

Did we(b development) lose the right direction?

@stefanjudis



This is a talk about general "best practices"...



This is a rant about general "best practices"...



Heyo, I'm Stefan!

@stefanjudis news.stefanjudis.com







The state of web development ten years ago...













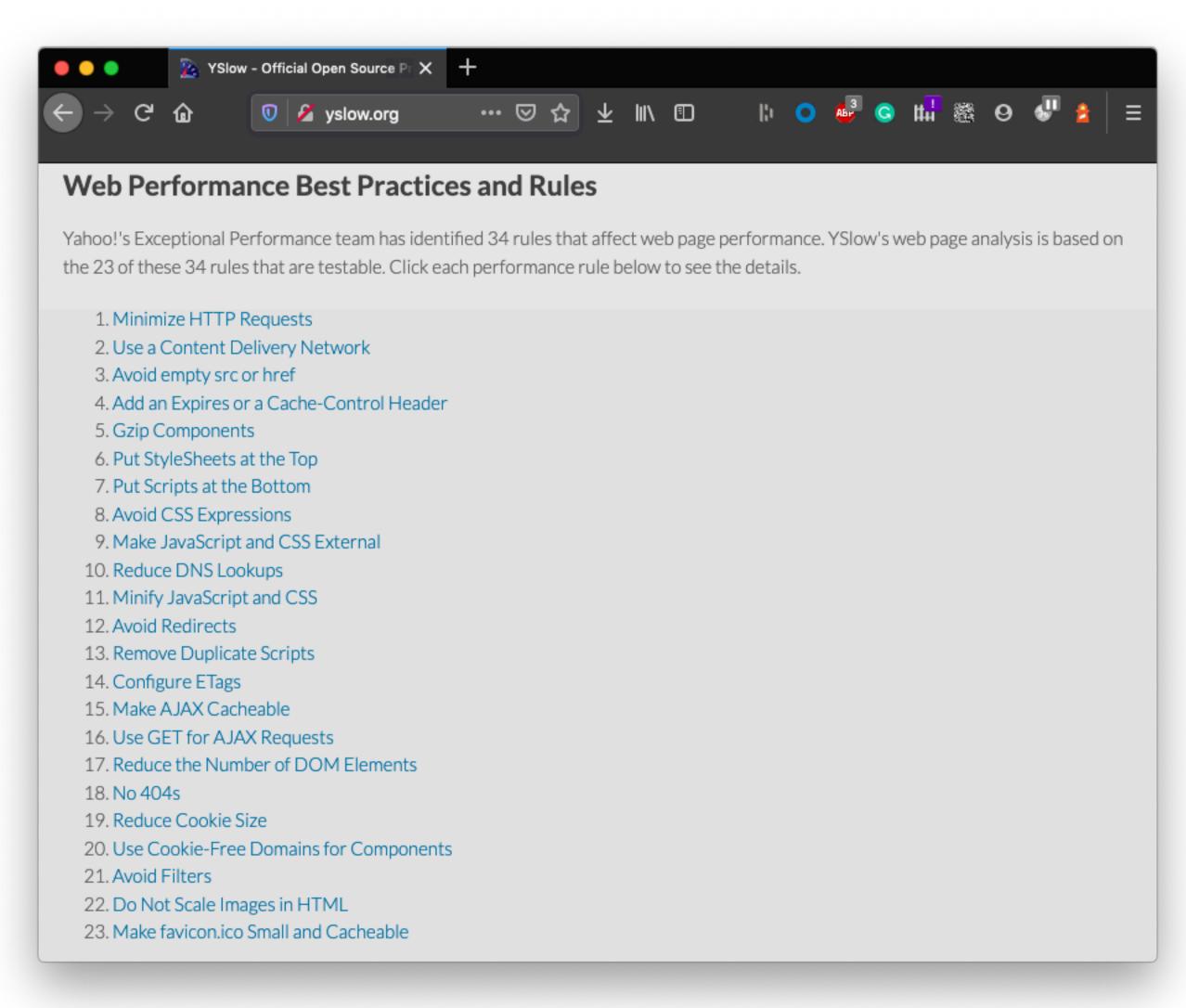






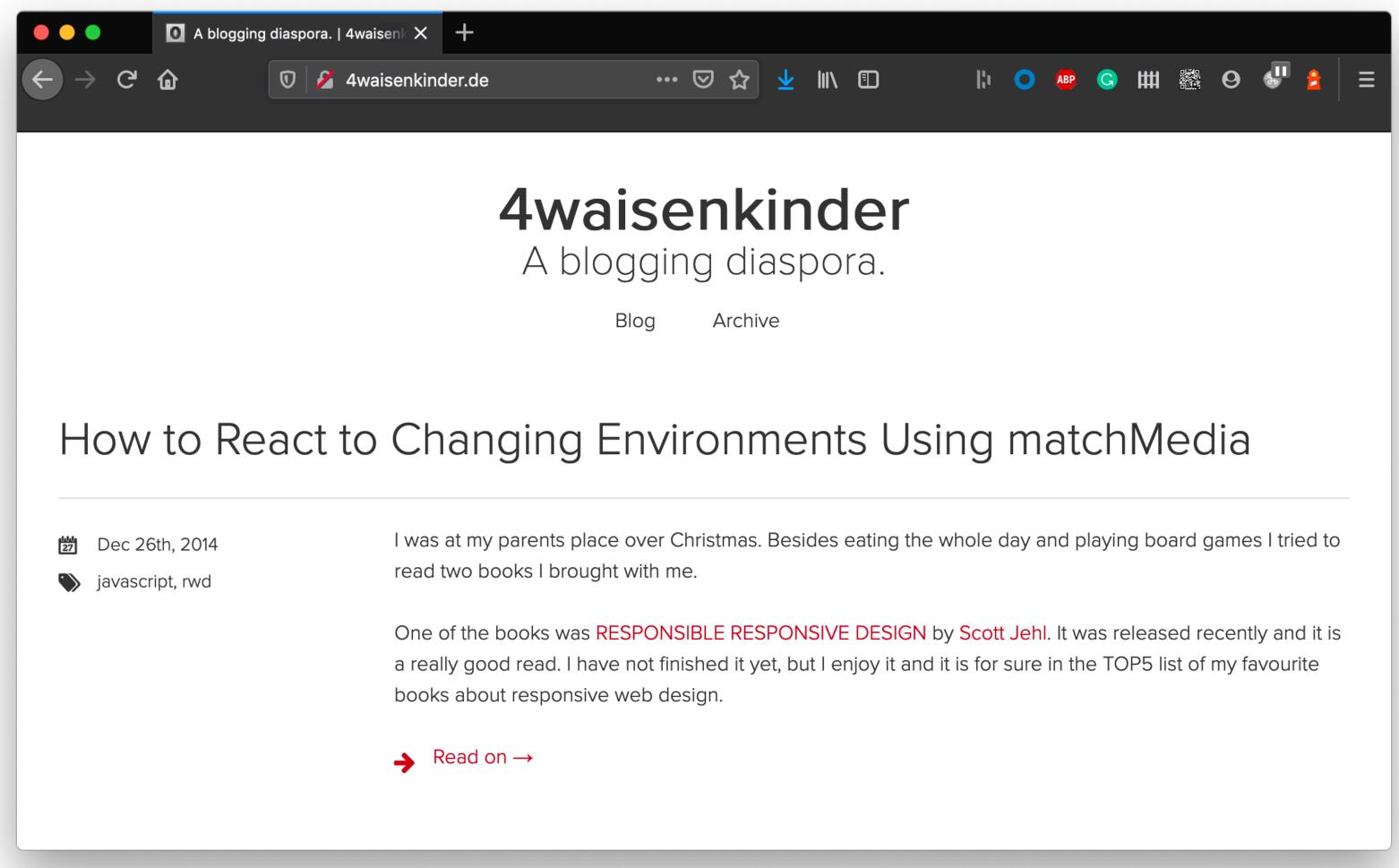


yslow.org





4waisenkinder.de





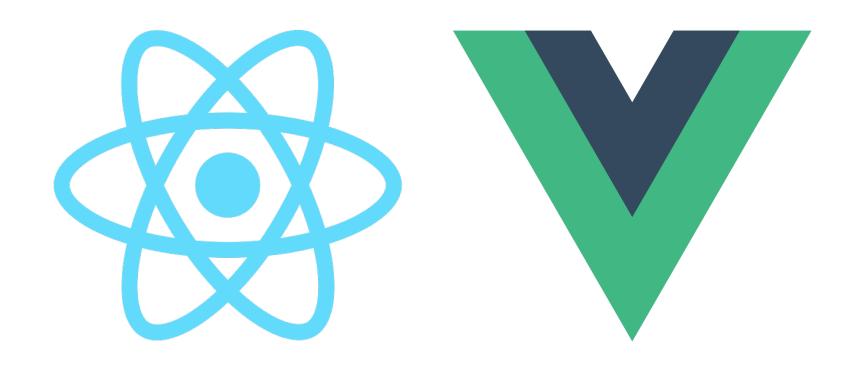










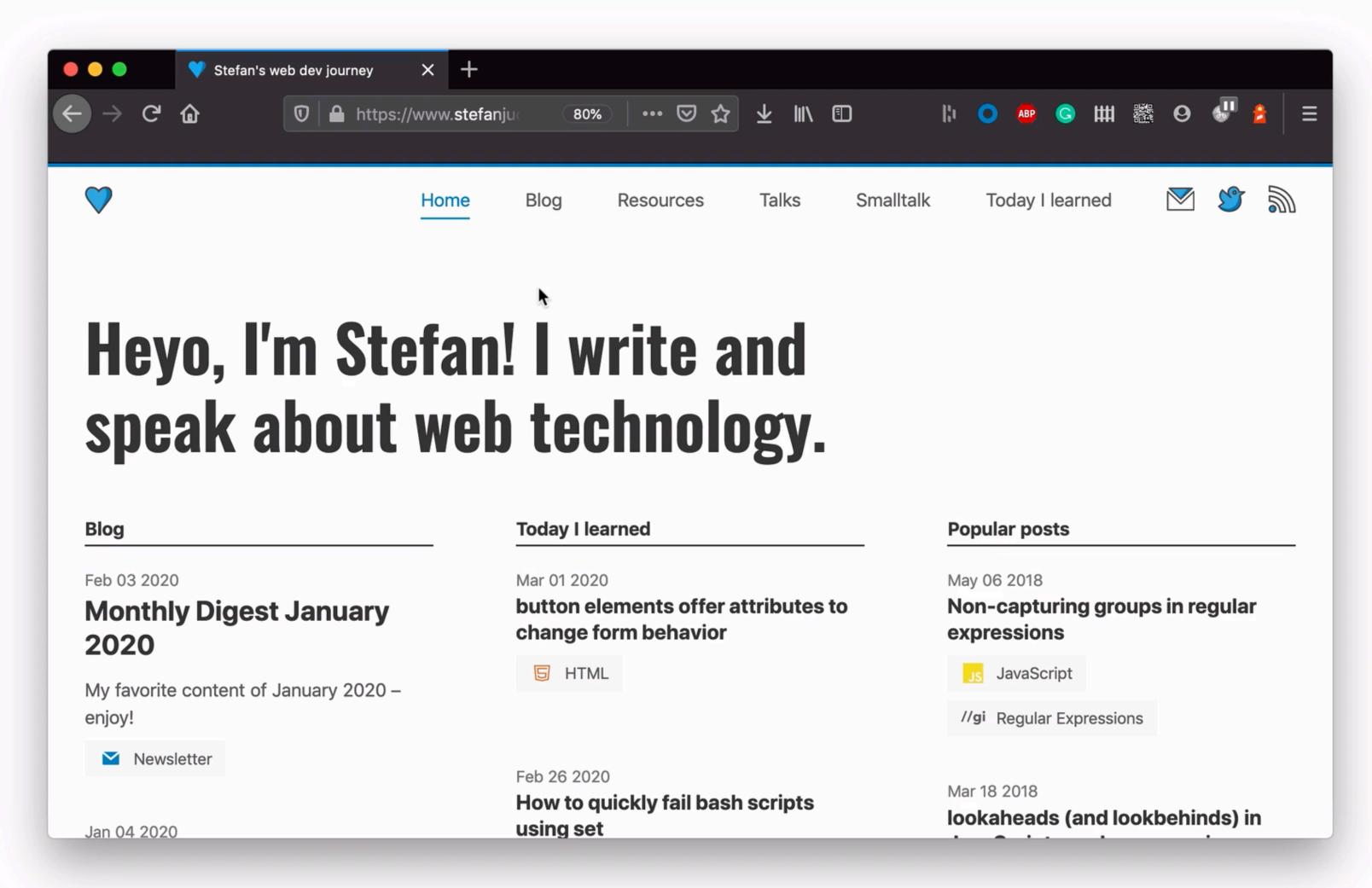




I love technology and I love writing JavaScript!

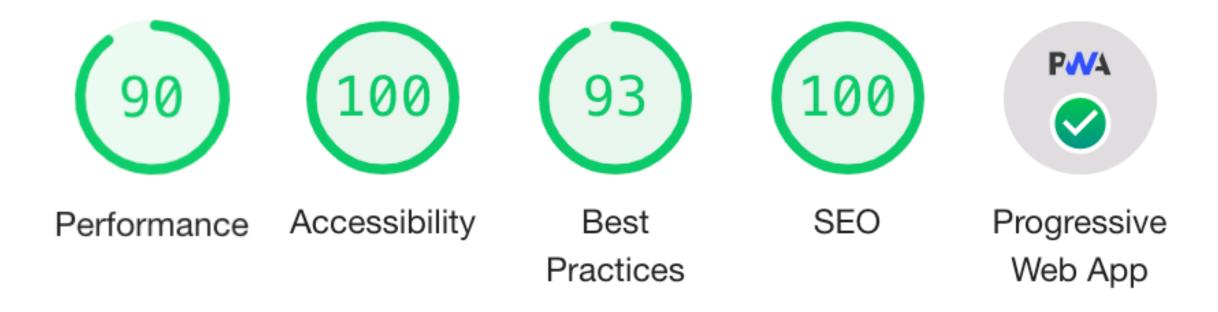


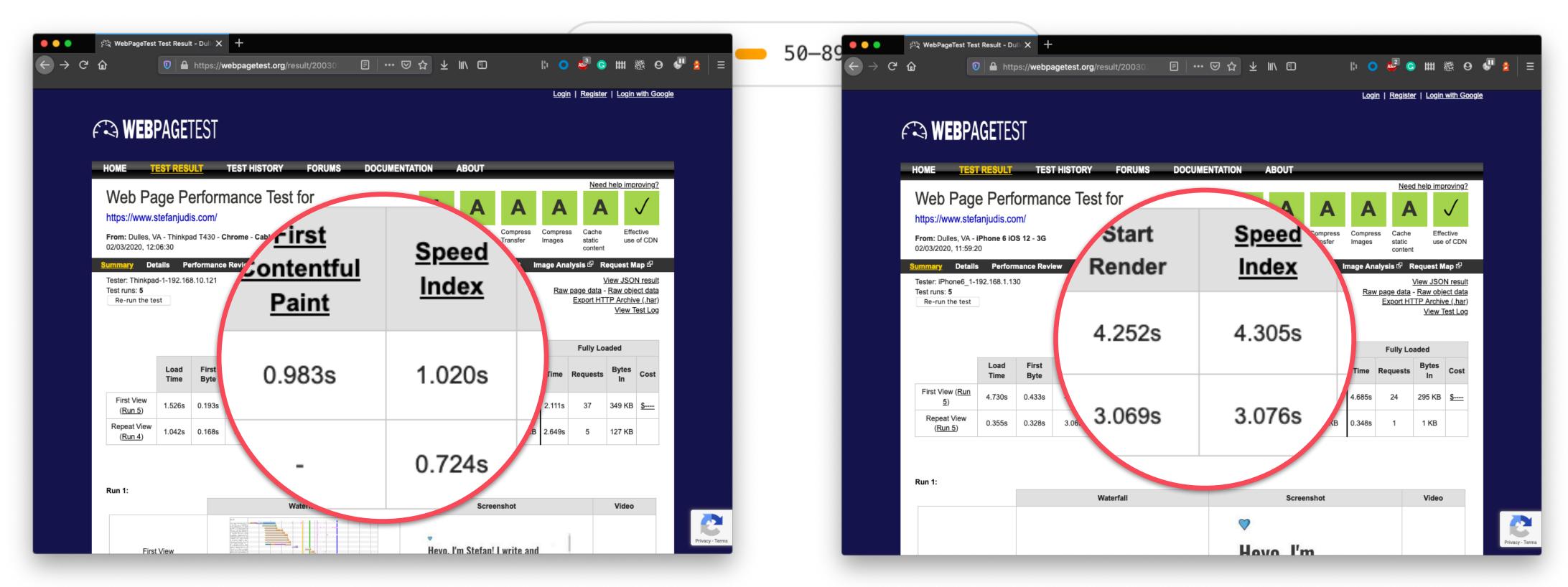
stefanjudis.com



2017 - 2020







Chrome – Cable

iPhone 6 – 3G



Usually, any score above a 90 gets you in the top ~5% of performant websites.

Lighthouse documentation



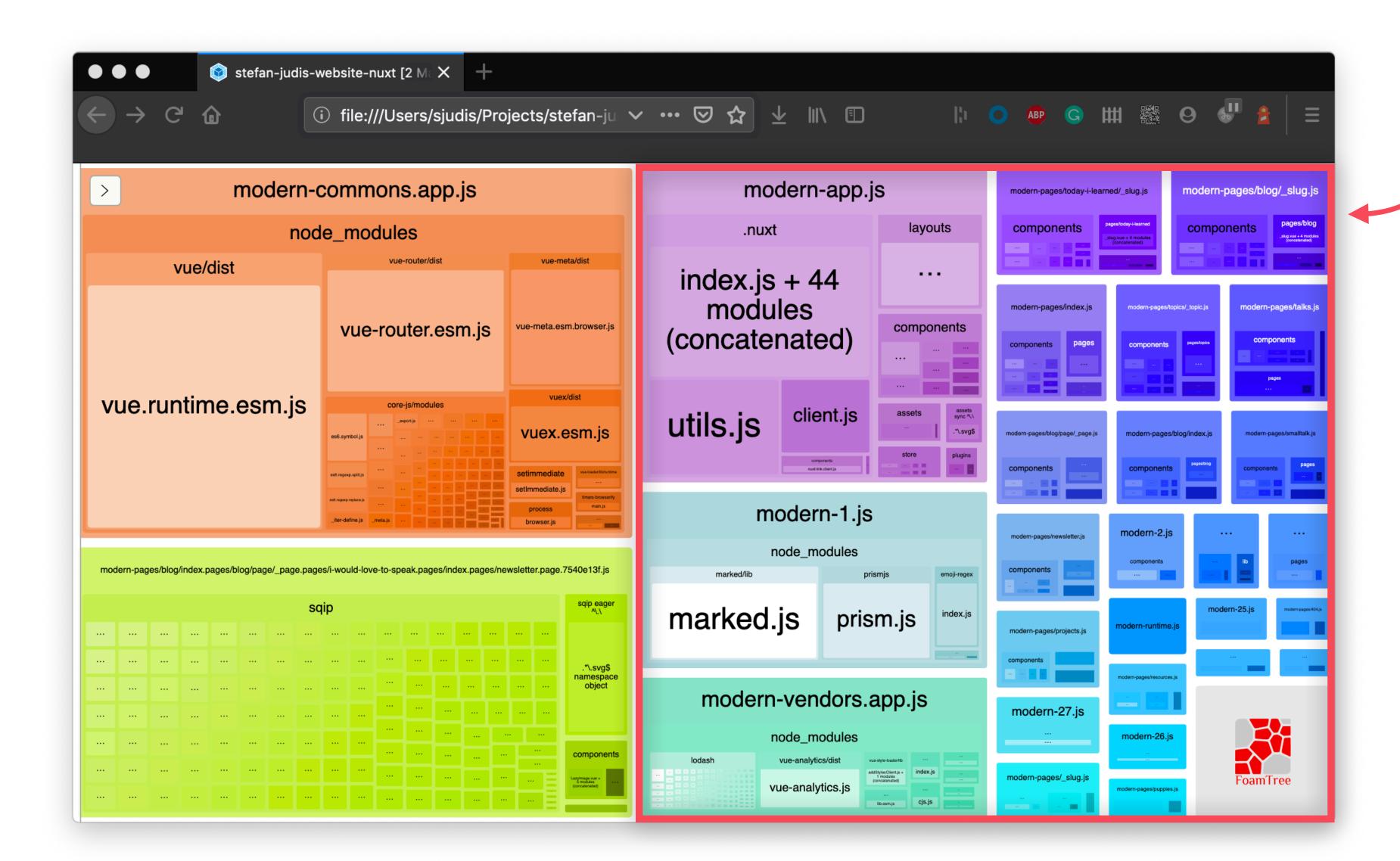
HTTP/2

Everything's compressed and minified!

```
<script nomodule src="
unicode-range: U+0000
U+02DC, U+2000-206F
U+FEFF, U+FFFD;
font-display: swap;</pre>
```

<link rel="modulepreload" href=</pre>

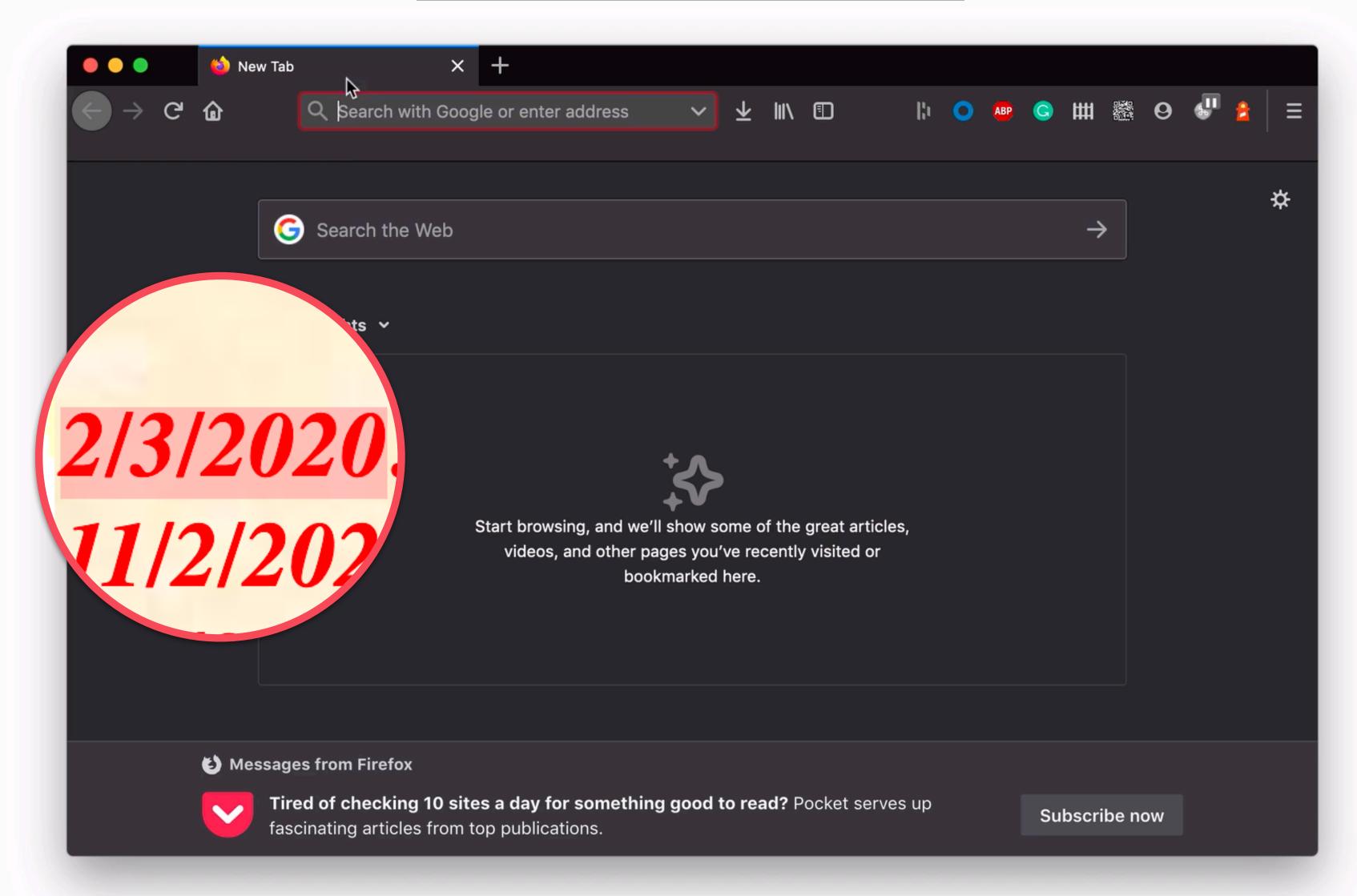
github.com/webpack-contrib/webpack-bundle-analyzer



