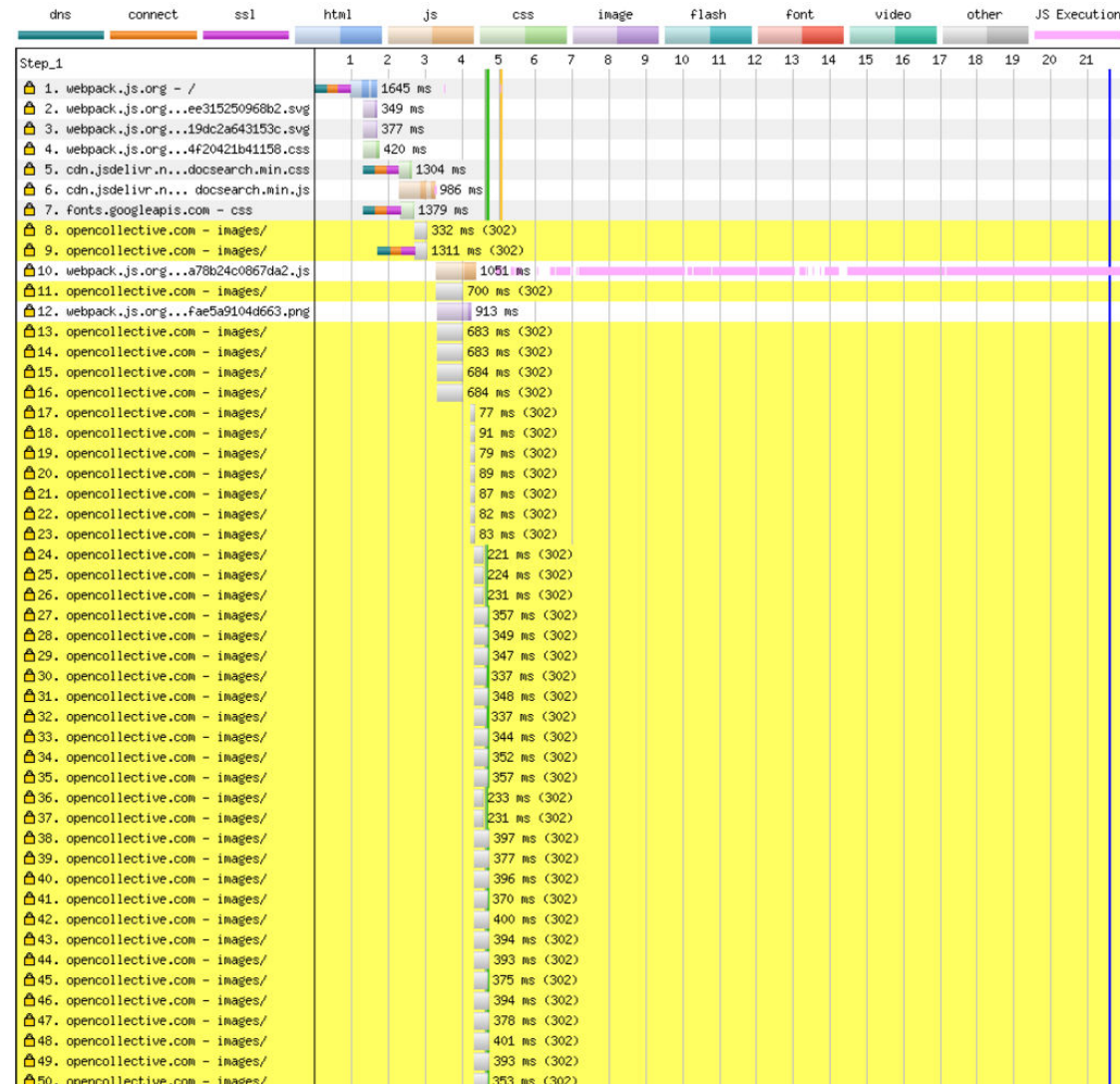
Rules for Speed

- Optimize Content Delivery
 - Location
 - Connections
 - **Redirects**
 - Number Of Connections
- Optimize Content
 - Text Files (JSON, html, JavaScript, CSS, etc)
 - Images
 - Video

WebPack.js.org



WebPack.js.org



WebPack.js.org

Results

Details

Download as CSV

Download as JSON


Row	createDate	url	numRedirects	SpeedIndex	
1	1536258684	https://webpack.js.org/	0	8370	
2	1537493496	https://webpack.js.org/	649	6594	
3	1538937052	https://webpack.js.org/	658	7086	

Table

JSON

WebPack.js.org

 [webpack](#) / [webpack.js.org](#)

 Watch ▾

54

★ Star

1,344

 Fork

2,065

Code

Issues 115

Pull requests 50

Projects 0


Insights

Tree: b22fb309ff ▾

[webpack.js.org](#) / [src](#) / [scripts](#) / [fetch_supporters.js](#)

Find file

Copy path

 skipjack refactor(fetch): make minor formatting changes in fetch script

883d3aa on Oct 21, 2017

3 contributors



30 lines (22 sloc) | 1.02 KB

Raw

Blame

History



```
1  #!/usr/bin/env node
2  const fs = require('fs');
3  const request = require('request');
4
5  const REQUIRED_KEYS = ["totalDonations", "id"];
6
7  request('https://opencollective.com/api/groups/webpack/backers', (err, response, body) => {
8    if (err) console.error('Failed to fetch backers: ', err);
9
```

Webpack.js.org

 [opencollective](#) / [opencollective-images](#)

 Watch ▾

3


★ Star

0

 Fork

0

 Code

 Issues 0


 Pull requests 0

 Insights

Change on 17/09 from opencollective.com to images.opencollective.com adds redirect #10

Edit

New issue

 Closed

dougsillars opened this issue 21 days ago · 4 comments



dougsillars commented 21 days ago

+ 😊 ...

For example: see <https://webpack.js.org/> (WebPageTest report here: https://www.webpagetest.org/result/181023_JP_b9476f132f954277f10ab45938be4702/)

Requests to:

<https://opencollective.com/proxy/images/>

are 302 redirected to:

<https://images.opencollective.com/proxy/images/>

Well over 600 on this one page.

Assignees

No one assigned

Labels

None yet

Projects

None yet

Webpack.js.org

Use config.host.images to construct URLs from images proxy #1497



Merged

znarf merged 1 commit into master from fix/proxy-with-images-url 7 days ago



Conversation 0



Commits 1



Checks 0



Files changed 2



znarf commented 8 days ago • edited ▾

Contributor



Fixes: [opencollective/opencollective-images#10](#)



fix: use config.host.images to construct URLs from images proxy

✓ 3895d62



znarf referenced this pull request 8 days ago

Change on 17/09 from [opencollective.com](#) to [images.opencollective.com](#)
adds redirect #10

Closed

Reviewers

No reviews

Assignees

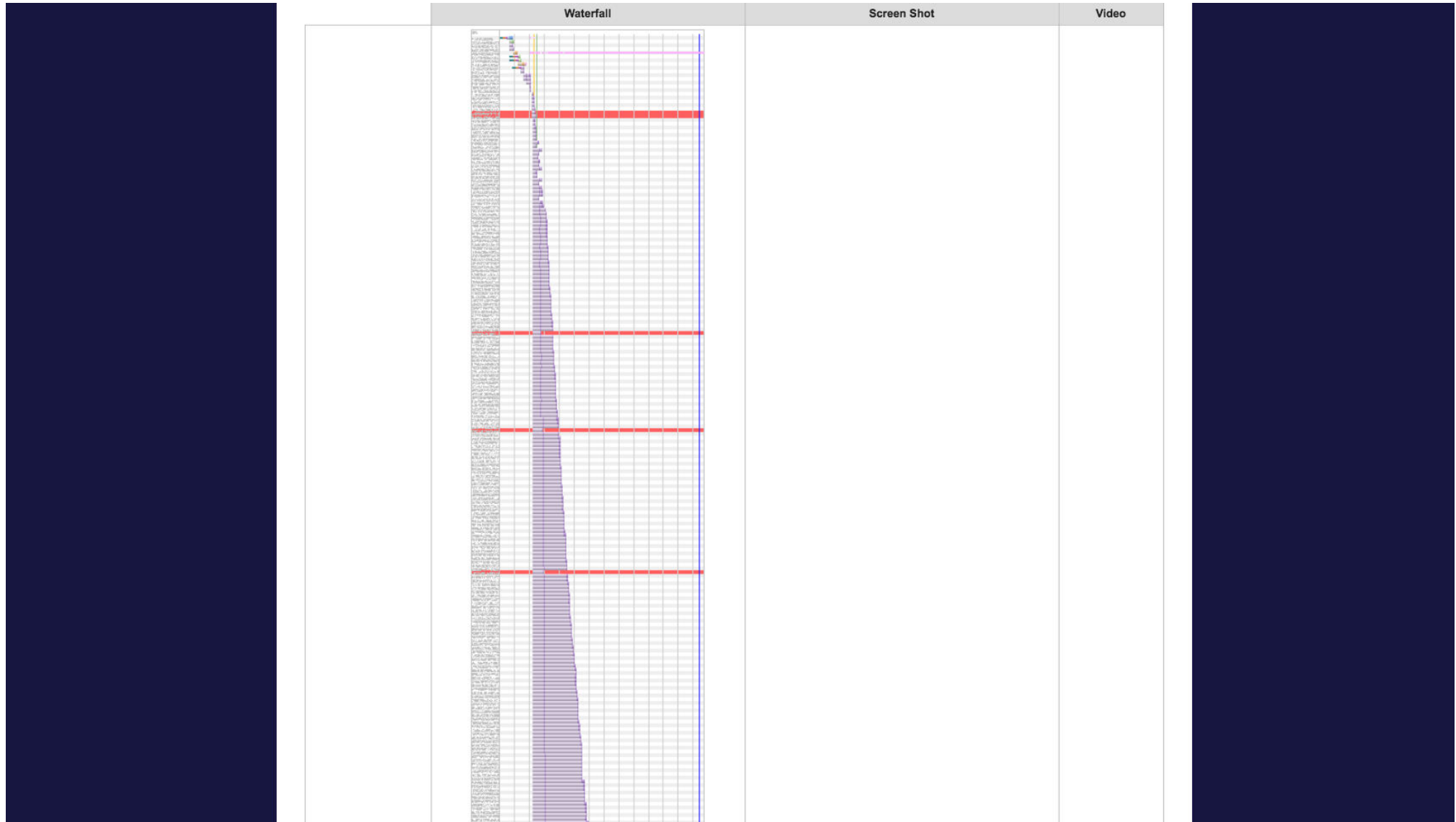
No one assigned

Labels

None yet

Projects

WebPack.js.org



Webpack.js.org

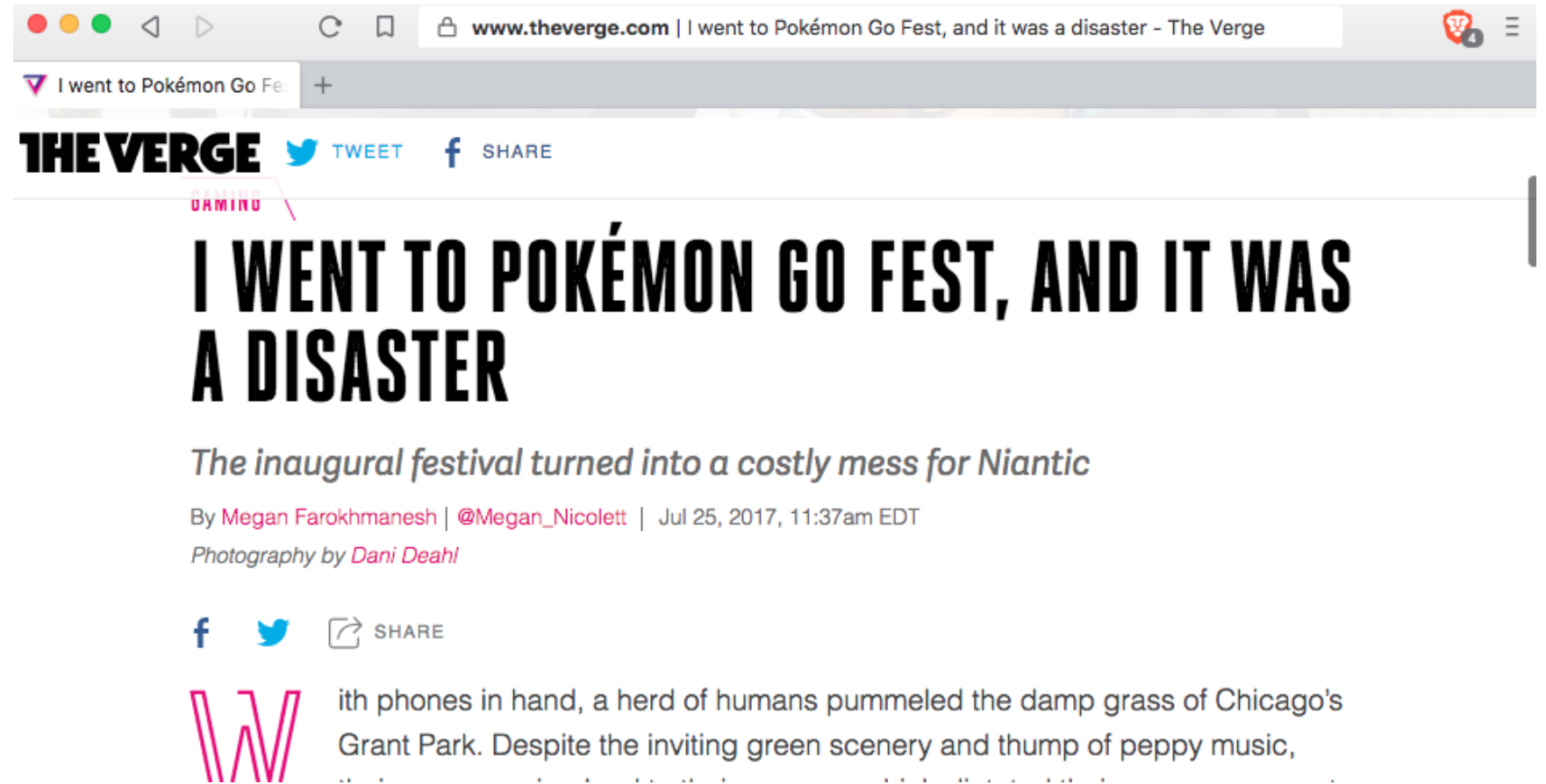
Changing parameters in your API?

