



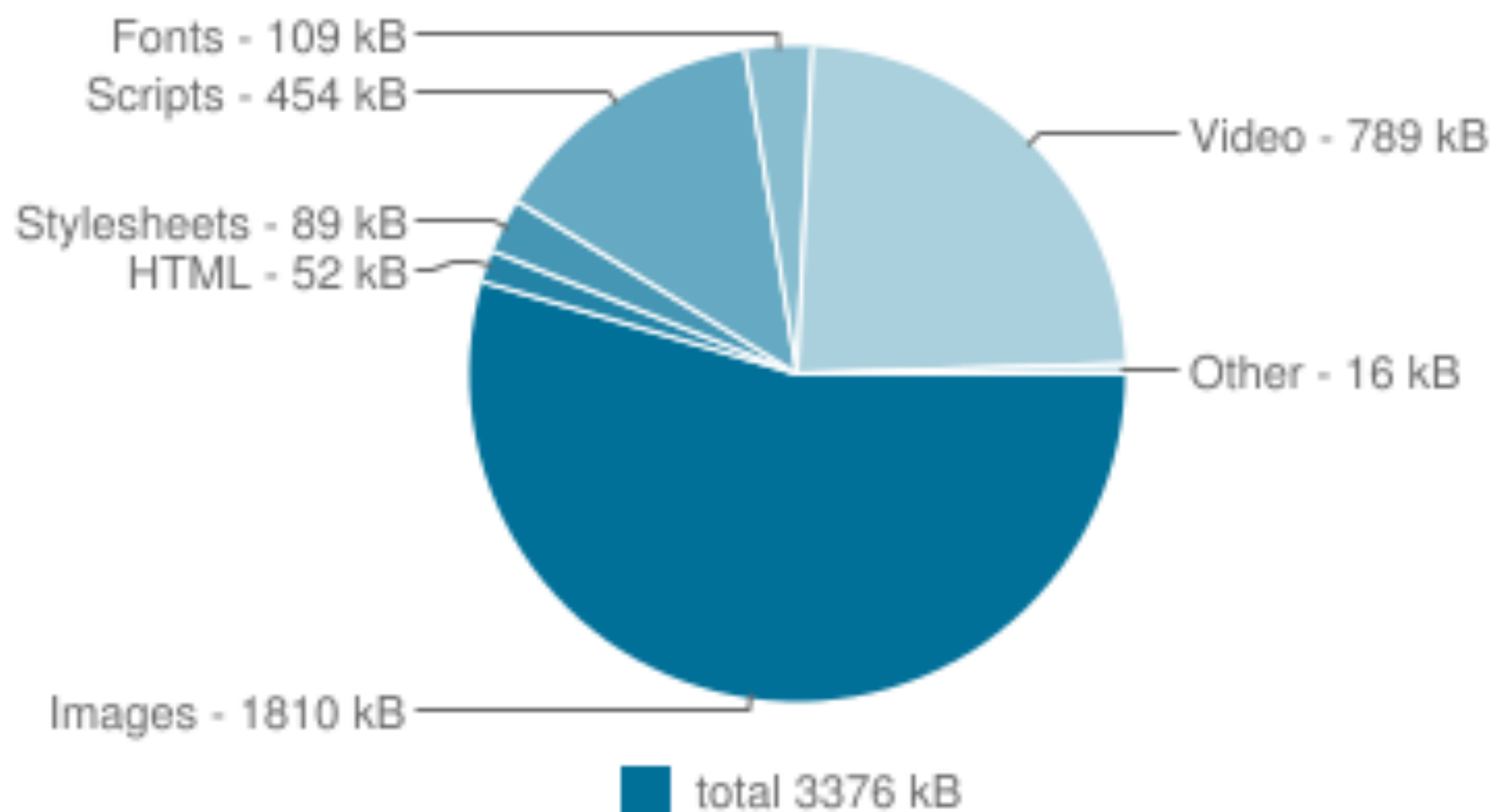
Images and the web

TOMISLAV SLOVENEČ



WHY

Average Bytes per