

WHAT HAS CHANGED AND WHERE'S IT GOING?

**A TALK
BY DAVE RUPERT
@DAVATRON5000**

RESPONSIVE WEB DESIGN 102:

A REFRESHER COURSE

2010

 **A BOOK APART**
Brief books for people who make websites

SECOND EDITION

NO
4

Ethan Marcotte

RESPONSIVE WEB DESIGN

FOREWORD BY Jeremy Keith

RWD IS A TECHNIQUE



~~**RWD IS A TECHNIQUE**~~
RWD IS A PHILOSOPHY



Mat Marquis
JAVASCRIPT FOR
WEB

A BOOK APART
Josh Clark
DESIGN
TO

A BOOK APART
No. 28
Jason Grigsby
PROGRESSIVE
WEB APPS

A BOOK APART
IMAGE
Atomic Design
Brad Frost

ACCESSIBILITY
FOR EVERYONE
FOREWORD BY Heydon Pickering

A BOOK APART
Design Systems
A practical guide to
creating design languages
for digital products.
by Alla Kholmatova

RACHEL NABORS

A BOOK APART
No. 27
LETTING

A BOOK APART
WORKING THE
COMMAND
No. 16
UNSIVE
Frank Chimero

Looking at the Data

2014

Total Kilobytes

The sum of [transfer size](#) kilobytes of all resources requested by the page.

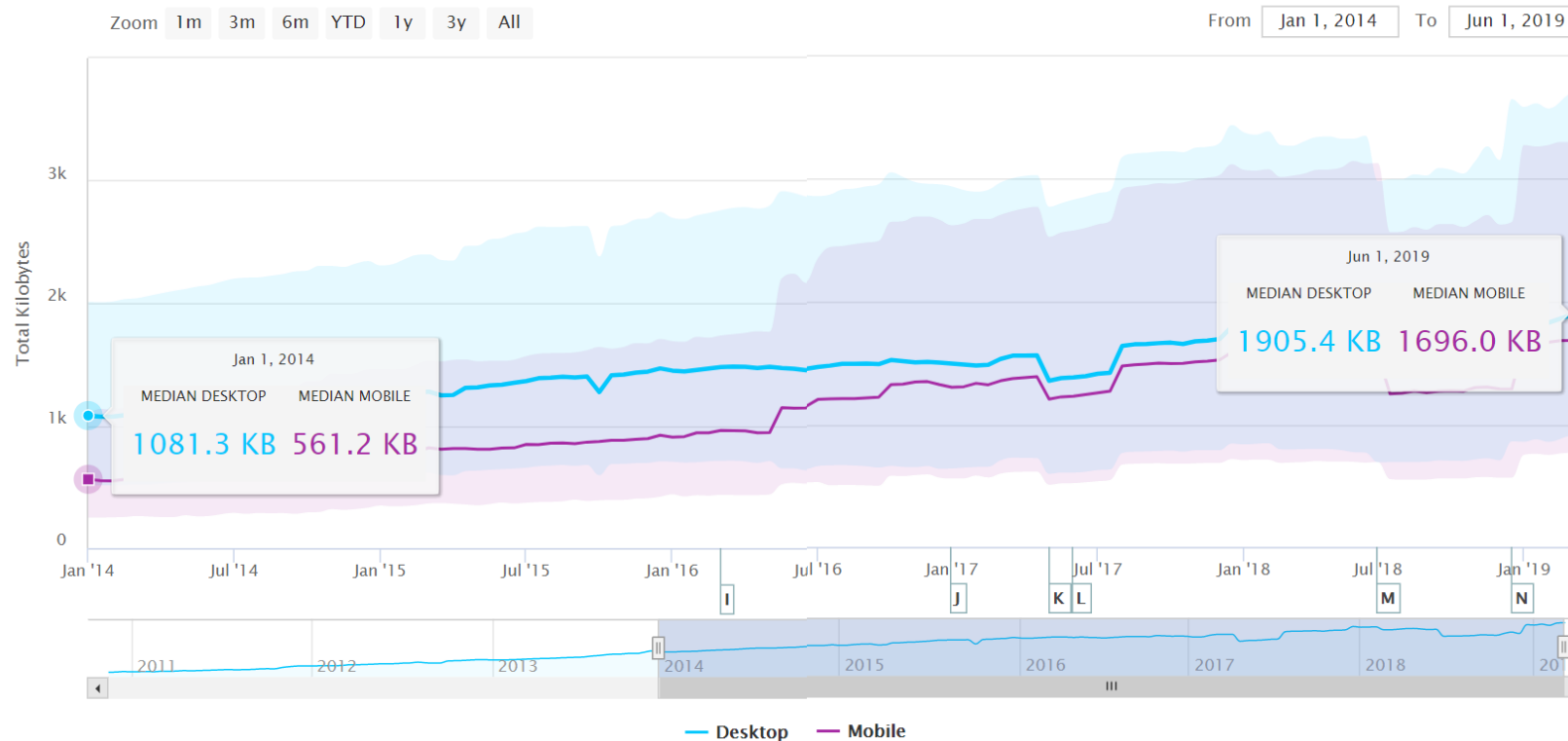
See also: [Page Weight](#)

MEDIAN DESKTOP
1905.4 KB
▲76.2%

MEDIAN MOBILE
1696.0 KB
▲202.2%

Timeseries of Total Kilobytes

Source: httparchive.org



JavaScript Bytes

The sum of transfer size kilobytes of all external scripts requested by the page. An external script is identified as a resource with the `js` or `json` file extensions or a MIME type containing `script` or `json`.

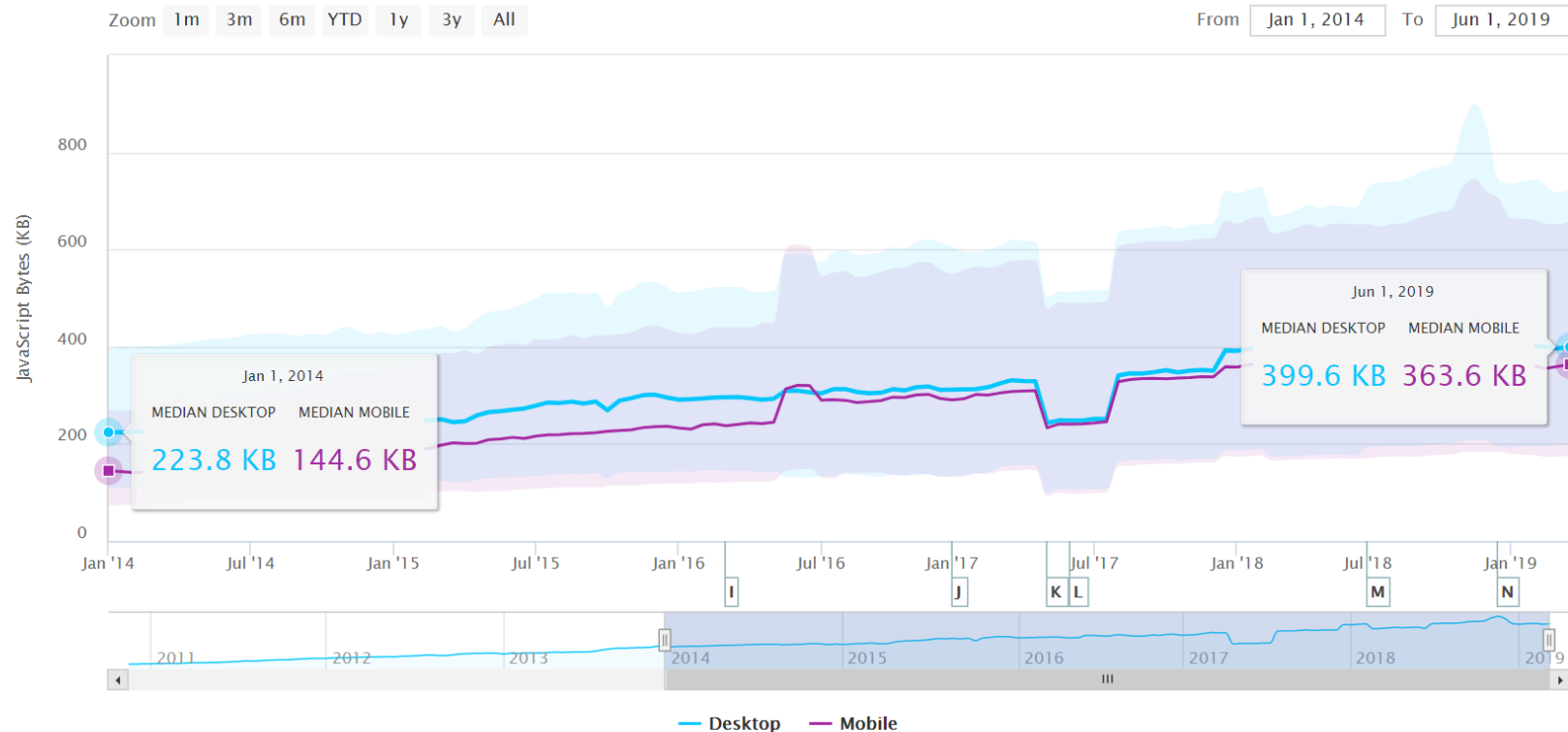
See also: [Page Weight](#)