Test any downstream effects!

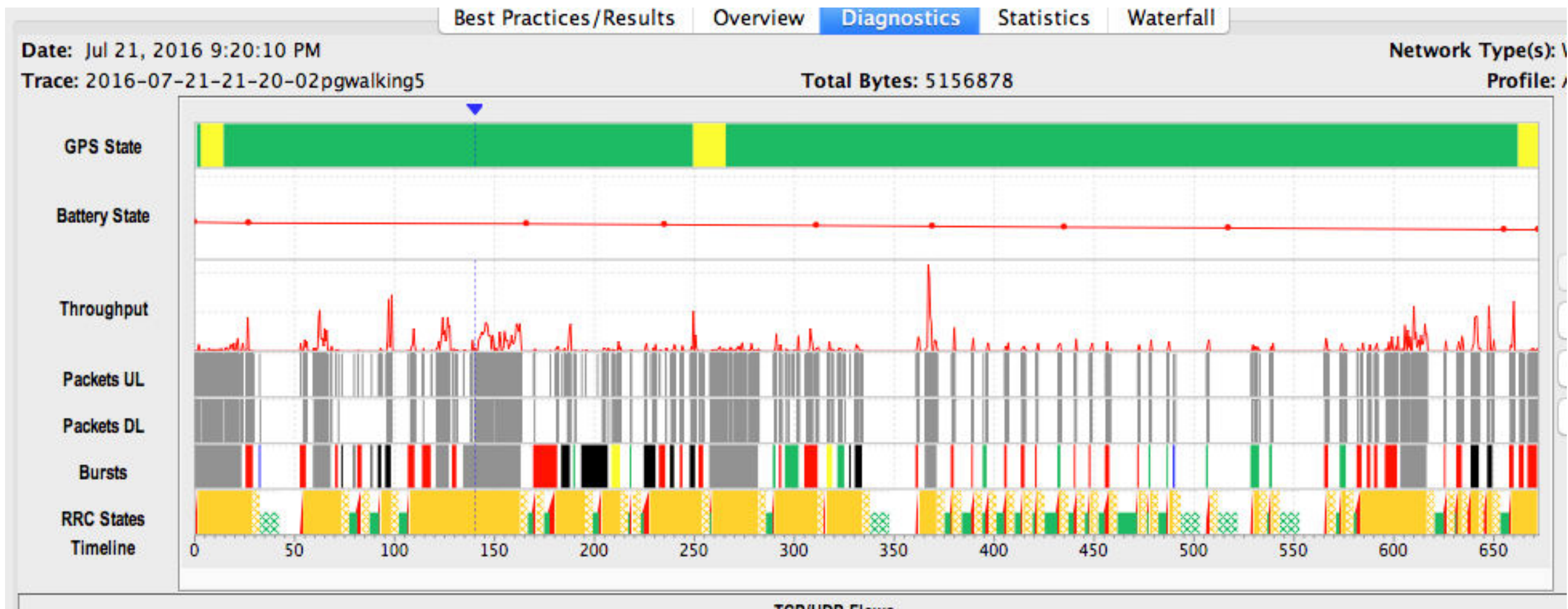
Rules for Speed

- Optimize Content Delivery
 - Location
 - Connections
 - Redirects
 - **Number Of Connections**
- Optimize Content
 - Text Files (JSON, html, JavaScript, CSS, etc)
 - Images
 - Video

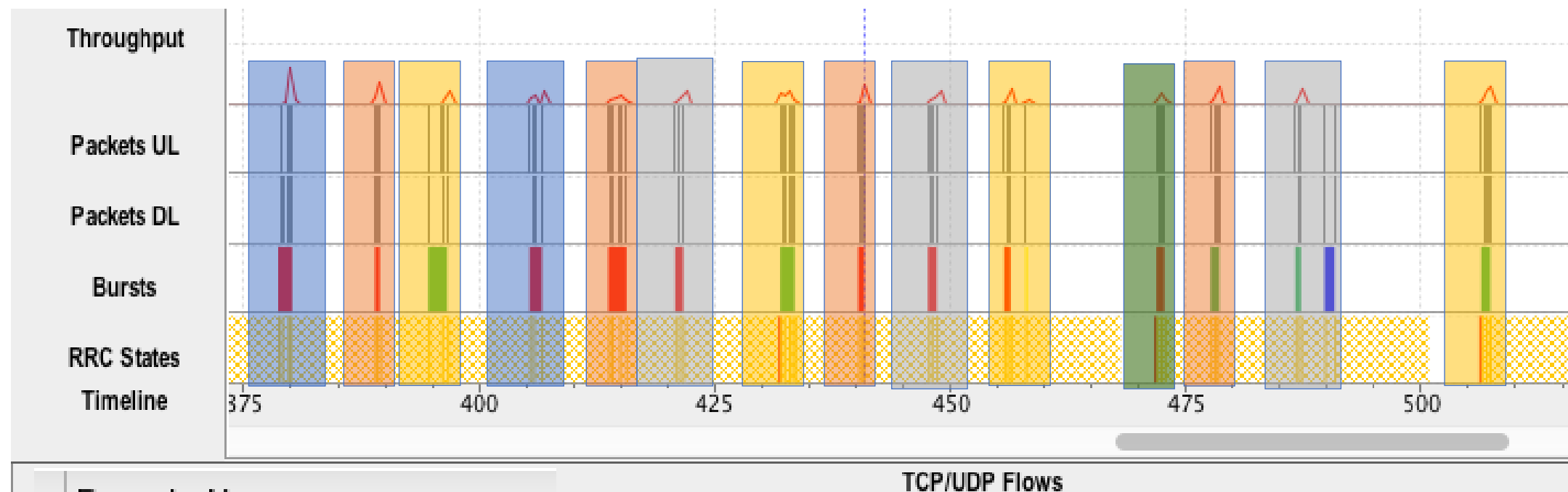
Pokémon Go!



Pokémon Go!



Pokémon Go! API Calls

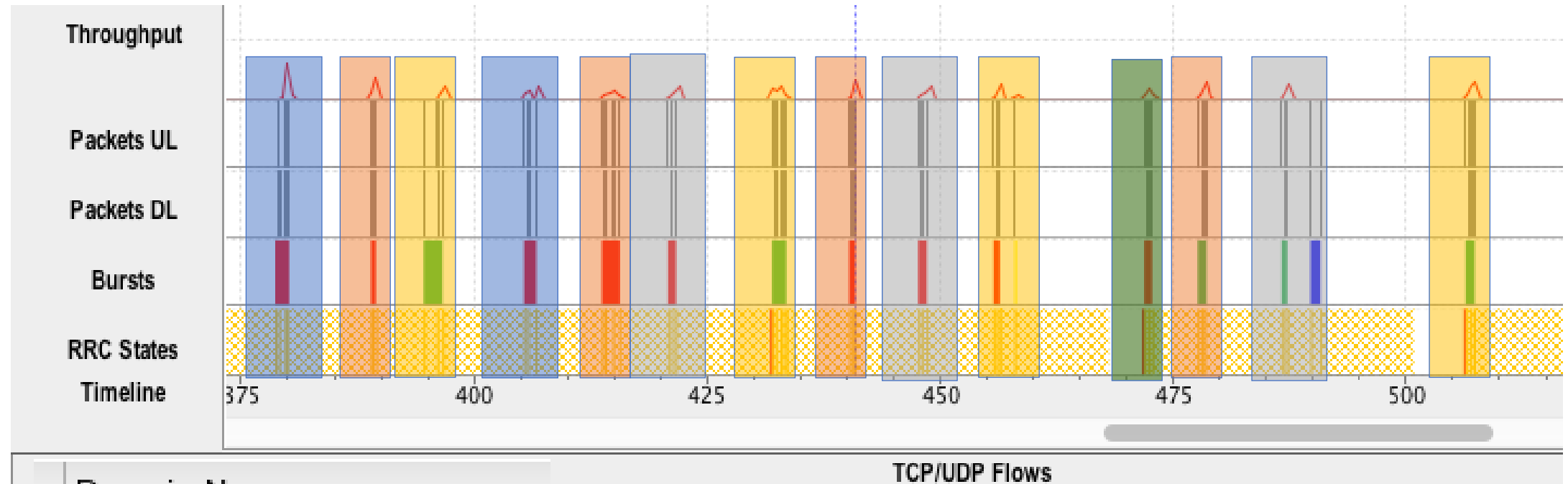


Domain Name

298.479	stats.unity3d.com
302.342	pgorelease.nianticlabs.com
327.917	pgorelease.nianticlabs.com
268.663	pgorelease.nianticlabs.com
271.639	lh3.ggpht.com
271.642	pgorelease.nianticlabs.com

20,000 users = 100,000
connections

Pokémon Go! API Calls



Domain Name

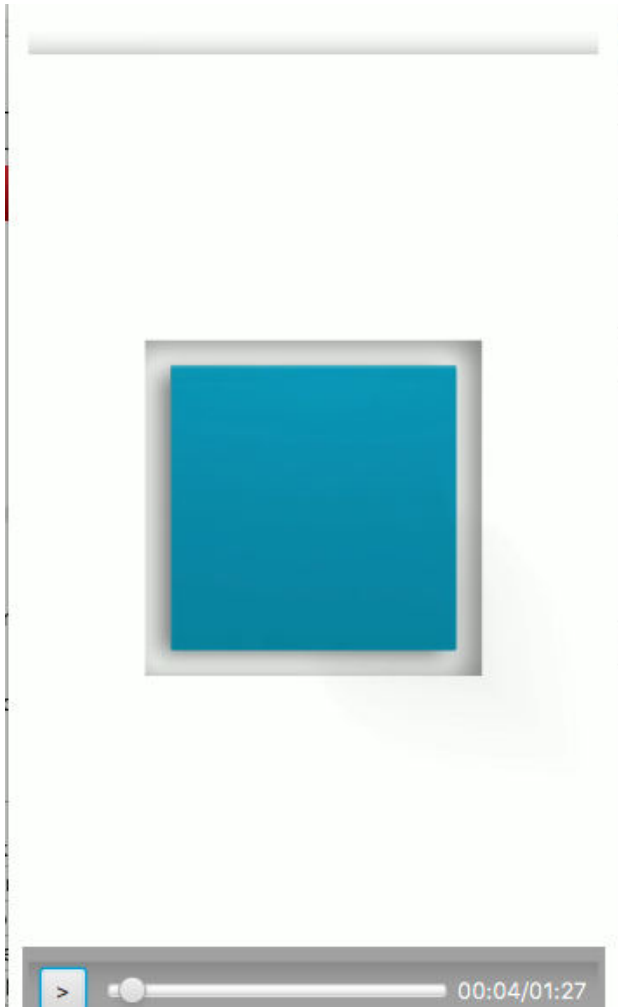
298.479	stats.unity3d.com
302.342	pgorelease.nianticlabs.com
327.917	pgorelease.nianticlabs.com
268.663	pgorelease.nianticlabs.com
271.639	lh3.ggpht.com
271.642	pgorelease.nianticlabs.com