Page by Content Type



54%

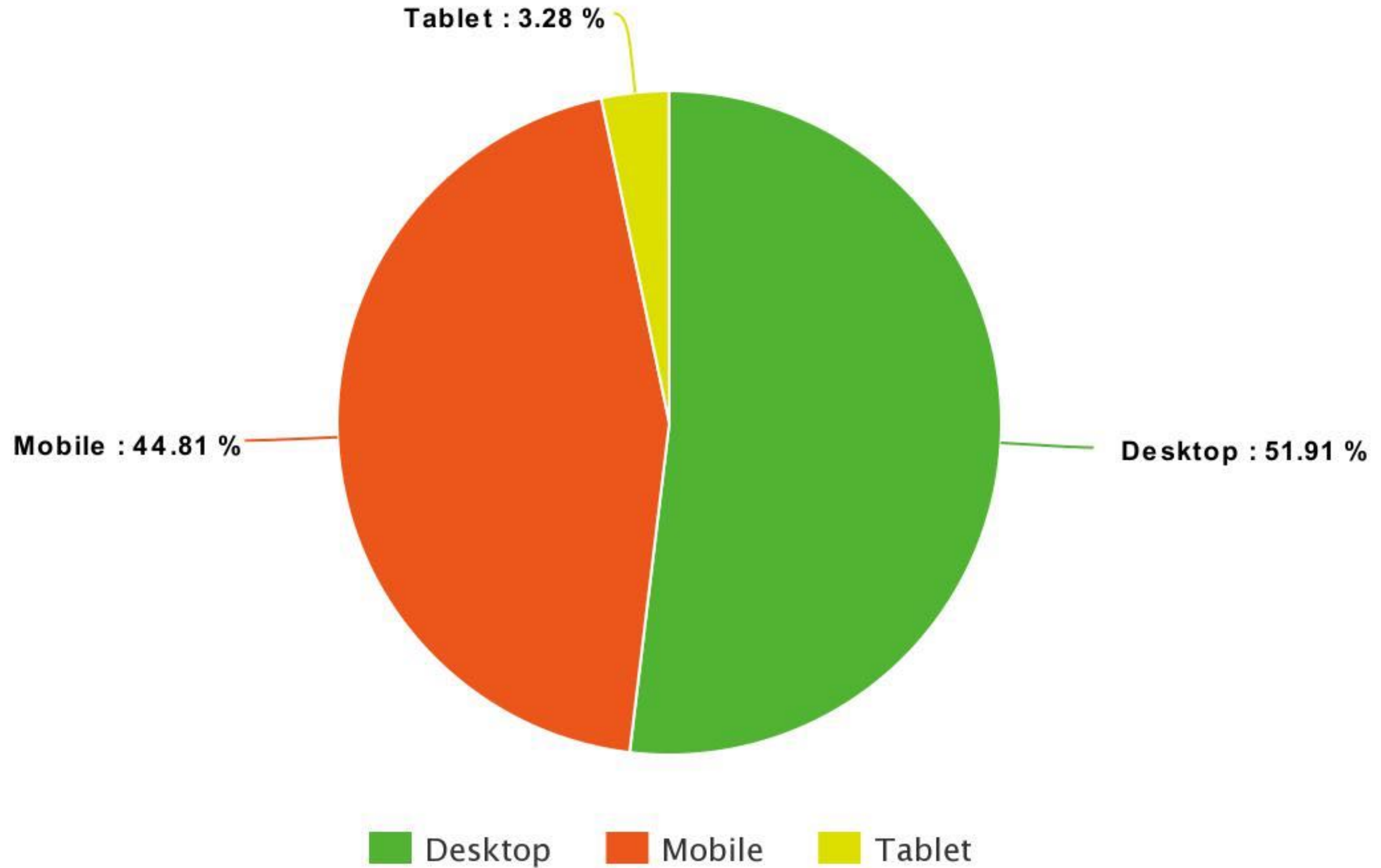
*“But that’s, like, the most of
the web”*