Code splitting



www.fmboschetto.it







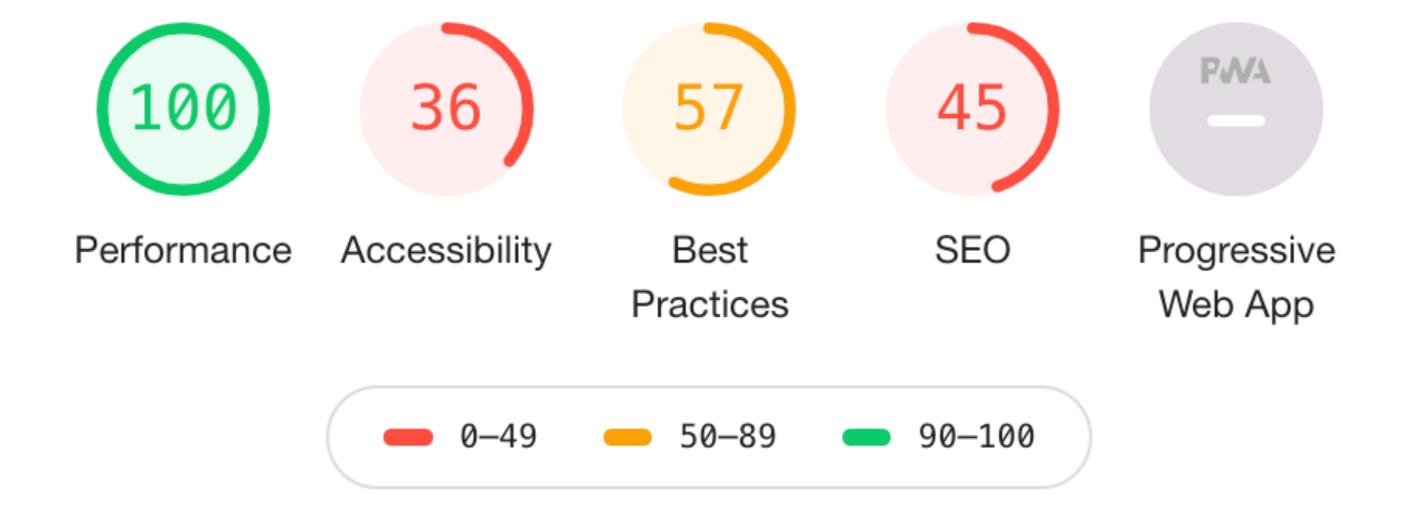






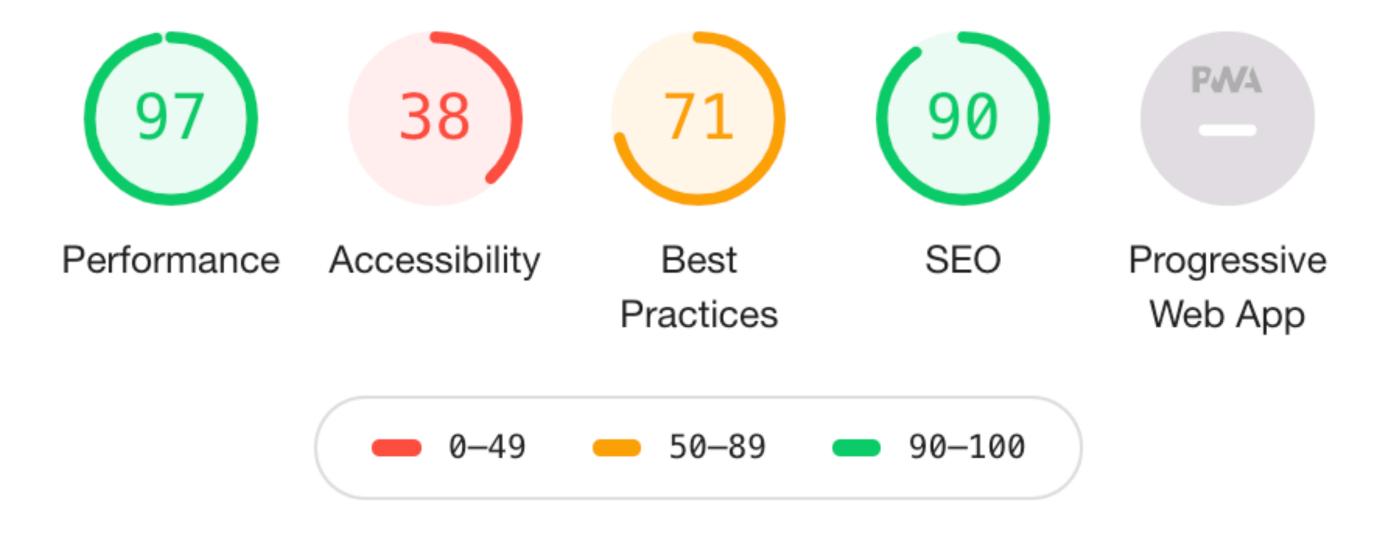
```
<body bgcolor="#FFFFFF" link="#FF0000" vlink="#FF0000" alink="#FF0000" background="sfondo2.gif">
<div align="center">
 <center>
    <td width="177" height="224" style="border-style: ridge; border-width: 2" bgcolor="#FFF]
        <img border="0" src="Stemma.gif" width="169" height="220" alt="Ster</pre>
       <b><i><font color="#0000FF" size="4"> L'ingegner Franco Maria Bosche
       presenta:</font></i></b>
       <img border="0" src="benvenuto.gif" width="220" height="70">
       <font face="Times New Roman, Times, serif" size="7" color="#FF0000">
        mio sito didattico</font>
```



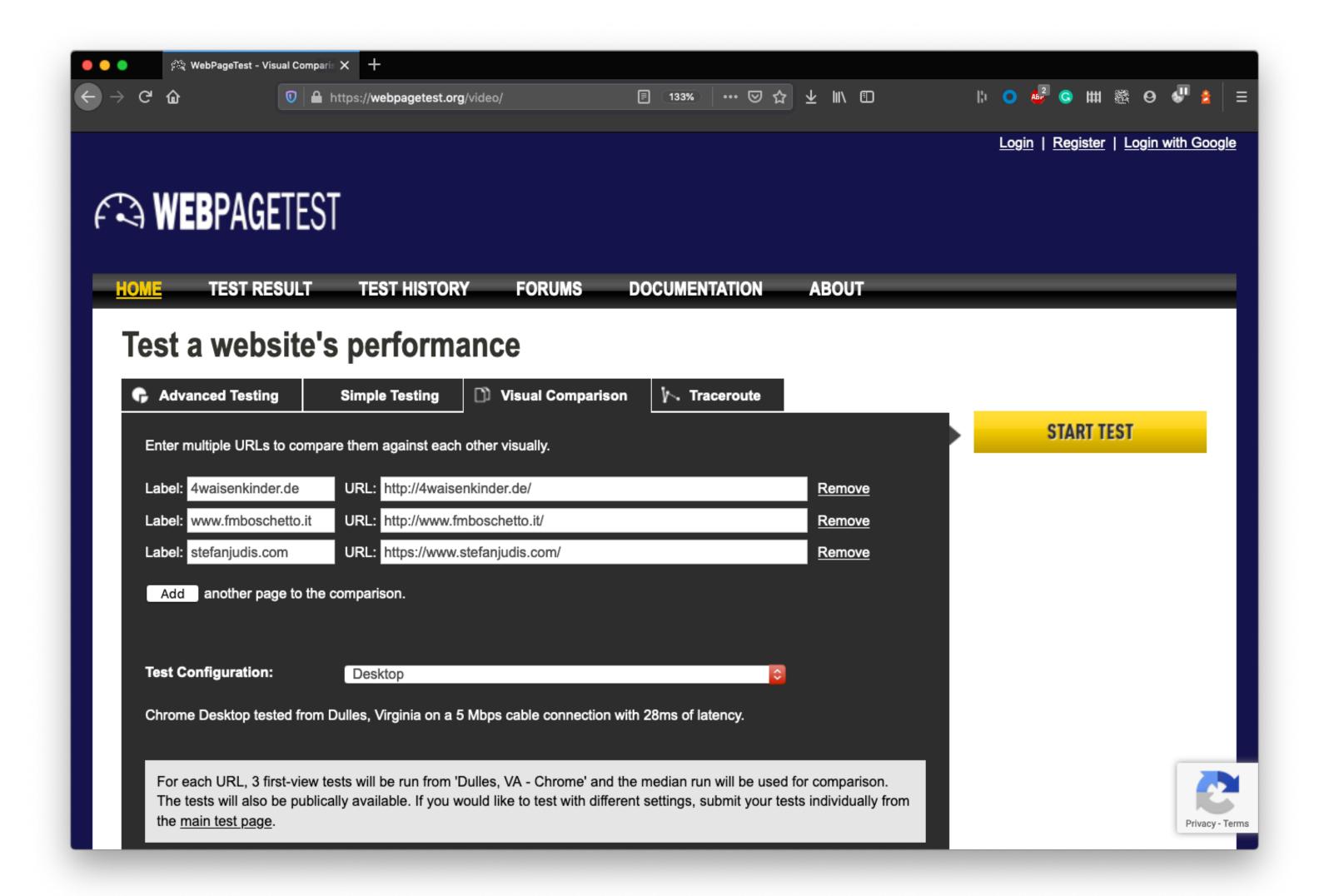




http://4waisenkinder.de/



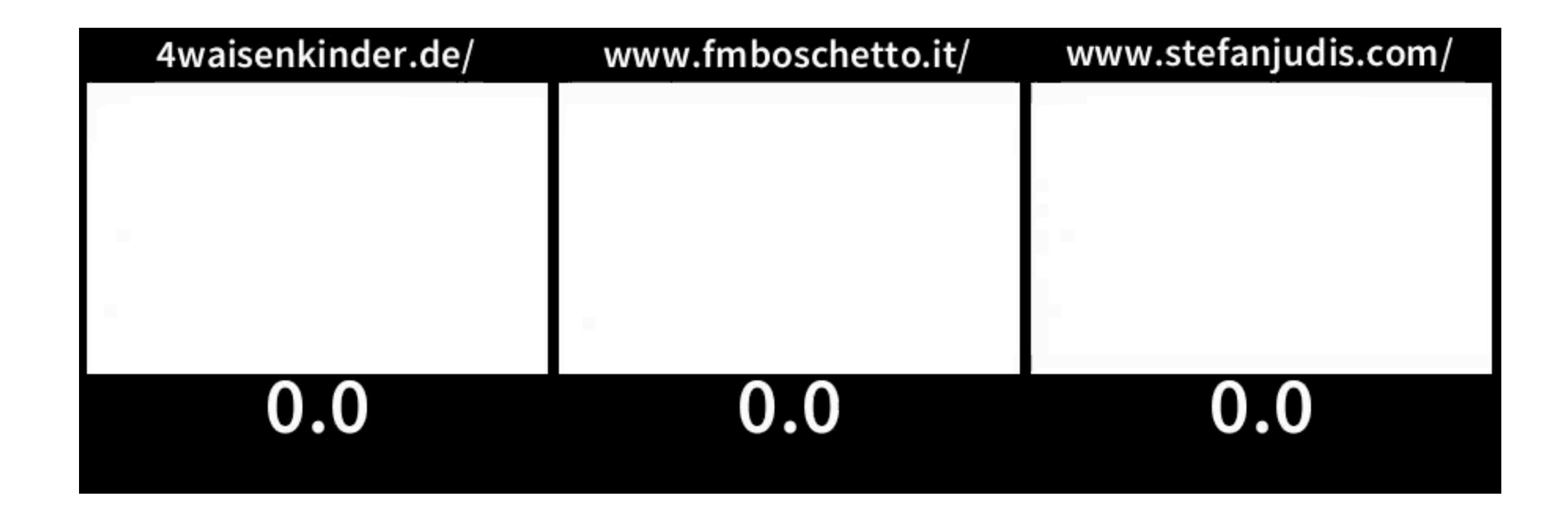
webpagetest.org/video/





Chrome – Cable

webpagetest.org/video/view.php?id=200302_2df0157ba9ea8586f5d987f7a1c3d52ed5e2a874





Stefan, you just messed it up!



Maybe, but how can it be so easy to mess up?



Images resources Speed Index (LTE) Lighthouse Perf Score

fmboschetto	.it
	• • •

265KB / 284KB

8KB / 32KB

0

(2KB / 6KB)

32 (246KB / 254KB)

1.4s / 0.8s

100

4waisenkinder.de

159KB / 300KB

6KB / 18KB

6 (68KB / 177KB)

0*

2.1s / 0.7s

stefanjudis.com

340KB / 940KB

108KB / 340KB

(183KB / 512KB)

Ø*

2.3s / 1.5s



Performance

Metrics			
First Contentful Paint	2.7 s	Time to Interactive	4.5 s
 Speed Index 	2.7 s	Total Blocking Time	170 ms
Largest Contentful Paint	2.7 s	 Cumulative Layout Shift 	0

Values are estimated and may vary. The <u>performance score is calculated</u> directly from these metrics. <u>See calculator.</u>

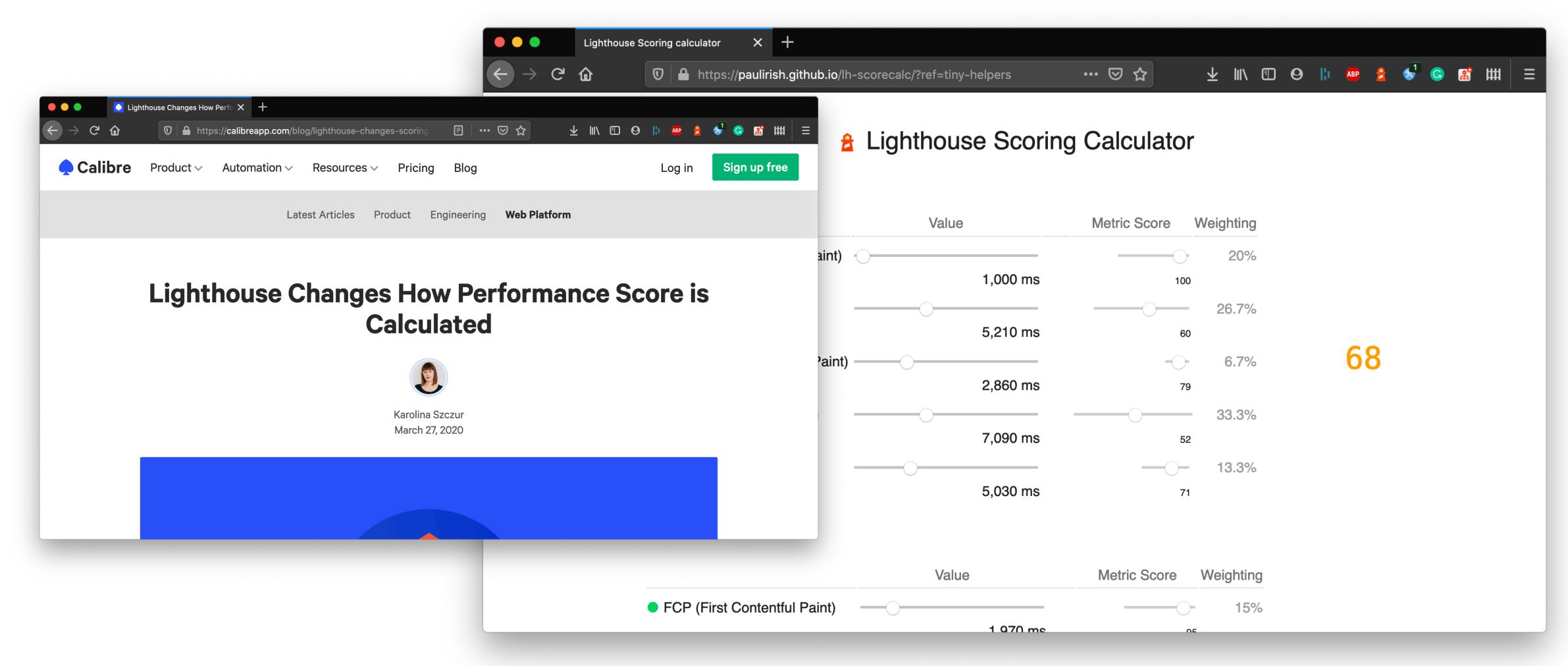


- 10% First contentful paint
- 10% Time to interactive
 - 10% Speed Index

JavaScript blocks the main-thread!

- 25% Largest contentful paint
- 30% Total blocking time
 - 15% Cumulative layout shift



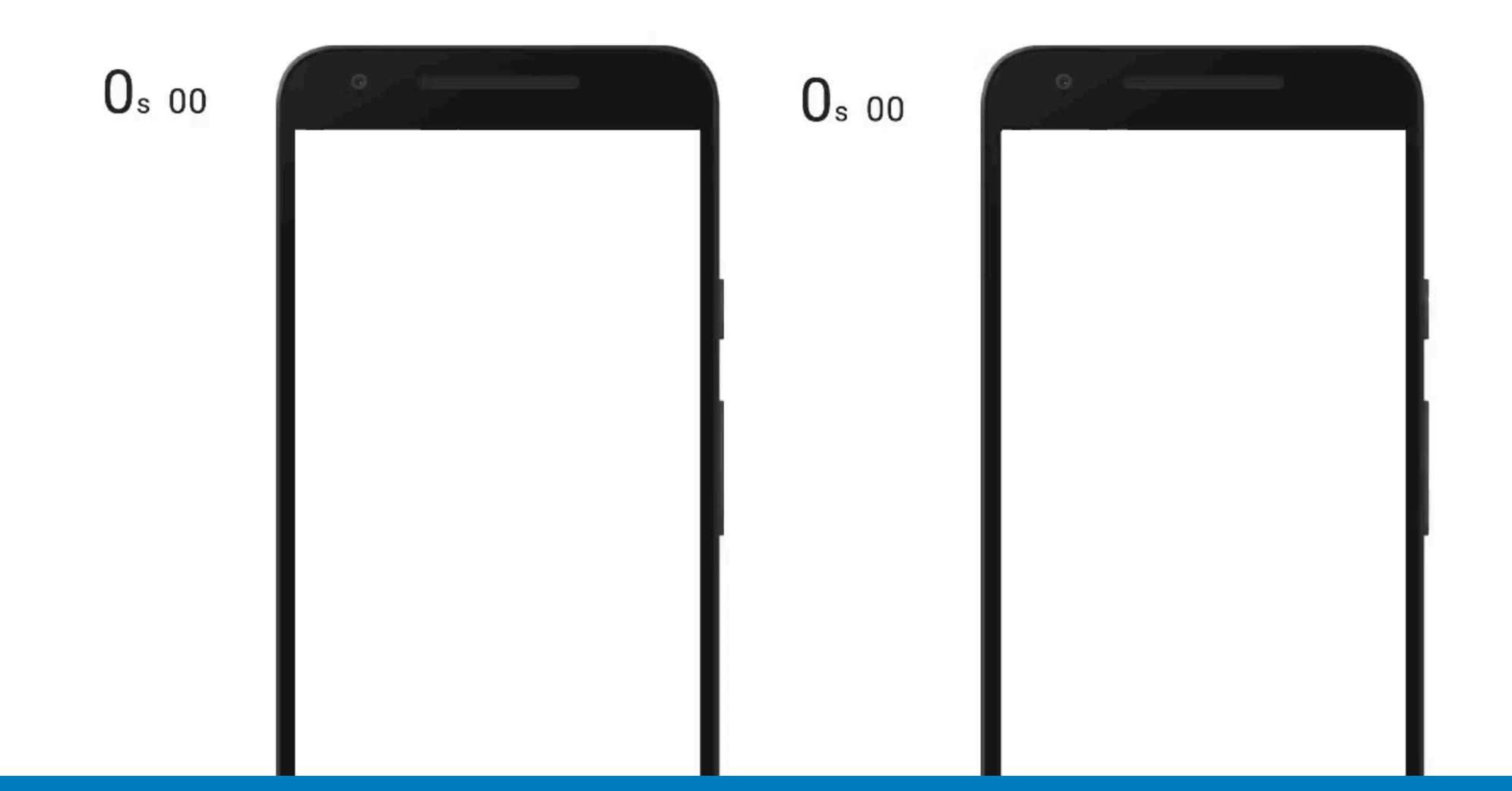


calibreapp.com/blog/lighthouse-changes-scoring-algorithm

paulirish.github.io/lh-scorecalc/

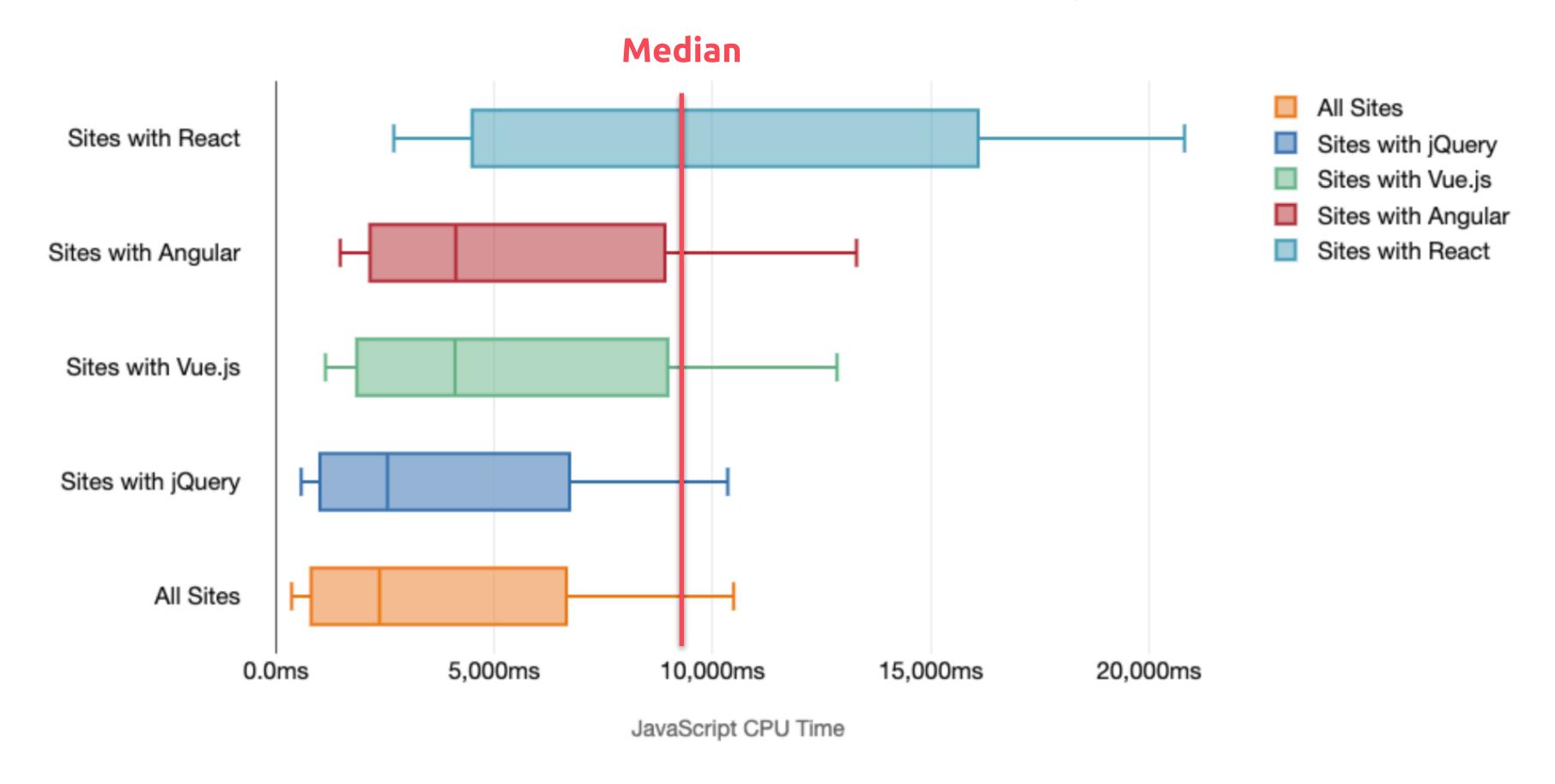


www.youtube.com/watch?v=Lx1cYJAVnzA



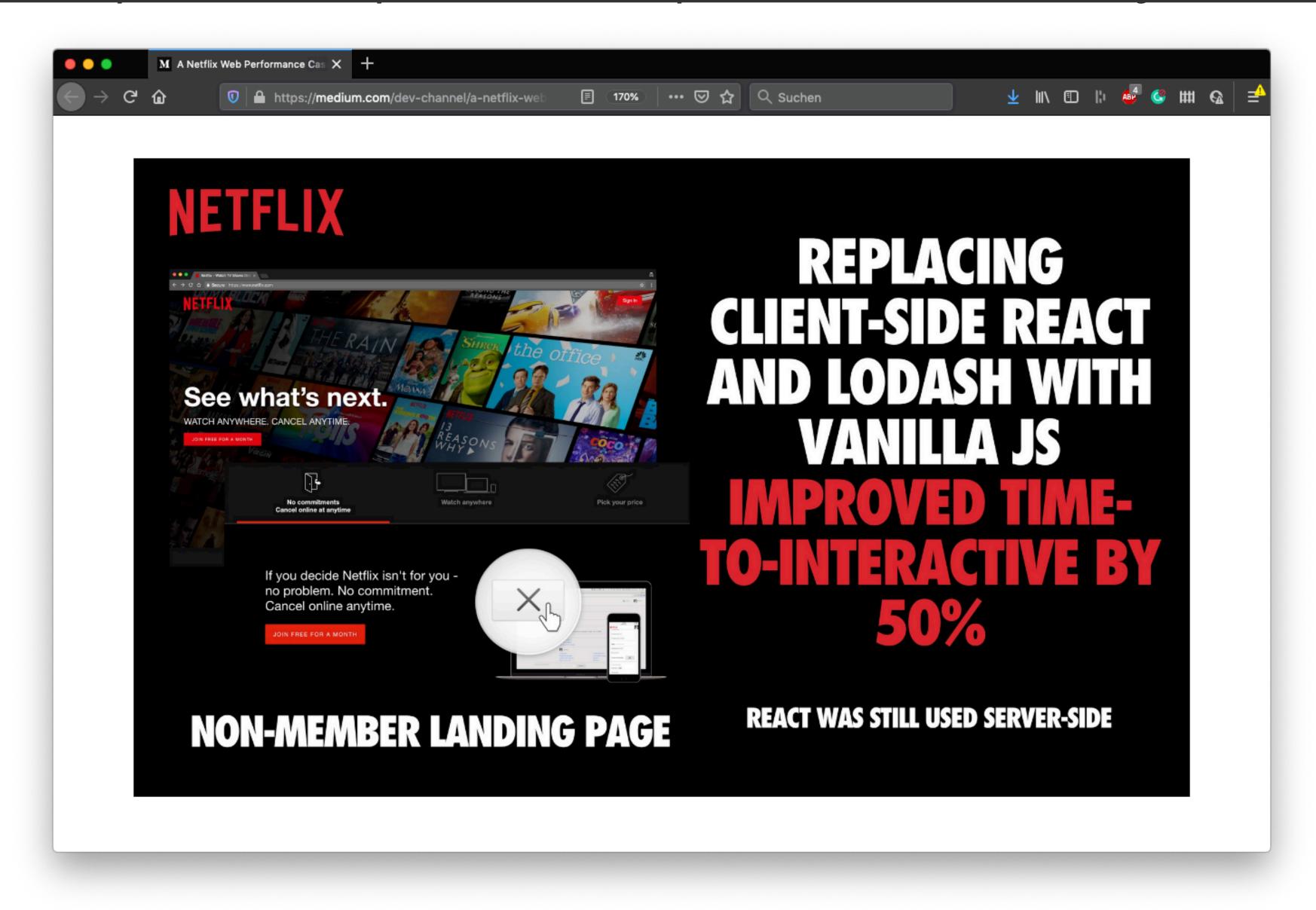


timkadlec.com/remembers/2020-04-21-the-cost-of-javascript-frameworks/



Scripting related CPU time (in milliseconds) for mobile devices in percentiles

medium.com/dev-channel/a-netflix-web-performance-case-study-c0bcde26a9d9





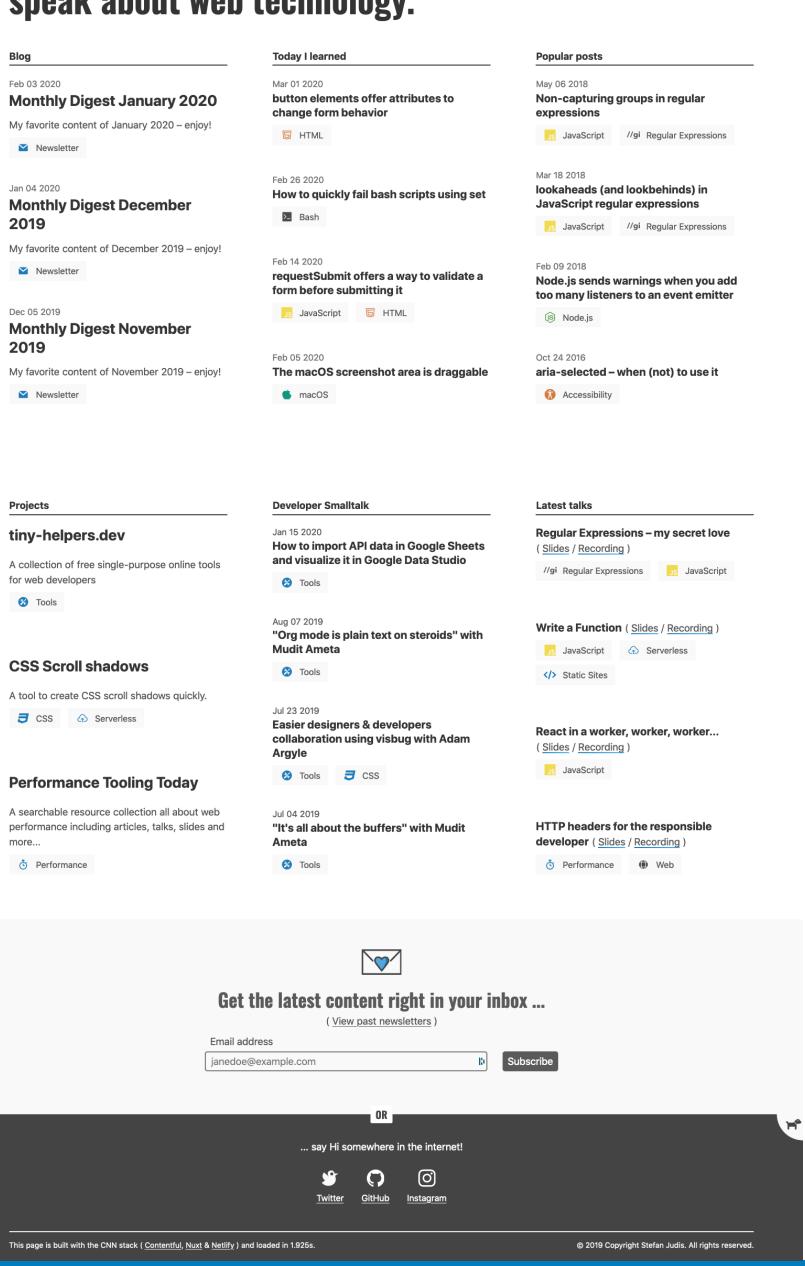
A 150KB image is not comparable to 150KB of gzipped JavaScript!