Reuse Connections to Prevent
DDoS-like behaviours

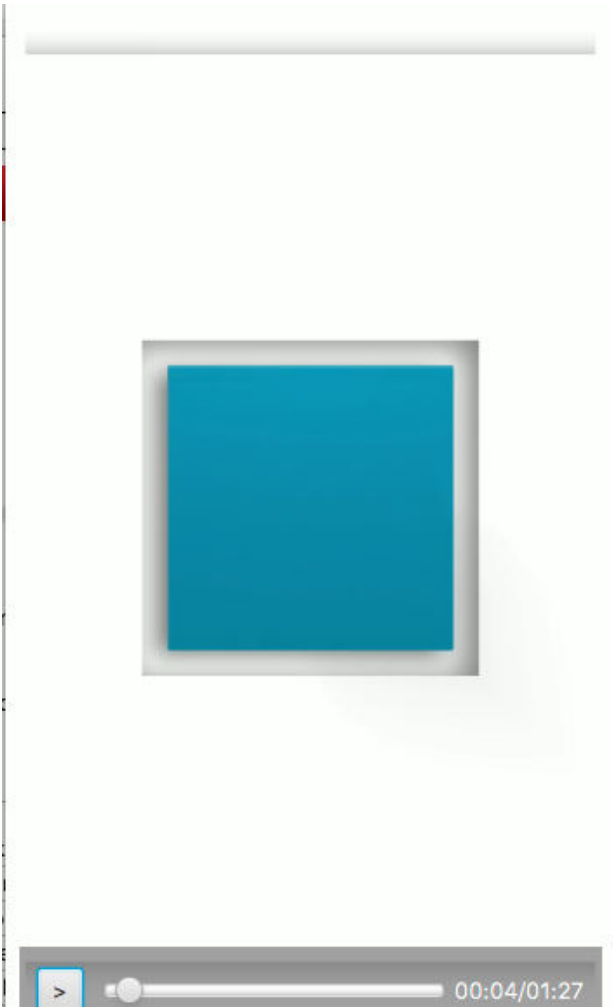
Rules for Speed

- Optimize Content Delivery
 - Location
 - Connections
 - Redirects
 - Number Of Connections
- Optimize Content
 - **Text Files (JSON, html, JavaScript, CSS, etc)**
 - Images
 - Video

App Startup

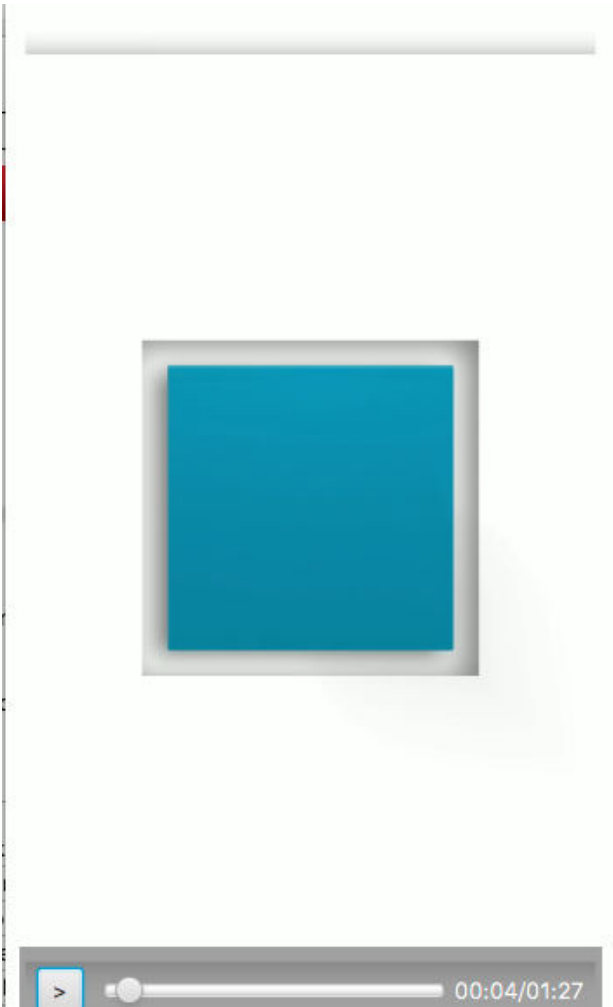


App Startup



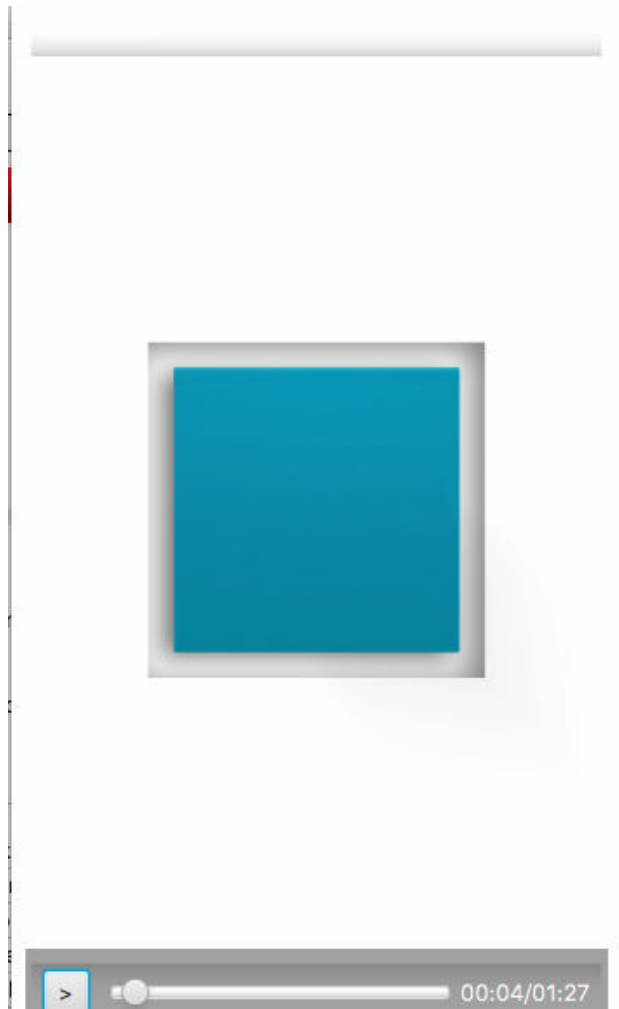
```
"id": 80369,
"date": "2018-10-28T00:59:00",
"date_gmt": "2018-10-28T07:59:00",
▼ "guid": {
  "rendered": "http://sciencenews.muradalikhan.com/2018/10/28/driverless-car-technology/"
},
"modified": "2018-10-28T00:59:00",
"modified_gmt": "2018-10-28T07:59:00",
"slug": "driverless-car-technology",
"status": "publish",
"type": "post",
"link": "http://sciencenews.muradalikhan.com/2018/10/28/driverless-car-technology",
▼ "title": {
  "rendered": "Driverless Car Technology?"
},
▼ "content": {
  "rendered": "<p>Can you imagine a daily-commute that is chaotic free? Organized and ordered? Well, connected and automated vehicles can someday make such imagination true<br />\n</p>\n<h2><a href=\"https://www.labroots.com/trending/technology/13108/driverless-car-technology\">Continue Reading</h2>\n<p></a></p>\n",
  "protected": false
},
▼ "excerpt": {
```

App Startup



```
"id": 80369,
"date": "2018-10-28T00:59:00",
"date_gmt": "2018-10-28T07:59:00",
▼ "guid": {
  "rendered": "http://sciencenews.muradalikhan.com/2018/10/28/driverless-car-technology/"
},
"modified": "2018-10-28T00:59:00",
"modified_gmt": "2018-10-28T07:59:00",
"slug": "driverless-car-technology",
"status": "publish",
"type": "post",
"link": "http://sciencenews.muradalikhan.com/2018/10/28/driverless-car-technology",
▼ "title": {
  "rendered": "Driverless Car Technology?"
},
▼ "content": {
  "rendered": "<p>Can you imagine a daily-commute that is chaotic free? Organized and ordered? Well, connected and automated vehicles can someday make such imagination true<br />\n</p>\n<h2><a href=\"https://www.labroots.com/trending/technology/13108/driverless-car-technology\">Continue Reading</h2>\n<p></a></p>\n",
  "protected": false
},
▼ "excerpt": {
```

JSON Headers: Request



GET /wp-json/wp/v2/posts?categories

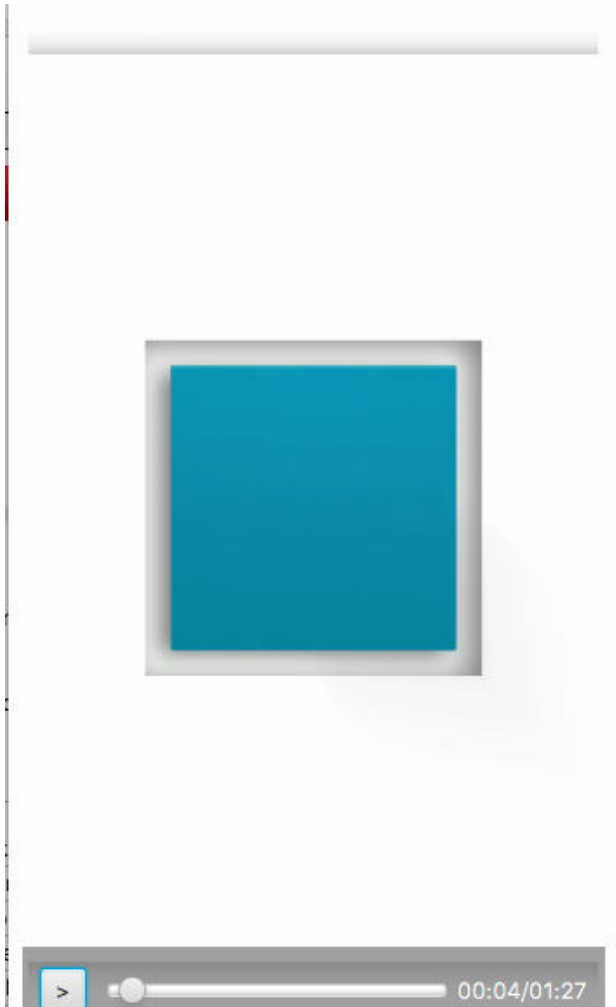
User-Agent Dalvik/2.1.0 (Linux; U; Android 8.1.0;

Host sciencenews.muradalikhan.com

Accept-Encoding gzip

Connection keep-alive

JSON Headers:Response



Date	HTTP/1.1 200 OK
Server	Sun, 28 Oct 2018 09:26:24 GMT
X-Robots-Tag	Apache
X-Content-Type-Options	noindex
Access-Control-Expose-Headers	nosniff
Access-Control-Allow-Headers	X-WP-Total, X-WP-TotalPages
X-WP-Total	Authorization, Content-Type
X-WP-TotalPages	5222
Link	523
Allow	; rel="next"
Keep-Alive	GET
Transfer-Encoding	timeout=5, max=100
Content-Type	chunked
Connection	application/json; charset=UTF-8
	keep-alive

JSON Headers:Response

	HTTP/1.1 200 OK
Date	Sun, 28 Oct 2018 09:26:24 GMT
Server	Apache
X-Robots-Tag	noindex
X-Content-Type-Options	nosniff
Access-Control-Expose-Headers	X-WP-Total, X-WP-TotalPages
Access-Control-Allow-Headers	Authorization, Content-Type
X-WP-Total	5222
X-WP-TotalPages	523
Link	; rel="next"
Allow	GET
Keep-Alive	timeout=5, max=100
Transfer-Encoding	chunked
Content-Type	application/json; charset=UTF-8
Connection	keep-alive

WANTED

Content-Encoding:

Cache-Control:

JSON Headers:Response

	HTTP/1.1 200 OK
Date	Sun, 28 Oct 2018 09:26:24 GMT
Server	Apache
X-Robots-Tag	noindex
X-Content-Type-Options	nosniff
Access-Control-Expose-Headers	X-WP-Total, X-WP-TotalPages
Access-Control-Allow-Headers	Authorization, Content-Type
X-WP-Total	5222
X-WP-TotalPages	523
Link	; rel="next"
Allow	GET
Keep-Alive	timeout=5, max=100
Transfer-Encoding	chunked
Content-Type	application/json; charset=UTF-8
Connection	keep-alive

WANTED

Content-Encoding:

Cache-Control:

Content-Encoding

JSON File: 267 KB

Content-Encoding: gzip

JSON.gz: 42 KB

85% savings

Content-Encoding: br

JSON.br: 30 KB

89% savings

JSON Headers:Response

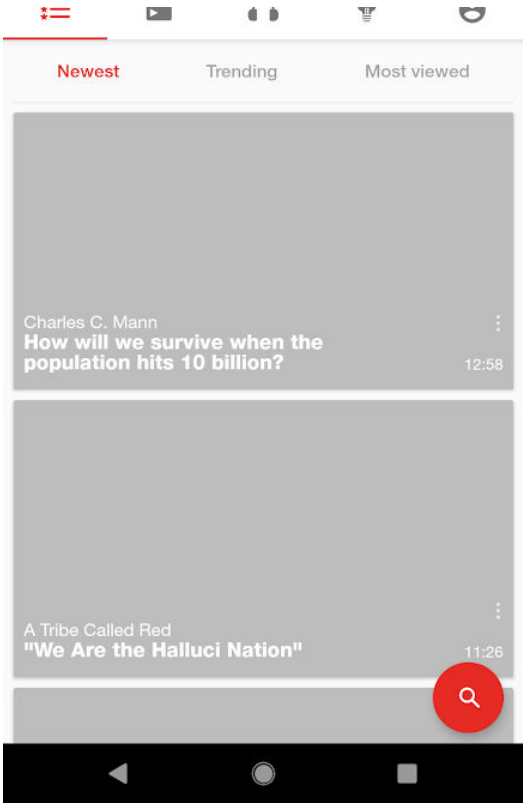
	HTTP/1.1 200 OK
Date	Sun, 28 Oct 2018 09:26:24 GMT
Server	Apache
X-Robots-Tag	noindex
X-Content-Type-Options	nosniff
Access-Control-Expose-Headers	X-WP-Total, X-WP-TotalPages
Access-Control-Allow-Headers	Authorization, Content-Type
X-WP-Total	5222
X-WP-TotalPages	523
Link	; rel="next"
Allow	GET
Keep-Alive	timeout=5, max=100
Transfer-Encoding	chunked
Content-Type	application/json; charset=UTF-8
Connection	keep-alive