MEDIAN DESKTOP
399.6 KB
▲ 78.6%

MEDIAN MOBILE
363.6 KB
▲ 151.5%

Timeseries of JavaScript Bytes

Source: httparchive.org



CSS Bytes

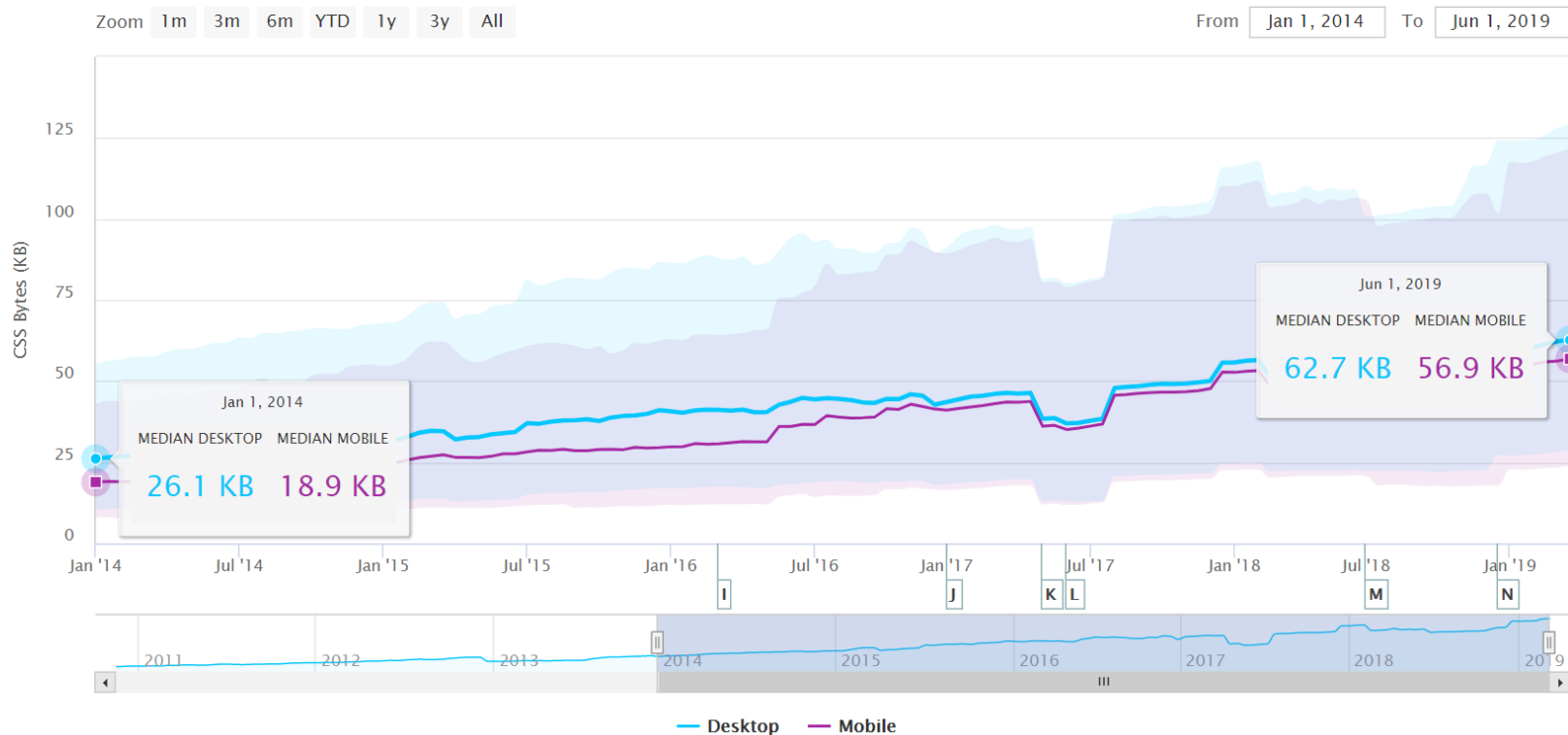
The sum of transfer size kilobytes of all external stylesheets requested by the page. An external stylesheets is identified as a resource with the `css` file extension or a MIME type containing `css`.

MEDIAN DESKTOP
62.7 KB
▲ 140.2%

MEDIAN MOBILE
56.9 KB
▲ 201.1%

Timeseries of CSS Bytes

Source: httparchive.org



Show Table

Image Bytes

The sum of transfer size kilobytes of all external images requested by the page. An external image is identified as a resource with the `png`, `gif`, `jpg`, `jpeg`, `webp`, `ico`, or `svg` file extensions or a MIME type containing `image`.

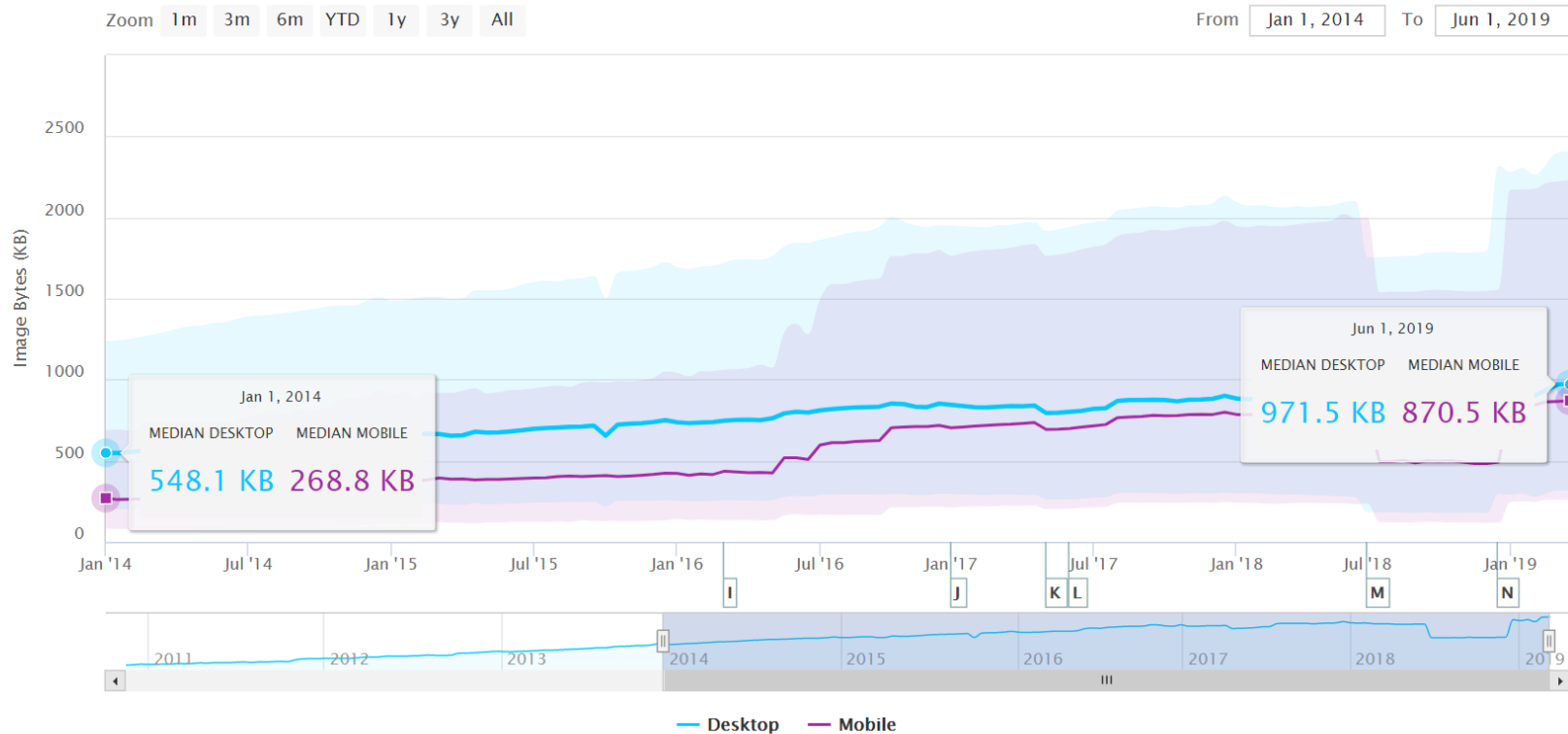
See also: [State of Images](#)

MEDIAN DESKTOP
971.5 KB
▲ 77.2%

MEDIAN MOBILE
870.5 KB
▲ 223.8%

Timeseries of Image Bytes

Source: httparchive.org



Quick Note on Kilobytes



- **Gzipped vs Unzipped**

- Gzipped: Reflects the speed at which resources will arrive
- Unzipped: Reflects the amount of work on the CPU and maintenance costs

- **All bytes are not equal**

- JS bytes that must be downloaded, parsed, and executed and cause a style recalculation on the client are more expensive than CSS bytes
- Image bytes are memory intensive and more expensive to resize on device.

**BUT AREN'T MOBILE PHONES AND
MOBILE CONNECTION SPEEDS
GETTING FASTER? WON'T THIS
PROBLEM GO AWAY?**

YES BUT NO, ACTUALLY.

DOMContentLoaded

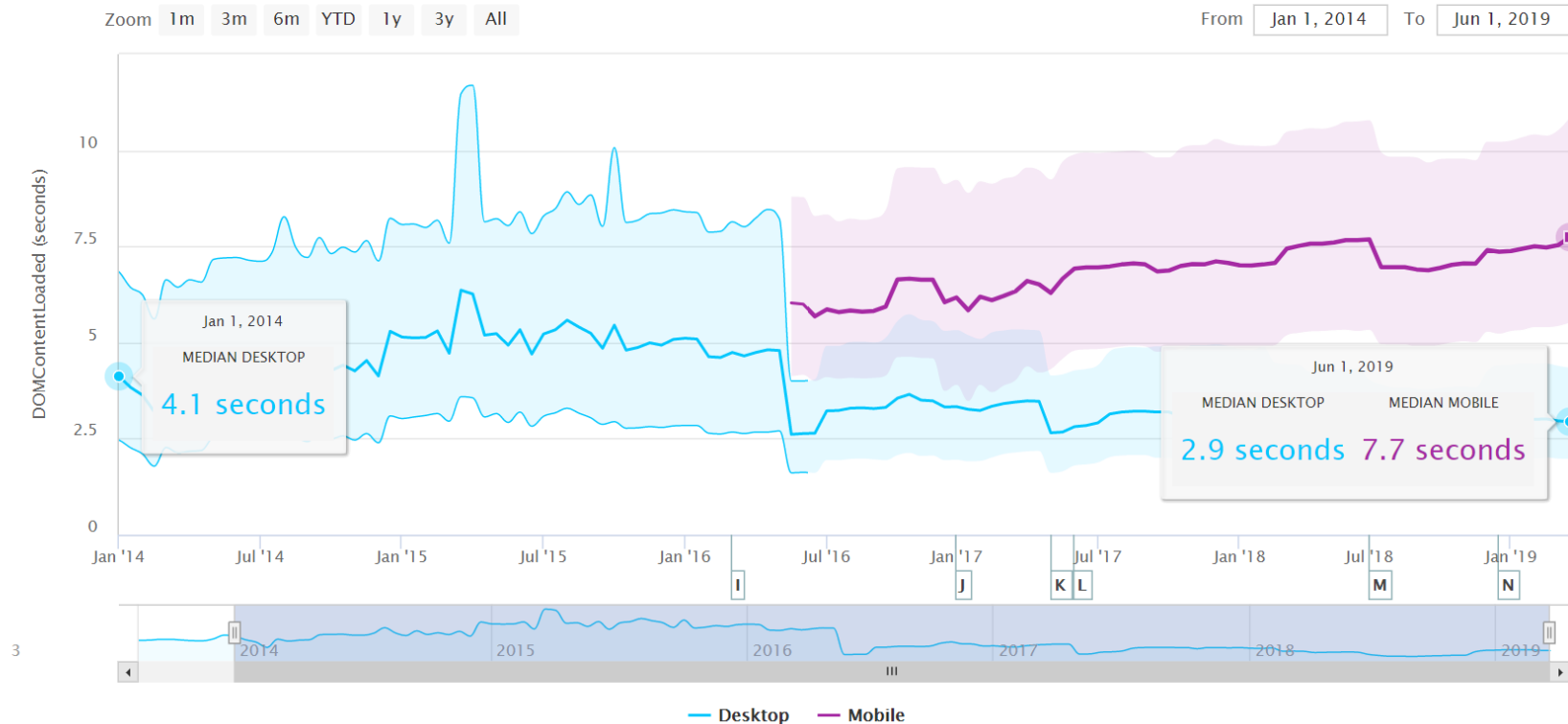
The number of seconds from the time the navigation started until the initial HTML document has been completely loaded and parsed. See the [DOMContentLoaded event on MDN](#) for more info.