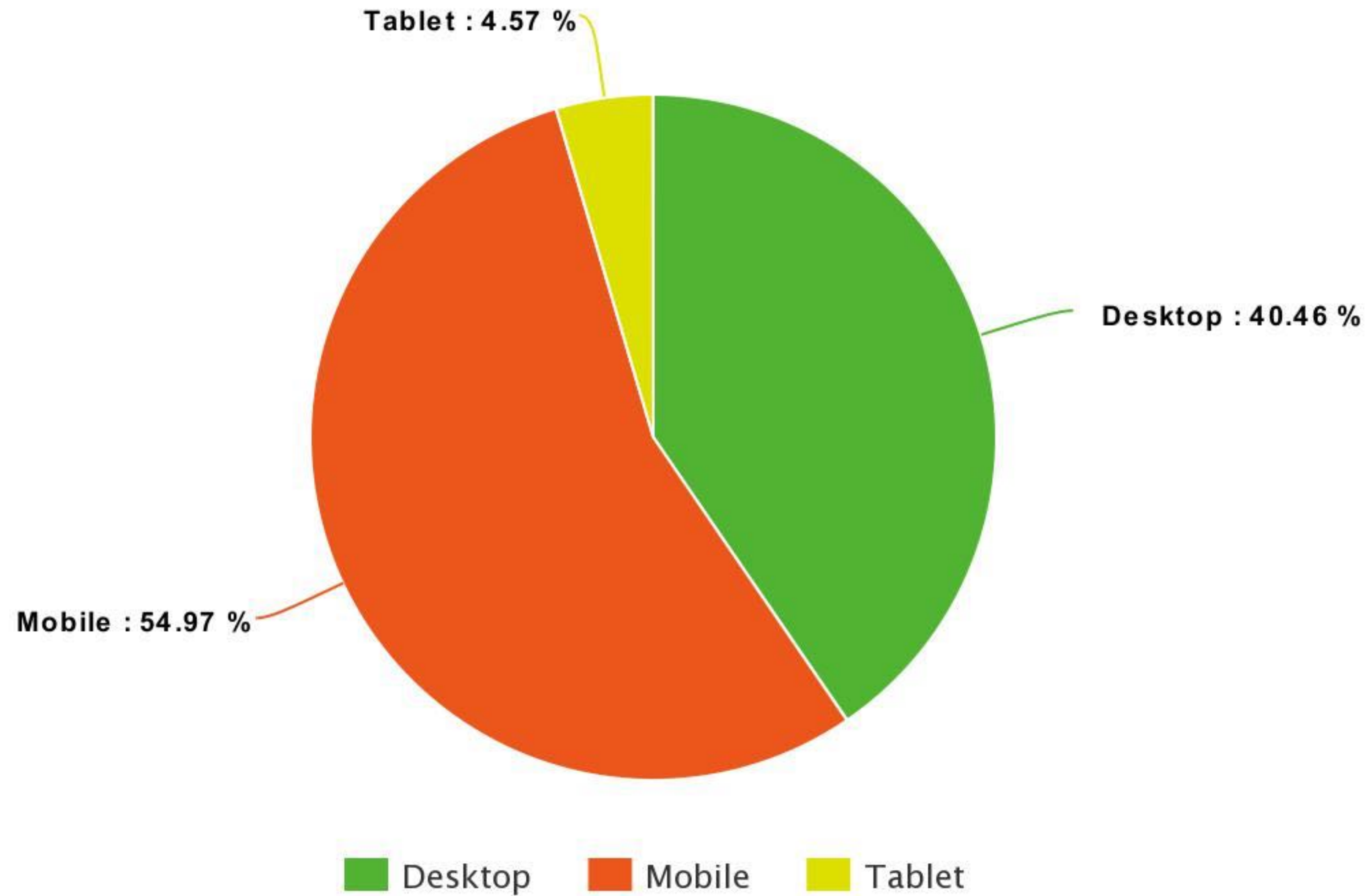
– COMMON SENSE

IT IS

DEVICE USAGE

Device usage for Croatia
statcounter.com





WHAT WE'LL COVER

- Formats
- Responsiveness
- Tools
- Audits



FORMATS

TYPES OF COMPRESSION

Lossless vs. Lossy

LOSSLESS

**Image is made smaller but with no effect on
quality**

LOSSY

Image made smaller with effect on quality

LOSSLESS

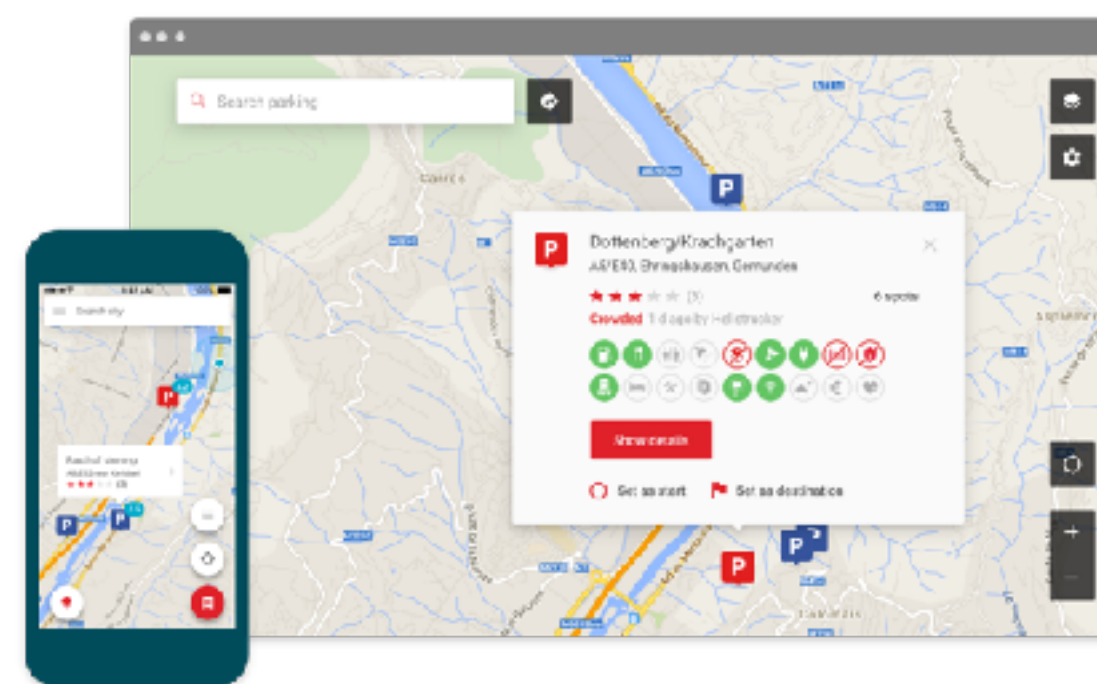
GIF

- Maximum of 256 colors
- Supports transparency, is animatable
- Should be used only for animations



PNG

- Thousands of colours
- Supports alpha transparency
- Should be used when transparency is needed



SVG

- Thousands of colours
- Vector, easily editable and CSS manipulated
- Great for simpler shapes and logos