WANTED

Content-Encoding:

Cache-Control:

Cache- Control



Duplicate Content			
Duplicate Content Type	Time	File Name	File Size (bytes) ▼
ORIGINAL_FILE	26.709	/products/get_product/74122dc5-ec33-41...	267,795
OBJDUP_NOT_EXPIRED	56.342	/products/get_product/74122dc5-ec33-41...	267,795
OBJDUP_NOT_EXPIRED	65.158	/products/get_product/74122dc5-ec33-41...	267,795
OBJDUP_NOT_EXPIRED	73.598	/products/get_product/74122dc5-ec33-41...	267,795
OBJDUP_NOT_EXPIRED	84.823	/products/get_product/74122dc5-ec33-41...	267,795
ORIGINAL_FILE	26.709	/products/get_product/74122dc5-ec33-41...	267,795

HTTP/1.1 200 OK

ETag "07c4c77a1d72bb9db76f2f9dc424dfb0"

Cache-Control max-age=300, public

Expires: Wed, 07 Nov 2019 11:59:47 GMT

JSON Data Analysis

Request/Response View Packet View Content View						
Time	Direction	Req Type/Status	Host Name...	Object Name/Content ...	On Wire	HTTP Compression
46.614	REQUEST	GET	pzprod-d...	http://pzprod-disco...	0	
46.891	RESPONSE	200	applicatio...	35065	35065	none

Gzips to 6 KB

JSON Data Analysis

```
"brandingChannel": "3040CC456779445380000e/150/485938",
"cast": [
  {
    "CastRole": "Actor",
    "ContentRole": "Newt",
    "fullName": "Eddie Redmayne",
    "profileImage":
"http://dtvn-imgres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://
/dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/448398/448398_ba_d.jpg&h=
21BA4F74424C74643F2E6DCF6BE3D6DB6609A872E13CF181D604448ED0E51135",
    "resourceId": "AEGPerson448398",
    "resourceType": "persons"
  },
  {
    "CastRole": "Actor",
    "ContentRole": "Newt",
    "fullName": "Eddie Redmayne",
    "profileImage":
"http://dtvn-imgres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://
/dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/448398/448398_ba_d.jpg&h=
21BA4F74424C74643F2E6DCF6BE3D6DB6609A872E13CF181D604448ED0E51135",
    "resourceId": "AEGPerson448398",
    "resourceType": "persons"
  }
]
```

JSON Data Analysis

```
{  
  "CastRole": "Actor",  
  "ContentRole": "Gellert Grindelwald",  
  "fullName": "Johnny Depp",  
  "profileImage":  
    "http://dtvn-imgres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://  
    /dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/33623/33623_ba_d.jpg&h=  
    199236318D057A39AE49BE0743BE58AC5DBD25726509534F096B2E811109FB7E",  
  "resourceId": "AEGPerson33623",  
  "resourceType": "persons"  
},  
{
```

JSON Data Analysis

```
    },  
    {  
      "CastRole": "Screenwriter",  
      "fullName": "J.K. Rowling",  
      "profileImage":  
"http://dtvn-imgres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://  
/dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/174909/174909_ba_d.jpg&h=  
5830A291675B4D4A651673152545A5100D850E33DC2EC8829AE4F25BA48AB658",  
      "resourceId": "AEGPerson174909",  
      "resourceType": "persons"  
    },  
    {
```


JSON Data Analysis

```
    },  
    {  
      "CastRole": "Art Director",  
      "fullName": "David Allday",  
      "profileImage":  
"http://dtvn-ingres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://  
dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/480374/480374_ba_d.jpg&h=  
72E6EA80FA18794218A666672D692E9B3C2001B6466FC928733F904B739AD50B",  
      "resourceId": "AEGPerson480374",  
      "resourceType": "persons"  
    },  
    {  
      "CastRole": "Art Director",  
      "fullName": "Les Tomkins",  
      "profileImage":  
"http://dtvn-ingres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://  
dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/471468/471468_ba_d.jpg&h=  
81798F9AAF3BE56F58872FC7B6731675194427A65E463C6CFDFB3375490ABC91",  
      "resourceId": "AEGPerson471468",  
      "resourceType": "persons"  
    },  
    {  
      "CastRole": "Art Director",  
      "fullName": "Guy Bradley",  
      "profileImage":  
"http://dtvn-ingres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://  
dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/978299/978299_ba_d.jpg&h=  
E335C0057B40F71611AAAFCE7B7B04663153928BFFAFD9CB85C74D83C6BC6F7B",  
      "resourceId": "AEGPerson978299",  
      "resourceType": "persons"  
    }  
  ]  
}
```

JSON Data Analysis

```
        "CastRole": "Art Director",
        "fullName": "Toby Britton",
        "profileImage":
        "http://dtvn-imgres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://
        /dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/978302/978302_ba_d.jpg&h=
        2A2A1C2FDF6C380AEA927F63F64317793367C9DDB4660A2D7AB7E9AD2686DE4E",
        "resourceId": "AEGPerson978302",
        "resourceType": "persons"
    },
    {
        "CastRole": "Art Director",
        "fullName": "Peter Dorme",
        "profileImage":
        "http://dtvn-imgres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://
        /dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/727479/727479_ba_d.jpg&h=
        58D165BEE396792D714374D179D6ABCB7312241151F3F7387AF351346E992E7F",
        "resourceId": "AEGPerson727479",
        "resourceType": "persons"
    },
    {
        "CastRole": "Art Director",
        "fullName": "Gavin Fitch",
        "profileImage":
        "http://dtvn-imgres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://
        /dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/837660/837660_ba_d.jpg&h=
        AA7C97CC2A8F4DB88E8493FA6509C834E6A47F399C97A45432B6E0267A3CC0E0",
        "resourceId": "AEGPerson837660",
        "resourceType": "persons"
    },
    },
```


JSON Data Analysis

```
    {
      "CastRole": "Art Director",
      "fullName": "Martin Foley",
      "profileImage":
"http://dtvn-ingres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://
/dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/550958/550958_ba_d.jpg&h=
95CFBA322A6BDF4EE067E9478C0D10BAB7B0F6F31E96D0395B1A348937DA8422",
      "resourceId": "AEGPerson550958",
      "resourceType": "persons"
    },
    {
      "CastRole": "Art Director",
      "fullName": "Kate Grimbale",
      "profileImage":
"http://dtvn-ingres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://
/dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/652729/652729_ba_d.jpg&h=
500BB3E8F09C32AD09AD91E36371835DCEA753A29B916B0F3D9FFE0607982AA5",
      "resourceId": "AEGPerson652729",
      "resourceType": "persons"
    },
    {
      "CastRole": "Art Director",
      "fullName": "Christian Huband",
      "profileImage":
"http://dtvn-ingres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://
/dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/553797/553797_ba_d.jpg&h=
E5D78AC2ED5A8DFF4071B6536373D64B11307D56A42C8DEF84DF4B0C3DB4AFF4",
      "resourceId": "AEGPerson553797",
      "resourceType": "persons"
    }
  ],
  {
```

JSON Data Analysis

```
    },  
    {  
      "CastRole": "Art Director",  
      "fullName": "Huw Arthur",  
      "profileImage":  
        "http://dtvn-imgres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://  
        /dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/978297/978297_ba_d.jpg&h=  
        7F7C3A61F0B9E7E3C581B7ABB2DB1512B7842BA57D068B3787F8D30DBE1CBE8C",  
      "resourceId": "AEGPerson978297",  
      "resourceType": "persons"  
    },  
    {  
      "CastRole": "Art Director",  
      "fullName": "Hayley Easton-Street",  
      "profileImage":  
        "http://dtvn-imgres-sponsored.akamaized.net/resizer/resizer?service=aeg_gmott&surl=https://  
        /dtvimages.hs.llnwd.net/e1/photos/celebs/celebs/746731/746731_ba_d.jpg&h=  
        1503934181A085143E40AF06349E7899A02E7BFE840E6223E803A00FBF4E413A",  
      "resourceId": "AEGPerson746731",  
      "resourceType": "persons"  
    },  
  ],  
}
```

JSON Data Analysis

Each Cast member is ~500 characters of data.


Art Direction: 5.5 KB alone!

Gzipped – saves an additional 1 KB.

Rules for Speed

- Optimize Content Delivery
 - Location
 - Connections
 - Redirects
 - Number Of Connections
- Optimize Content
 - Text Files (JSON, html, JavaScript, CSS, etc)
 - **Images**
 - Video

Images


**WEBPAGETEST**

**Transcription
Made Simple**

\$1
per minute

99 %
accuracy

12 hrs
turnaround



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

Web Page Performance Test for

<https://webpack.js.org>

From: Dulles, VA - Chrome - 3G
11/8/2018, 4:03:21 AM

Need help improving?

A

First Byte Time

A

Keep-alive Enabled

A

Compress Transfer

A

Compress Images

A

Cache static content

✓

Effective use of CDN

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

Tester: VM3-05-192.168.11.112

[Re-run the test](#)

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

	Document Complete					Fully Loaded			
	Load Time	First Byte	Start Render	Speed Index	First Interactive (beta)	Time	Requests	Bytes In	Cost
First View	26.913s	1.297s	5.000s	5.202s	6.386s	26.913s	717	3,886 KB	\$\$\$\$\$
Repeat View	4.168s	2.423s	1.900s	1.922s	> 3.977s	4.168s	4	2 KB	

Images

https://webpack.js.org

 [Share Results](#)

Page Image Score



Mediocre

Image Weight Comparison



Total Images Analyzed

 300

Only the first 300 images were analyzed

Total Image Weight

 2MB

Potential Compressed Weight ⓘ

 11.4%



Images



Test: Resize Images for Mobile

About: Images that are not correctly sized for mobile can cause extreme delays in rendering. Before delivering content to a mobile, resize it to fit the available area. [Learn more](#)

Results: Video Optimizer detected 19 image files that are 110% larger than the area specified for them. Consider resizing these images before delivering to the device.

Time	Host Name	Image Size	Image Name
24.172	flxt.tmsimg.com	832615	/assets/p3265_p_v12_ar.jpg?q=75
25.671	flxt.tmsimg.com	680147	/assets/p15843515_p_v11_aa.jpg?q=75
23.426	flxt.tmsimg.com	1148612	/assets/p15325196_p_v12_ac.jpg?q=75
25.413	flxt.tmsimg.com	943293	/assets/p15598770_p_v11_aa.jpg?q=75
23.274	flxt.tmsimg.com	1166091	/assets/p14603082_p_v13_ac.jpg?q=75?w=27&q=1



Test: Image Metadata

Image Processing

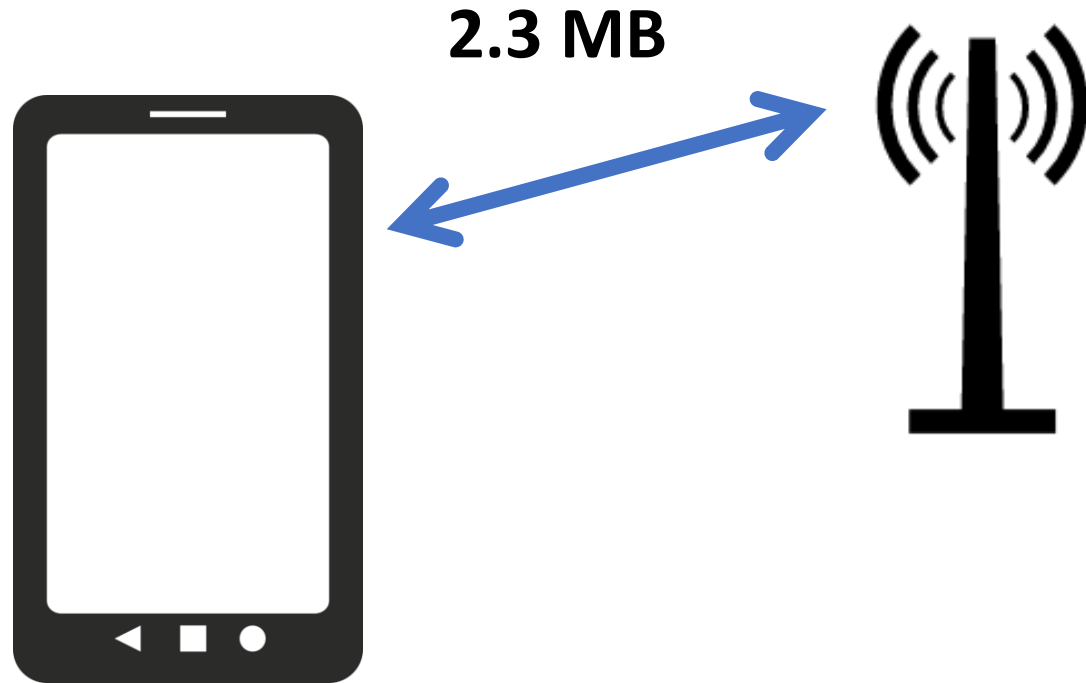
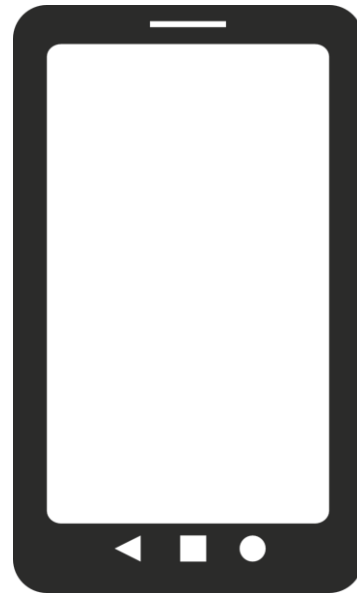