MEDIAN DESKTOP
2.9 seconds
▼29.3%

MEDIAN MOBILE
7.7 seconds
▲28.3%

Timeseries of DOMContentLoaded

Source: httparchive.org



onLoad

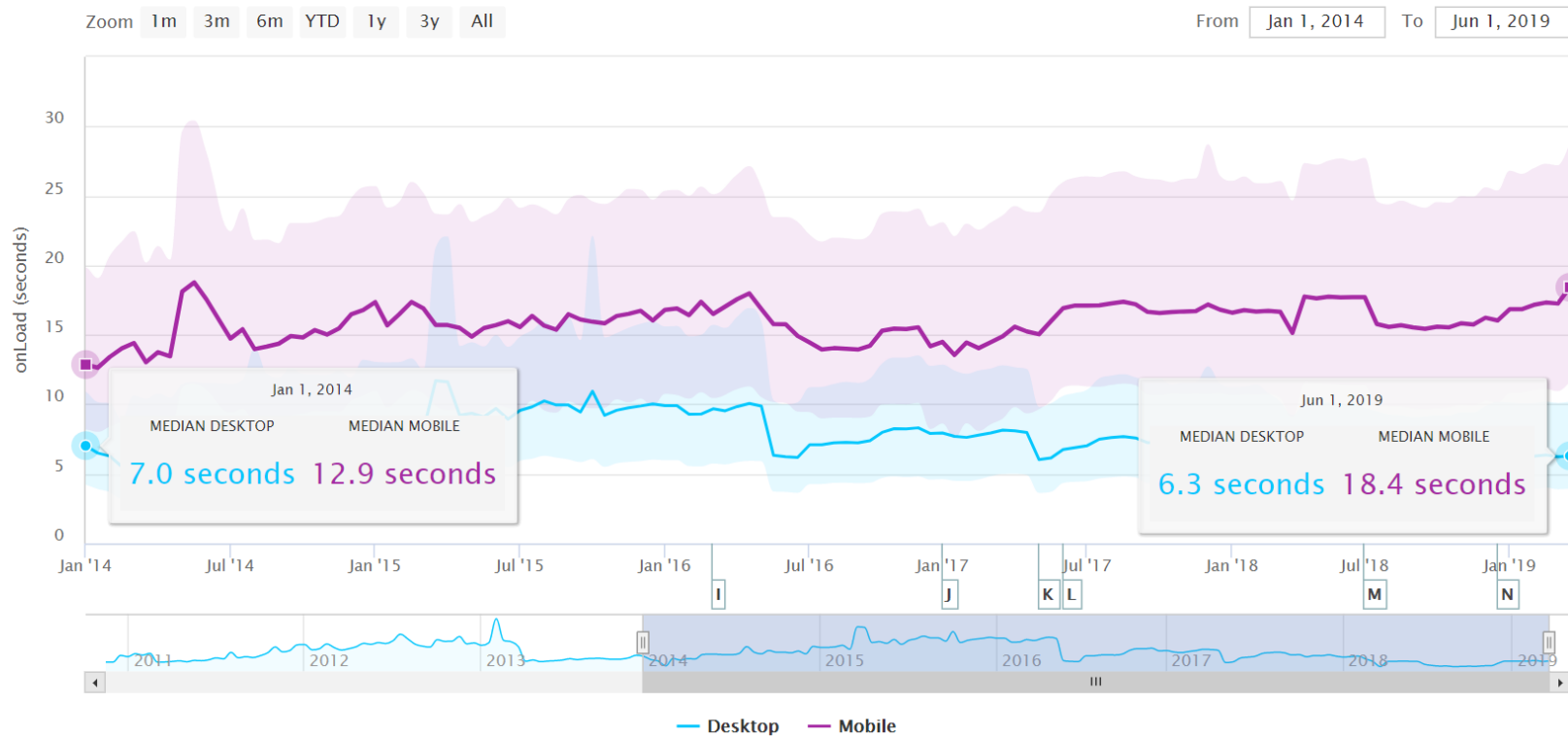
The number of seconds from the time the navigation started until the document and all of its dependent resources have finished loading. See the [load event on MDN](#) for more info.

MEDIAN DESKTOP
6.3 seconds
▼10.0%

MEDIAN MOBILE
18.4 seconds
▲42.6%

Timeseries of onLoad

Source: httparchive.org



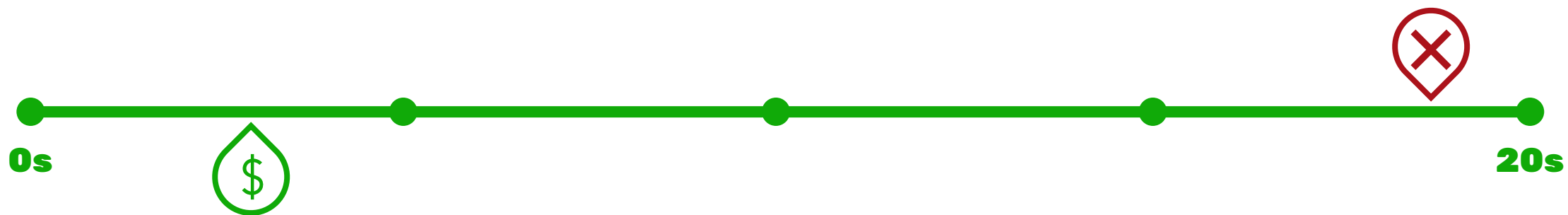


53% of visits are abandoned if a mobile site takes more than three seconds to load⁵



1 out of 2 people expect a page to load in less than 2 seconds⁶

<https://www.thinkwithgoogle.com/intl/en-154/insights-inspiration/research-data/need-mobile-speed-how-mobile-latency-impacts-publisher-revenue/>



**Looking at
some Examples**



MENU SPECIALS PAPA REWARDS

Enter a promo code
Apply
\$0.00

SUPERHERO XL
2-TOPPING PIZZA
30% LARGER THAN OUR LARGE

\$12

ADD & CUSTOMIZE



\$9 after 9pm

\$9

New

NEW Papa's Heroes \$6.99



1 MB

CSS

+

1 MB

JS

37,000+
Lines of CSS

Managing CSS

Step 1:

Interface Inventory

Redeem for 10 POINTS

Learn More

Order Now

 Watch Intro Video

 Stores near me

Add Slice To Meal

Opt Out

Sign In

Add &
Customize

Find Carryout Locations ▼

Change To Delivery

Sign In

Add & Customize

Meet the Family

Save

 Watch Video

Order Delivery

Add & Customize

Edit Delivery Address

JOIN PAPA REWARDS

OK

Submit Form →



2-TOPPING LARGE OR PAN

Choose Between our Pan or Large Crust and your 2 Favorite Toppings

\$9.99

[Add & Customize](#)



Pepperoni

Premium pepperoni, real cheese made from mozzarella and your choice of crust.

[Order Now](#)

[More Info](#)



2-Topping Large or Pan

Choose Between our Pan or Large Crust and your 2 Favorite Toppings

\$9.99

[Add & Customize](#)



Bacon Cheddar Stuffed Cheesesticks

\$6.00

[Order Now](#)



2-TOPPING LARGE OR PAN

Choose Between our Pan or Large Crust and your 2 Favorite Toppings

\$9.99

[Add & Customize](#)



Large 2-Topping

[Redeem for 20 POINTS](#)



Pan Pepperoni

Pan baked for a thick, crunchy crust, topped with hearty tomato sauce, premium pepperoni and real cheese made from mozzarella.

[Ingredients & Nutritional Information](#)

Pan \$11.75

1

[Add to cart](#)

OR

[Customize](#)



Stuffed Cheesesticks

\$6.00

[View All Options](#)



LARGE 2-TOPPING

20 Points

Promo Code: PAPA20

[Order Now](#)



Pan John's Favorite

Our fresh, never-frozen dough is pan baked for a crisp, deep flavor experience, topped with hearty tomato sauce, pepperoni, sausage and a generous six-cheese blend of Romano, Parmesan, Asiago, Provolone, and Fontina and real cheese made from mozzarella that spills over the edge baking into a thick, crunchy crust. Finished with a blend of Italian herb seasonings.

[Ingredients & Nutritional Information](#)

Pan \$14.99

1

[Add to cart](#)

OR

[Customize](#)



Large 2-Topping

[Redeem for 20 POINTS](#)



Pan John's Favorite

Pan baked for a thick, crunchy crust, topped with hearty tomato sauce, pepperoni, sausage and a generous six-cheese blend of Romano, Parmesan, Asiago, Provolone, Fontina and real cheese made from mozzarella.

[Order Now](#)

[More Info](#)



2-Topping Large or Pan

Choose Between our Pan or Large Crust and your 2 Favorite Toppings

\$9.99

[Add & Customize](#)



Pan Pizza

[Remove](#)

[Edit](#)

[Details](#)

Step 2: Measure

CSS Stats

GitHub

legacy.css

1,012 KB

5,493

Rules

10.7k

Selectors

16.1k

Declarations

233

Properties

Total Declarations

Font Size

711

Float

334

Width

941

Height

292

Color

431

Background Color

75

41 Unique Colors

Aa

#333

Aa

#000

Aa

#626262

Aa

#008764

Aa

#00543e

Aa

#DF2241

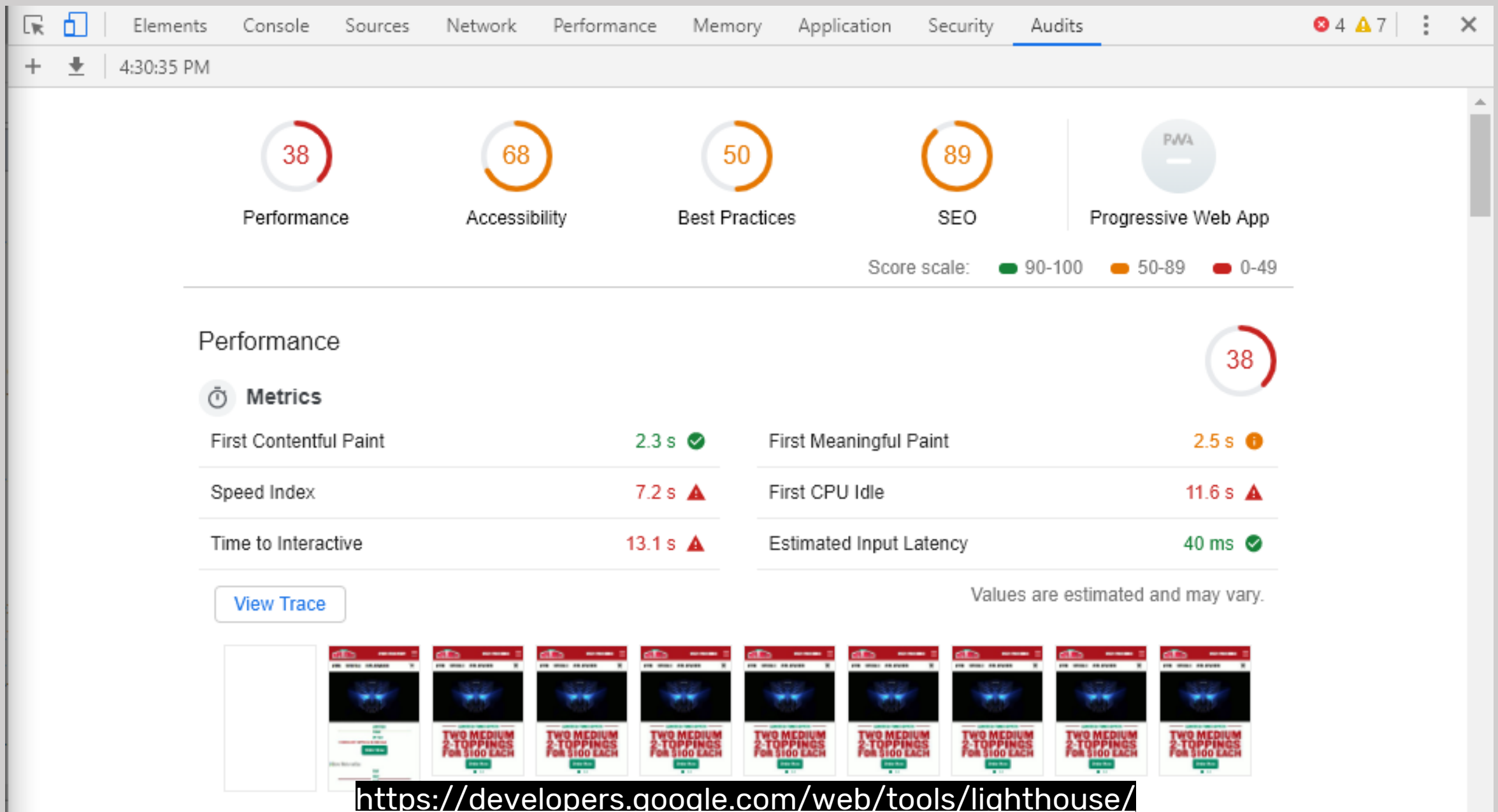
<https://cssstats.com/>

Aa

Aa

Aa

Aa



Step 3:

Patternize



Styles

Logo

Color

Typography

Icons

Imagery

Layout

Vertical Spacing

Centering

Animation

Borders

Visually Hidden

Components

Accordion

Alert

Badge

Banner

Color

The new and improved color palette contains only 16 colors (down from 72). Each color has purpose and intent and simplifying the color palette reduces cognitive load for the user.

Brand Colors

Primary brand colors are red and green. Green is a slightly tweaked version of the brand color green for accessibility reasons.

\$red-light

#ce2735

\$red

#ab131b

\$red-dark

#7d1417



Styles ▾

Logo

Color

Typography

Icons

Imagery

Layout

Vertical Spacing

Centering

Animation

Borders

Visually Hidden

Components ▾

Pages ▾

Default Button

background-color: \$green;
hover: \$green-dark;
color: \$white;

Small Button

font-size: 18px;
padding: 8px 12px;

Medium Button

font-size: 20px;
padding: 12px 16px;

Large Button

font-size: 24px;
padding: 18px;

Red Button

background-color: \$red;
hover: \$red-dark;
color: \$white;

Small Button

font-size: 18px;
padding: 8px 12px;

Medium Button

font-size: 20px;
padding: 12px 16px;

Large Button

font-size: 24px;
padding: 18px;

Disabled Button

background-color: \$grey-light-3;
color: \$grey-light-1;

Small Button

font-size: 18px;
padding: 8px 12px;

Medium Button

font-size: 20px;
padding: 12px 16px;

Large Button

font-size: 24px;
padding: 18px;

Show Markup

Product Card



Pepperoni

[Details](#)

Large \$14.99

1

320 cal / slice, 8 slices

Order Now

Customize

Banner Card



30% Off Your Entire Order

Create your own deal! Save big on your order of pizzas, drinks, and sides.

Order Now

Feature



From Dough to Delivery

Follow the progress of your pizza, from making and baking to delivery!

[Learn More](#)

Special Offer Card



Large 2-Topping

\$9.99

Choose between our pan or original crust

Get the Deal

Hero Offer Card



Close to Your Next Reward?

Log in to view your rewards points.

Log In

Step 4:

Measure Change

28

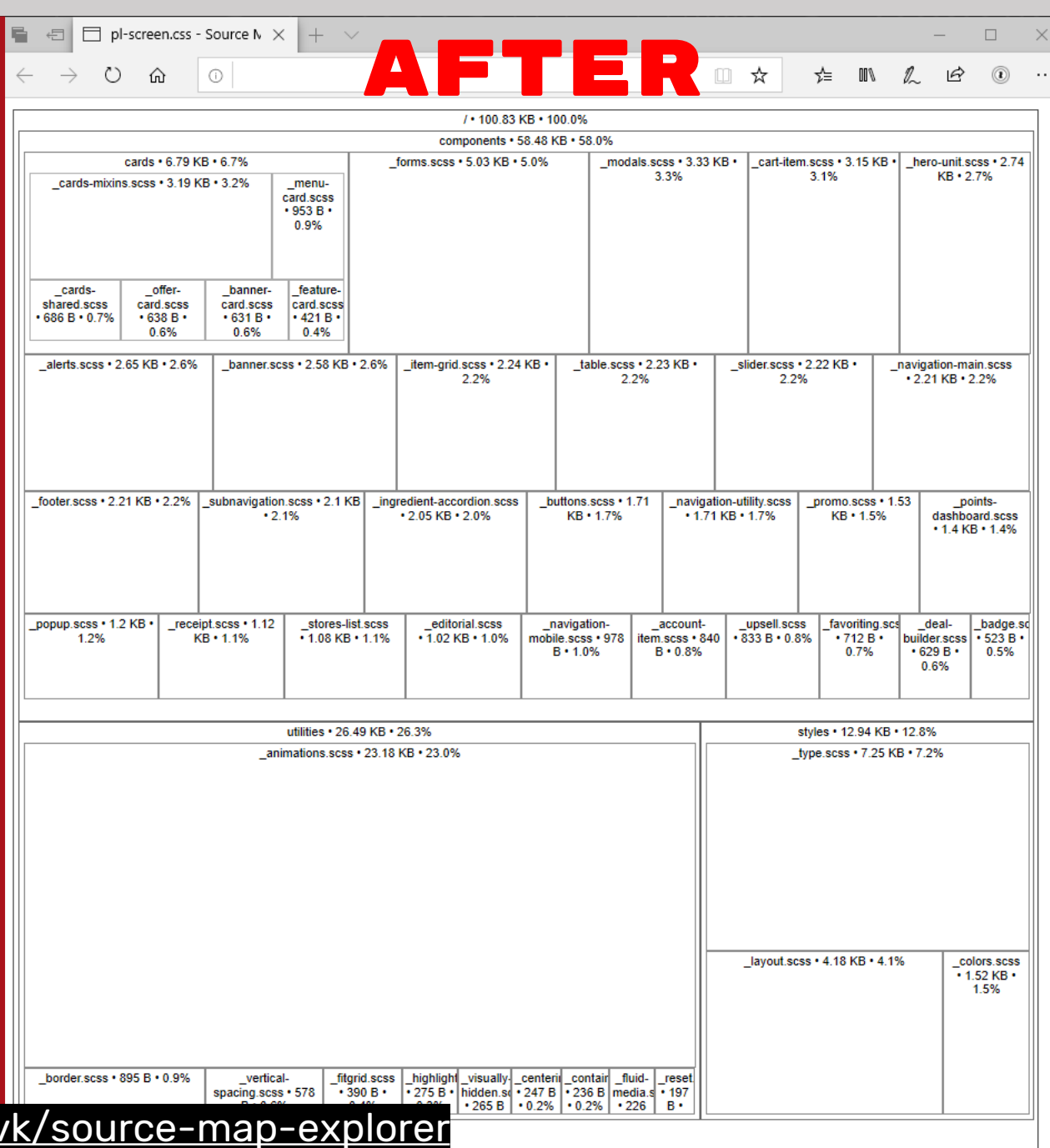
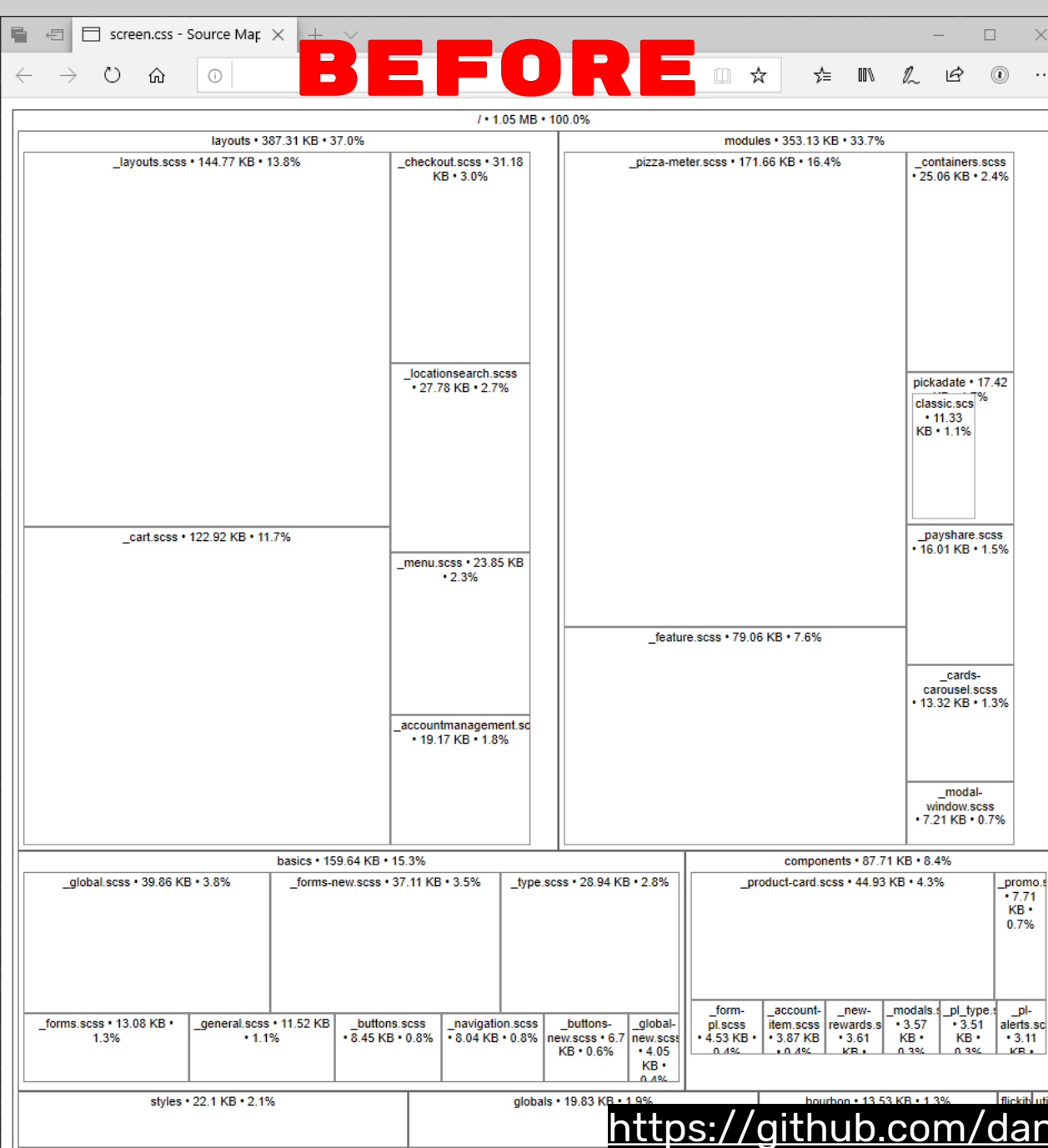
**Major
Components**

67

**Total
Variants**

105

**Pages
Covered**



<https://github.com/danvk/source-map-explorer>

CSS Stats

GitHub

legacy.css

1,012 KB

5,493

Rules

10.7k

Selectors

16.1k

Declarations

233

Properties

Total Declarations

Font Size

711

Float

334

Width

941

Height

292

Color

431

Background Color

75

41 Unique Colors

Aa

#333

Aa

#000

Aa

#626262

Aa

#008764

Aa

#00543e

Aa

#DF2241

Aa

Aa

Aa

Aa

CSS Stats

GitHub

design-system.css

100 KB ▼91%

▼83%
938
Rules

▼91%
1,042
Selectors

▼81%
3,192
Declarations

▼20%
188
Properties

Total Declarations

Font Size
121
▼83%

Float
5
▼99%

Width
106
▼89%

Height
60
▼80%

Color
101
▼77%

Background Color
28
▼63%

▼69% 13 Unique Colors

Aa
#000

Aa
#626262

Aa
#008764

Aa
#1b6b50

Aa
inherit

Aa
#ab131b

Aa

Aa

Aa

Aa



Score scale: 90-100 50-89 0-49

Performance

Metrics

First Contentful Paint

2.3 s ✓

First Meaningful Paint

2.5 s ⓘ

Speed Index

7.2 s ⚠

First CPU Idle

11.6 s ⚠

Time to Interactive

13.1 s ⚠

Estimated Input Latency

40 ms ✓

[View Trace](#)

Values are estimated and may vary.