Page weight is not equal page weight!



Heyo, I'm Stefan! I write and speak about web technology.



That's a 340KB index file for roughly 400 words, Stefan?







Antwort an @somePerson und @calibreapp

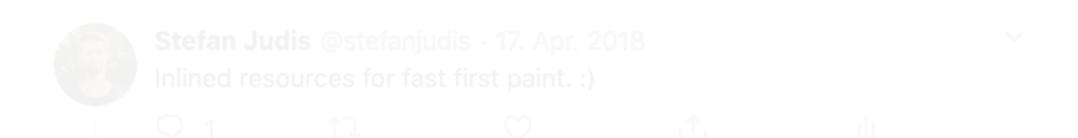
I couldn't agree more that the visitor matters, but we're talking about 90KB gzipped here and an overall optimized site with almost instant in navigation.

This is a better and more leightweight experience than most of the stuff out there. :)

Tweet übersetzen

8:45 vorm. · 17. Apr. 2018 · Twitter Web Client







Stefan Judis @stefanjudis · 17. Apr. 2018 http2 is enabled but as long as http2 push digests are not ready yet inlining and preload are the faster and more cache friendly way to go.

What is fair is that there is data in the page that's used for further navigations but yeah I take that for instand navigation. :)

"It's great because it's fast! And it's still lighter than the rest of the internet..."

Tweet übersetzen

8:45 vorm. · 17. Apr. 2018 · Twitter Web Client



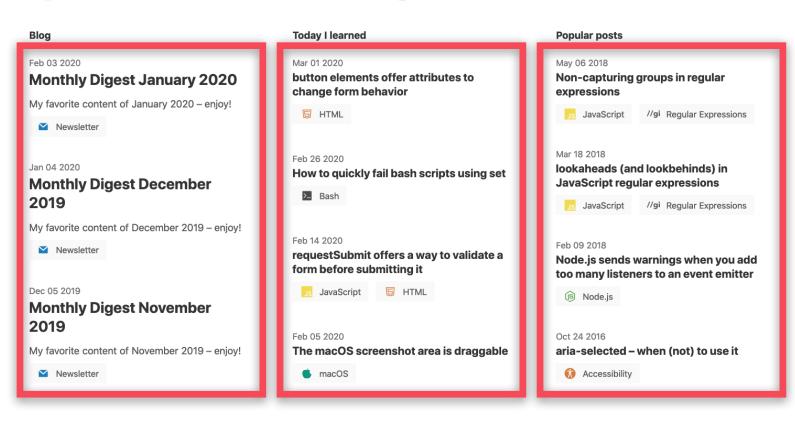
rest of the internet...

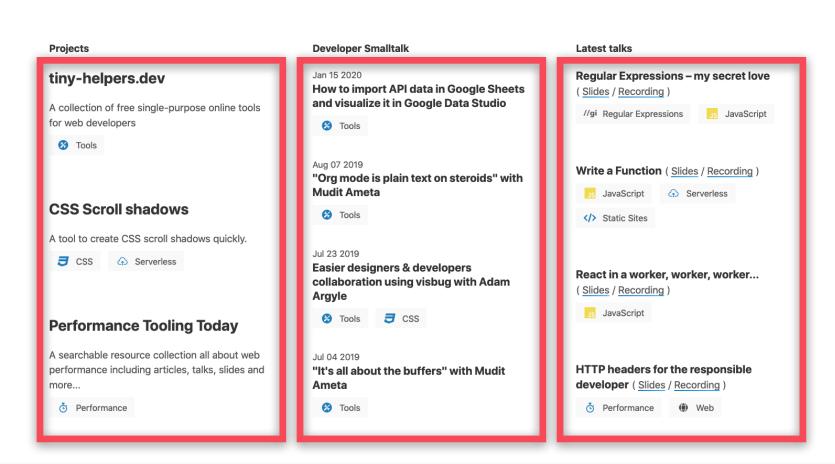
"I'm really digging the tech-stack!"

8:45 vorm. · 17. Apr. 2018 · Twitter Web Client

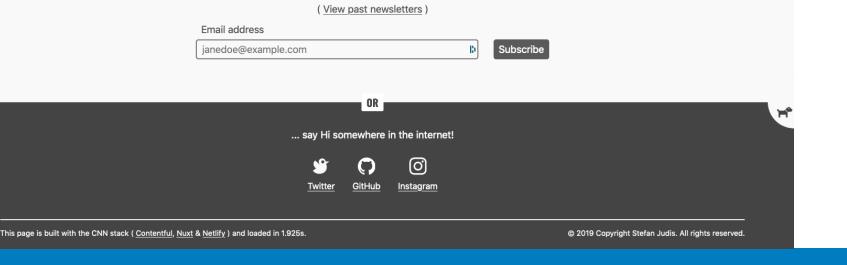


Heyo, I'm Stefan! I write and speak about web technology.





Get the latest content right in your inbox ..



That's a 340KB index file for roughly 400 words, Stefan?

```
window.__DATA__=function(
  e,t,n,o,i,/* **/
) { return /* **/
}
```



I decided to preload/inline 22 articles ...

(at an average session length of 1.17 pages)



... for "better performance".



Making a very fast website is extremely hard!

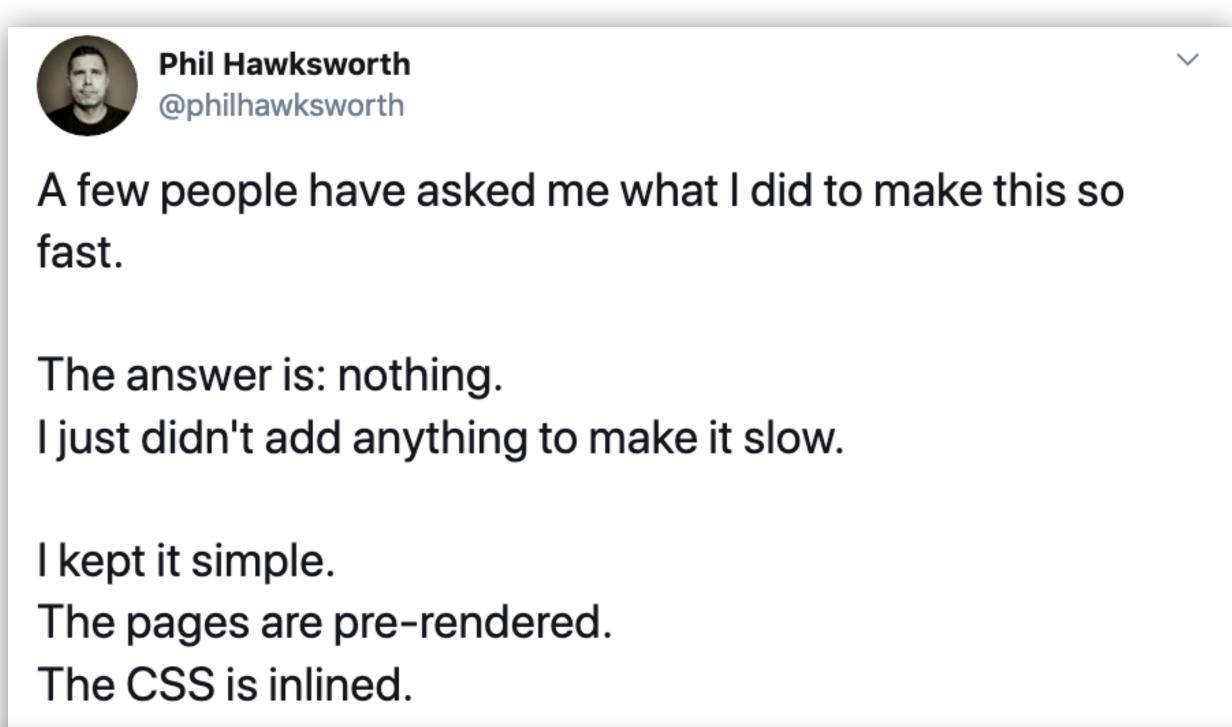


Making a very fast website is extremely hard!

(But is it really?)



twitter.com/philhawksworth/status/1038440732741259265



I didn't add unnaaaaary iayaaarint

The work was done before you got there.

```
Tweet übersetzen
4:55 nachm. · 8. Sep. 2018 · Twitter Web Client

11 Retweets 55 "Gefällt mir"-Angaben
```

https://tiny-helpers.dev/











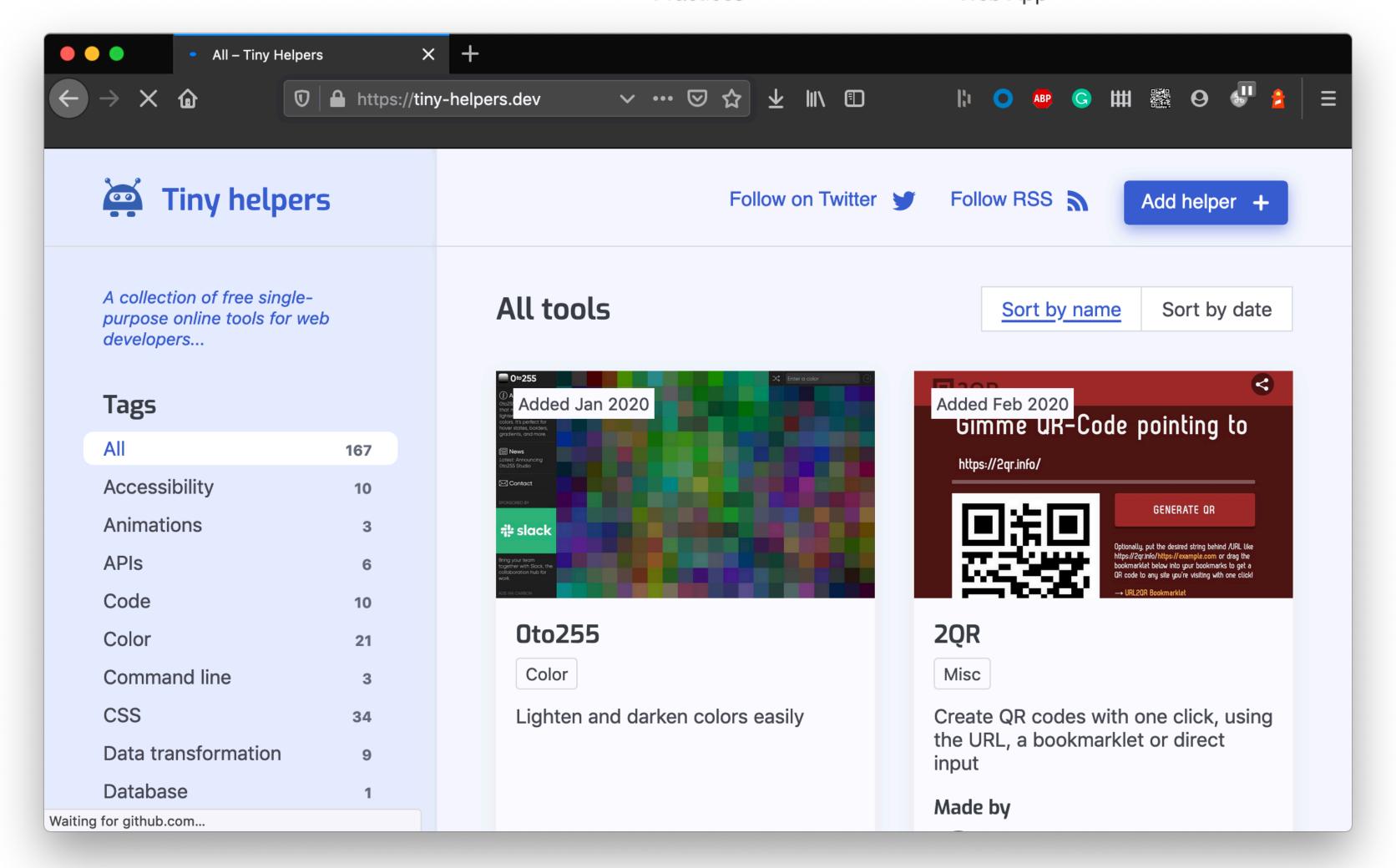
Performance

Accessibility

Best Practices

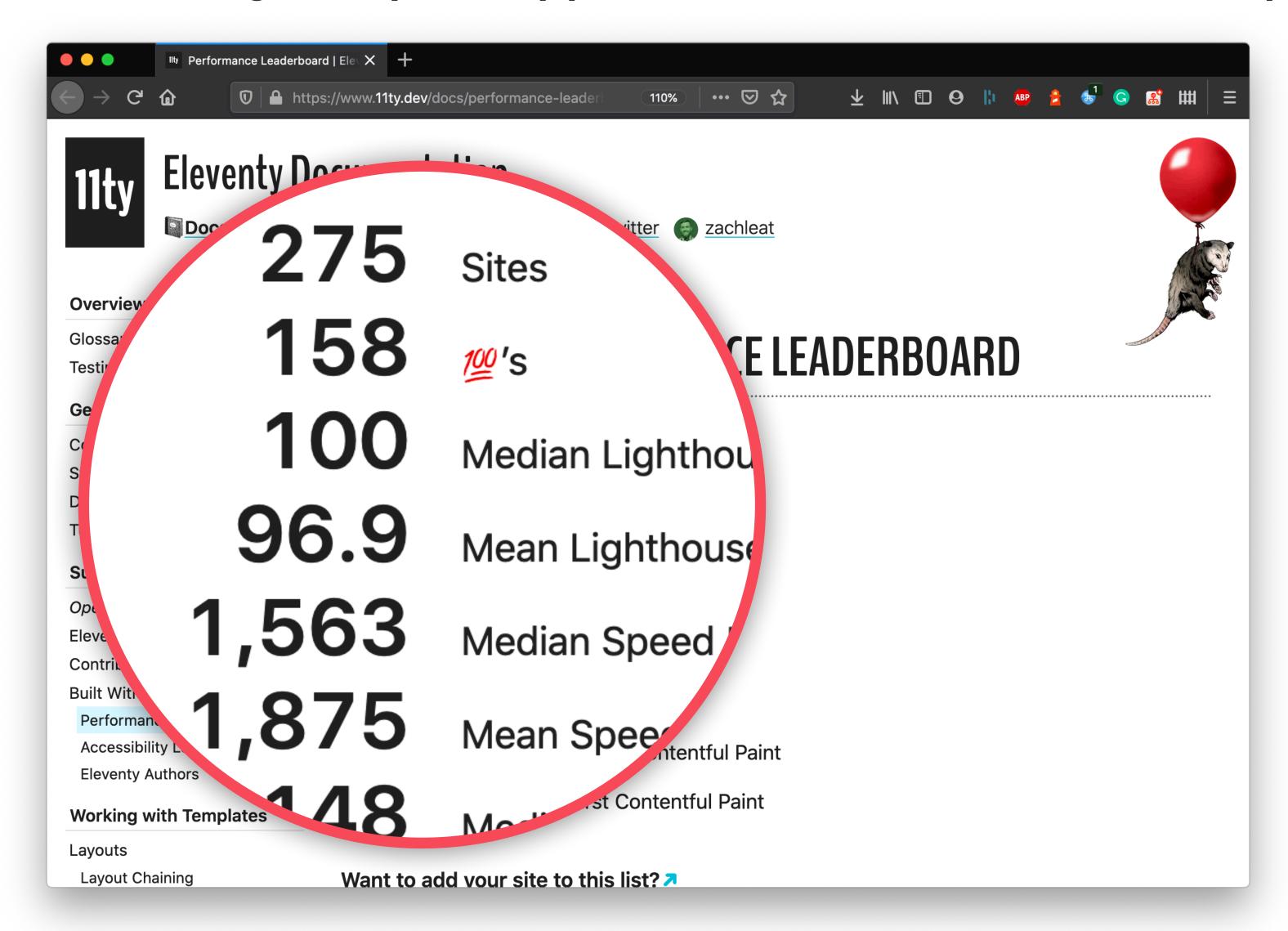
SEO

Progressive Web App

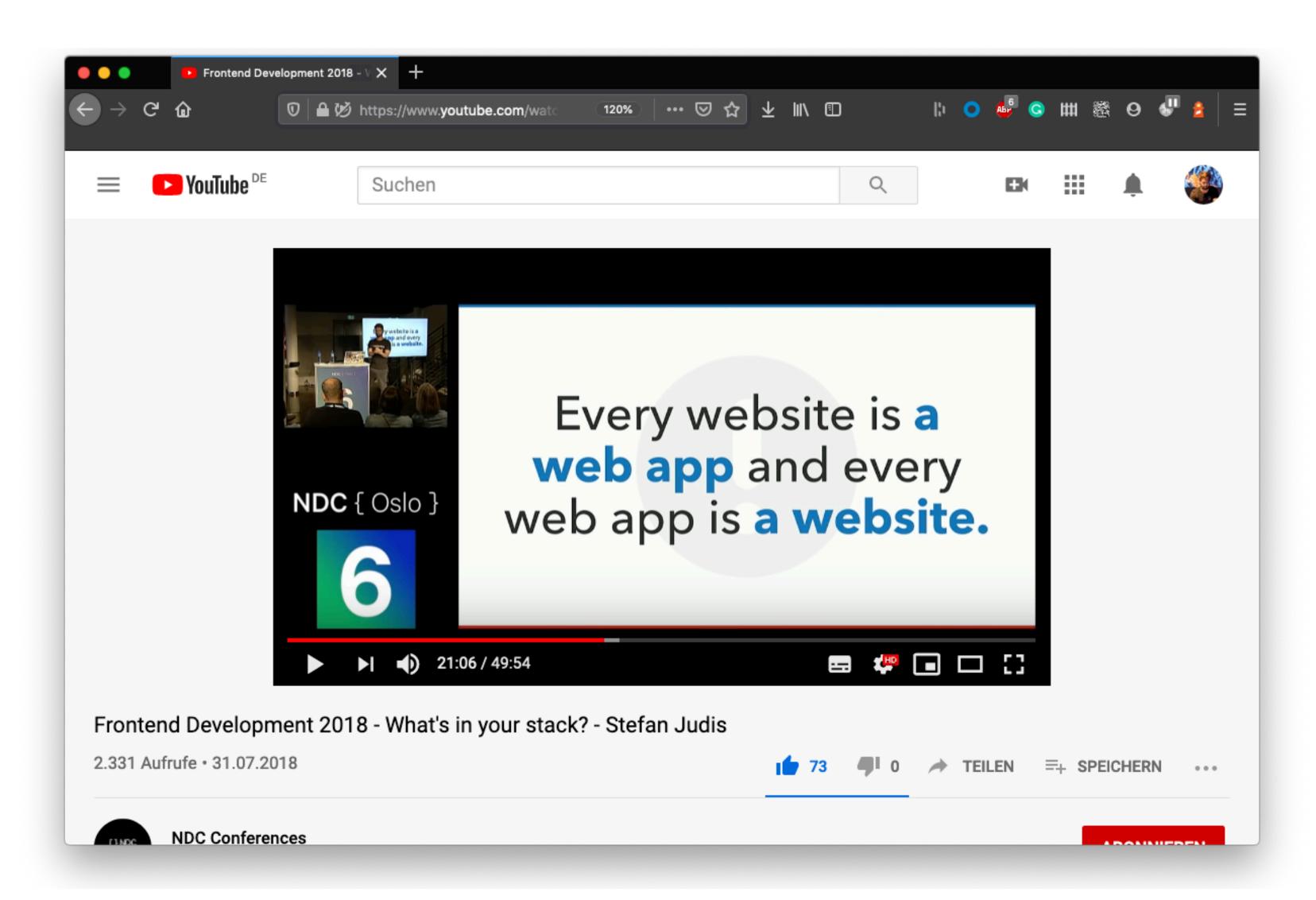




www.11ty.dev/docs/performance-leaderboard/



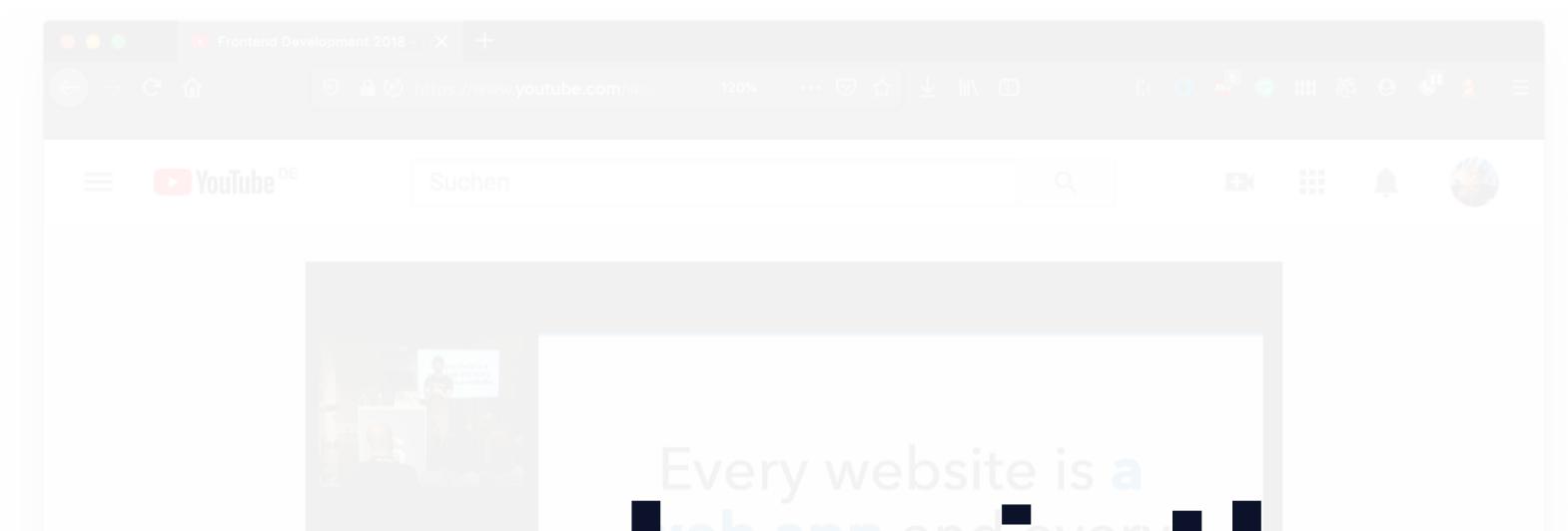
www.youtube.com/watch?v=88K8oO dYbI



www.youtube.com/watch?v=88K8oO dYbI



www.youtube.com/watch?v=88K8oO dYbI



... because where is the user's benefit from such overhead?