Image Processing



16M pixels



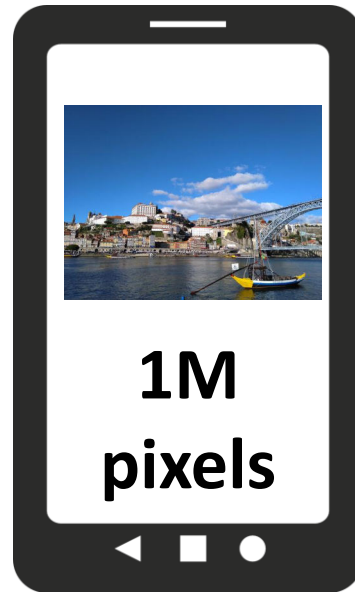
2.3 MB



Image Processing



16M pixels



**1M
pixels**

2.3 MB

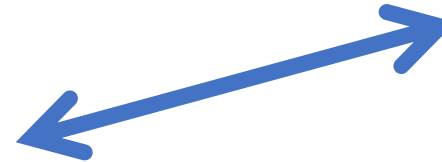
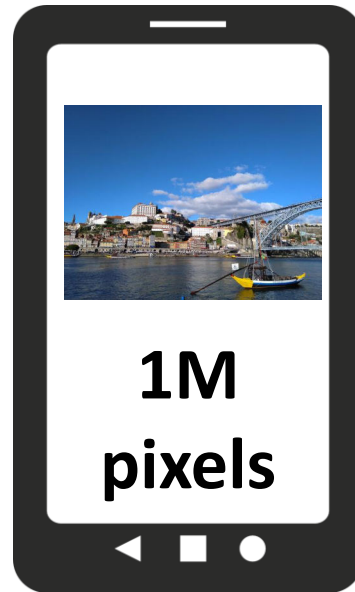


Image Processing



16M pixels

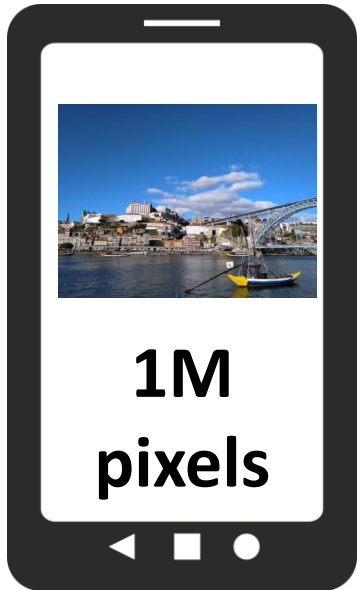


**1M
pixels**

2.3 MB



Image Processing



	Download (s)	Image Decode (ms)
Desktop	14	78
Moto G4	14.2	218
Alcatel 1X	14.2	820

Image Size
2.23 MB
4608 x 3456



Image Size
220 KB
1400 x 1050



https://res.cloudinary.com/dougsillars/image/upload/w_1400/v1540978150/IMG_20181028_153301_okeb2b.jpg

Images



Test: Image Compression

About: Saving your image with a quality under 100% will reduce the size of the file. This will speed transfer and use less data. It also reduces the quality of your image, so it should be used with discretion. This test looks for images that are 15% smaller when saved at the 85% quality setting [Learn more...](#)

Results: If all of the images below were delivered at 85% compression, 376 KB less data would be used.

Time	Image Name	Original...	85% Compr...	70% Compr...
115.079	/v9/AllPhotos/207636/207636_v9_bb.jpg	363.1	299.0	223.0
42.740	/v9/AllPhotos/248273/248273_v9_bb.jpg	335.4	277.8	209.2
115.092	/v9/AllPhotos/250833/250833_v9_ba.jpg	208.9	163.4	118.0
42.833	/v4/AllPhotos/20565/20565_v4_bc.jpg	116.9	69.8	53.2
43.700	/v3/AllPhotos/1177197/1177197_v3_ba.jpg	52.4	23.0	17.2

+

Image Quality

Removes pixels from
image: Lossy
compression

Google
recommends 85%
for web



https://res.cloudinary.com/dougsillars/image/upload/w_1400,q_85/v1540978150/IMG_20181028_153301_okeb2b.jpg

Image Quality

SSIM

Quality adjusted to
limit of human
perception



https://res.cloudinary.com/dougsillars/image/upload/w_1400,q_auto/v1540978150/IMG_20181028_153301_okeb2b.jpg

Image Quality

SSIM

Quality adjusted to
limit of human
perception

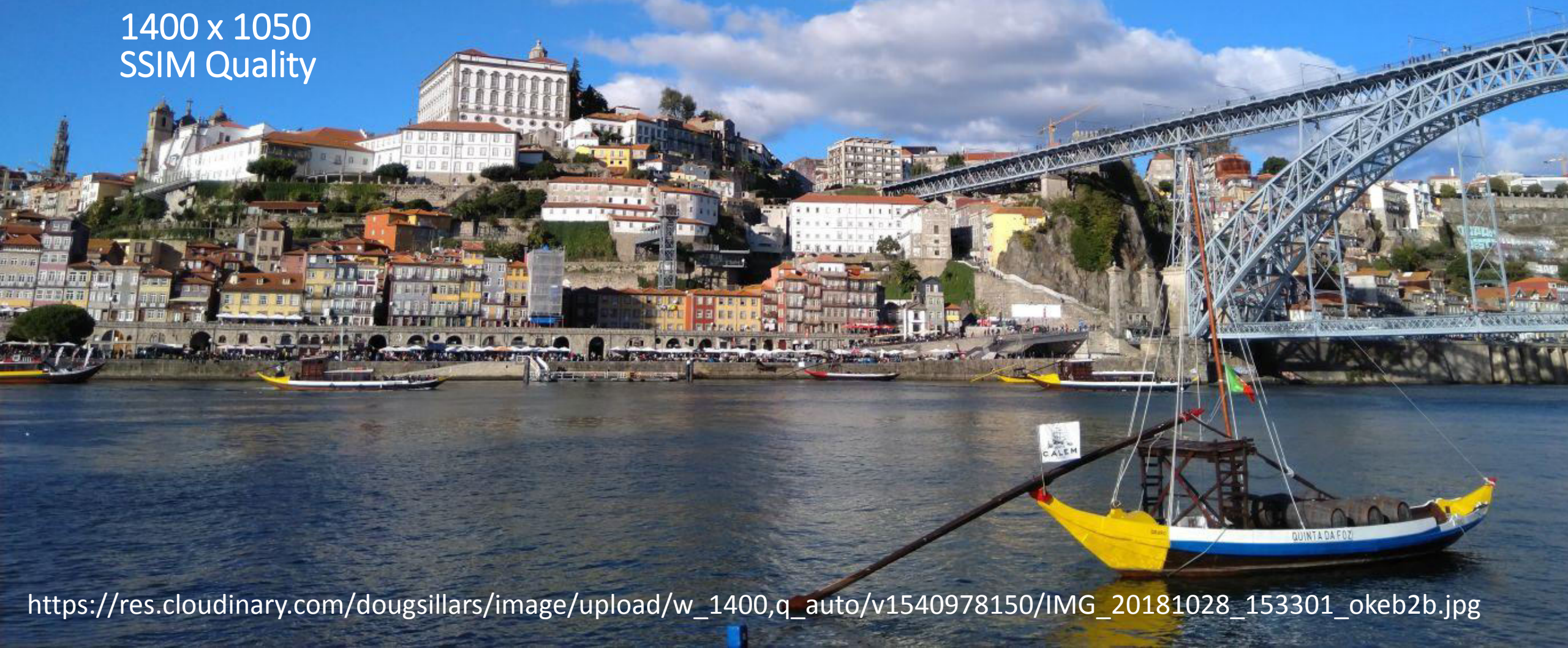


Image Quality

180 KB

1400 x 1050

SSIM Quality



https://res.cloudinary.com/dougsillars/image/upload/w_1400,q_auto/v1540978150/IMG_20181028_153301_okeb2b.jpg

Images



Test: Image Format

About: Newer image formats (like WebP for Android and JPEG2000 for iOS) feature the same visual quality as traditional formats (like JPEG and GIF, etc.) but offer much higher compression – resulting in less data use, and faster image delivery. [Learn more...](#)

Results: In this trace, we discovered 12 images that are > 15% smaller when converted to a newer image format, saving 870KB (68%).

Time	Image Name	Image Si... ▼	Formatted I...	% Savings
115.079	/v9/AllPhotos/207636/207636_v9_bb.jpg	363.0	143.0	60
42.740	/v9/AllPhotos/248273/248273_v9_bb.jpg	335.0	132.0	60
115.092	/v9/AllPhotos/250833/250833_v9_ba.jpg	208.0	52.0	74
42.833	/v4/AllPhotos/20565/20565_v4_bc.jpg	116.0	33.0	71
43.700	/v3/AllPhotos/1177197/1177197_v3_ba.jpg	52.0	12.0	76



https://res.cloudinary.com/dougsillars/image/upload/w_1400,f_auto/v1540978150/IMG_20181028_153301_okeb2b.jpg

WebP Support

WebP image format - UNOFF

Usage
Global

% of all users

72.15% + 0.28% = 72.43%

Image format that supports lossy and lossless compression, as well as animation and alpha transparency.

Current aligned	Usage relative	Date relative	Apply filters	Show all	?										
IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Blackberry Browser	Opera Mobile *	Chrome for Android	Firefox for Android	IE Mobile	UC Browser for Android	Sams Intern
			4-8		10.1			2.1-3							
			¹ 9-22		¹ 11.5			¹ 4-4.1							
6-10	12-16	2-62	23-69	3.1-11.1	12.1-55	3.2-11.4		4.2-4.4.4	7	12-12.1			10		4-6
11	17	63	70	12	56	12	all	67	10	46	69	62	11	11.8	7.2
	18	64	71-73	TP											
		65													

Image Format

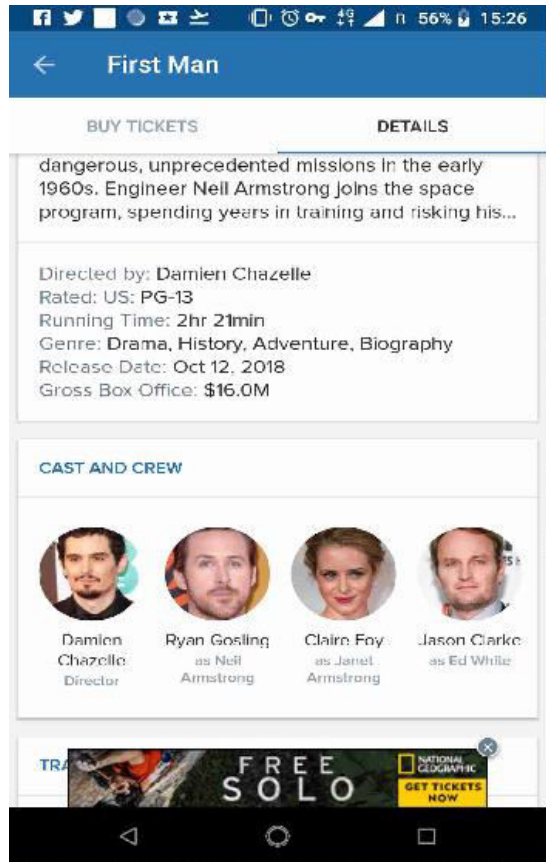
161 KB

1400 x 1050
SSIM Quality
WebP



https://res.cloudinary.com/dougsillars/image/upload/w_1400,q_auto,f_auto/v1540978150/IMG_20181028_153301_okeb2b.jpg

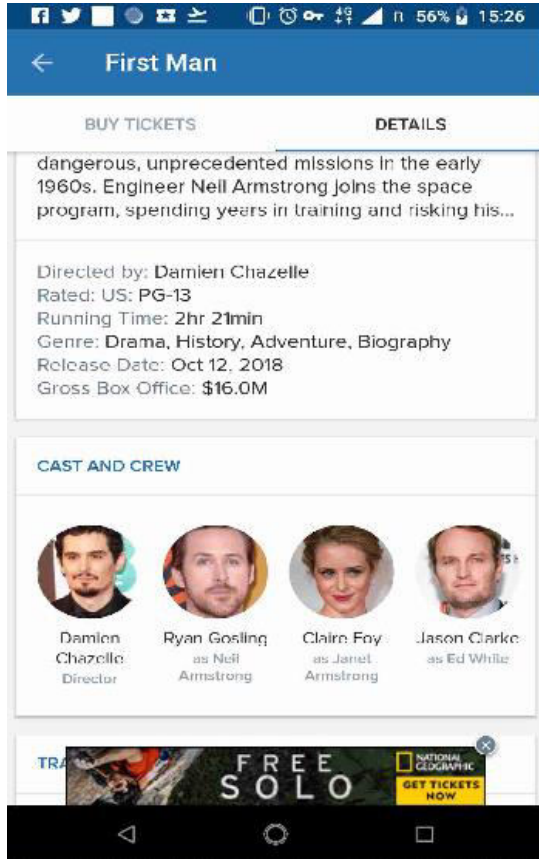
Images



1080x1440

363 KB

Images



150x150

5 KB WebP

**98.6%
smaller**



https://res.cloudinary.com/dougsillars/image/upload/c_thumb,r_max,w_150,h_150,f_auto,q_85/v1542166127/207636_v9_bb_cqnjbd.jpg