Performance



Accessibility



Best Practices



SEO



Progressive Web App

Score scale: 90-100 50-89 0-49

Performance



Metrics

First Contentful Paint

2.1 s ✓

First Meaningful Paint

2.3 s ✓

Speed Index

5.0 s ⓘ

First CPU Idle

6.4 s ⓘ

Time to Interactive

11.0 s ⚠

Estimated Input Latency

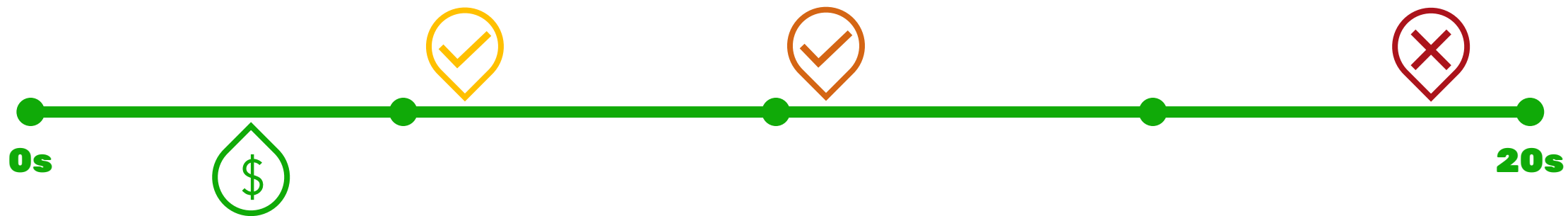
10 ms ✓

[View Trace](#)

Values are estimated and may vary.



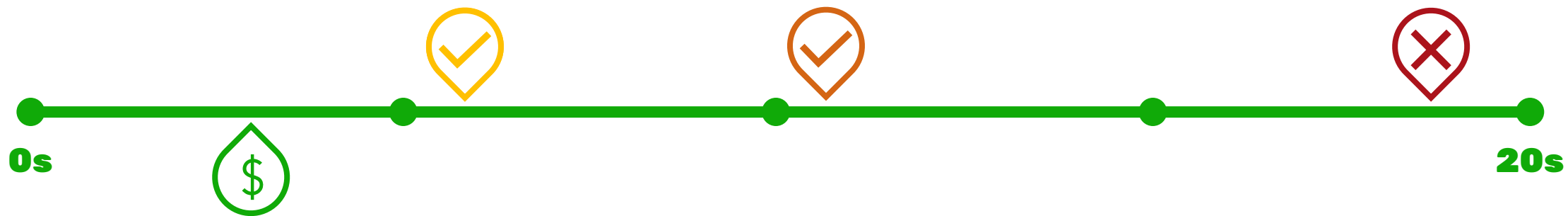


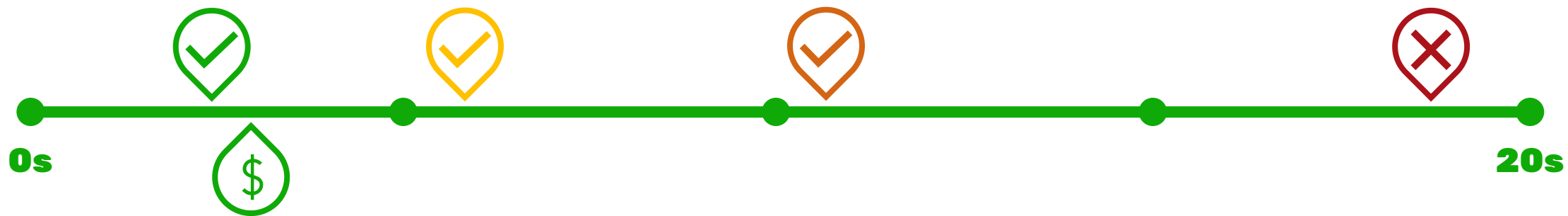


Opportunities

These optimizations can speed up your page load.

Opportunity		Estimated Savings	
1	Eliminate render-blocking resources		1.26 s 
2	Remove unused CSS		1.05 s 
3	Defer offscreen images		0.45 s 
4	Serve images in next-gen formats		0.45 s 
5	Preconnect to required origins		0.39 s 





Managing JS


```
$ npm install react
```

```
// package.json
```

```
{  
  "name": "My Great App",  
  "version": "0.1.0",  
  "private": true,  
  "dependencies": {  
    "react": "^16.8.6",  
    "react-dom": "^16.8.6",  
    "react-scripts": "3.0.1"  
  },  
  ...,  
  ...,  
  ...  
}
```

```
$ npm install react
```

```
// package.json
```

```
// my-component.js
```

```
import React from 'react';
```

```
function MyComponent() {
```

```
  //
```

```
  //
```

```
  //
```

```
}
```

```
export default MyComponent;
```

**But we didn't
have that...**

**We had a 1MB
jQuery “App”**



JavaScript Triage

+ Add a View

Properties Filter Sort Search ...

New

Name	grep	Occurrences	Dependencies	Category	Filesize (...)	Pattern Library	Notes
custom/analyticsHelper.js	data-track-click	452	jQuery	Utility	1.52	☐	GA binding. Pretty import
custom/freight.js	data-freight-trigger	391	jQuery	Utility	5.25	☐	After jQuery, probably our
custom/papaTrack.js	tracker-timeline	50	jQuery	App	5.74	☐	Pizza Tracker App
custom/tabs.js	tab-content	45	jQuery		1.77	☐	Legacy tab system
custom/popup.js	popup-trigger	45		Utility	1.45	☒	Pattern Library Popup Util
custom/tooltip.js	role="tooltip" tooltip-new data	38	jQuery,keyCode	Tooltips	3.19	☒	Init's bootstrap tooltips an
custom/collapsibleHeader.js	collapsible-header	15	jQuery	Utility	2.97	☐	Pattern Library Collapsible
custom/promocode.js	promoError promo-submit pro	8	Freight,jQuery	Forms	6.92	☐	Rollup of various promo fe
custom/ingredientSelect.js	data-ingredient="select"	5	idGenerator,keyCode	Dropdowns	8.08	☐	Custom select box (to sup
custom/pl-alert.js	alert pl-alert	4		Alerts	2.33	☒	Babel'd Pattern Library Ale
js-pl/vendor/lazysizes.min.js	lazyload	4		Images	6.62	☒	Lazy image loader
custom/modalWindow.js	js-modal-trigger	3	jQuery	Modals	1.26	☐	Only used 3x. Link referen
custom/number-widget.js	data-number-widget	3	jQuery	Forms	2.27	☐	Really bad
custom/resetPassword.js	new-reset-password	3	Freight,jQuery	Page	1.91	☐	Freight handling for passw
custom/skipNav.js	skip-nav-link	3	jQuery	Utility	0.386	☐	Accessibility feature
custom/footer.js	country-select	2	jQuery	Forms	0.386	☐	Country select in footer... i
custom/expandableDescription.js	expandable-description	2	jQuery	Utility	0.639	☐	Deprecated expandable d
custom/expandableTable.js	truncated	2	jQuery		2.01	☐	Expandable tables... rewit
custom/passwordStrengthMeter.js	reset-password-password-strer	1	jQuery	Forms	4.23	☐	Seems large for a string co
custom/payshare.js	paySharePaymentSplitType	1	jQuery,validate	Forms	13	☐	Used by payshare

COUNT 67

SUM 826.927



You might not need...	Blocking?	Unzipped	Gzipped
matchMedia polyfill		0.75 kb	0.45 kb
respond.js		2 kb	0.77 kb
Modernizr	YES	12.8kb	5.1 kb
Picturefill		11.3kb	4.9 kb
HTML5shiv		0.09 kb	0.1 kb
FastClick		7.6 kb	2.4 kb
LoadCSS		1 kb	0.6 kb
Webfontloader.js	YES	11.9 kb	4.8 kb
Require.js	YES	0.15 kb	0.13 kb
jQuery?!??		86 kb	30 kb
TOTAL		133.59 kb	49.25 kb



JavaScript Triage

+ Add a View

Properties Filter Sort Search ...

New

Name	grep	Occurrences	Dependencies	Category	Filesize (...)	Pattern Library	Notes
custom/analyticsHelper.js	data-track-click	452	jQuery	Utility	1.52	☐	GA binding. Pretty import
custom/freight.js	data-freight-trigger	391	jQuery	Utility	5.25	☐	After jQuery, probably our
custom/papaTrack.js	tracker-timeline	50	jQuery	App	5.74	☐	Pizza Tracker App
custom/tabs.js	tab-content	45	jQuery		1.77	☐	Legacy tab system
custom/popup.js	popup-trigger	45		Utility	1.45	☒	Pattern Library Popup Util
custom/tooltip.js	role="tooltip" tooltip-new data	38	jQuery,keyCode	Tooltips	3.19	☒	Init's bootstrap tooltips an
custom/collapsibleHeader.js	collapsible-header	15	jQuery	Utility	2.97	☐	Pattern Library Collapsible
custom/promocode.js	promoError promo-submit pro	8	Freight,jQuery	Forms	6.92	☐	Rollup of various promo fe
custom/ingredientSelect.js	data-ingredient="select"	5	idGenerator,keyCode	Dropdowns	8.08	☐	Custom select box (to sup
custom/pl-alert.js	alert pl-alert	4		Alerts	2.33	☒	Babel'd Pattern Library Ale
js-pl/vendor/lazysizes.min.js	lazyload	4		Images	6.62	☒	Lazy image loader
custom/modalWindow.js	js-modal-trigger	3	jQuery	Modals	1.26	☐	Only used 3x. Link referen
custom/number-widget.js	data-number-widget	3	jQuery	Forms	2.27	☐	Really bad
custom/resetPassword.js	new-reset-password	3	Freight,jQuery	Page	1.91	☐	Freight handling for passw
custom/skipNav.js	skip-nav-link	3	jQuery	Utility	0.386	☐	Accessibility feature
custom/footer.js	country-select	2	jQuery	Forms	0.386	☐	Country select in footer... i
custom/expandableDescription.js	expandable-description	2	jQuery	Utility	0.639	☐	Deprecated expandable d
custom/expandableTable.js	truncated	2	jQuery		2.01	☐	Expandable tables... rewit
custom/passwordStrengthMeter.js	reset-password-password-strer	1	jQuery	Forms	4.23	☐	Seems large for a string co
custom/payshare.js	paySharePaymentSplitType	1	jQuery,validate	Forms	13	☐	Used by payshare? mos