2.331 Aufrufe • 31.07.2018

NDC Conferences



A common "best practice" Universal JavaScript apps for content-sites



```
<!doctype html>
<html lang="">
<head>
 <meta charset="utf-8">
 <title></title>
 <meta name="description" content="">
 <meta name="viewport" content="width=device-width, initial-scale=1">
 k rel="manifest" href="site.webmanifest">
 k rel="apple-touch-icon" href="icon.png">
 k rel="stylesheet" href="css/main.css">
 <meta name="theme-color" content="#fafafa">
</head>
<body>
 Hello world!
 <script src="js/plugins.js"></script>
 <script src="js/main.js"></script>
</body>
</html>
```

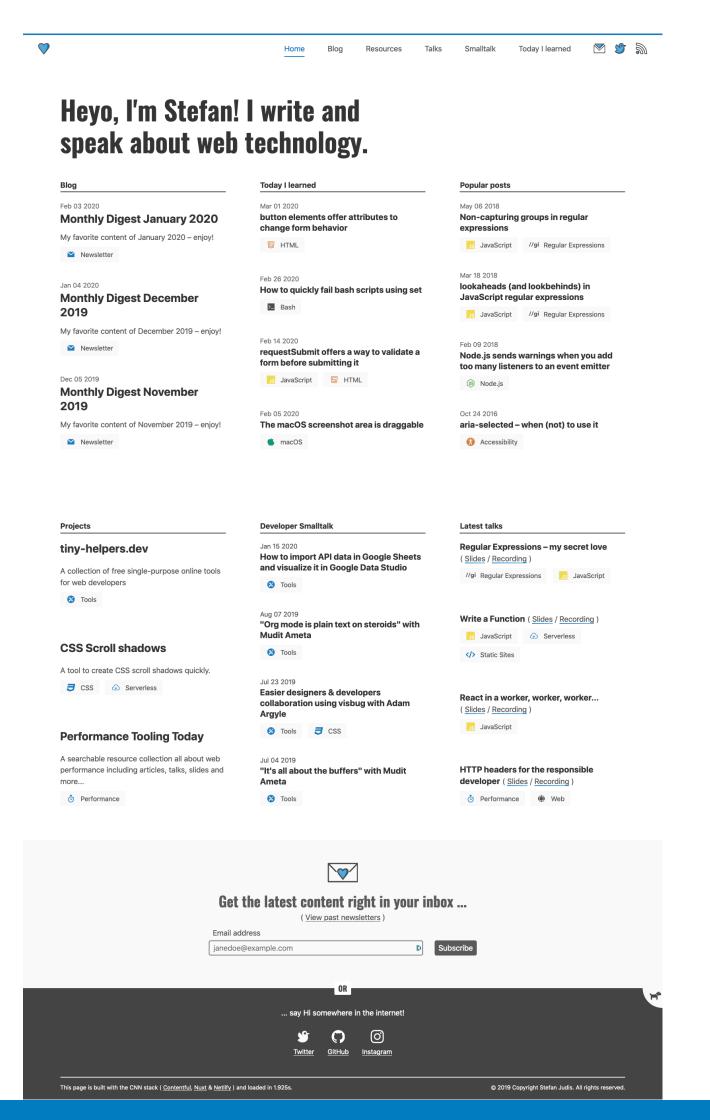


```
<!doctype html>
<html lang="">
<head>
 <meta charset="utf-8">
 <title></title>
 <meta name="description" content="">
 <meta name="viewport" content="width=device-width, initial-scale=1">
 k rel="manifest" href="site.webmanifest">
 k rel="apple-touch-icon" href="icon.png">
 k rel="stylesheet" href="css/main.css">
 <meta name="theme-color" content="#fafafa">
</head>
<body>
 Hello world!
 <script src="js/app-bundle-hash1.js"></script>
 <script src="js/app-bundle-hash2.js"></script>
 <script src="js/app-bundle-hash3.js"></script>
 <script>window. data = { greeting: "Hello world!" }</script>
</body>
</html>
```

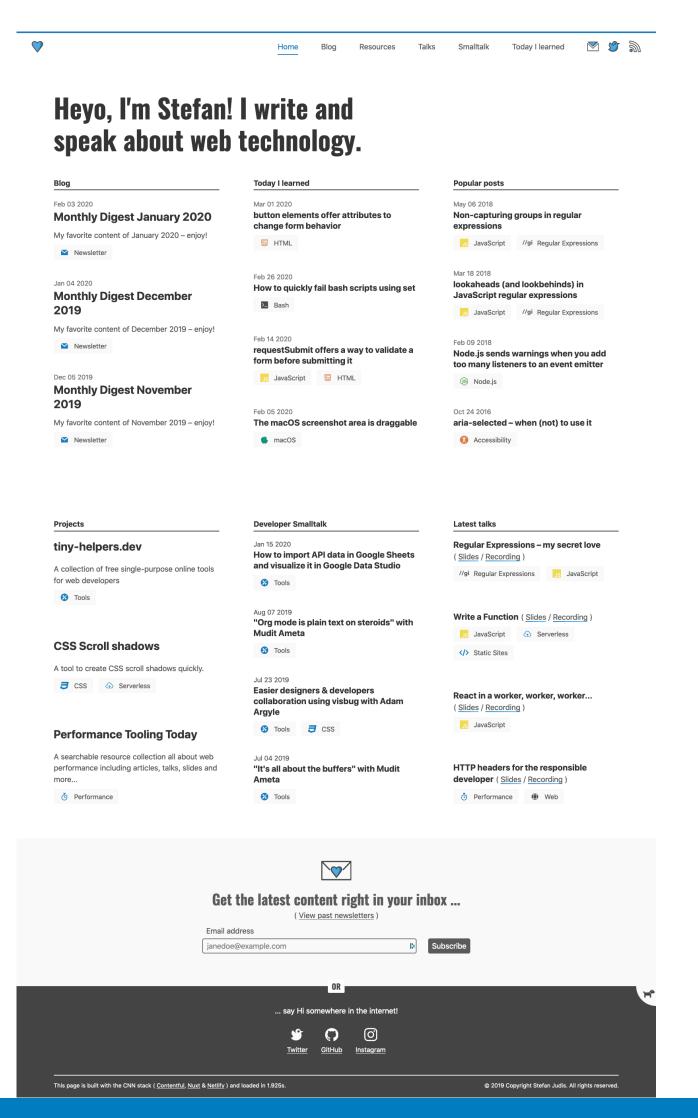
```
The same code runs on the
server and on the client!
```



Your content in HTML



The same content in JavaScript





Is this really the best way for the user?

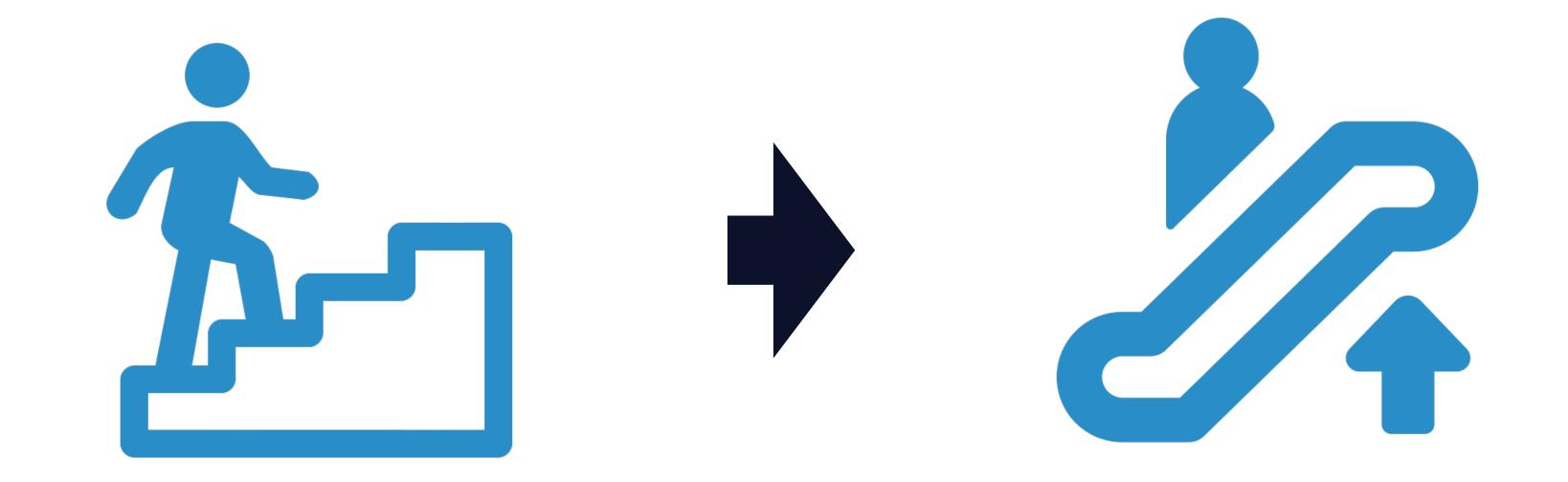


"This architecture offers doors to progressive enhancement!"



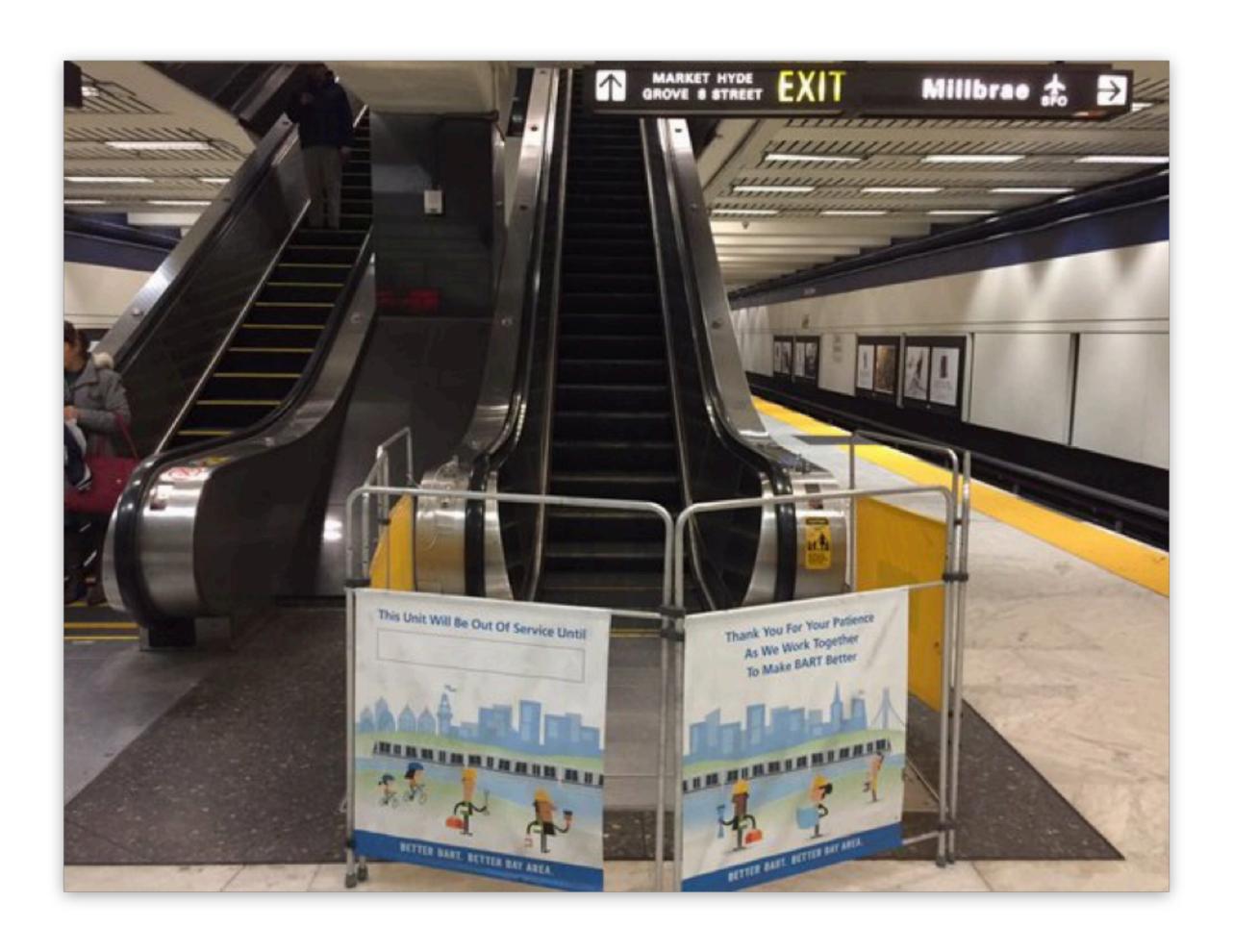
Base functionality

Enhanced experience

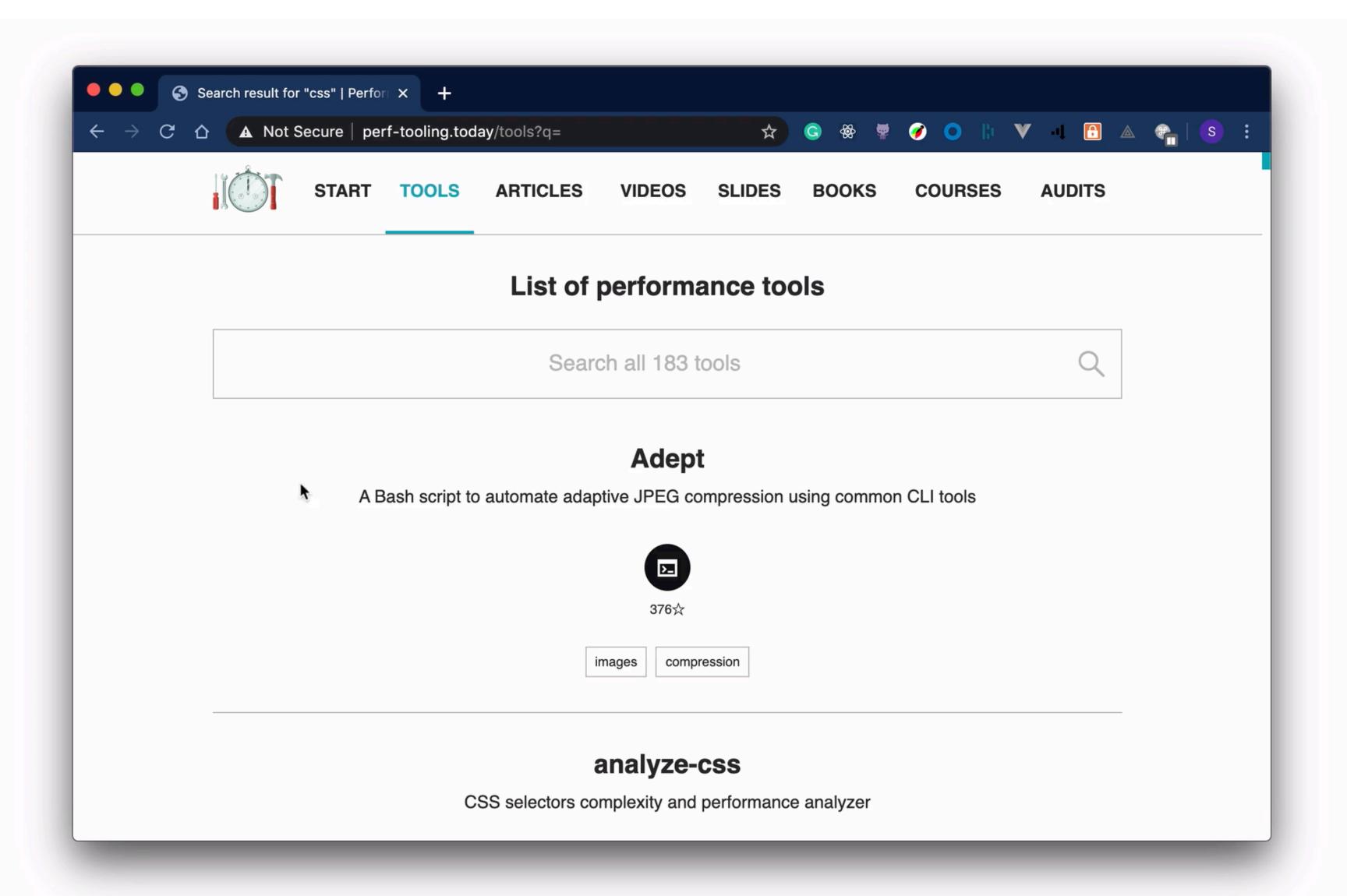


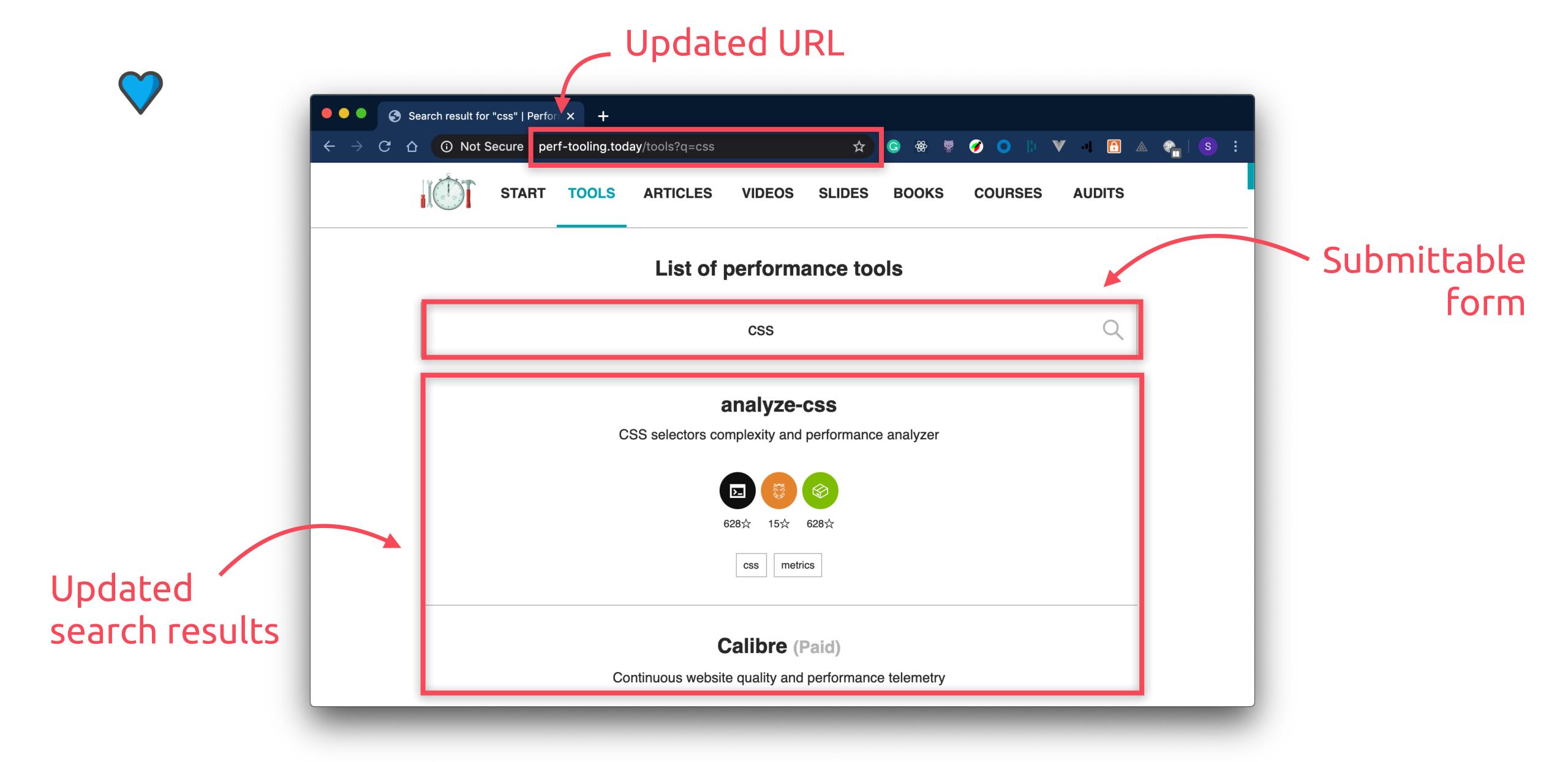
If the enhancement fails, it still works!



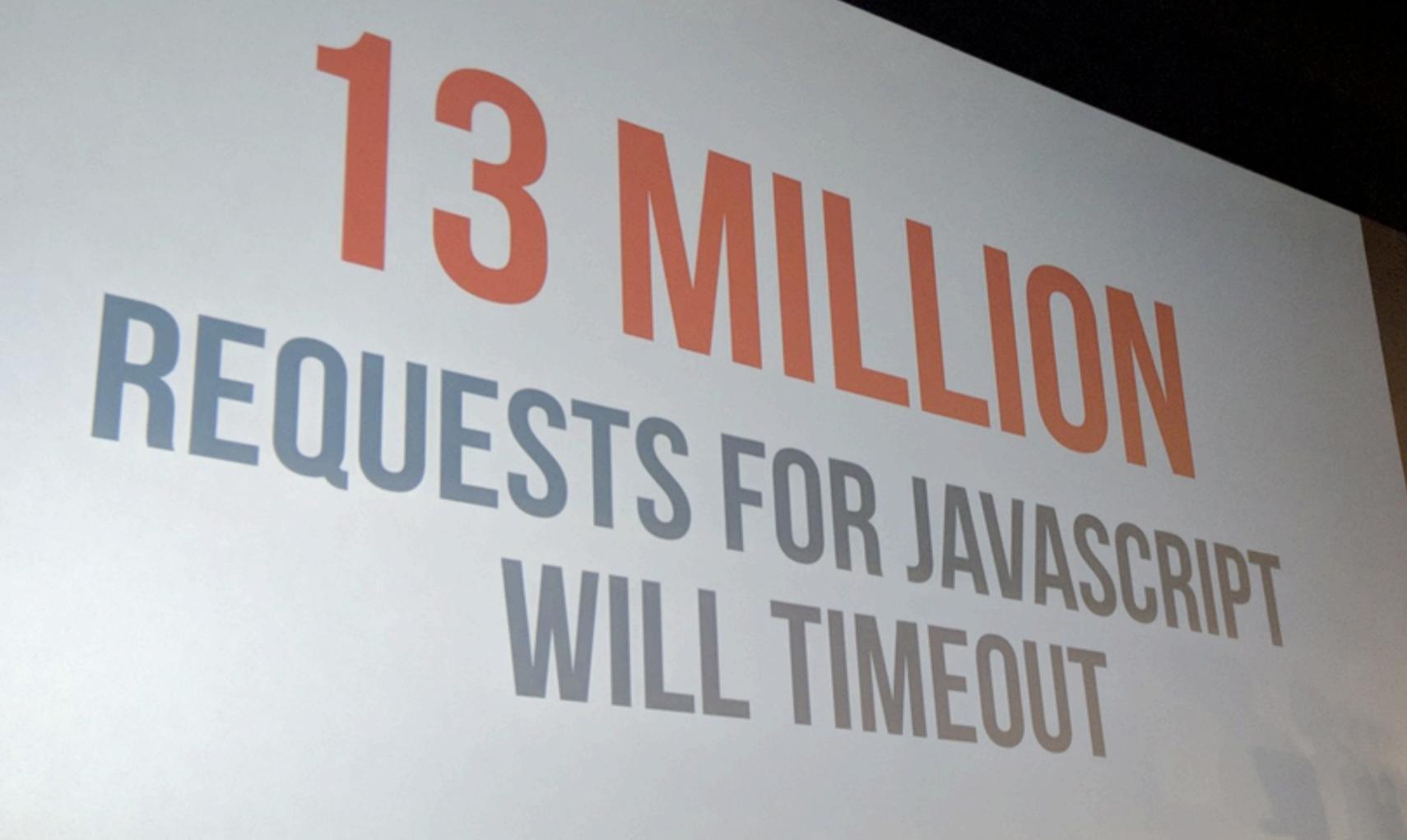








twitter.com/philhawksworth/status/990890920672456707



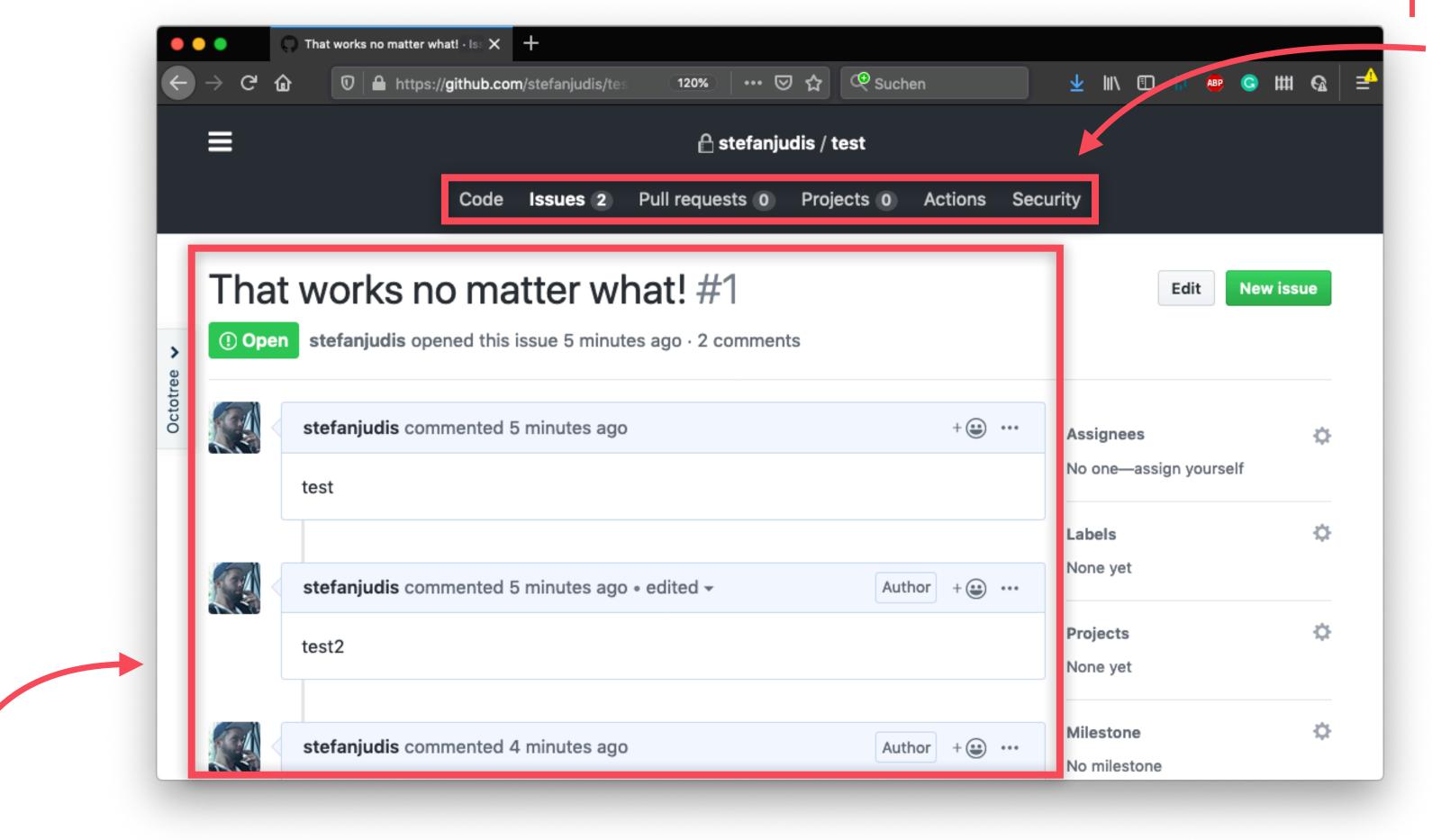
Buzzfeed



"We don't have any non-JavaScript users" No, all your users are non-JS while they're downloading your JS.