Rules for Speed

- Optimize Content Delivery
 - Location
 - Connections
 - Redirects
 - Number Of Connections
- Optimize Content
 - Text Files (JSON, html, JavaScript, CSS, etc)
 - Images
 - **Video**

Video

Video

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

Web Page Performance Test for

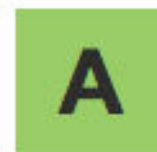
[mba.illinois.edu](#)

From: Dulles, VA - Chrome - Native
11/18/2018, 4:07:34 AM

[Need help improving?](#)



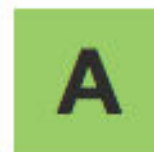
First Byte
Time



Keep-alive
Enabled



Compress
Transfer



Compress
Images



Cache
static
content

X

Effective
use of CDN

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

Tester: VM4-01-192.168.11.119

First View only

[Re-run the test](#)

[Raw page data](#) - [Raw object data](#)

[Export HTTP Archive \(.har\)](#)

[View Test Log](#)

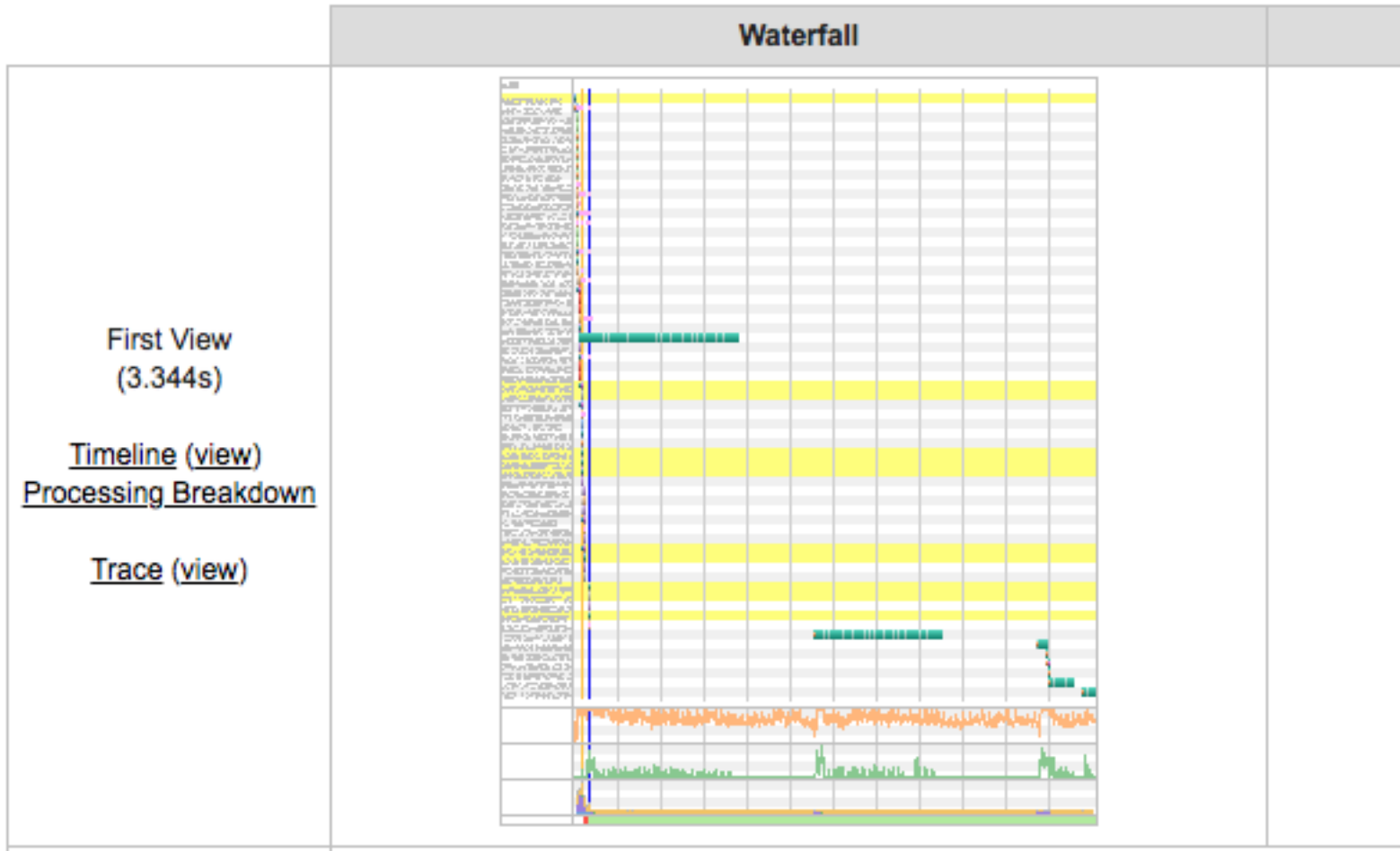
					Document Complete			Fully Loaded			
Load Time	First Byte	Start Render	Speed Index	First Interactive (beta)	Time	Requests	Bytes In	Time	Requests	Bytes In	Cost
3.344s	0.578s	1.800s	35.225s	3.429s	3.344s	51	97,489 KB	119.988s	63	253,066 KB	\$\$\$\$\$

Waterfall



Screen Shot

Video



Video

I ILLINOIS
Gies College of Business



[Apply Now](#)

[Get Info](#)



Video

```
<video preload="auto" autoplay loop muted><source  
src="https://business.illinois.edu/mrefresh/wp-  
content/uploads/sites/78/2016/08/Campus.mp4"  
type="video/mp4">
```


Video

```
<video preload="auto" autoplay loop muted><source  
src="https://business.illinois.edu/mrefresh/wp-  
content/uploads/sites/78/2016/08/Campus.mp4"  
type="video/mp4">
```

Automatically downloads the entire video – No matter if playback occurs or not.

Only use if you are sure video will be played back

Video

```
<video preload="auto" autoplay loop muted><source  
src="https://business.illinois.edu/mrefresh/wp-  
content/uploads/sites/78/2016/08/Campus.mp4"  
type="video/mp4">
```

To work on mobile Safari, should also have “playsinline” attribute

Video

Request #29

Details

Request

Response

Object

URL: https://business.illinois.edu/mrefresh/wp-content/uploads/sites/78/2016/08/Campus.mp4

Loaded By: https://mba.illinois.edu/:398

Host: business.illinois.edu

IP: 192.17.21.81

Error/Status Code: 206

Priority: LOWEST

Protocol: http/1.1

Request ID: 1000015807.61

Client Port: 57138

Request Start: 1.846 s

Time to First Byte: 80 ms

Content Download: 47051 ms

Bytes In (downloaded): 96300.6 KB

Uncompressed Size: 96300.1 KB

Video

Request #29

Details

Request

Response

Object

URL: https://business.illinois.edu/mrefresh/wp-content/uploads/sites/78/2016/08/Campus.mp4

Loaded By: https://mba.illinois.edu/:398

Host: business.illinois.edu

IP: 192.17.21.81

Error/Status Code: 206

Priority: LOWEST

Protocol: http/1.1

Request ID: 1000015807.61

Client Port: 57138

Request Start: 1.846 s

Time to First Byte: 80 ms

Content Download: 47051 ms

Bytes In (downloaded): 96300.6 KB

Uncompressed Size: 96300.1 KB

Video

```
ffprobe -v error -show_streams -show_format  
https://business.illinois.edu/mrefresh/wp-  
content/uploads/sites/78/2016/08/Campus.mp4
```

```
codec_tag=0x31637661  
width=1920  
height=1080  
coded_width=1920
```

```
duration=50.922667  
size=98611339  
bit_rate=15491936  
frame_rate=24.0
```

Video

```
ffprobe -v error -show_streams -show_format  
https://business.illinois.edu/mrefresh/wp-  
content/uploads/sites/78/2016/08/Campus.mp4
```

```
duration=50.922667  
size=98611339  
bit_rate=15491936  
codec_tag=0x31637661  
width=1920  
height=1080  
coded_width=1920
```

Resize video appropriately for Desktop... and for mobile!

Consider lowering quality to reduce file size

Video

Resize video appropriately for Desktop... and for mobile!

Consider lowering quality to reduce file size

https://res.cloudinary.com/dougsillars/video/upload/w_1920,q_auto/v1543082006/Campus_mfkz6z.mp4

27 MB

https://res.cloudinary.com/dougsillars/video/upload/w_720,q_auto/v1543082006/Campus_mfkz6z.mp4

4.7 MB

Video

```
ffprobe -v error -show_streams -show_format  
https://business.illinois.edu/mrefresh/wp-  
content/uploads/sites/78/2016/08/Campus.mp4
```

```
[FORMAT]
```

```
filename=https://business.illinois  
8/Campus.mp4
```

```
nb_streams=2
```

```
nb_programs=0
```

Video

```
ffprobe -v error -show_streams -show_format  
https://business.illinois.edu/mrefresh/wp-  
content/uploads/sites/78/2016/08/Campus.mp4
```

```
[STREAM]  
[STREAM]  
index=1  
codec_name=aac  
codec_long_name=AAC (Advanced  
profile=LC  
codec_type=audio  
codec_time_base=1/48000
```

Video



Articles

Design & development

Books

Physical & digital books

Events

Conferences & workshops

Jobs

Find work & employees

Membership

Webinars & early-birds



OCTOBER 25, 2018 • [6 comments](#)

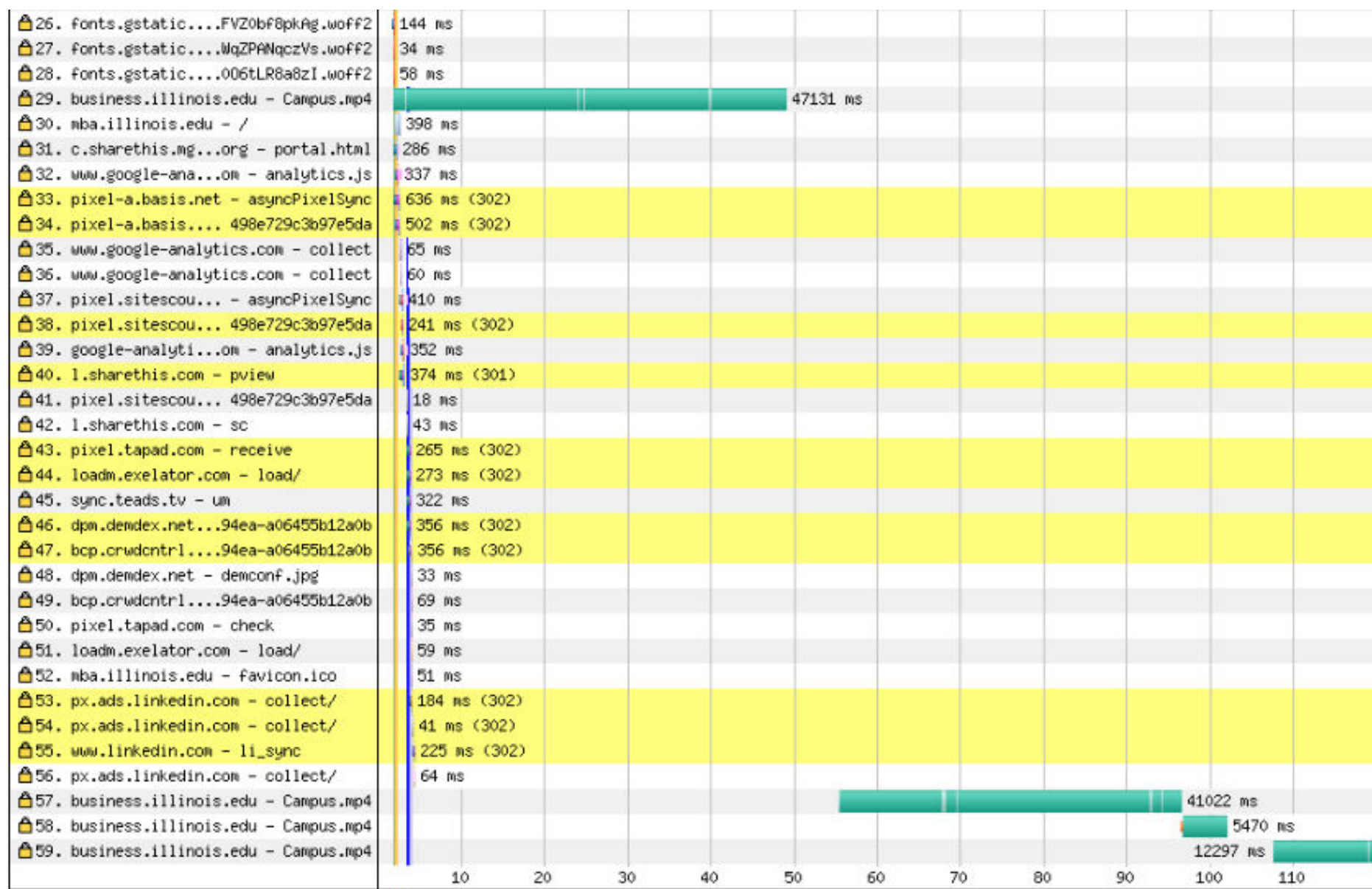
Video Playback On The Web: Video Delivery Best Practices (Part 2)