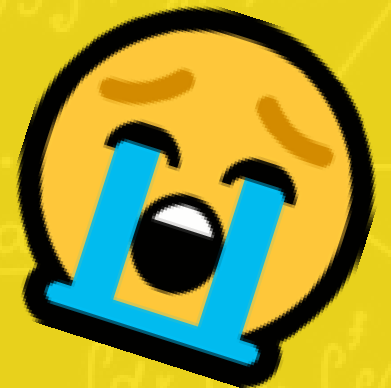
COUNT 67

SUM 826.927

391 occurrences
@ 1hr per fix
@ 1hr per QA

19.55 Weeks of Human Effort

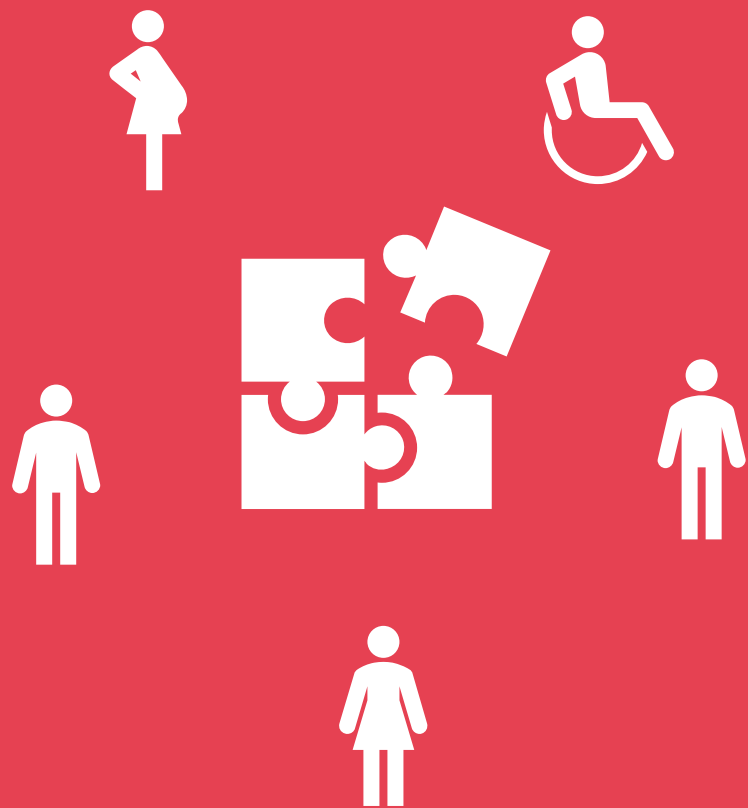
(Still end up with a difficult to maintain jQuery app)



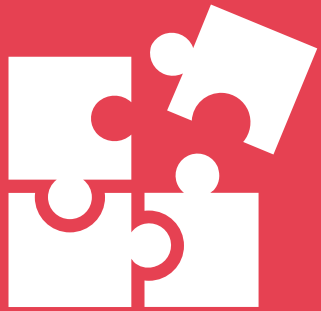
**Perhaps a framework
makes more sense?**

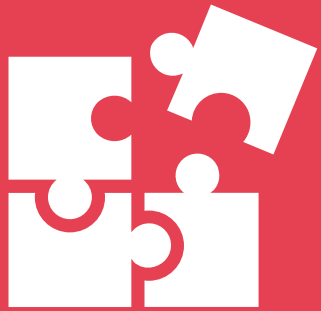
**That which is not
managed, grows**

Rolling Out A Design System

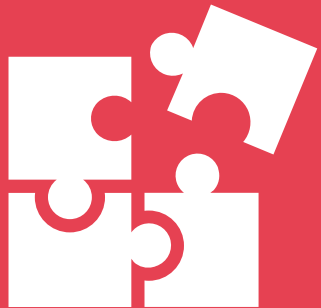


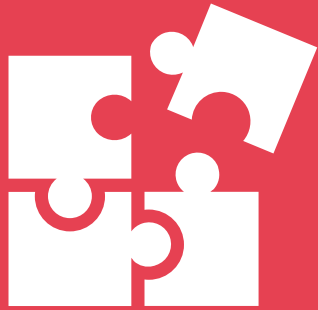


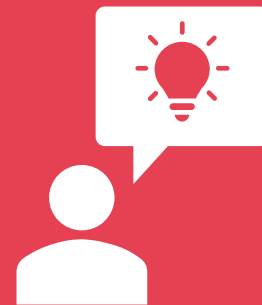
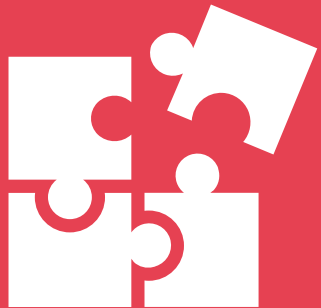


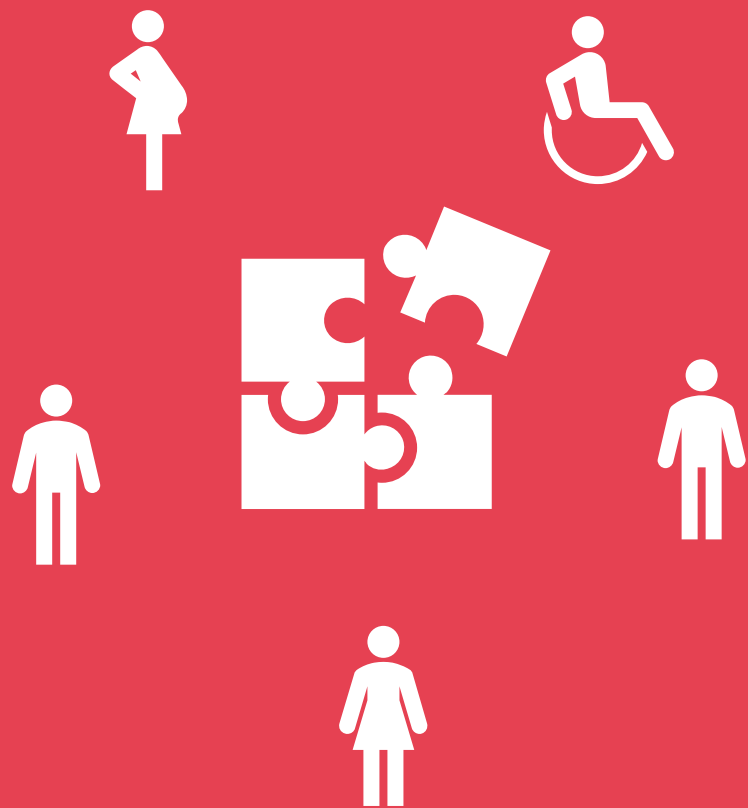












Organizations which design systems ... are constrained to produce designs which are copies of the communication structures of these organizations.

– Melvin Conway

Your website is a manifestation of your organization's problems.

– Dave Rupert

2019

Frameworks





```
app
├── scss
│   └── my-button.scss
├── js
│   └── my-button.js
└── index.html
```



```
app
├── sc
├── js
└── in
```



```
app
└── components
    └── MyButton
        ├── my-button.html
        ├── my-button.scss
        ├── my-button.spec.ts
        └── my-button.ts
```



app
├── src
│ ├── js
│ └── index.html



app
├── components



```
import React from 'react';
import styles from './MyButton.css';

function MyButton() {
  function handleClick() {}

  return (
    <button className={styles.button}
            onClick={handleClick}>
      My Button
    </button>
  )
}

export default MyButton;
```



```
app
├── src
│   ├── js
│   └── index
```



```
app
└── components
```



```
import { Button } from 'my-button'

function App() {
  return (
    <div>
      <Button />
    </div>
  )
}
```



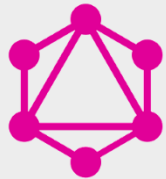
```
// my-button.vue
<template>
  <button @click={handleClick}>My Button</button>
</template>

<script>
export default {
  methods: {
    handleClick() {}
  }
}
</script>

<style scoped>
  button { background: pink }
</style>
```

Buzzwords...

JAMSTACK



GraphQL



THE POWER OF SERVERLESS

FOR FRONT-END DEVELOPERS

What is Serverless? [Find out →](#)