Jake Archibald

github.com



POST github.com/stefanjudis/test/issue_comments handles a form and AJAX submit

Five "old school"

HTML links

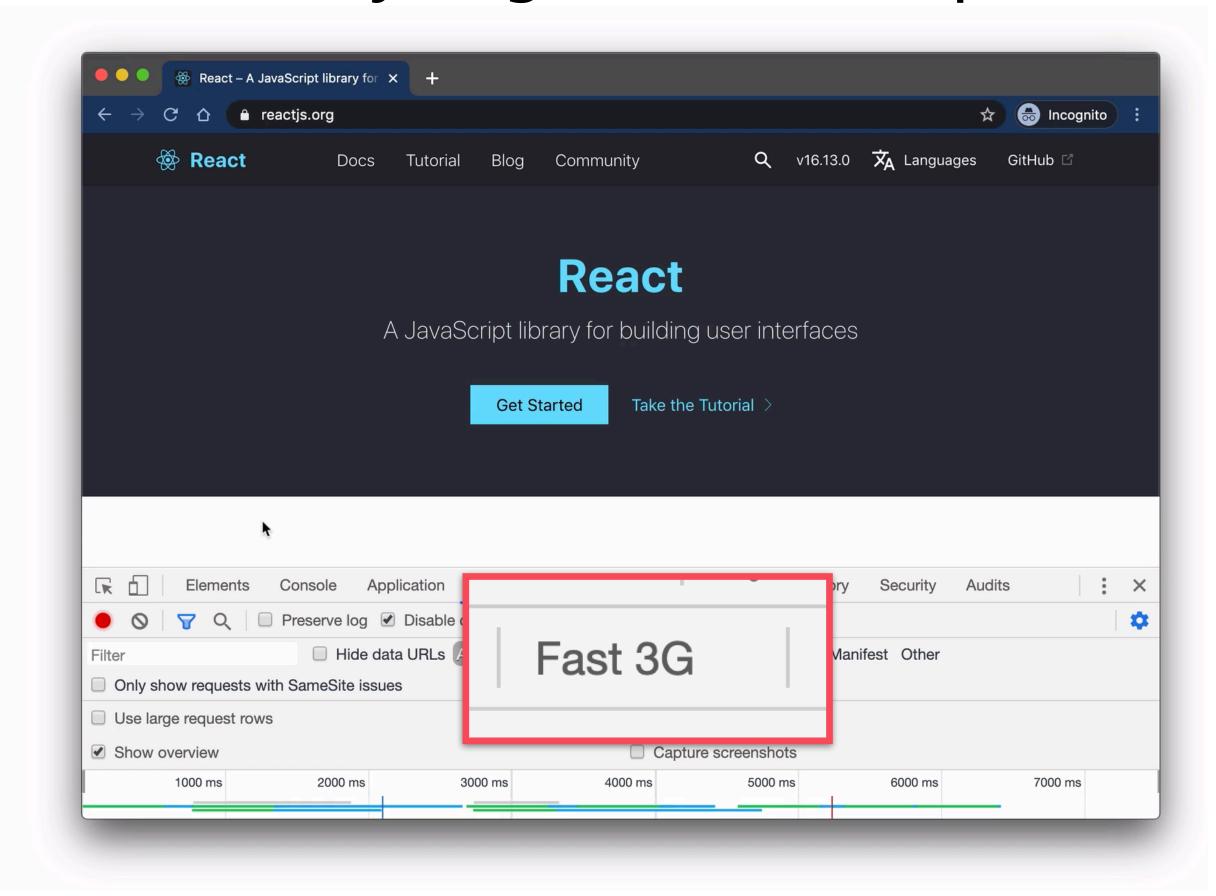


I'm happy with GitHub's experience. A good site "just works". TM

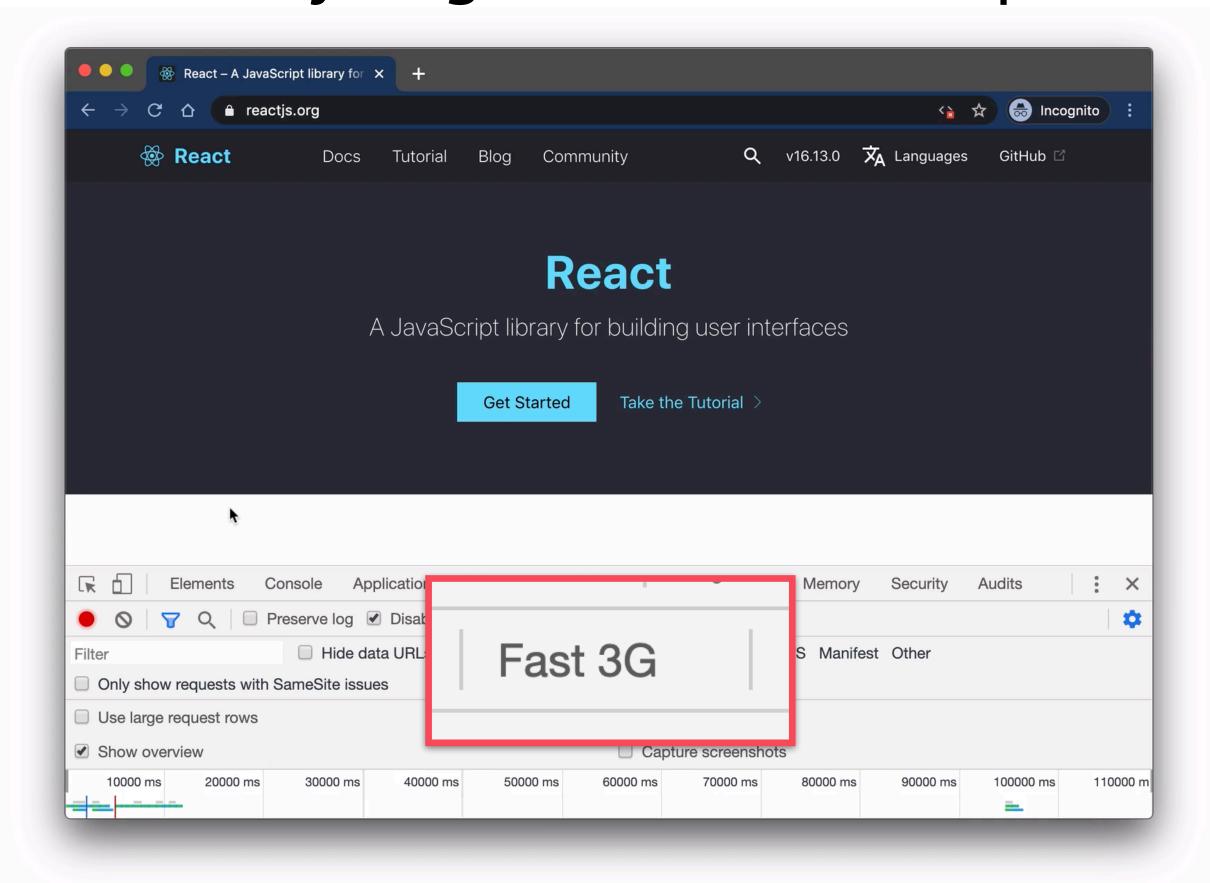


What's the enhancement in the wild, though?

reactjs.org with JavaScript



reactjs.org without JavaScript



433KB / 1.1MB

Initial weight

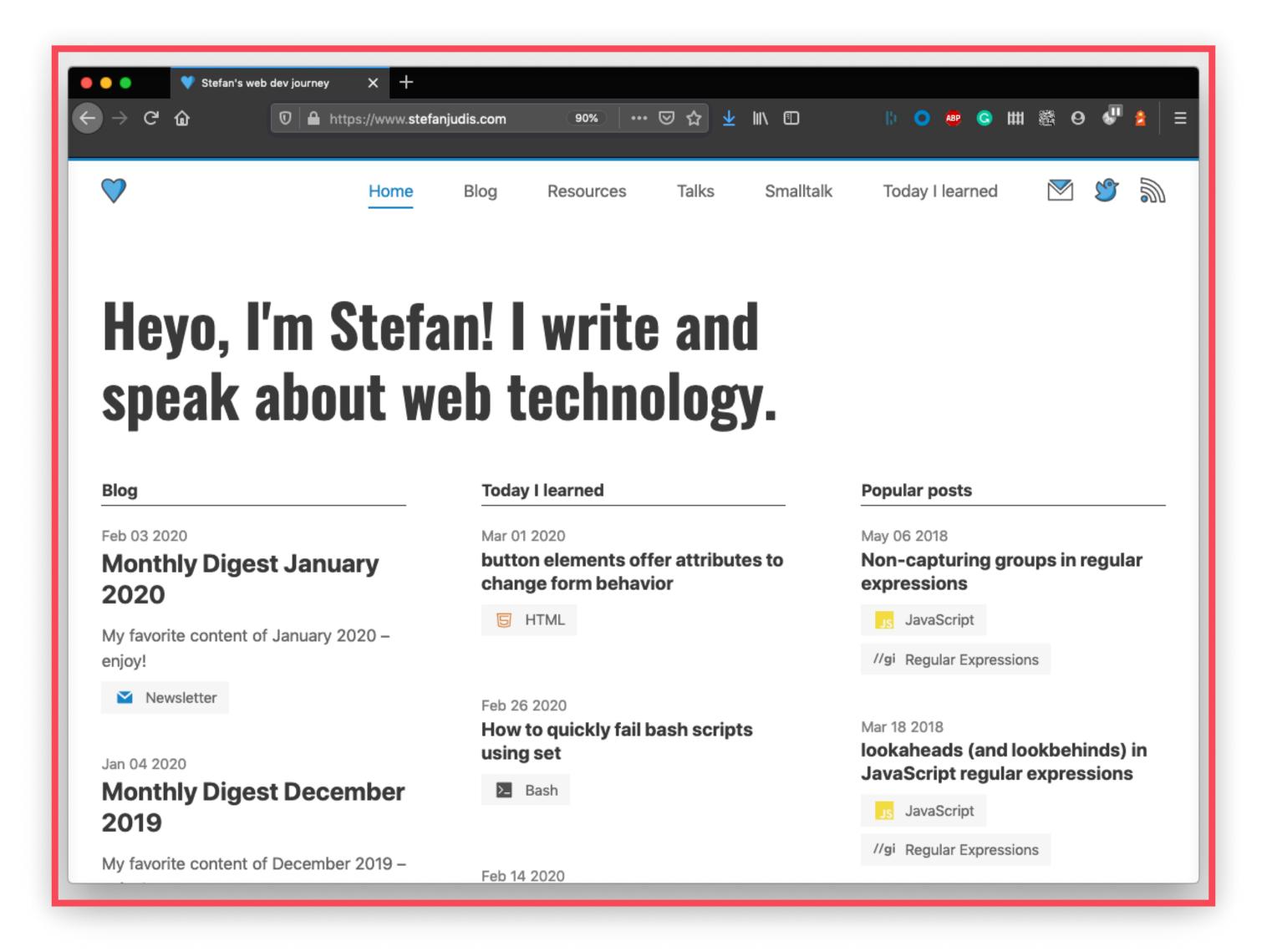
49KB / 175KB

547KB / 2.3MB

Weight after 4 navigations

100KB / 1.0MB



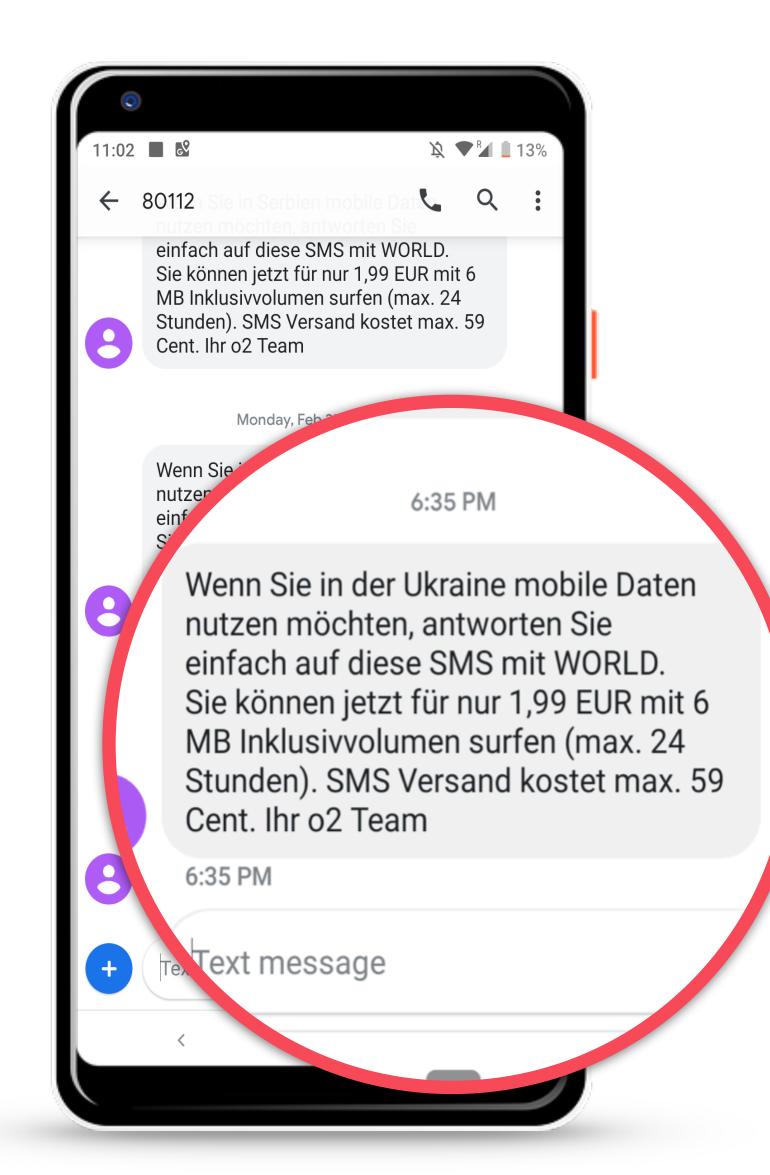


I'm guilty of that, too!



Does this architecture improve user experience?



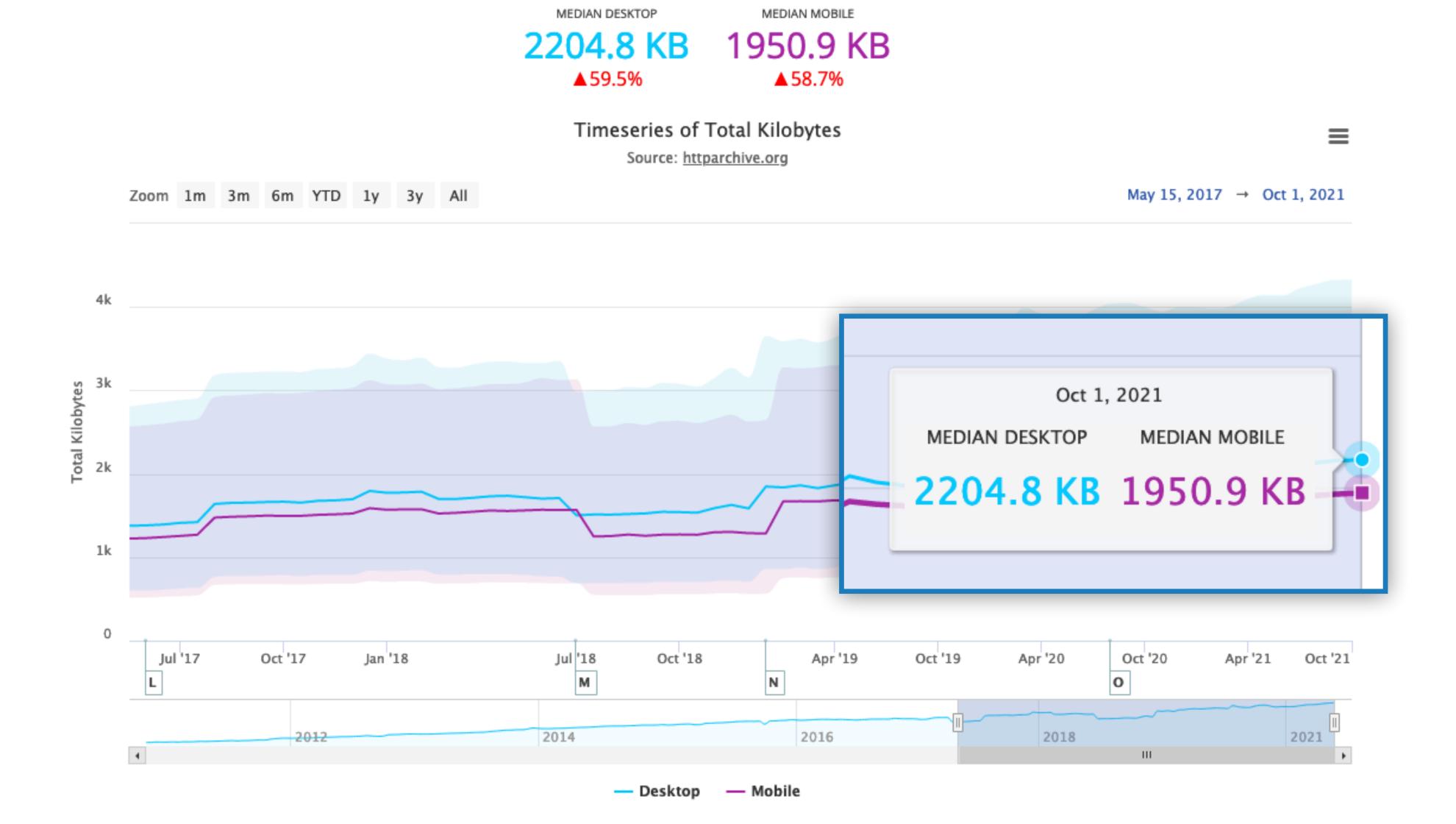




You get 6MB for 2Euros but you have only 24h to use them! Right...

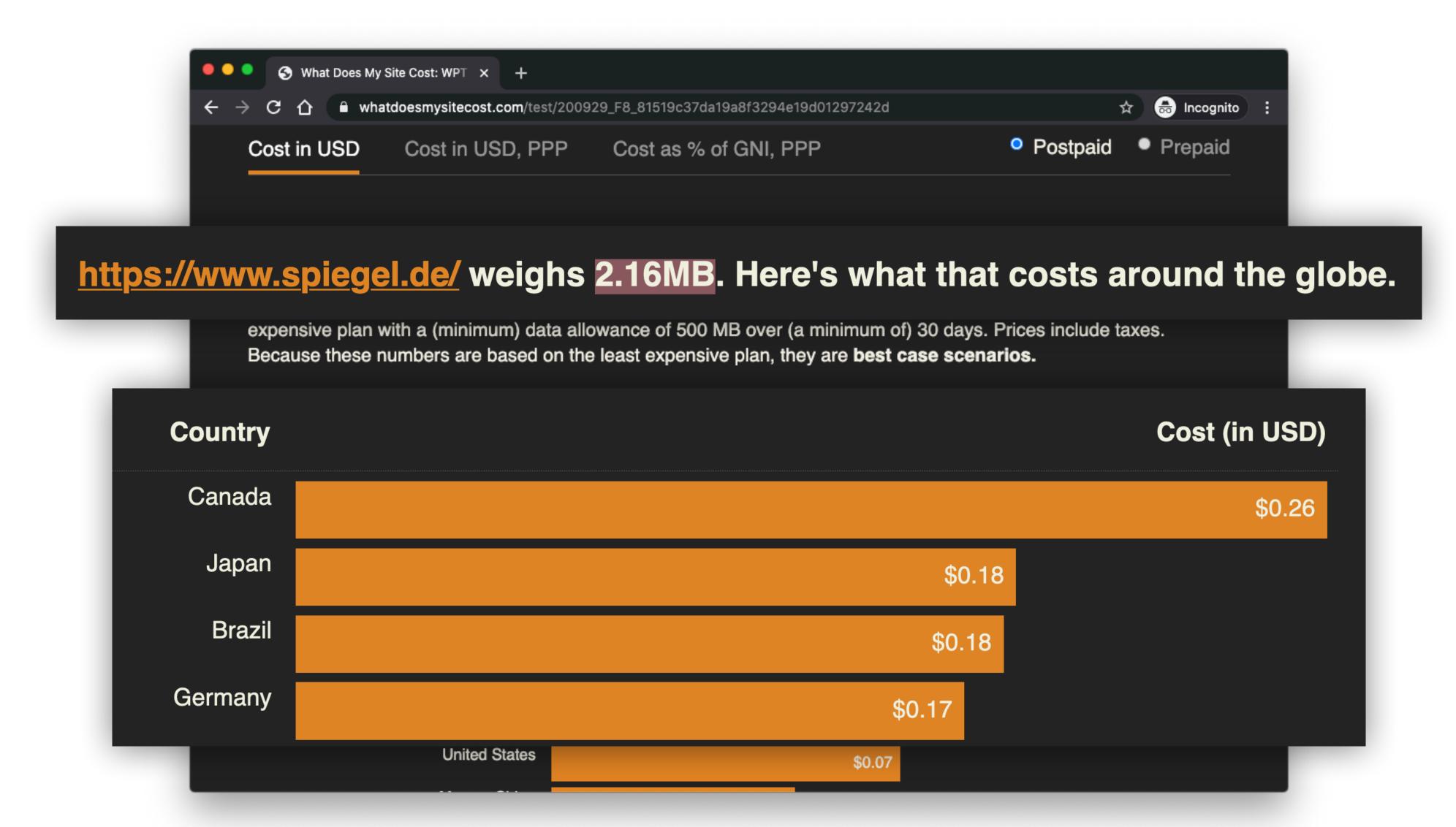


httparchive.org/reports/state-of-the-web





whatdoesmysitecost.com



httparchive.org/reports/state-of-the-web



Timeseries of Total Kilobytes

m 1m 3m 6m YTD 1y 3y All From Nov 15, 2010 To Feb 1, 2020

We ship more data for the same experience...

Jan'11 Jul'11 Jan'12 Jul'12 Jan'13 Jul'13 Jan'14 Jul'14 Jan'15 Jul'15 Jan'16 Jul'16 Jan'17 Jul'17 Jan'18 Jul'18 Jan'19 Jan'...

A B C D F G H

2011

2012

2013

2014

2015

101'16 Jan'16 Jul'16 Jan'17 Jul'17 Jan'18 Jul'18 Jan'19 Jan'...

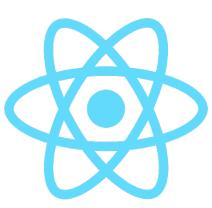
M N

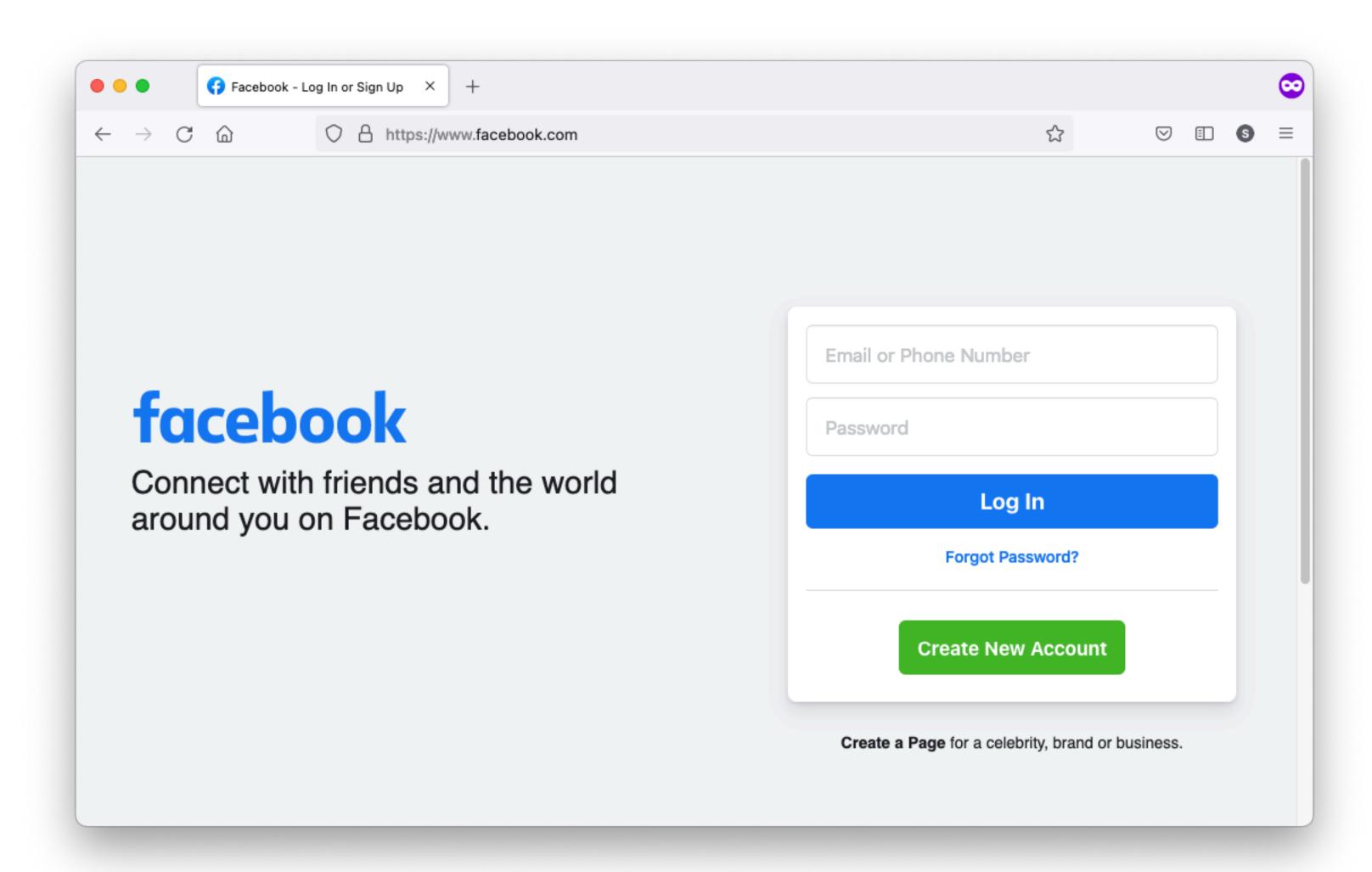
N



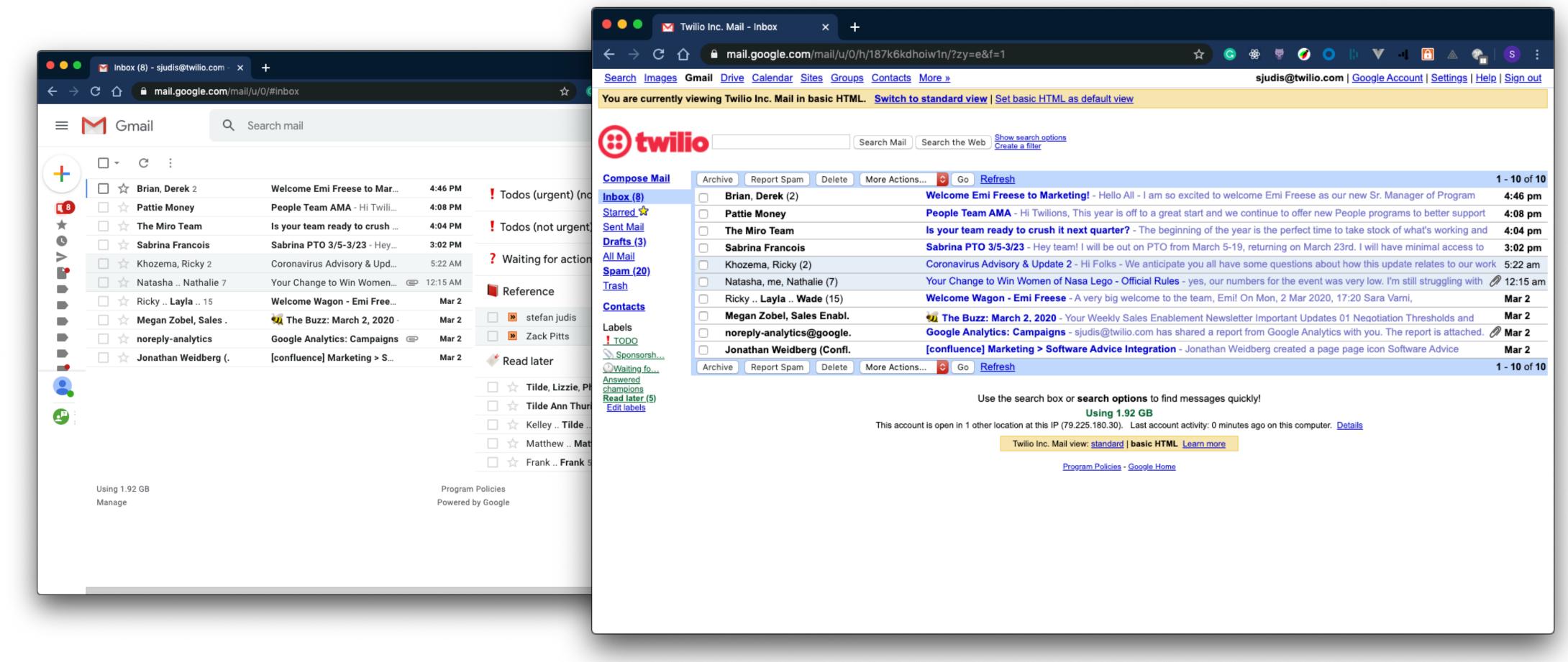
Maybe app frameworks are for apps after all?