QUICK SUMMARY ➔ *In this series of posts on video performance on*


18 min read

<https://www.smashingmagazine.com/2018/10/video-playback-on-the-web-part-2/>

Video



Video

 bugs

Project: chromium ▾ Issues People Development process History

New issue Search Open issues ▾ for Search Advanced search Search tips Saved queries

★ Issue 907248 ↗

Starred by 1 user

Status: Unconfirmed

Owner: ---

Components: Internals>Network

EstimatedDays: ---

NextAction: ---

OS: Mac

Pri: 2

Type: Bug

Via-Wizard-NetworkDownloading

Needs-Triage-M70

Update hotlists

Large videos (~100MB) that loop are downloaded repeatedly, rather than read from cache

Reported by doug.sillars@gmail.com, Nov 20 (3 days ago)

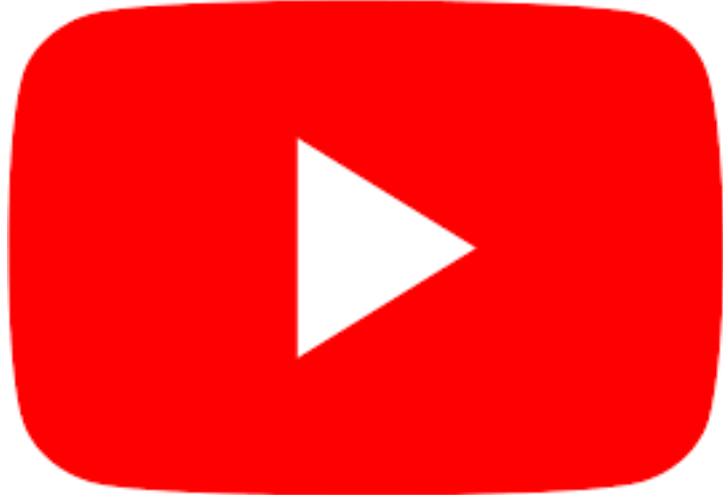
UserAgent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_13_6) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36

Example URL:
<http://mba.illinois.edu>, <http://beholdisrael.org>

Steps to reproduce the problem:
1. load page in chrome (or Canary) with devtools open.
2. observe background video playback (~1 minute)
3. When video begins loop - rather than read from cache, the video is downloaded again from the server. This can repeat many times, adding a large amount of tonnage to page load

What is the expected behavior?
Expected behaviour is that the video is cached and only read from the cache. This is seen in Firefox, Brave and Safari, but reproducible in Chrome and Canary.

Third Parties



No initial Video Download, but expect 700KB -1MB
additional JavaScript on page load

Video Third Parties



Video Third Parties

The image shows a TED video player interface. The video title is "A rare galaxy that's on the edge of the universe" by Burçin Mutlu-Pakdil | TED2018. A share modal is open, titled "Share this talk". It has two tabs: "Share" and "Tools". The "Share" tab contains icons for TED, Facebook, LinkedIn, Twitter, Email, and Link. The "Tools" tab contains icons for "Embed" (highlighted with a blue box) and "Download". Below the "Embed" icon, there is a text area labeled "Embed Link" containing the following code:

```
<div style="max-width:854px"><div style="position:relative;height:0;padding-
```

. At the bottom right of the modal is a "Copy link" button. The background video shows a woman in a headscarf looking up at a large, glowing galaxy.

Share this talk

Share

- Recommend
- Facebook
- LinkedIn
- Twitter
- Email
- Link

Tools

- Embed**
- Download


Embed Link

```
<div style="max-width:854px"><div style="position:relative;height:0;padding-
```

Copy link

Video Third Parties

← → ↻ 🔒 https://dougsillars.github.io/VideoPerf/ted.html ☆ 📺 📄 📷 🔄 📱



Play talk

Elements Console Sources Network Performance Memory Application Security Audits

View: [Icons] Group by frame [] Preserve log [x] Disable cache [] Offline Online ▼

Filter [] Hide data URLs [x] XHR JS CSS Img Media Font Doc WS Manifest Other

20000 ms 40000 ms 60000 ms 80000 ms 100000 ms 120000 ms 140000 ms 160000 ms 180000 ms 200000 ms 220000 ms

Name	Status	Type	Initiator	Size
<input type="checkbox"/> BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=22413360-22577295	206	xhr	c239c52...chunk.js:1	
<input type="checkbox"/> BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=22577296-22945587	206	xhr	c239c52...chunk.js:1	
<input type="checkbox"/> BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=22945588-24623111	206	xhr	c239c52...chunk.js:1	
<input type="checkbox"/> BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=24623112-25928771	206	xhr	c239c52...chunk.js:1	
<input type="checkbox"/> BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=25928772-26745819	206	xhr	c239c52...chunk.js:1	
<input type="checkbox"/> BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=26745820-27431455	206	xhr	c239c52...chunk.js:1	
<input type="checkbox"/> BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=27431456-28493655	206	xhr	c239c52...chunk.js:1	
<input type="checkbox"/> BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=28493656-28855743	206	xhr	c239c52...chunk.js:1	
<input type="checkbox"/> BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=28855744-29231179	206	xhr	c239c52...chunk.js:1	
<input type="checkbox"/> Blank-950k.ts?bytes=0-835283	206	xhr	c239c52...chunk.js:1	
<input type="checkbox"/> collect?v=1&_v=j70&a=1840886813&t=event&_s=5&d=ht...wjfl8h&cd13=1&cd14=hljs&cd18=inline&z=1357285111	200	gif	analytics.js:14	
<input type="checkbox"/> collect?v=1&_v=j70&a=1840886813&t=event&_s=6&d=ht...wjfl8h&cd13=1&cd14=hljs&cd18=inline&z=1796838132	200	gif	analytics.js:14	

118 requests | 32.0 MB transferred | Finish: 4.2 min | DOMContentLoaded: 95 ms | Load: 5.41 s

Video Third Parties

The screenshot shows a web browser window with the address bar displaying `https://dougsillars.github.io/VideoPerf/ted.html`. The main content area features a video player with a large play button in the center. The video frame shows a woman wearing a blue shirt and a beige hijab, standing in front of a background that appears to be a galaxy or nebula. A small "Play talk" button is visible in the top left corner of the video player.

Below the video player, the browser's developer tools are open, specifically the Network tab. The network log shows a series of requests, all of which are XHR (XMLHttpRequest) requests. The requests are listed in a table with columns for Name, Status, Type, Initiator, and Size.

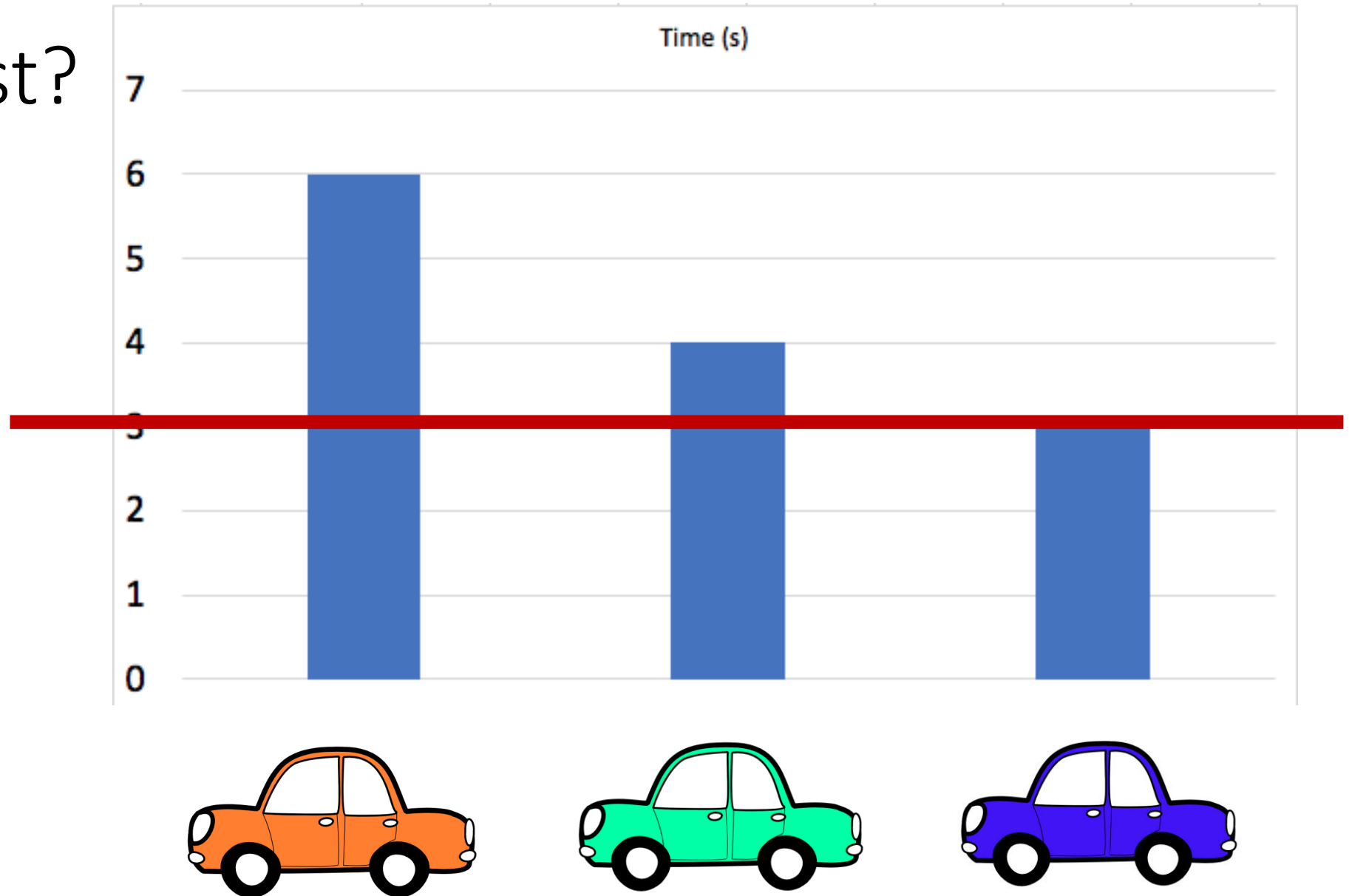
Name	Status	Type	Initiator	Size
BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=22413360-22577295	206	xhr	c239c52...chunk.js:1	
BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=22577296-22945587	206	xhr	c239c52...chunk.js:1	
BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=22945588-24623111	206	xhr	c239c52...chunk.js:1	
BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=24623112-25928771	206	xhr	c239c52...chunk.js:1	
BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=25928772-26745819	206	xhr	c239c52...chunk.js:1	
BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=26745820-27431455	206	xhr	c239c52...chunk.js:1	
BurcinMutluPakdil_2018U-950k-19d7bc75.ts?bytes=27431456-28493655	206	xhr	c239c52...chunk.js:1	

118 requests | 32.0 MB transferred | Finish: 4.2 min | DOMContentLoaded: 95

Rules for Speed

- Optimize Content Delivery
 - Location
 - Connections
 - Redirects
 - Number Of Connections
- Optimize Content
 - Text Files (JSON, html, JavaScript, CSS, etc)
 - Images
 - Video

Is It Fast?