LOSSY

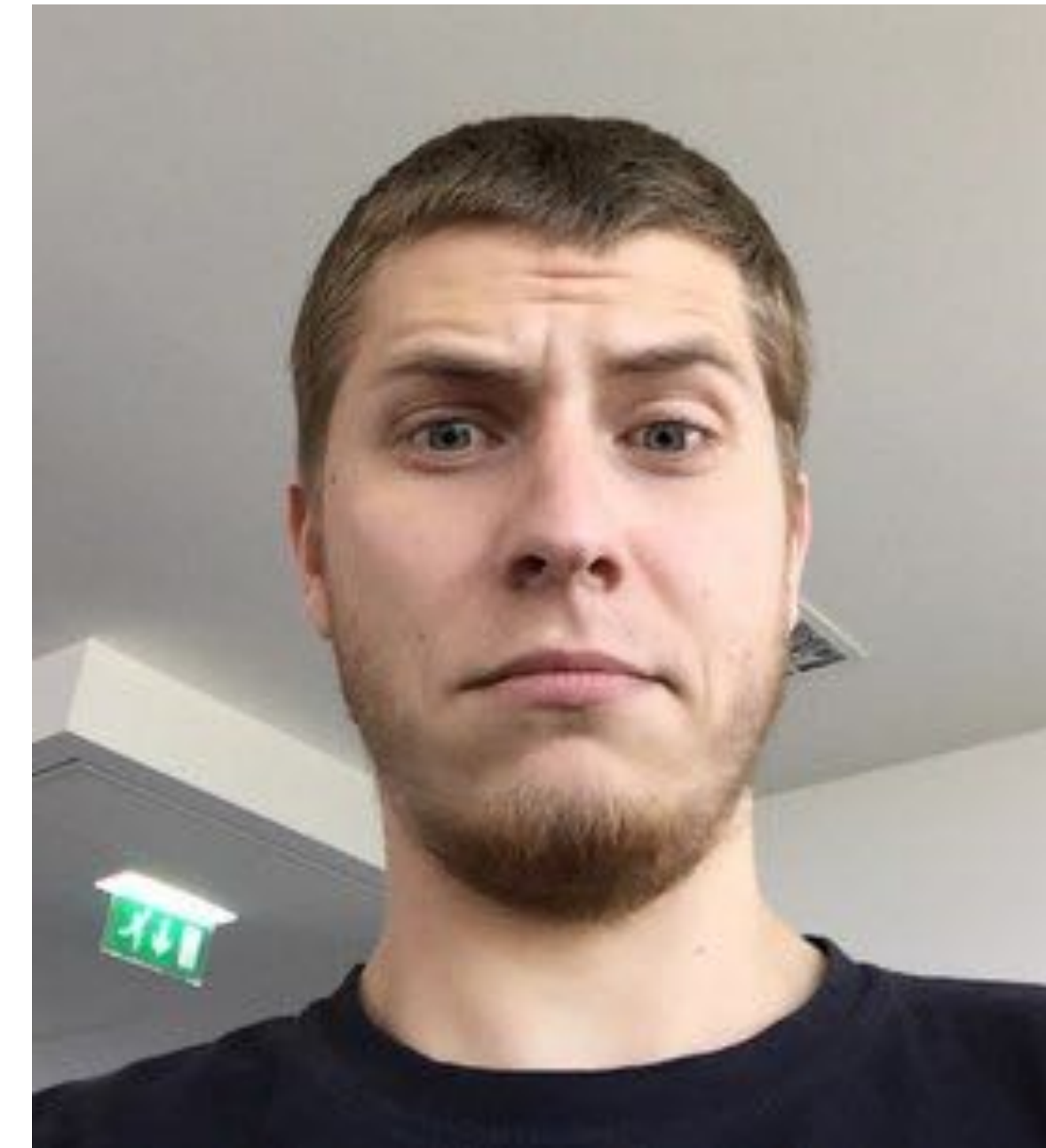
JPG

- Rich with color
- Bad for logos but great for photographs and gradients

LOSSY

JPG

- Rich with color
- Bad for logos but great for photographs and gradients



WEBP

- Both lossless and lossy
- Alpha transparency support & animation
- Smaller sizes

WEBP

- Both lossless and lossy
- Alpha transparency support
- Smaller sizes

IE	Edge [*]	Firefox	Chrome	Safari	Opera	iOS Safari [*]	Opera Mini [*]	Android Browser [*]	Chrome for Android
			49			10.2			
		55	60	10.4		10.3		4.4	
11	15	56	61	11	47	11	all	56	61
	16	57	62	TP	48				
		58	63		49				
		59	64						

OTHER FORMATS

- JPEG XR – Microsoft (IE, Edge)
- Animated PNG
- FLIF – Claiming to outperform lossless WebP (polyfill)
- BPG, HEIF...