SERVICES

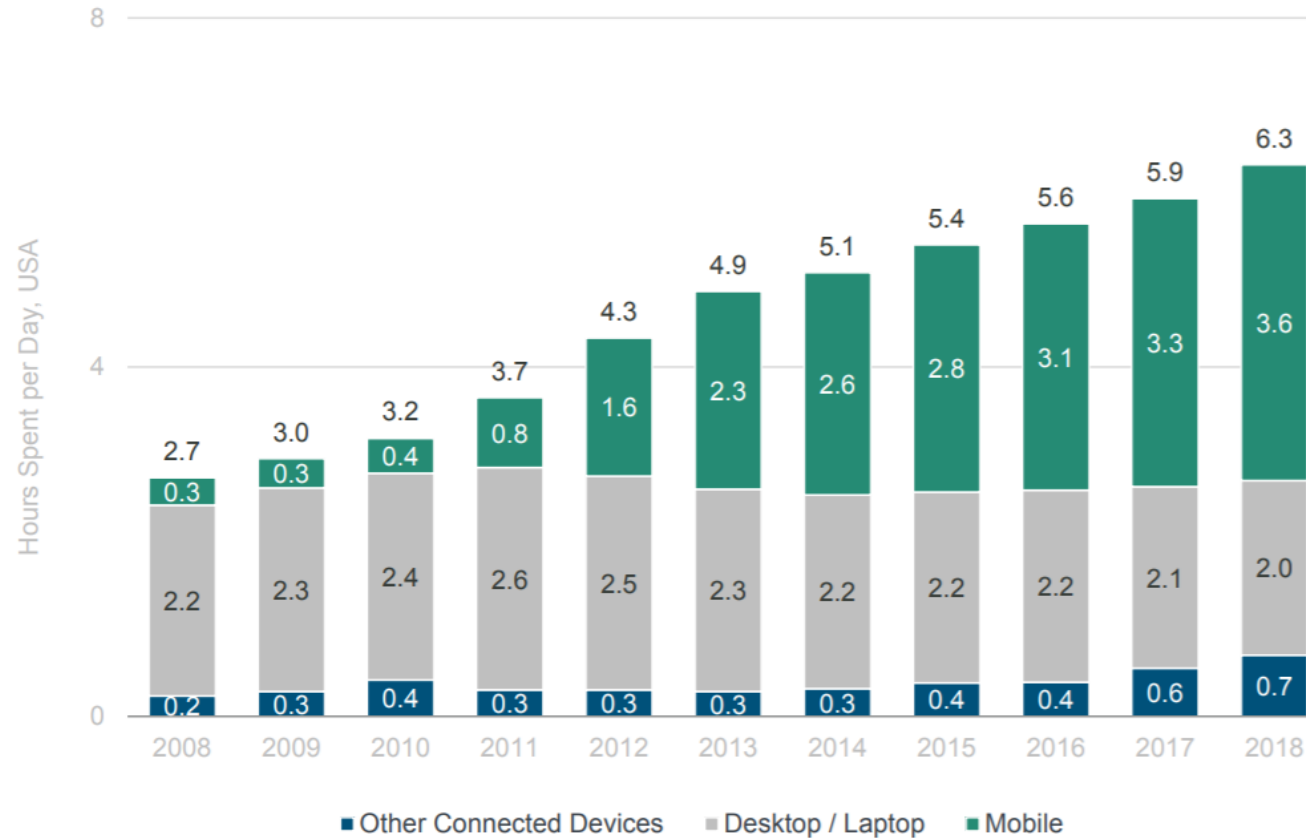
RESOURCES

IDEAS

**Mobile has
hit the tipping point**

Digital Media Usage = Accelerating +7% vs. +5% Y/Y

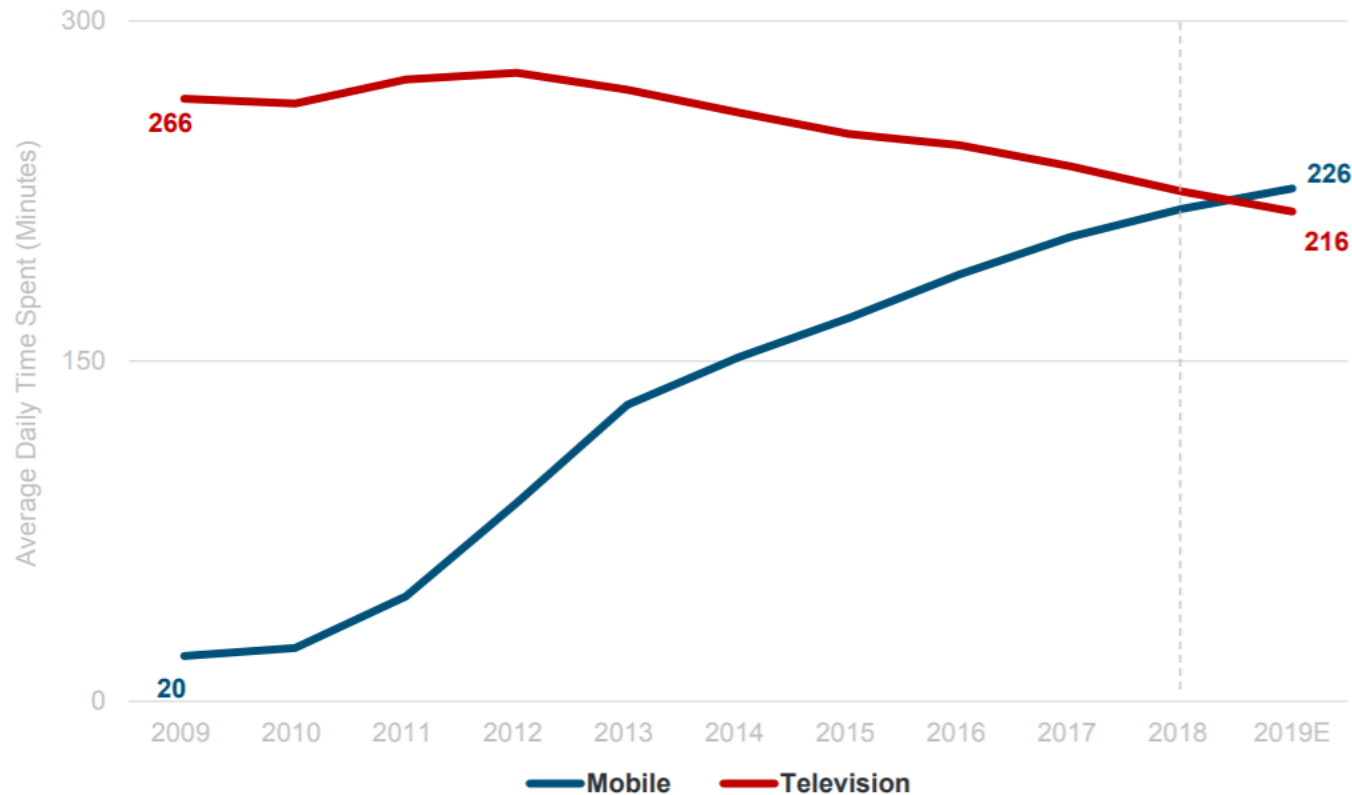
Daily Hours Spent with Digital Media per Adult User, USA



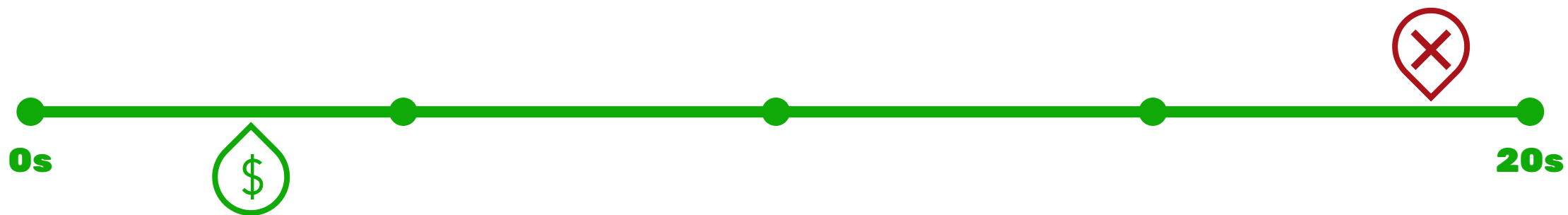
<https://www.bondcap.com/report/itr19/#view/41>

Device Time = Mobile > TV

Television & Mobile Daily Time Spent (Non-Deduped), USA



<https://www.bondcap.com/report/itr19/#view/46>







WEB COMPONENTS



```
// my-button.html
<template>
  <style>button { background: pink; }</style>
  <button>My Button</button>
</template>

<script>
  class MyButton extends HTMLElement {
    // handleClick stuff goes here
  }

  customElements.define('my-button', MyButton)
</script>
```



```
// my-
<templ
  <sty
  <but
</temp
  <link rel="import" href="my-button.html"/>
</head>
<scrip
  clas
  <my-button></my-button>
  //
  }
  </body>
  </html>

  cust
</scri
```


A Shiba Inu dog is sitting inside a Firefox logo, which is a circular shape with a blue upper half and a red-to-orange gradient lower half. The dog is looking towards the left. A white speech bubble with a black outline is positioned to the left of the dog, containing the text "nah. we hate html. (imports)".

nah. we hate html.
(imports)

<https://hacks.mozilla.org/2014/12/mozilla-and-web-components/>



WEB COMPONENTS: PART II



```
// my-button.js
import { LitElement, html } from 'lit-element'

class MyButton extends LitElement {

  handleClick() {}

  render() {
    return html`
      <style>
        button { background: pink; }
      </style>
      <button @click="${this.handleClick}">My Button</button>
    `;
  }
}

customElements.define('my-button', MyButton);
```



```
// my-  
import  
class  
    <title>My Page</title>  
    <script type="module" src="my-button.js"></script>  
hand </head>  
    <body>  
rend  <my-button></my-button>  
    </body>  
    </html>
```

```
,  
}  
}
```

custom

**Web Components
are kinda “meh” right
now, but...**

Lightning Web Components four

+

← → ↺

https://lwc.dev

Lightning Web Components

Guide Community

Lightning Web Components

A Blazing Fast, Enterprise-Grade Web Components Foundation

To install Lightning Web Components and create your first app, use the open source `lwc-create-app` tool.

```
$ npx lwc-create-app my-app
$ cd my-app
$ npm run watch
```

The `npx` tool installs with `npm 5.2+`. See [Installation](#).



Learn the fundamentals of **LWC** and harness the full power of Web Components.

Get Started

<https://lwc.dev/>

Lightning Fast

Standards-Based

Easy to Learn



webcomponents

HTML Template Instantiation

Proposed by Apple on November 1st, 2017.

1. Background

The HTML5 specification defines the [template element](#) but doesn't provide a native mechanism to instantiate it with some parts of it substituted, conditionally included, or repeated based on JavaScript values — as popular JavaScript frameworks such as [Ember.js](#) and [Angular](#) allow. As a consequence, there are many incompatible template syntaxes and semantics to do substitution and conditionals within templates — making it hard for web developers to combine otherwise reusable components when they use different templating libraries.

Whilst previously we all decided to focus on shadow DOM and the custom-elements API first, we think the time is right — now that shadow DOM and custom-elements API have been shipping in Safari and Chrome and are in development in Firefox — to propose and standardize an API to instantiate HTML templates. We can make basic substitution work out of the box, and make it extensible for libraries and frameworks to innovate and iterate quickly. That would allow more interoperable behaviors across libraries and frameworks, and ultimately more reusable components.

For the sake of simplicity, we assume we adopt [mustache](#) syntax in our standardized template language. We're open to adopting some other syntax but we would not want to make it configurable since we believe converging on a single syntax for parsing is a key to more interoperability.

2. Use Cases

Here are some of the use cases this API should address:

1. A component that represents an article should be able to create a shadow tree with `h1` and `article` elements from an HTML

<http://w3c.github.io/webcomponents/proposals/Template-Instantiation.html>

`<article><h1></h1></article>`, and instantiate its content.

2. A contact-card component should be able to stamp out the content's name and email field with a value stored in a JS object easily; e.g. given a JavaScript object like `{name: "Bruce Wayne", email: "bruce@batkit.org"}` and a generic HTML template, it should be



Unity Component Module

hello-world.ucm

```
<template>
  <h1>Hello {{world}}!</h1>
</template>

<style>
  h1 {
    background: "red";
  };
</style>

<script>
  export default {
    data() {
      return {
        world: "world"
      }
    }
  }
</script>
```

Interface

This file format will support a strict subset of hypertext markup tags that will delimit and distinguish the use of JavaScript, HTML, and CSS in the single file.