5.2MB / 17MB 25KB / 40KB

Library

jQuery

jQuery Migrate

jQuery UI

Modernizr

FancyBox

Lightbox

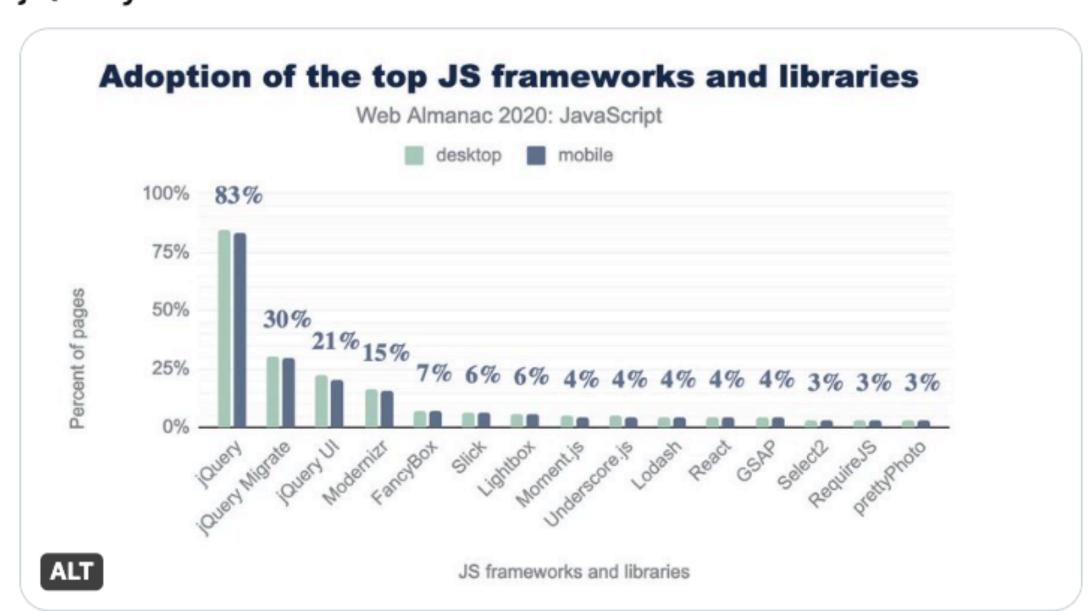
Slick

Moment.js



Antwort an @stefanjudis

The web is jQuery!



12:09 vorm. · 10. Dez. 2020 · Twitter Web App

| Tweet-Aktivität anzeigen

24 Retweets 10 Zitierte Tweets 84 "Gefällt mir"-Angaben

works on desktop



amework



The web is not as cutting-edge as it seems...



... boring is beautiful! (and fast)



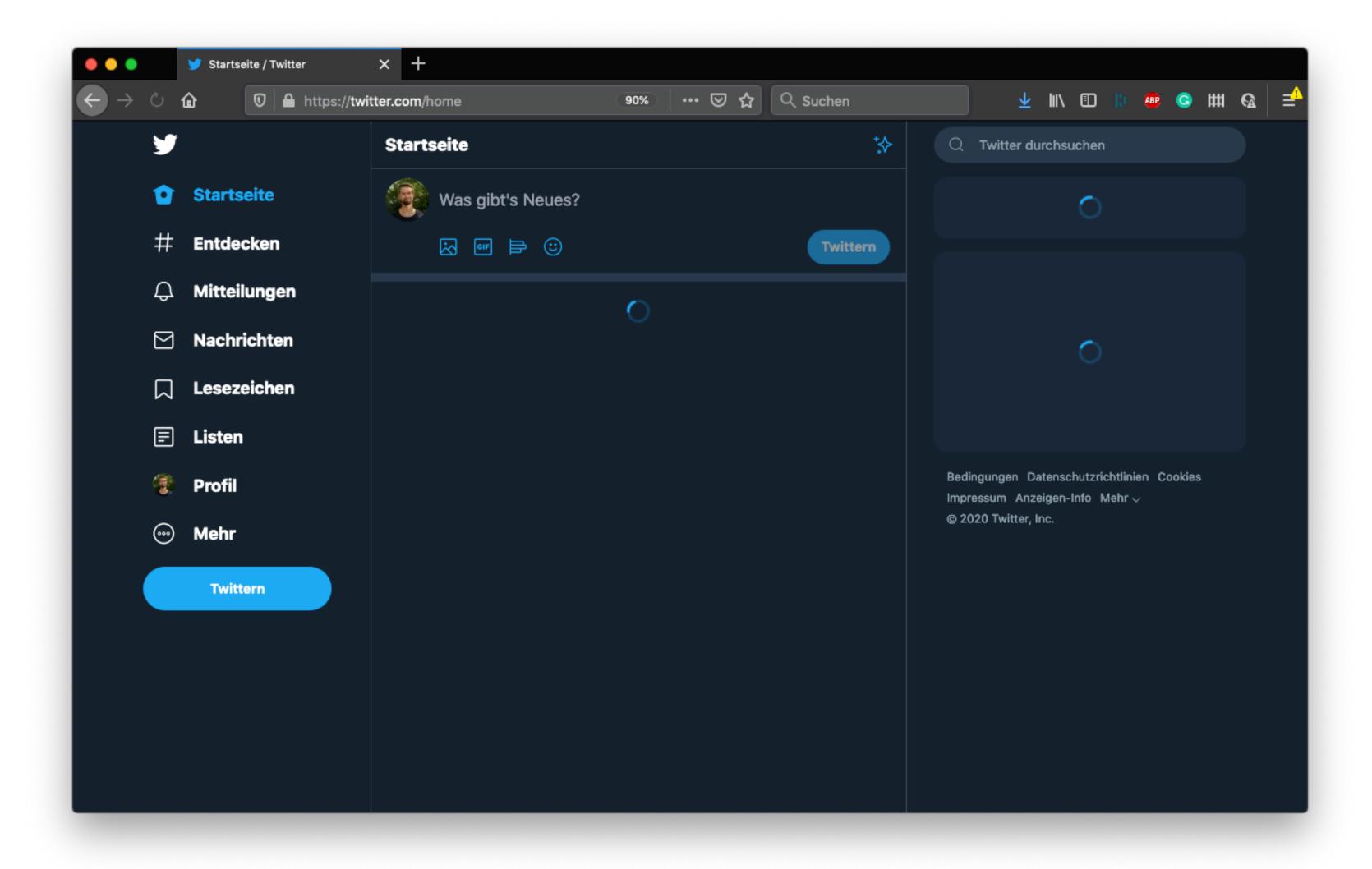
"Benefits" of client-side routing



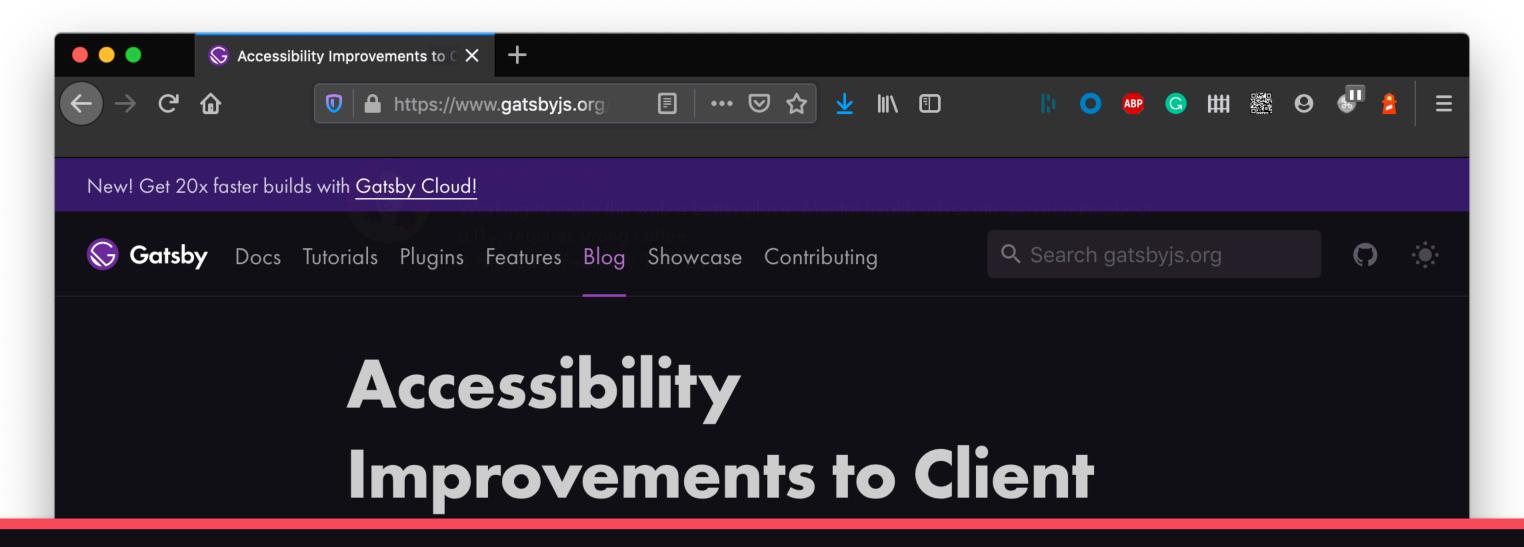
Developers are "allowed" to re-implement an accessible navigation



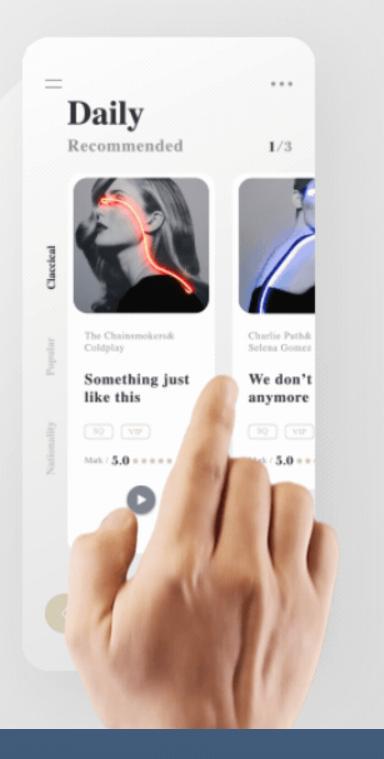
twitter.com

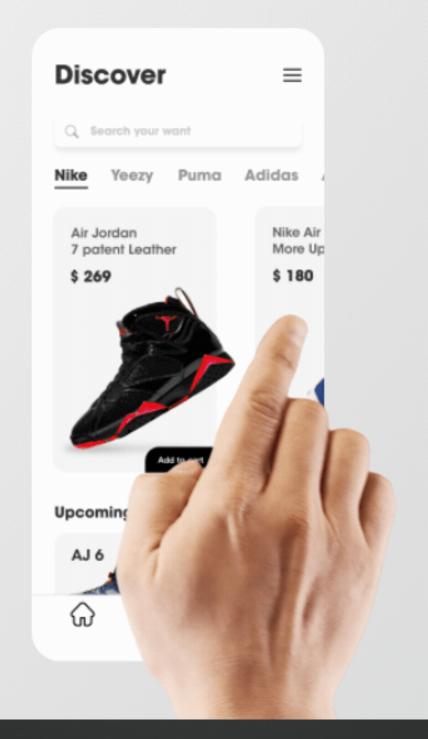


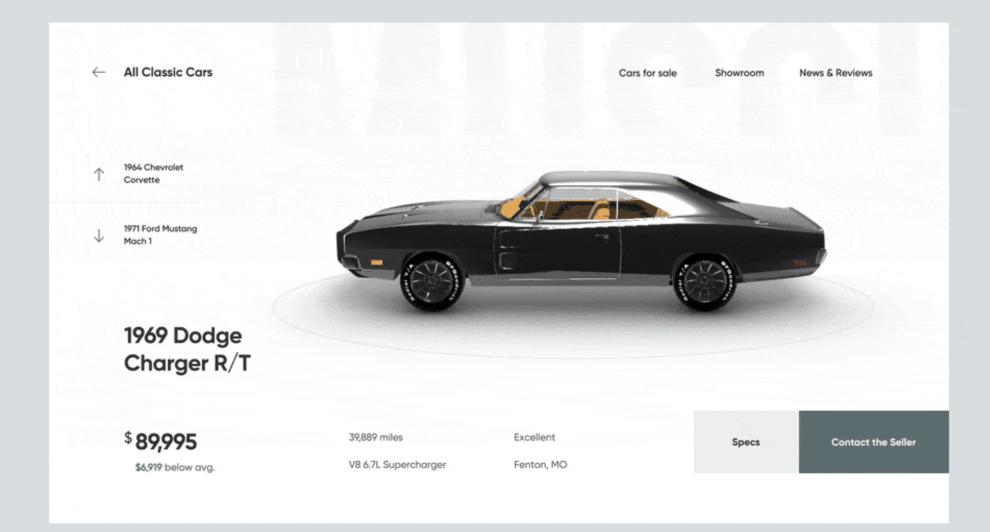
www.gatsbyjs.org/blog/2020-02-10-accessible-client-side-routing-improvements/

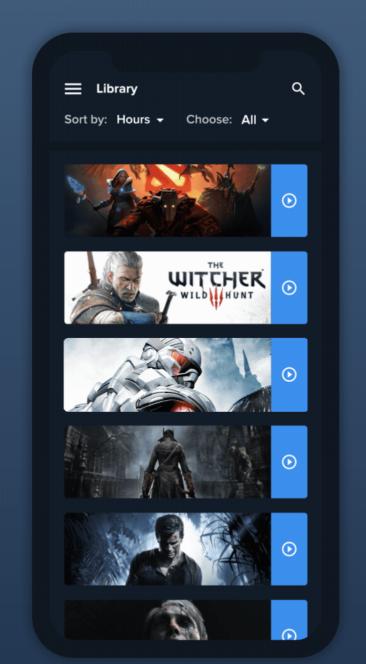


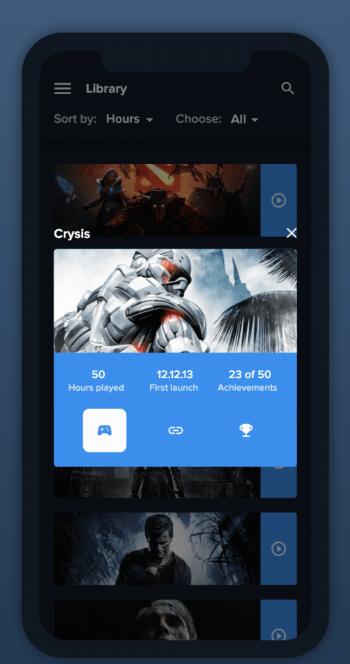
- Provide a skip link that takes focus on a route change within the site, with a label that indicates what the link will do when activated: e.g. "skip to main navigation".
- Include an ARIA Live Region on page load. On a route change, append text to it indicating the current page, e.g. "Portfolio page".

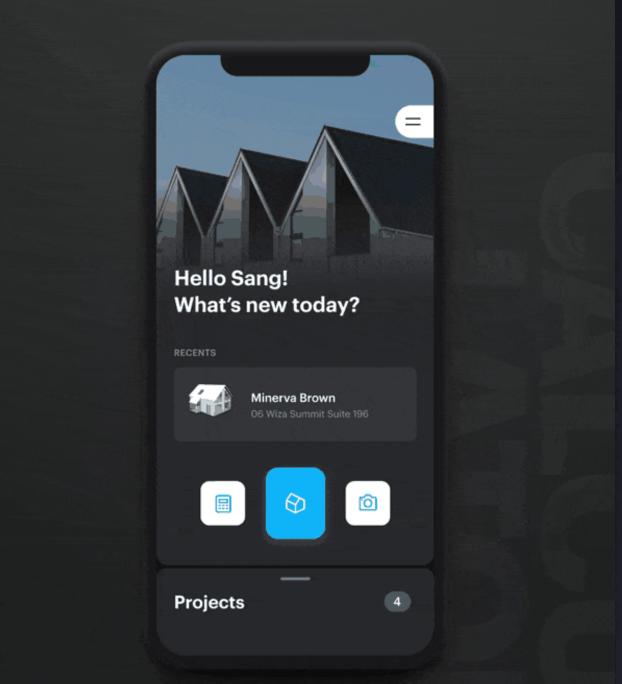


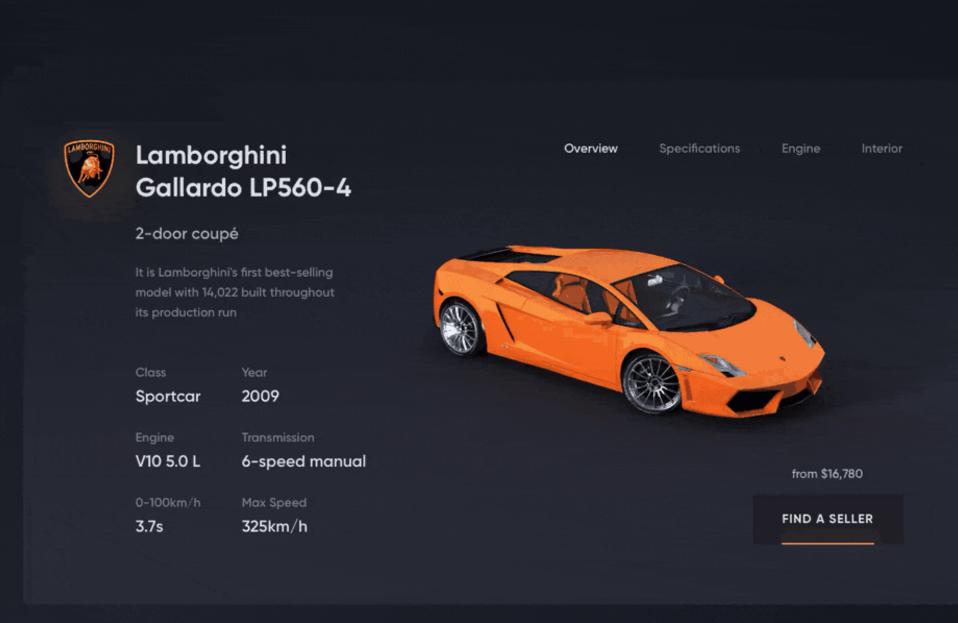






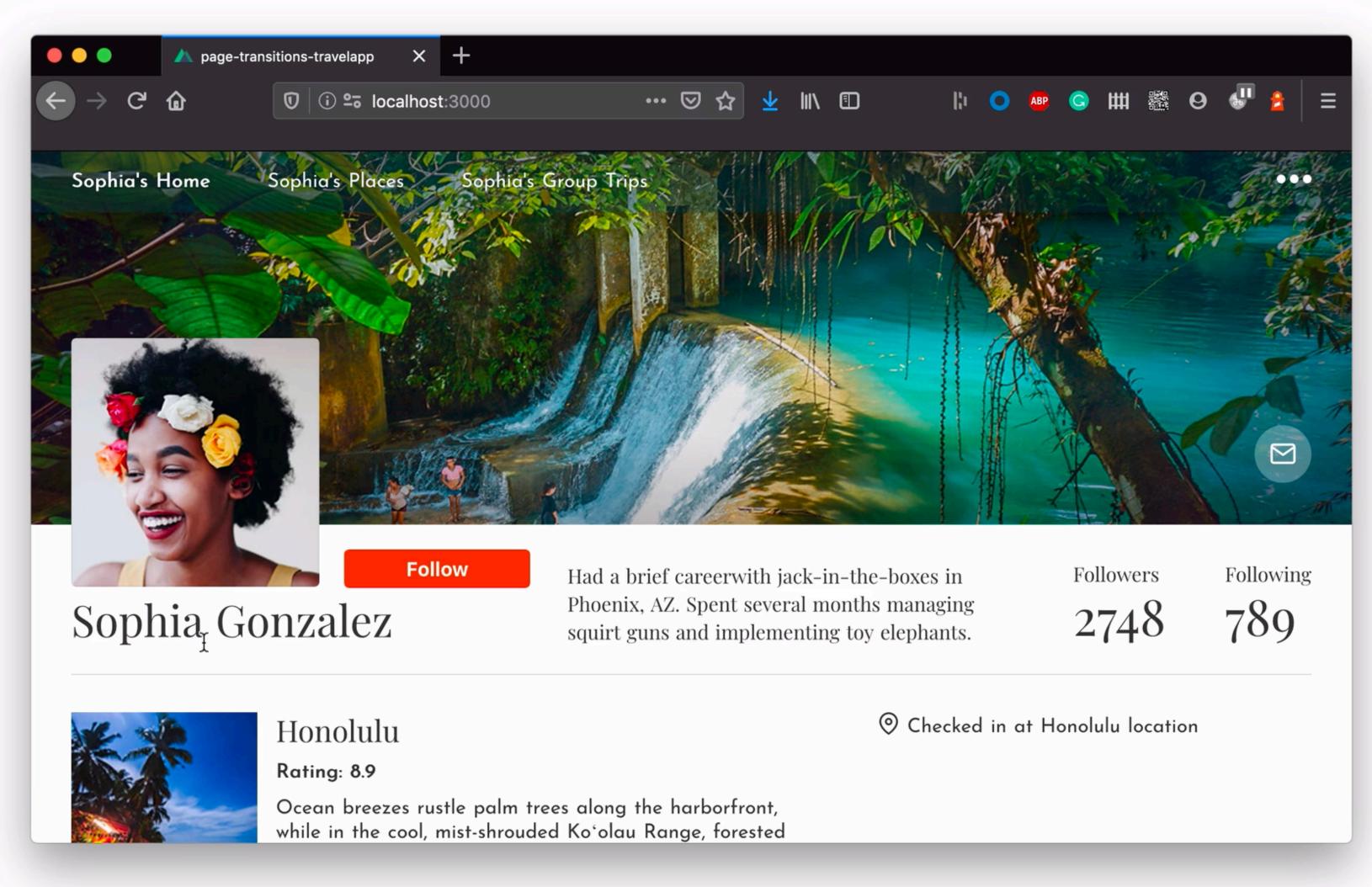








github.com/sdras/page-transitions-travelapp

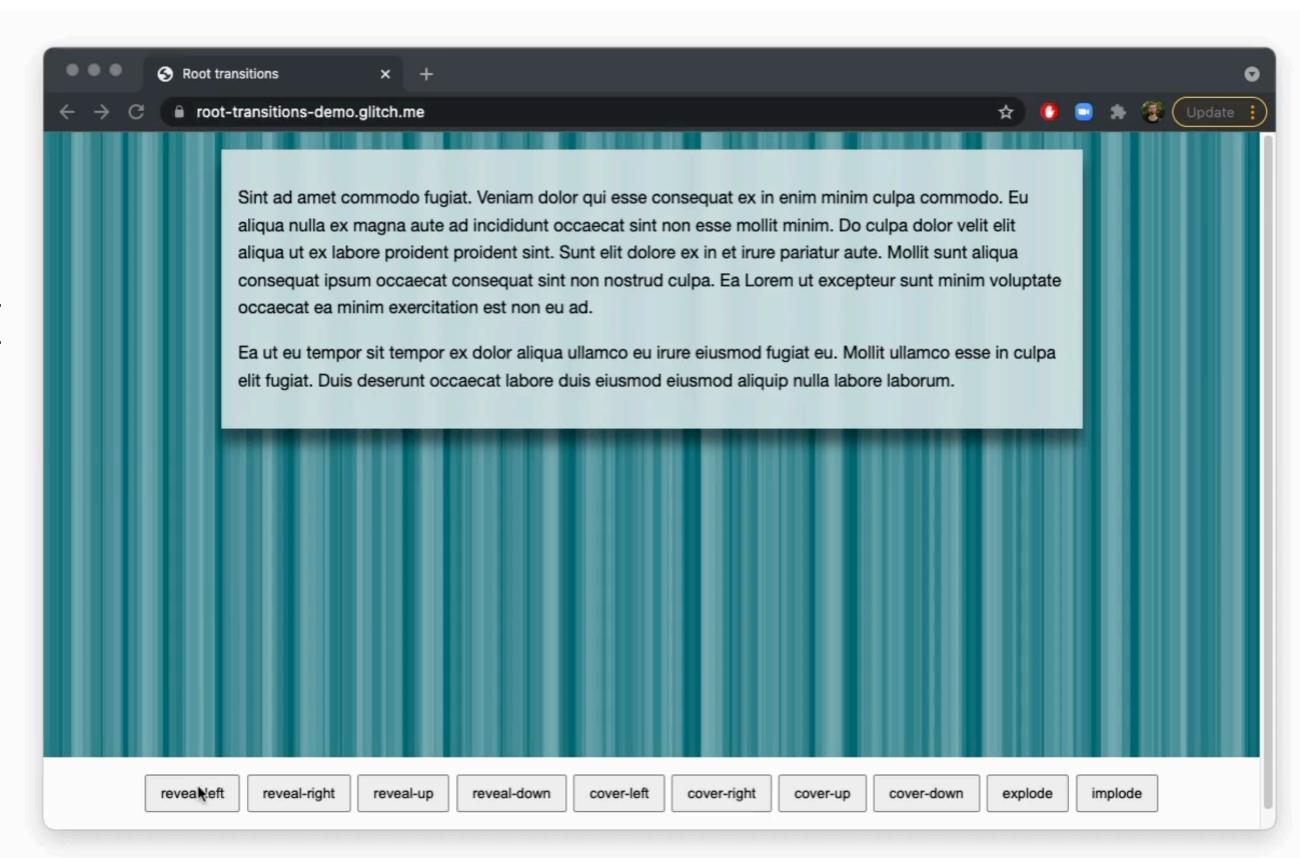




developer.chrome.com/blog/shared-element-transitions-for-spas/

```
async function navigateToSettingsPage() {
  await document.documentTransition.prepare({
    rootTransition: 'cover-left',
  });

updateDOMForSettingsPage();
  await document.documentTransition.start();
}
```