HTML AND RESPONSIVENESS

MOST COMMON PROBLEMS

- Pixel density
- Screen width

COMMON USE CASES

- Background
- Img
- Picture

BACKGROUND-IMAGE

```
@media (-webkit-min-device-pixel-ratio: 2),  
(min-resolution: 192dpi) {  
  background-image: url('snuffles@2x.jpg');  
}
```


BACKGROUND-IMAGE

```
@media (max-width: 911px) {  
  background-image: url('snuffles-900.jpg');  
}
```

```
@media (max-width: 767px) {  
  background-image: url('snuffles-700.jpg');  
}
```

MEDIA-BLENDER

```
@include media(retina) {  
  background-image: url('snuffles@2x.jpg');  
}  
  
@include media(tablet) {  
  background-image: url('snuffles-900.jpg');  
}  
  
@include media(mobile down) {  
  background-image: url('snuffles-700.jpg');  
}
```

<https://github.com/infinum/media-blender>

IMG & PICTURE

IMG

- srcset – defines a set of images for the browser to choose from
- sizes – define conditions that indicate which image is best

PIXEL DENSITY

```
<img srcset="snuffles-1200.jpg 1x, snuffles@2x.jpg 2x"/>
```

RESPONSIVENESS

```

```

Srcset and sizes attributes - LS

Global

86.32% + 0.26% = 86.59%

The `srcset` and `sizes` attributes on `img` (or `source`) elements allow authors to define various image resources and "hints" that assist a user agent to determine the most appropriate image source to display (e.g. high-resolution displays, small monitors, etc).

Current aligned Usage relative Date relative Show all

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			49			10.2			
		55	60	10.1		10.3		4.4	
11	³ 15	56	61	11	47	11	all	56	61
	16	57	62	TP	48				
		58	63		49				
		59	64						

Notes Known issues (1) Resources (7) Feedback

³ Intermittently displays distorted images due to bug present (see known issues)



Bruce Lawson

@brucel

Follow



Chrome: Intent to Implement: image async attribute

groups.google.com/a/chromium.org ... (I'm not sure abt the conflation of "web developers" & AMP team)



Intent to Implement: image async attribute

Posted by Vladimir Levin, Oct 6, 2017 11:41 AM

groups.google.com

PICTURE

- Used when modifying art direction
- Similar syntax to video element
- Fallback to img

RESPONSIVENESS

```
<picture>
  <source media="(max-width: 767px)" srcset="snuffles-cropped-700.jpg">
  <source media="(max-width: 911px)" srcset="snuffles-cropped-900.jpg">
  
</picture>
```

WEBP FALLBACK

```
<picture>  
  <source type="image/webp" srcset="snuffles.webp">  
    
</picture>
```

Picture element - LS

Global

88.33%

A responsive images method to control which image resource a user agent presents to a user, based on resolution, media query and/or support for a particular image format

Current aligned

Usage relative

Date relative

Show all

IE	Edge [*]	Firefox	Chrome	Safari	Opera	iOS Safari [*]	Opera Mini [*]	Android Browser [*]	Chrome for Android
			49			10.2			
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		58	63		49				
		59	64						

Notes

Known issues (1)

Resources (11)