<template></template> tags

<https://github.com/TheLarkInn/unity-component-specification>

- Any uses of valid HTML, will be valid inside of the `<template></template>` tags.
- Always single element root? (like vdom'y stuff or not needed for native implementation)

**Web Components
have the potential
to be great.**



WEB ASSEMBLY



Drag & drop or **select an image**

Or try one of these:



Large photo
(2.8mb)



Artwork
(2.9mb)

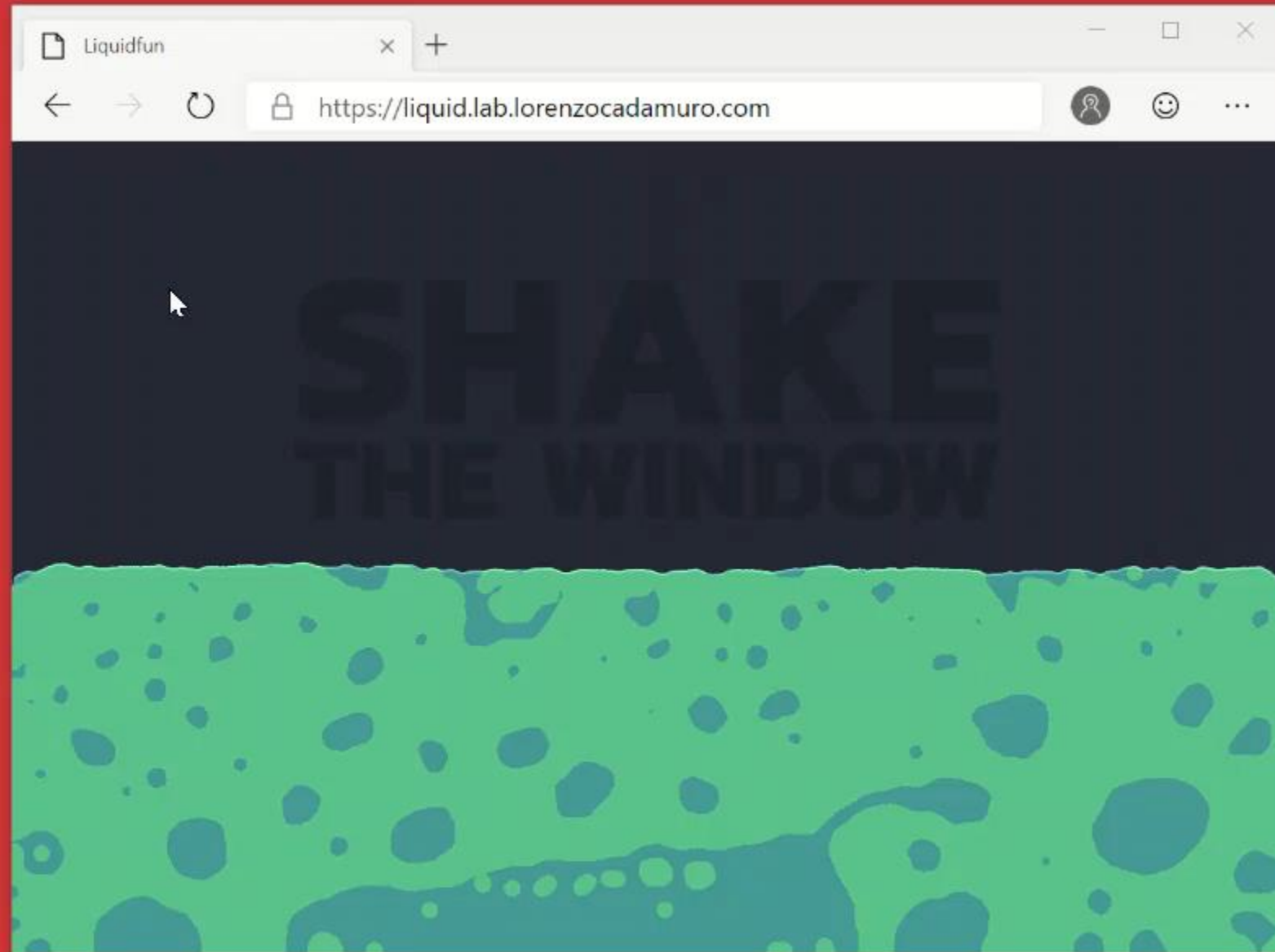


Device screen
(1.6mb)



SVG icon (13k)

<https://squoosh.app/>



<https://liquid.lab.lorenzocadamuro.com/>



<https://perceptiontoolkit.dev/>

**Web Assembly
will make websites
more powerful.**



CSS HOUDINI

MASKS

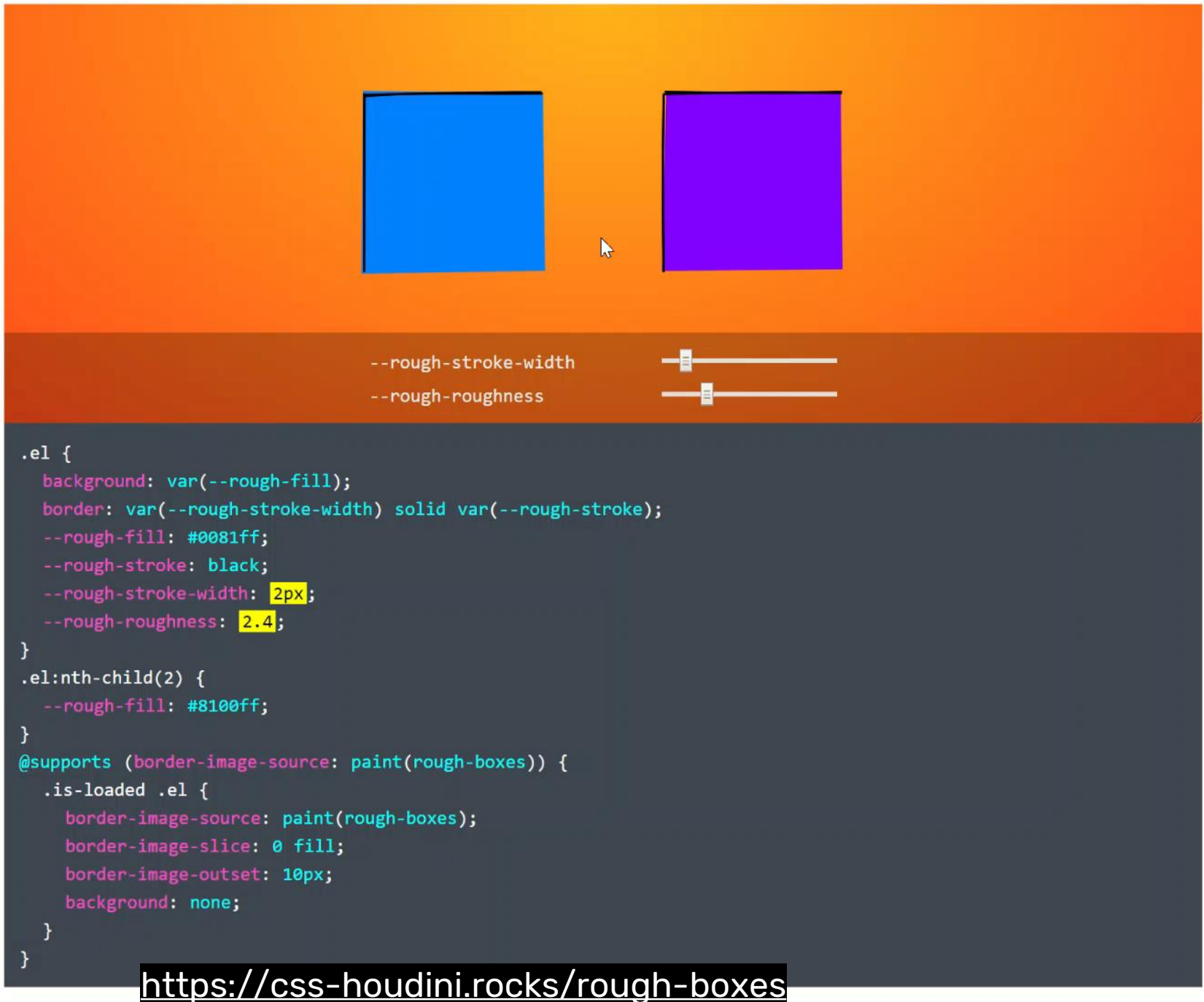
- Corner shapes ●●
- Avatar polygons ●●
- Smooth corners ●●
- Dynamic hover masks ●●
- Random bubbles mask ●●

ANIMATIONS

- Animating a gradient ●
- Ripple animation ●
- Highlighter marker annotations ●●
- Double rainbow ●
- Wobble animation ●●

LAYOUT

- EQ: Responsive background ●●
- Random irregular grid ●
- Masonry ●
- SVG Path layout ●●



```
.el {  
  background: var(--rough-fill);  
  border: var(--rough-stroke-width) solid var(--rough-stroke);  
  --rough-fill: #0081ff;  
  --rough-stroke: black;  
  --rough-stroke-width: 2px;  
  --rough-roughness: 2.4;  
}  
.el:nth-child(2) {  
  --rough-fill: #8100ff;  
}  
@supports (border-image-source: paint(rough-boxes)) {  
  .is-loaded .el {  
    border-image-source: paint(rough-boxes);  
    border-image-slice: 0 fill;  
    border-image-outset: 10px;  
    background: none;  
  }  
}
```

<https://css-houdini.rocks/rough-boxes>

ANIMATIONS

- Animating a gradient •
- Ripple animation •
- Highlighter marker annotations ••
- Double rainbow •
- Wobble animation ••

LAYOUT

- EQ: Responsive background ••
- Random irregular grid •
- Masonry •
- SVG Path layout ••



gap

--irregular-grid-x

--irregular-grid-y



```
.grid { https://css-houdini.rocks/irregular-grid  
  display: grid;  
  grid-template-columns: repeat(auto-fit, minmax(160px, 1fr));
```

Simple tooltip ●●

LAST Inner borders ●

Rough boxes ●●

Non-rectangular separators ●●

MASKS

Corner shapes ●●

Avatar polygons ●●

Smooth corners ●●

Dynamic hover masks ●●

Random bubbles mask ●●

ANIMATIONS

Animating a gradient ●

Ripple animation ●

Highlighter marker annotations ●●

Double rainbow ●

Wobble animation ●●

LAYOUT

EQ: Responsive background ●●

Random irregular grid ●

Masonry ●

SVG Path layout ●●

--columns

--padding

1 Lorem ipsum dolor sit amet, consul disputando ne his, et vim accumsan ponderum. Rebum deseruisse ex vix. Vix stet honestatis definitionem an, et natum occurreret cum, semper interpretaris cu mea. Eam saperet fierent luptatum no. Ius ei dicunt detracto elaboraret. Lorem ipsum dolor sit amet, consul disputando ne his, et vim accumsan ponderum. Rebum deseruisse ex vix. Vix stet honestatis definitionem an, et natum occurreret cum, semper interpretaris cu mea. Eam saperet fierent luptatum no. Ius ei dicunt detracto elaboraret.

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4 Lorem ipsum dolor sit amet, consul disputando ne his, et vim accumsan ponderum. Rebum deseruisse ex vix. Vix stet honestatis definitionem an, et natum occurreret cum, semper interpretaris cu mea. Eam saperet fierent luptatum no. Ius ei dicunt detracto elaboraret.

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6 Lorem ipsum dolor sit amet, consul disputando ne his, et vim accumsan ponderum. Rebum deseruisse ex vix. Vix stet honestatis definitionem an, et natum occurreret cum, semper interpretaris cu mea. Eam saperet fierent luptatum no. Ius ei dicunt detracto elaboraret Lorem ipsum dolor sit amet, consul disputando ne his, et vim accumsan ponderum. Rebum deseruisse ex vix. Vix stet honestatis definitionem an, et natum occurreret cum, semper interpretaris cu mea.

<https://css-houdini.rocks/masonry>

7 Lorem ipsum dolor sit amet, consul disputando ne his, et vim accumsan ponderum. Rebum deseruisse ex vix. Vix stet honestatis

**Houdini
will make websites
unique again.**

**So before
I go...**

**MOBILE FIRST
ONCE MORE,
WITH FEELING**

**THANK YOU
VERY MUCH**

**DAVE RUPERT
@DAVATRON5000**