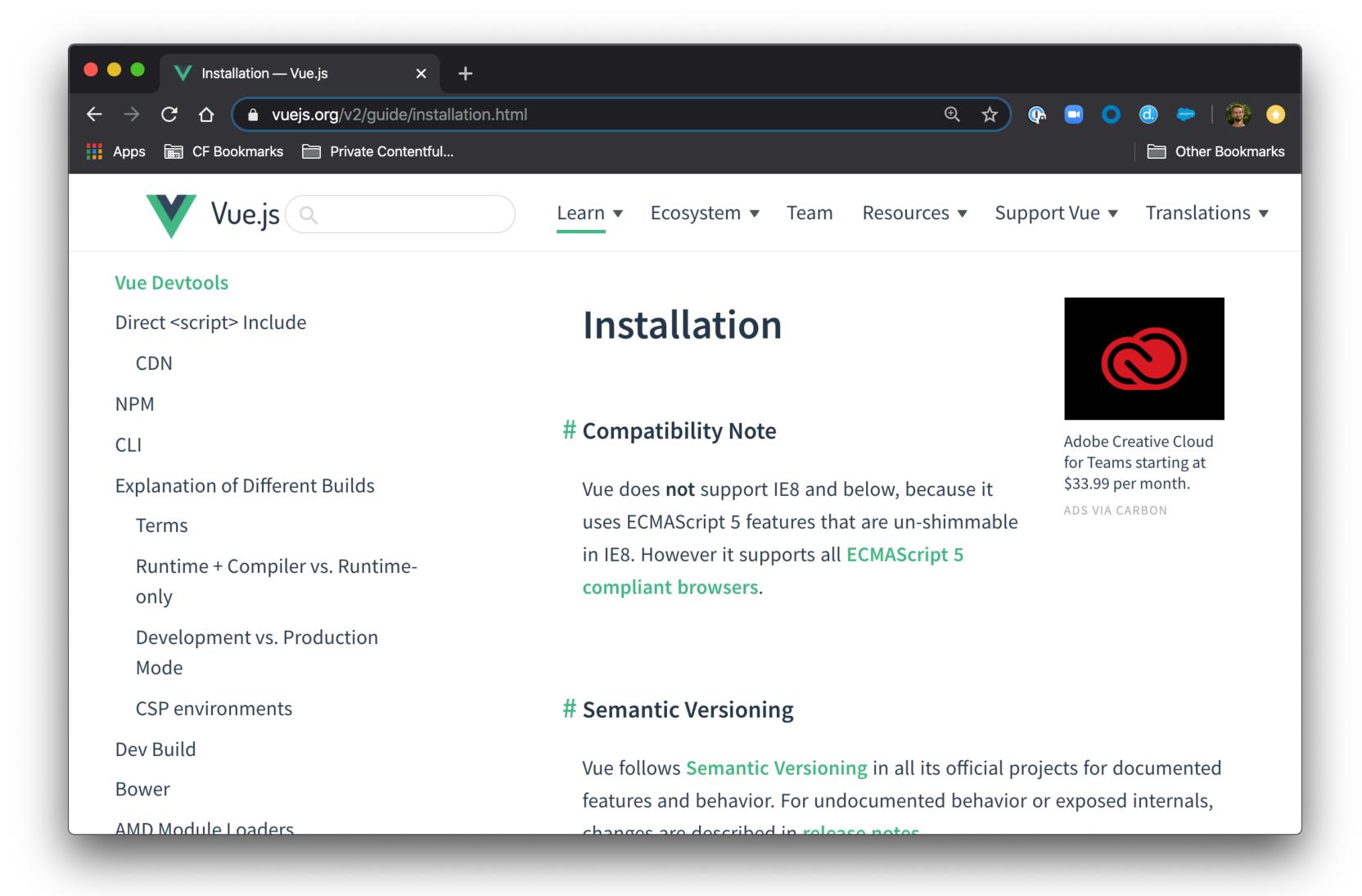
chrome://flags/#document-transition



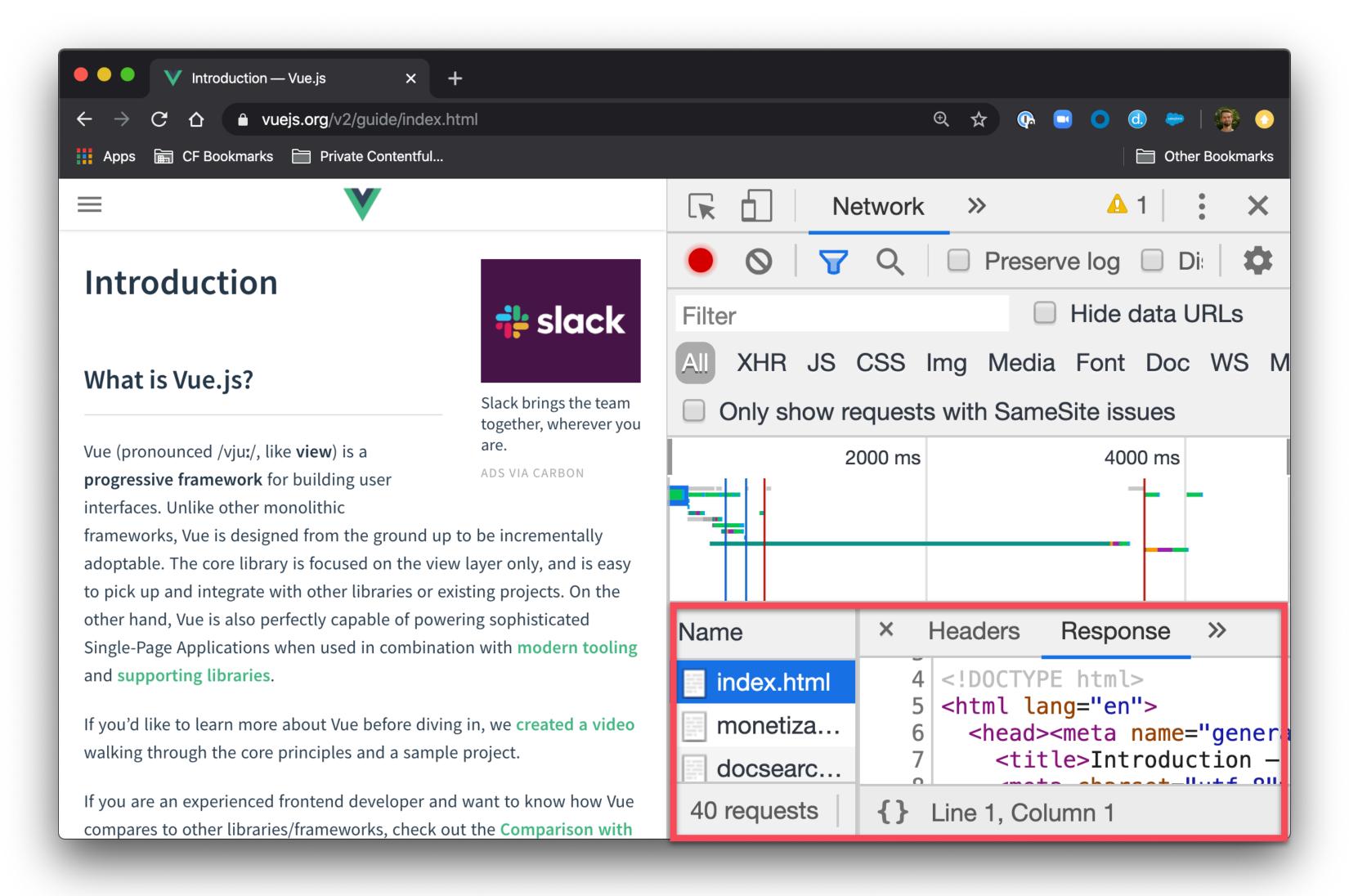
There's a chance I believe client side routing on the web is usually not preferred. Which is ironic.

Ryan Florence (co-author React-Router) twitter.com/ryanflorence/status/118651553285857280

vuejs.org/v2/guide/installation.html



vuejs.org/v2/guide/installation.html



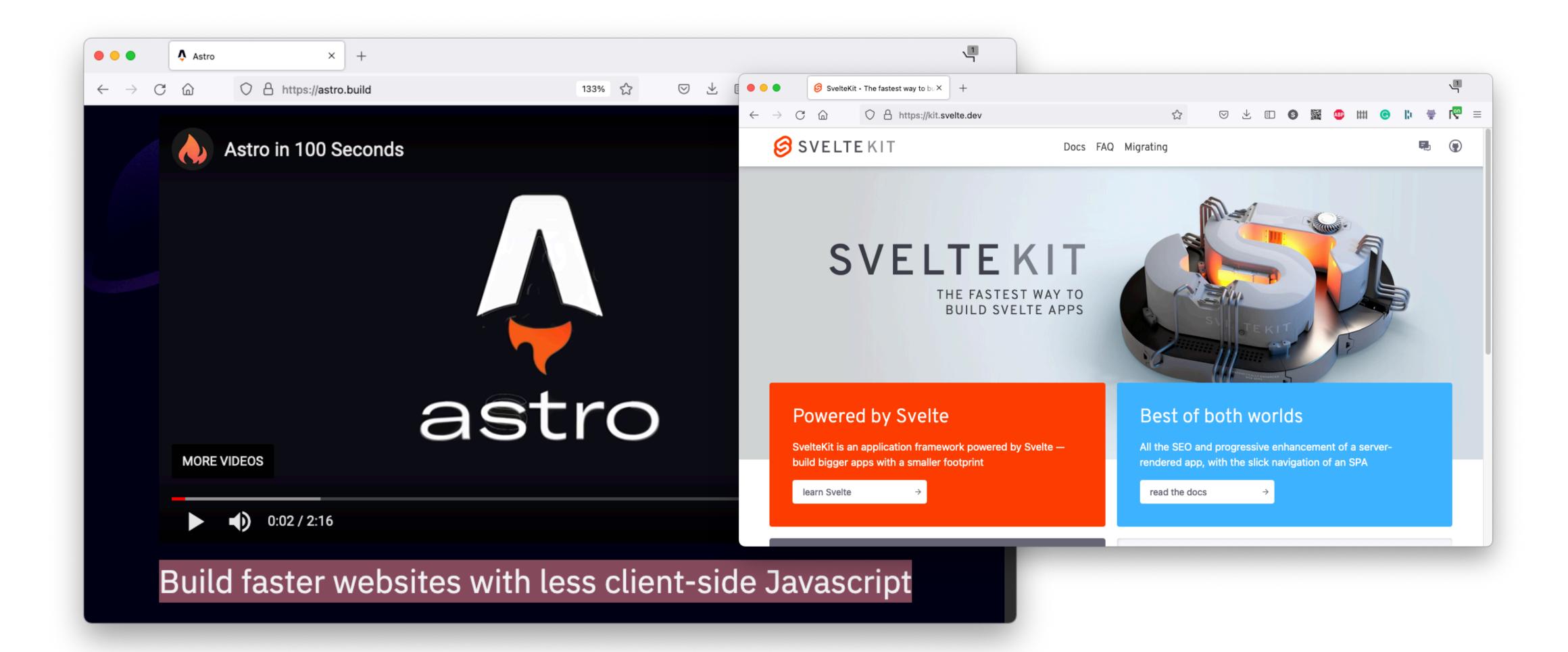


We use too much JavaScript!



astro.build

kit.svelte.dev



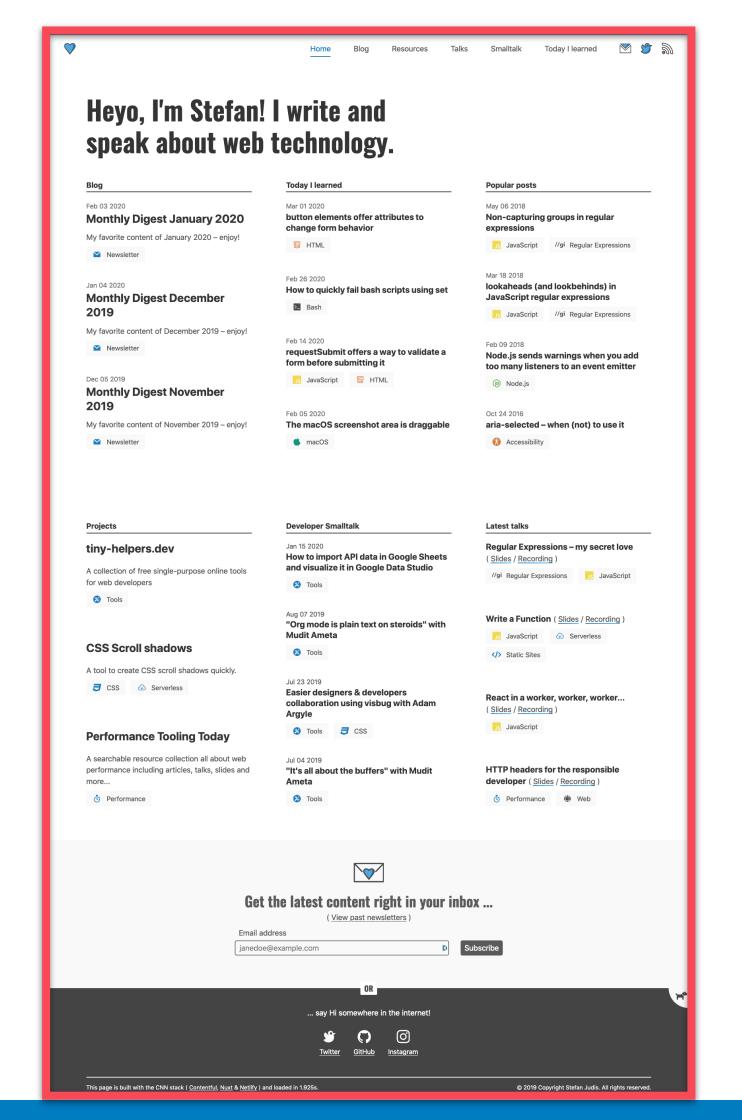


The modern web seems to focus an awful lot on JavaScript. We don't think it has to [...]. astro.build

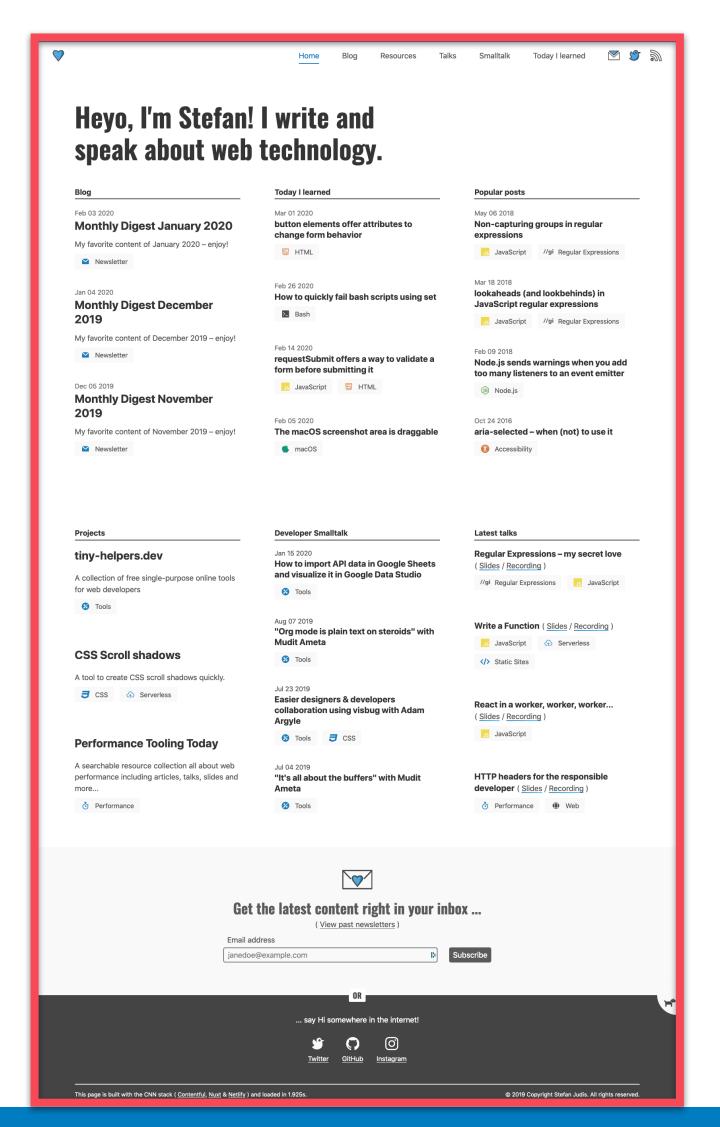


Your content in HTML

Multi-page App (MPA)



The same content in JavaScript

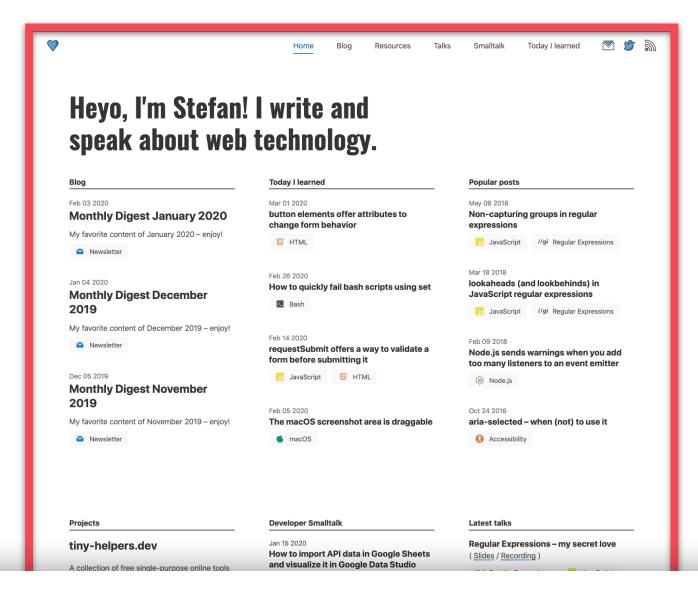


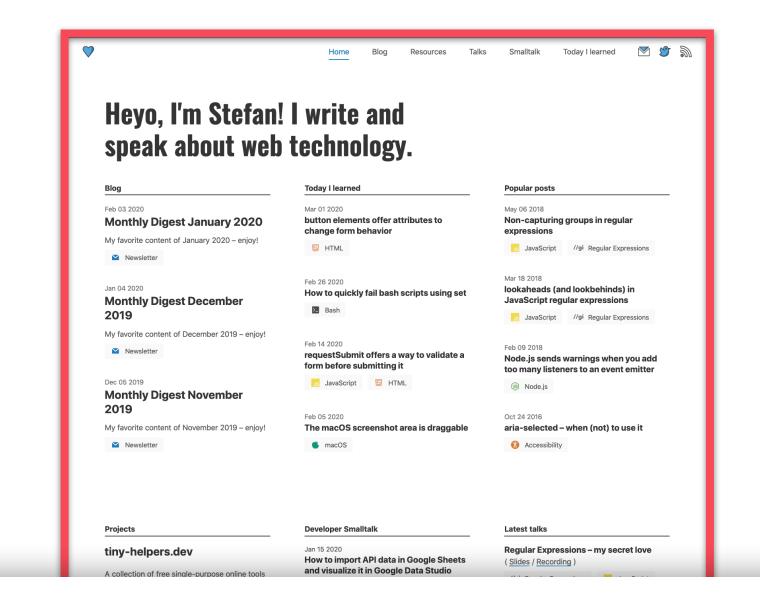
Single-page App (SPA)



Your content in HTML

The same content in JavaScript





Single-page App .. (SPA)

Multi-page App
(MPA)



Stefan @ goto CPH

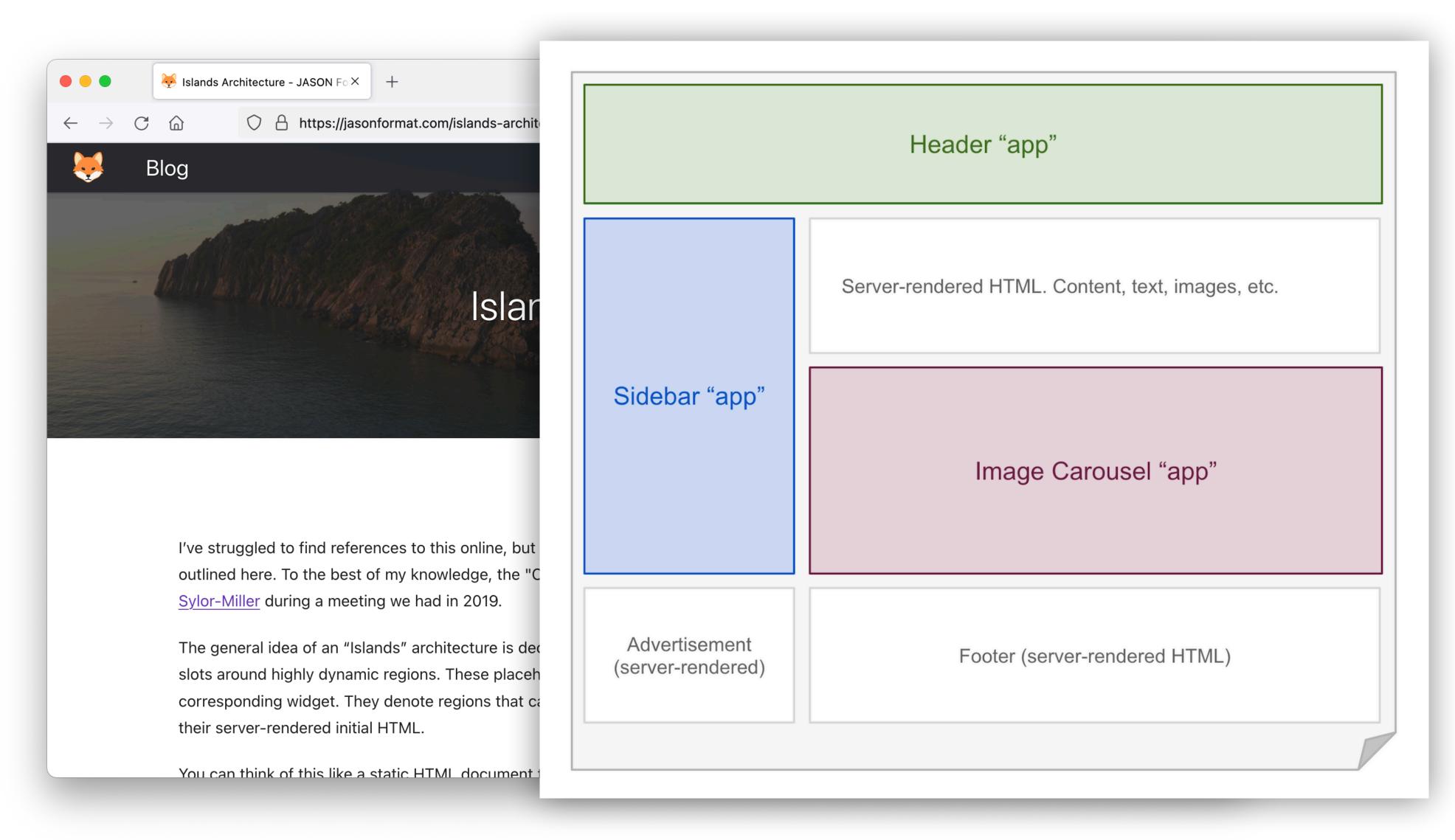
@stefanjudis

I'm still confused when I read the term "Multipage-apps" to describe... well... "normal" websites.