Feedback



TOOLS

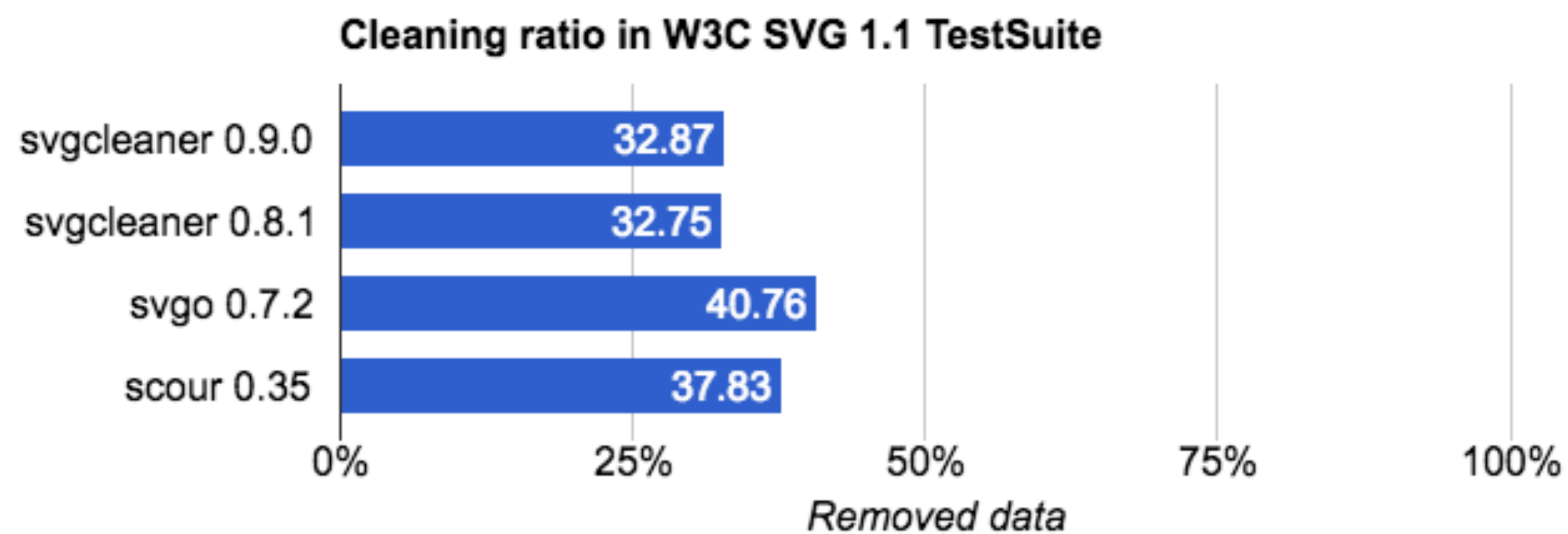
IMAGEOPTIM

**Removes EXIF data, embedded thumbnails,
comments and unnecessary colour profiles**

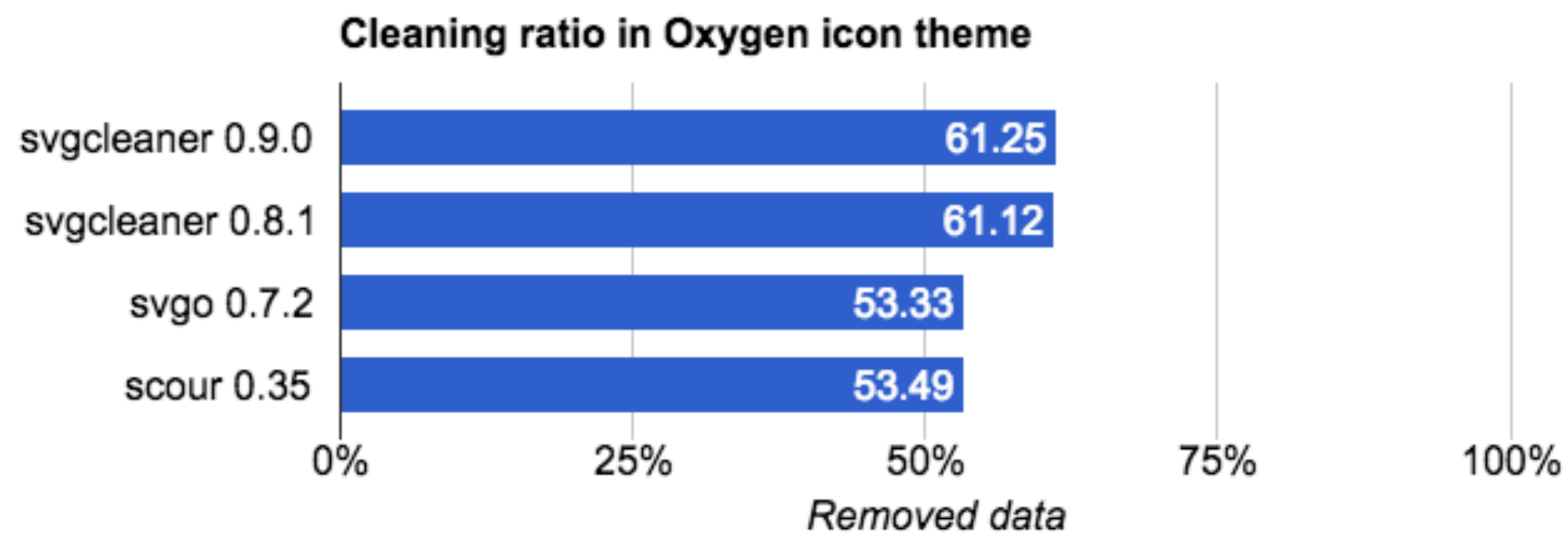
ImageOptim			
File		Size	Savings
✓ another-guys-song.jpg	🔍	16,718	2.4%
✓ house-concerts-small.jpg	🔍	19,232	55.1%
✓ house-concerts.jpg	🔍	24,040	50.3%
✓ jv_lin.jpg	🔍	150,777	20.9%
✓ jv-stands.jpg	🔍	22,797	18.8%
✓ jv1.jpg	🔍	1,706,811	14.1%
✓ jv2.jpg	🔍	1,957,396	14.0%
✓ jvshot1.jpg	🔍	18,686	62.2%
✓ jvshot2.jpg	🔍	18,886	61.9%
✗ login.png	🔍	1,661	0%
✓ make-me-feel.jpg	🔍	5,933	3.1%
✓ mighty-lin.png	🔍	8,370	33.2%
✓ movies-without-you.jpg	🔍	7,502	2.3%
✓ mr-saturday-night.jpg	🔍	23,236	8.4%
✓ nitetime.jpg	🔍	11,843	1.8%
✓ old-site.jpg	🔍	31,757	24.4%
✓ planeteer.jpg	🔍	23,030	3.3%
✓ pre-order.gif	🔍	150,513	0.9%
✓ rss_tiny.png	🔍	1,095	9.1%
✓ rss.png	🔍	1,591	8.4%
✓ vault.jpg	🔍	19,106	2.4%
<div> <div>+</div> <div>Drag and drop image files onto the area above</div> <div>↺ Again</div> </div>			

SVGCLEANER

- Temporary data used by exporting app
- Non-optimal SVG structure
- Unused and invisible elements



* Note that [svgo](#) and [scour](#) break most of the files.