Testing For Fast

Benchmark

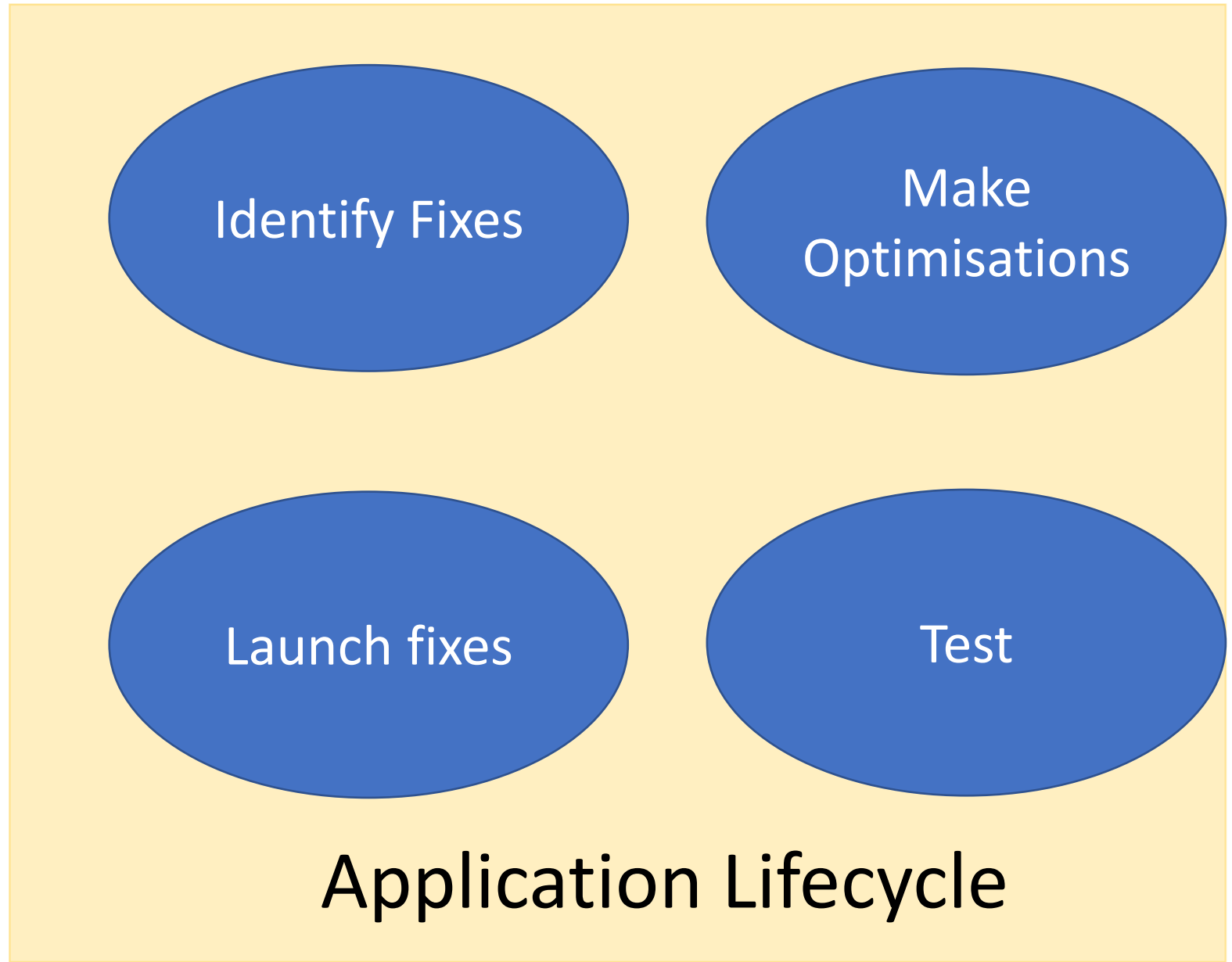
Identify Fixes

Make
Optimisations

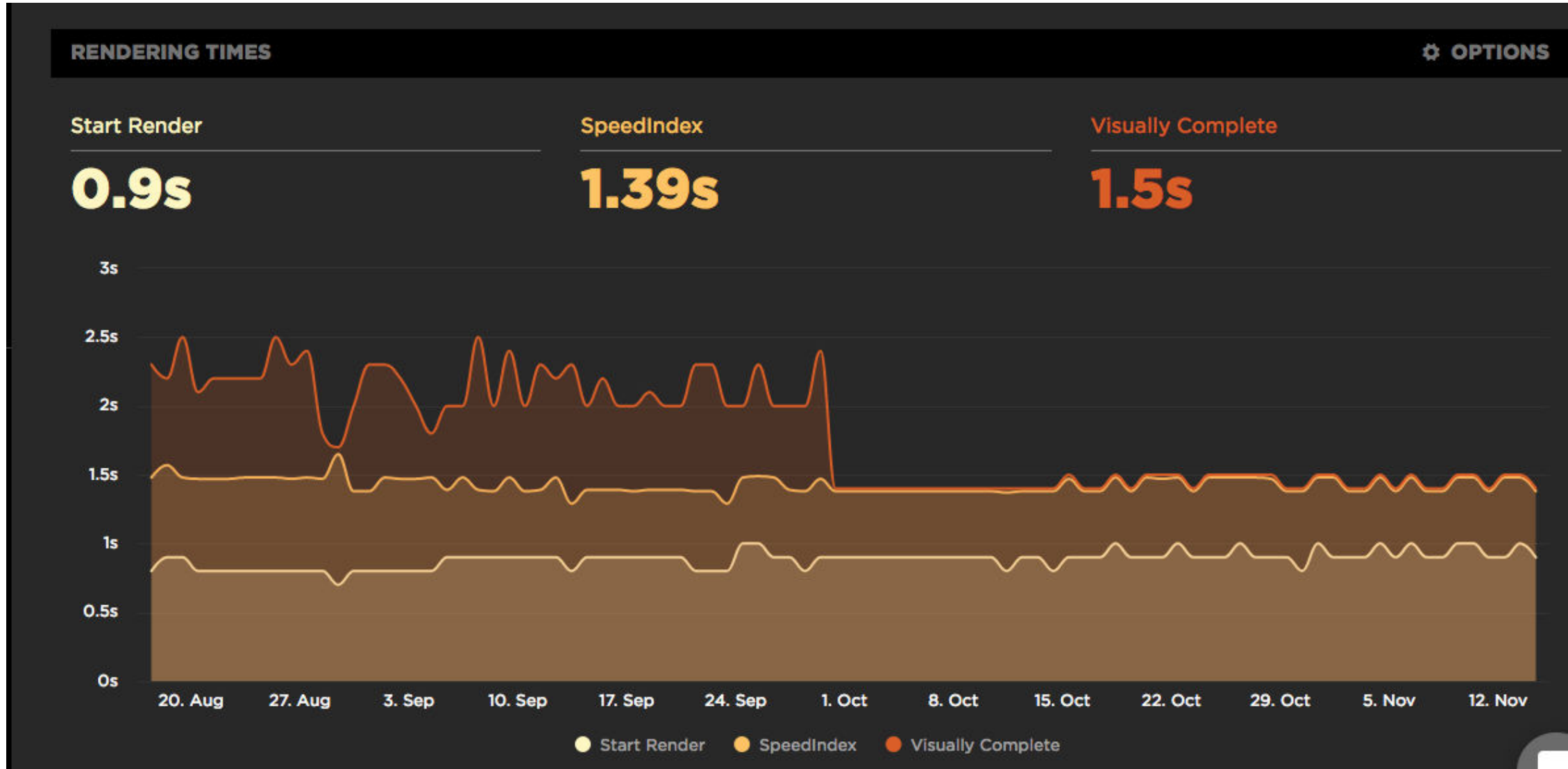
Launch fixes

Test

Application Lifecycle



Monitoring Performance



RENDERING TIMES

⚙️ OPTIONS

Start Render

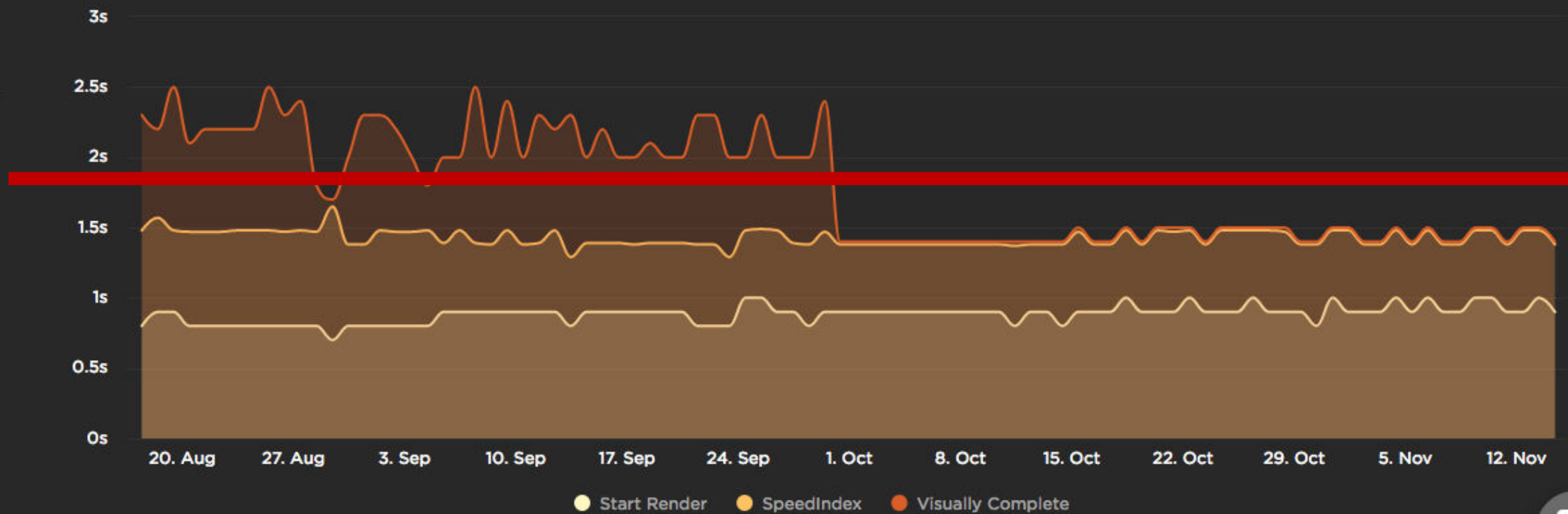
0.9s

SpeedIndex

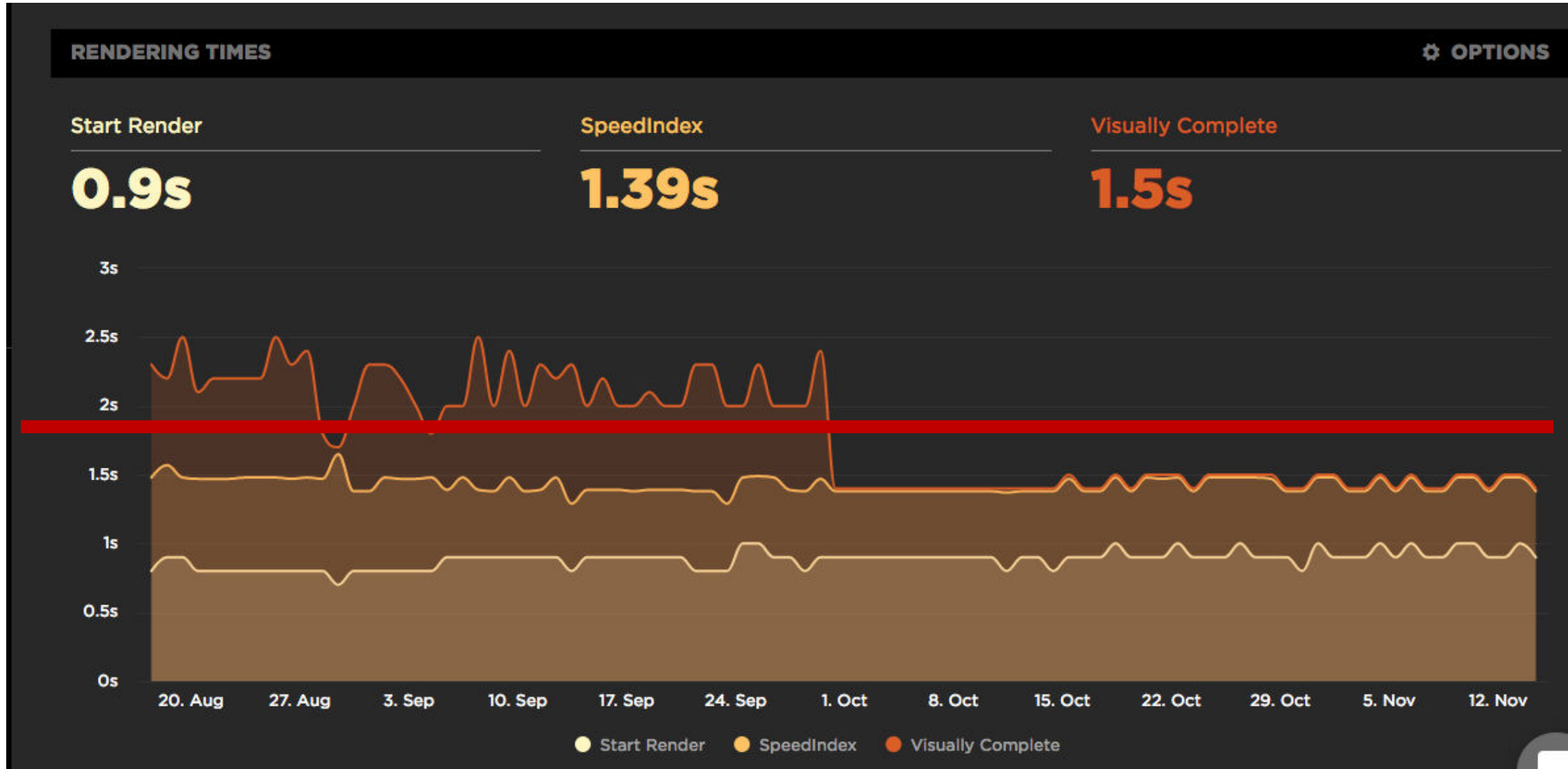
1.39s

Visually Complete

1.5s



Set Failure Thresholds



Conclusion

Speed and Load Time == Customer happiness == Money

Test Content for fast delivery

Minimise size of

text

images

video

Keep an eye on all Third Party Content

Test!!

Resources

- [Charlesproxy.com](https://charlesproxy.com)
 - [Webpagetest.org](https://webpagetest.org)
 - [Developer.att.com/videooptimizer](https://developer.att.com/videooptimizer)
-
- [Cloudinary.com](https://cloudinary.com)
 - [SpeedCurve.com](https://speedcurve.com)