MORE OPTIMISATION TOOLS

- MozJPEG
- Pngquant
- Guetzli

IMAGEMAGICK

Create/edit/compose images from the command-line

GULP RESPONSIVE

Generate images on different sizes

IMAGEMIN/LIBVIPS

Optimise images in build process

IMGIX/CLOUDINARY



AUDITS

RESPIMAGELINT

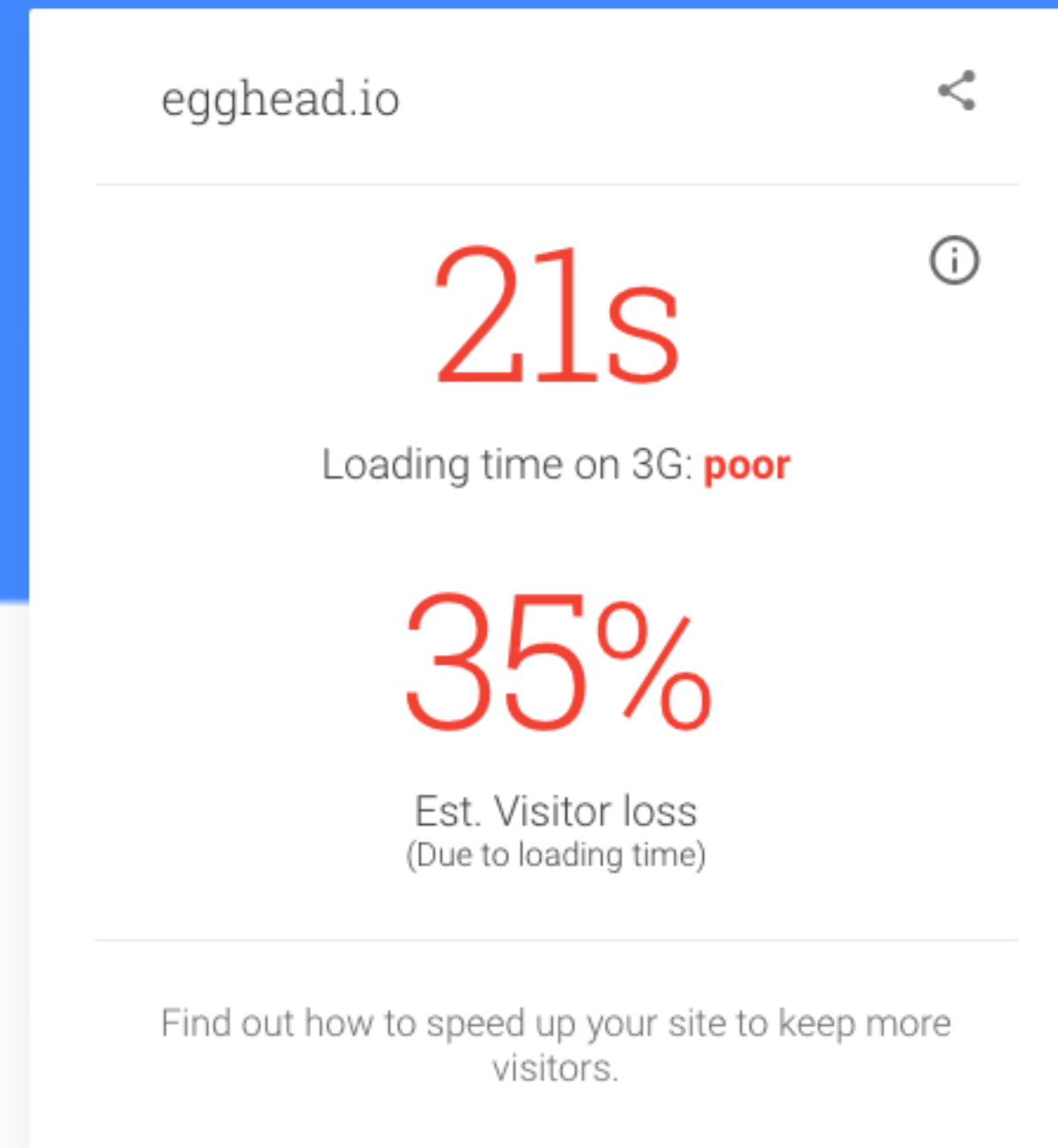
- Checks for common mistakes and best practices
- <https://ausi.github.io/respimagelint/>

CHROME AUDITS – LIGHTHOUSE

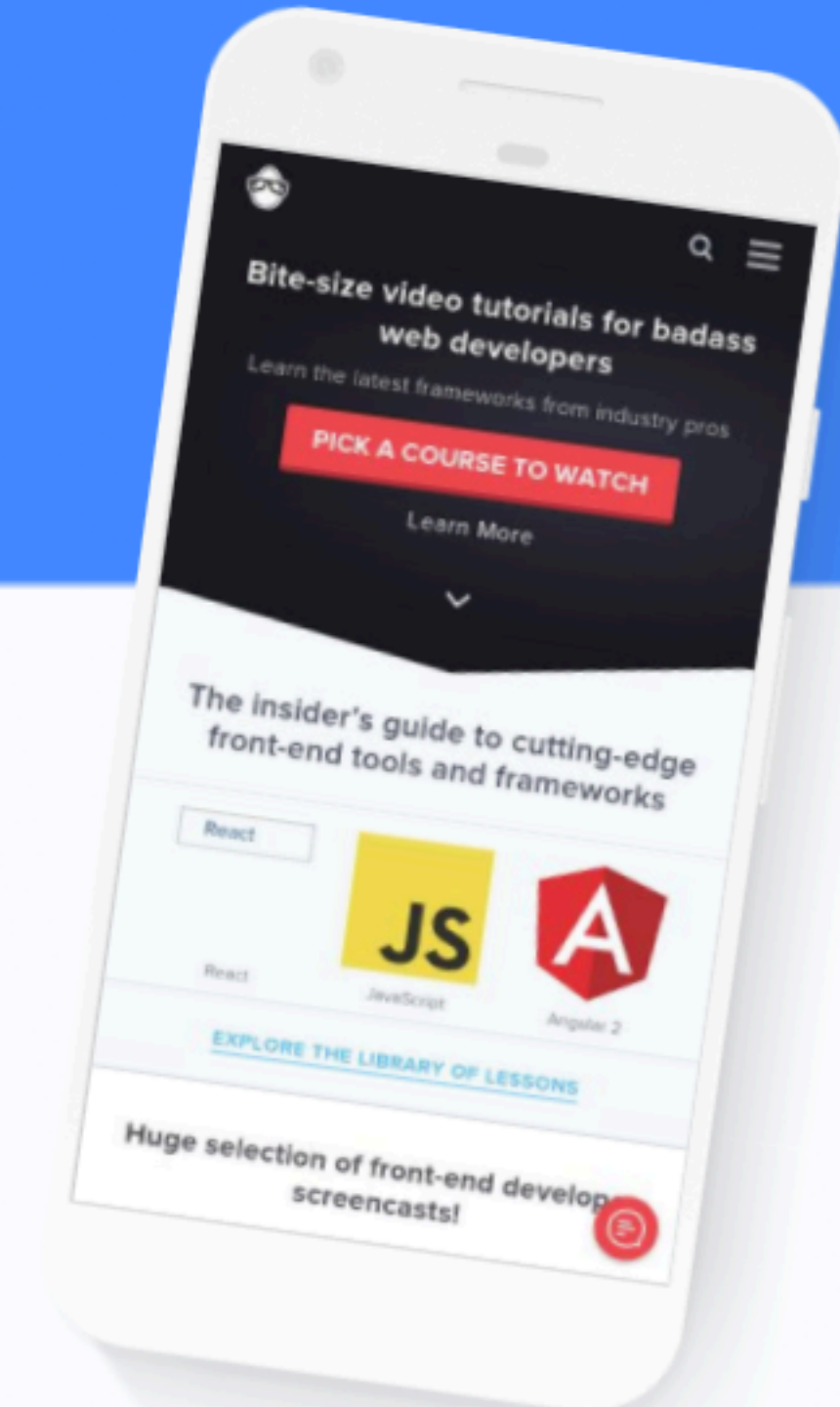
- Progressive Web App Standards
- Performance
- Best practices
- Accessibility

OTHERS

- TestMySite





GET MY FREE REPORT



OTHERS

- TestMySite
- Pagespeed Insights

 Mobile

 Desktop

Poor

34 / 100

This page is not optimized and is likely to deliver a slow user experience. Please prioritize and apply the recommendations below.

! Possible Optimizations

Eliminate render-blocking JavaScript and CSS in above-the-fold content

▸ [Show how to fix](#)

Minify JavaScript

▸ [Show how to fix](#)

Optimize images

▸ [Show how to fix](#)

Leverage browser caching

▸ [Show how to fix](#)

✓ Optimizations Found

▸ [Show details](#)

Download optimized [image](#), [JavaScript](#), and [CSS resources](#) for this page.

OTHERS

- TestMySite
- PageSpeed Insights
- Mobile-Friendly Test

Tested on: Oct 5, 2017 at 2:27 PM

Page is mobile-friendly

This page is easy to use on a mobile device

 [SUBMIT TO GOOGLE](#)



Additional resources



[Open site-wide mobile usability report](#)



[Learn more about mobile-friendly pages](#)



[Post comments or questions to our discussion group](#)

OTHERS

- TestMySite
- PageSpeed Insights
- Mobile–Friendly Test
- WebPage Test

Web Page Performance Test for

egghead.io

From: Dulles, VA - Chrome - Cable
05/10/2017, 14:29:03

Need help improving?

A

A

A

A

F

✓

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

NEW

Tester: VM3-01-192.168.10.79

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	Speed Index	Document Complete			Fully Loaded				
					Time	Requests	Bytes In	Time	Requests	Bytes In	Certificates	Cost
First View (Run 2)	10.622s	0.424s	7.369s	7401	10.622s	89	4,823 KB	11.124s	92	4,892 KB	78 KB	\$\$\$\$\$

Plot Full Results

Test Results

Run 1:

First View (10.618s)

Waterfall

Screen Shot

CONCLUSION

- Choose the right type
- Cover responsiveness
- Optimise everything
- Test often

CONCLUSION

- Treat your images right



Thank you!

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