3:07 PM · Sep 24, 2021 · Twitter Web App

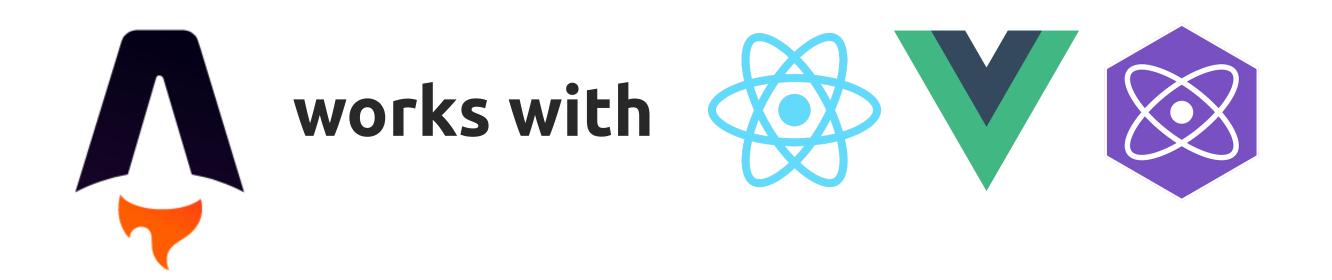


jasonformat.com/islands-architecture/











I just ported a Next.js site to @astrodotbuild, used 90% of the same component code, and ended up with

28 requests > 5 requests

resources: 255 kB → 10.7 kB

load time: 321 ms 214 ms

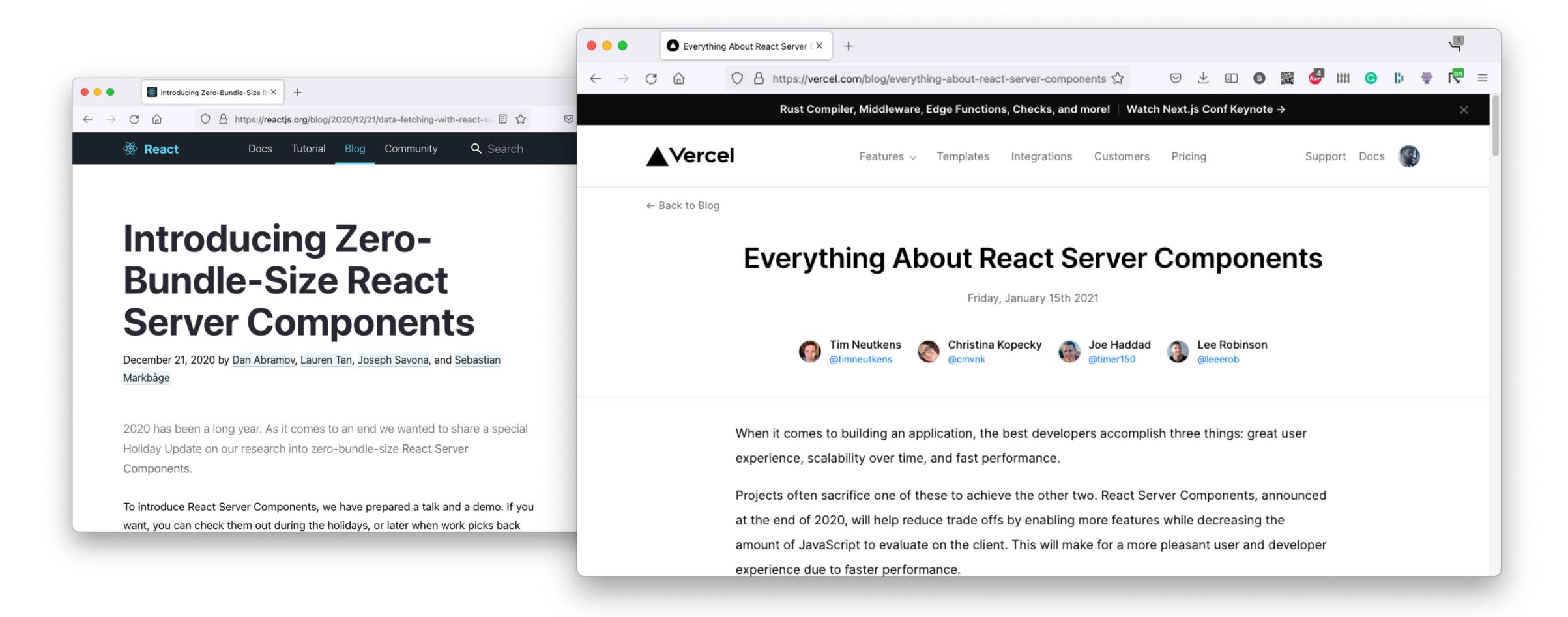
holy buckets y'all. not shipping unnecessary JS is

				121 100	
Status	Туре	Initiato	Status	Туре	Initiato
200	document	Other	200	png	Other



reacts.org

vercel.com





#transitionalApps



Have Single-Page Apps Ruined the Web?



A great site just works. TM



The foundation of the web

HTML CSS JavaScript



A great site doesn't have to be built with React/Vue/Angular/...

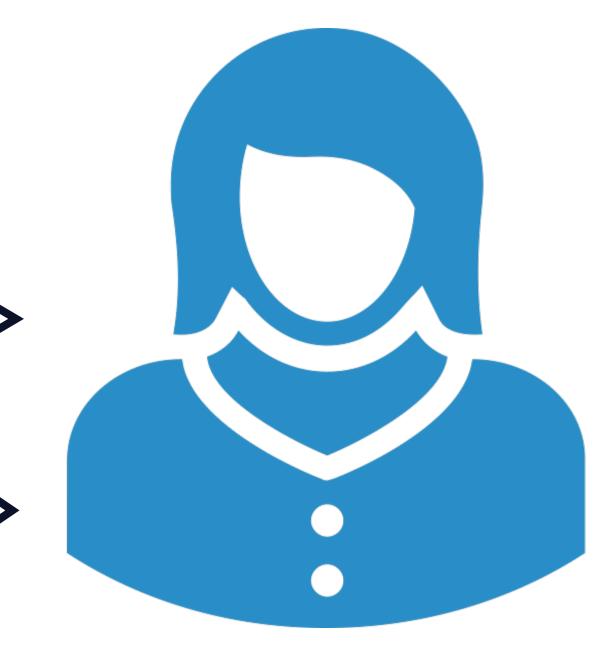




I need a new site what should I use?

You should use Framework with SSR, and strategy and it has a run "on the edge:

It depends...
What's your use case?





A great site can be built with React, Vue, Angular...



A great site is accessible, fast, secure, ...



It's "just" HTML...

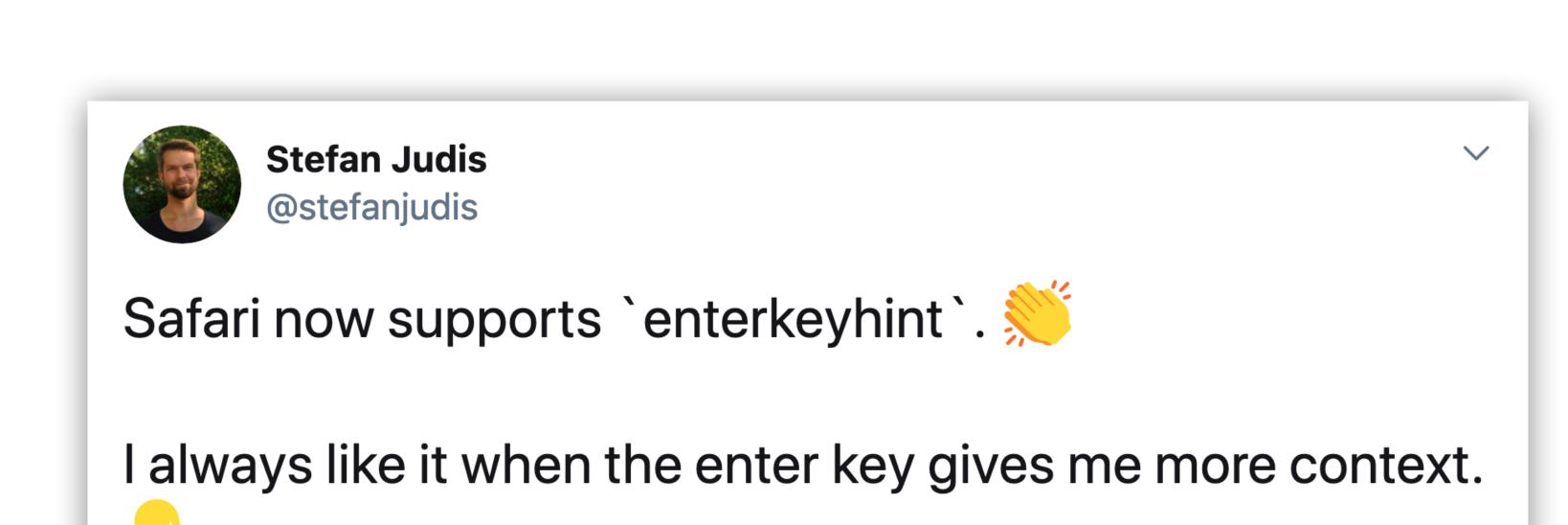


HTML defines over 100 elements



HTML defines 22 input types





0

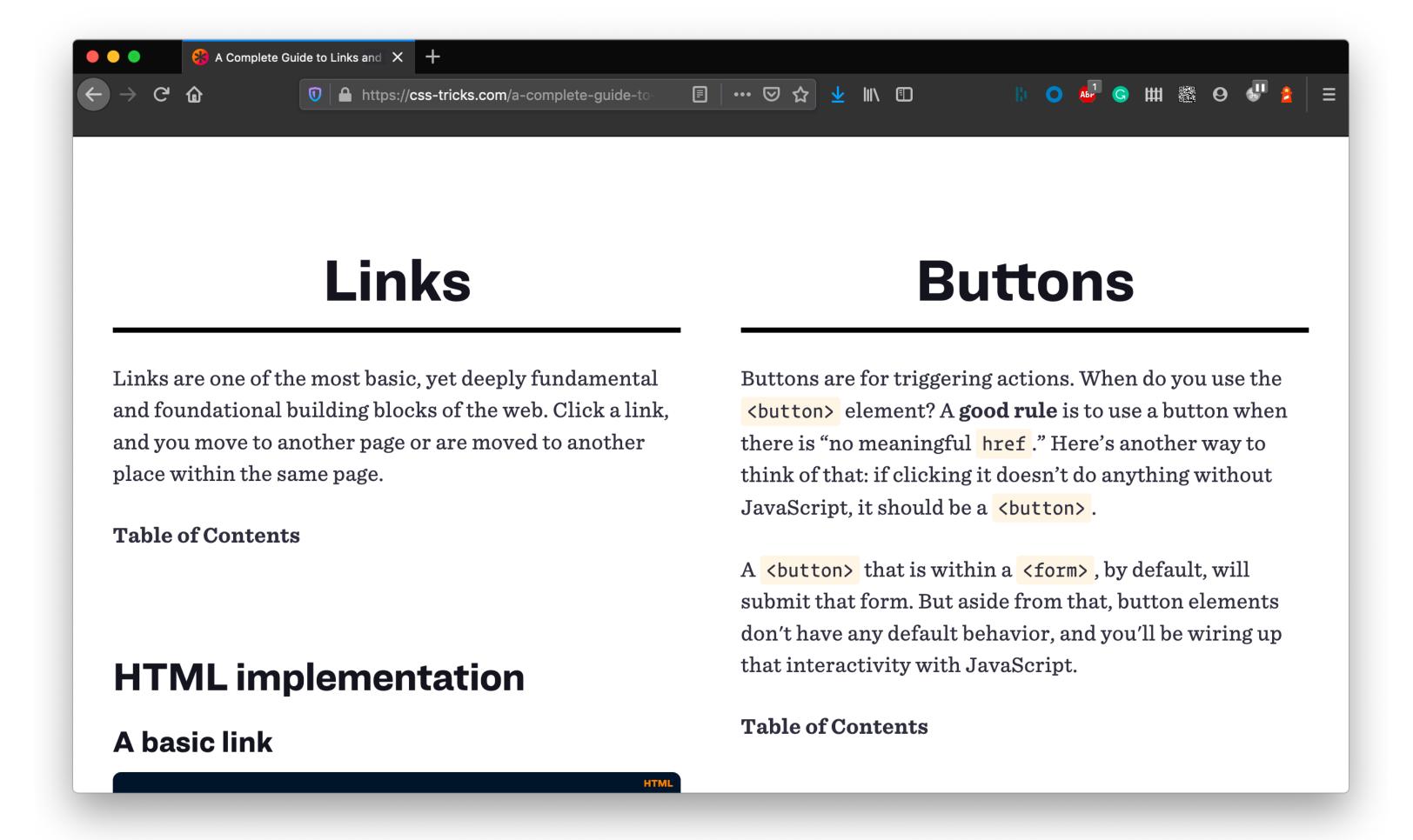
Spec: html.spec.whatwg.org/multipage/inte...

#devsheets

Tweet übersetzen



css-tricks.com/a-complete-guide-to-links-and-buttons/

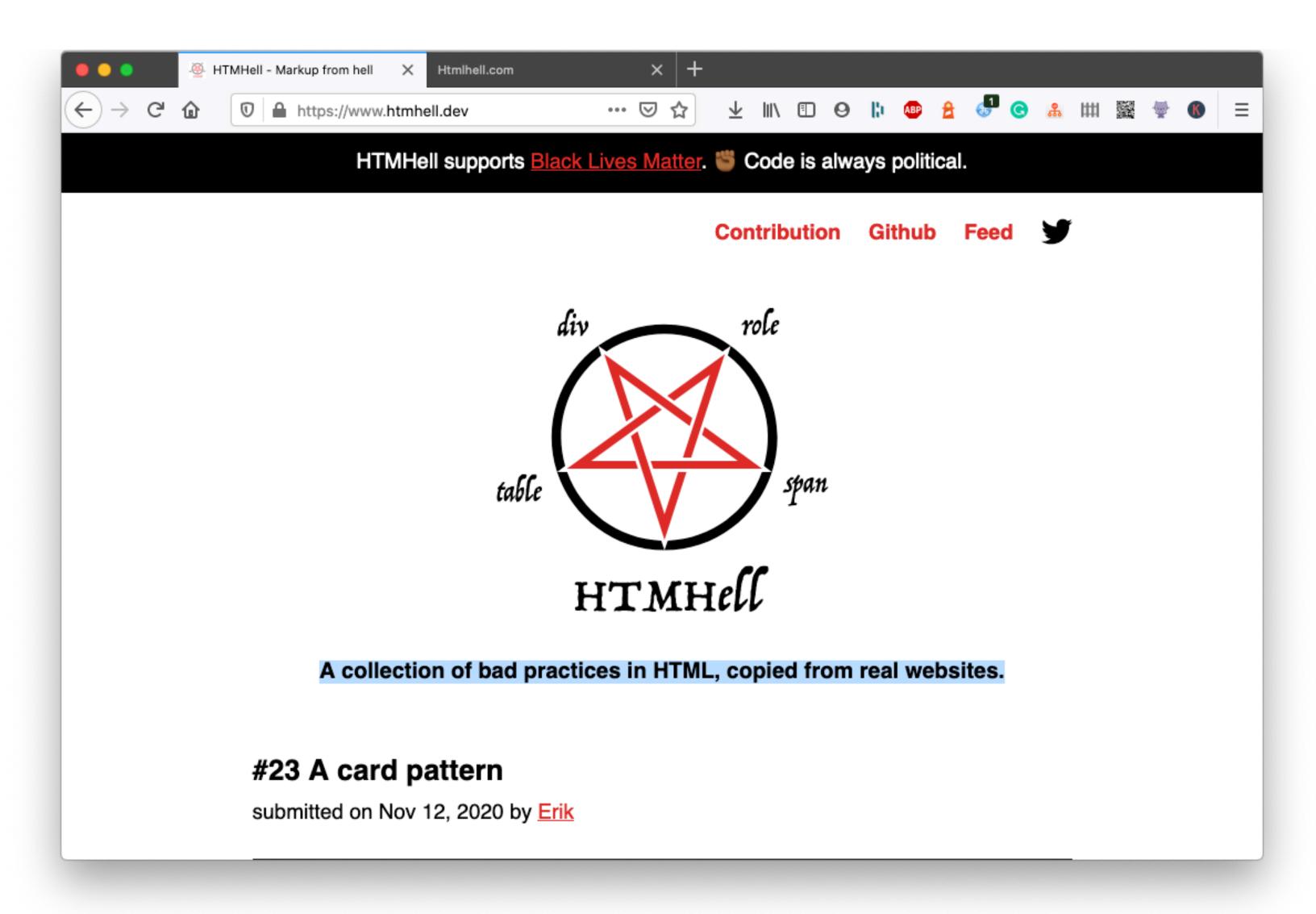


+4000 words!



```
<div aria-label="twitter" tabindex="0" role="button">
   Twitter
</div>
```

www.htmhell.dev





... it's not "easy".



webaim.org/projects/million/

Most common types of WCAG 2 failures

WCAG Failure Type	% of home pages in February 2021	% of home pages in February 2020	% of home pages in February 2019
Low contrast text	86.4%	86.3%	85.3%
Missing alternative text for images	60.6%	66.0%	68.0%
Missing form input labels	54.4%	53.8%	52.8%
Empty links	51.3%	59.9%	58.1%
Missing document language	28.9%	28.0%	33.1%
Empty buttons	26.9%	28.7%	25.0%



webaim.org/projects/million/

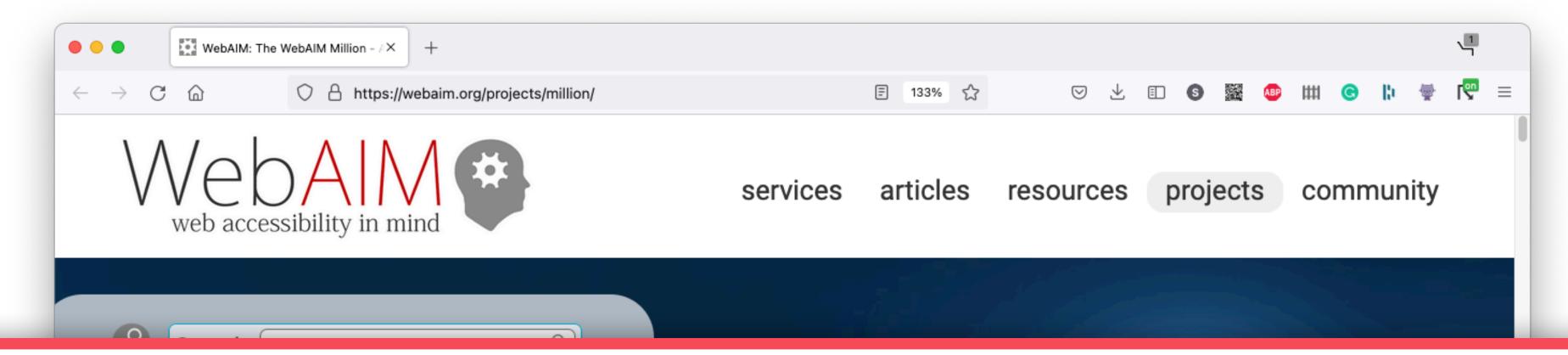
JavaScript Frameworks

Framework	# (and %) of home pages	Avg. # of errors	% difference
React	26,773 (2.7%)	50.4	-1.9%
MooTools	8,270 (0.8%)	54.8	+6.7%
GSAP	6,612 (0.7%)	57.9	+12.7%
RequireJS	13,621 (1.4%)	60.7	+18.1%
Prototype	5,313 (0.5%)	62.6	+21.8%
Backbone.js	6,003 (0.6%)	63.9	+24.4%
Angular	5,775 (0.6%)	64.9	+26.4%
Vμα is	10 350 (1 0%)	67.3	+31 1%

src/App.js

Line 8:9: img elements must have an alt prop, either with mea ningful text, or an empty string for decorative images <u>jsx-a11y</u>/alt-text

webaim.org/projects/million/

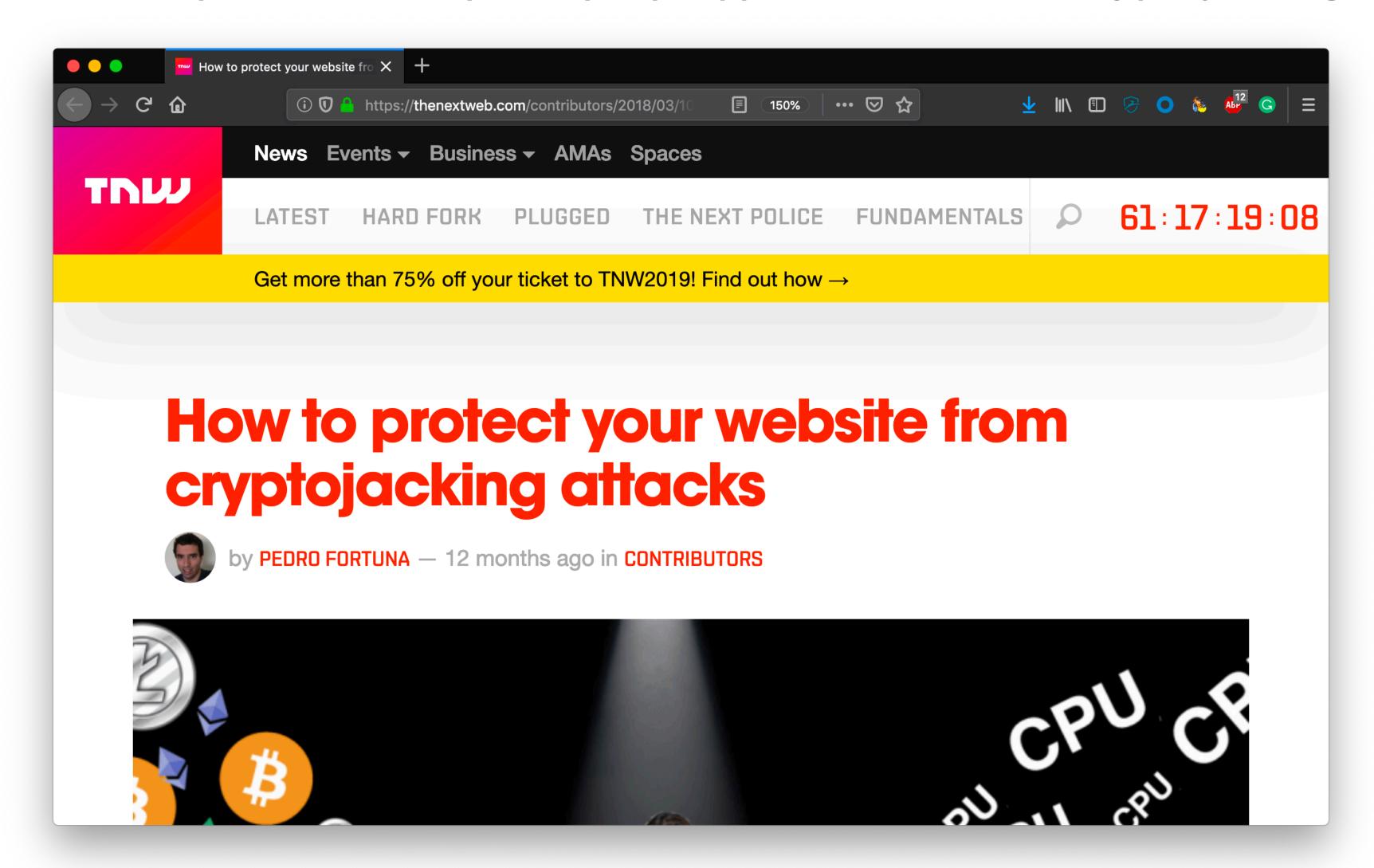


WCAG Conformance

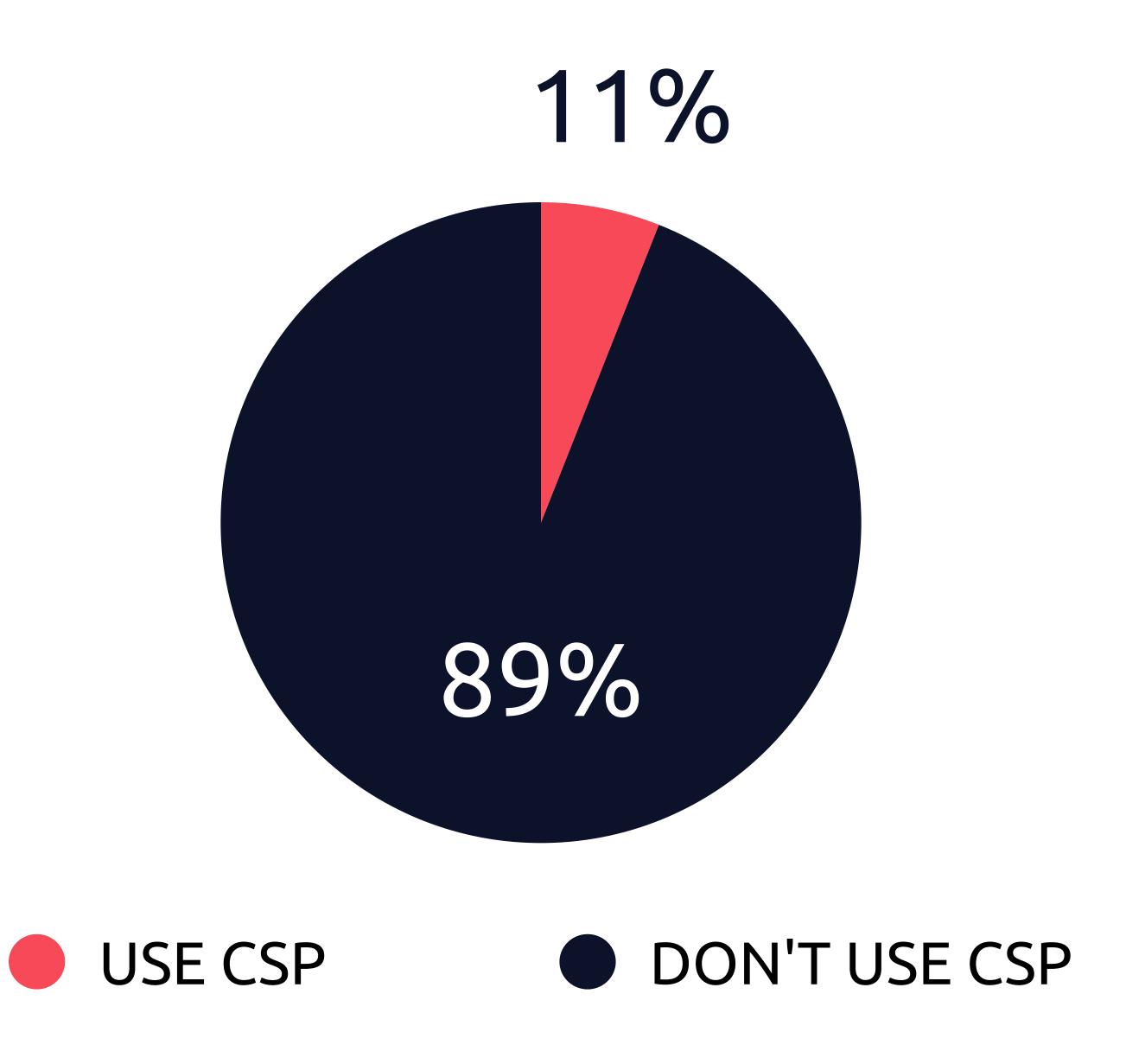
97.4% of home pages had detected WCAG 2 failures! This was down slightly from 98.1% in February 2020. These are only automatically detected errors that align with WCAG conformance failures with a high level of reliability. Because automatic testing cannot detect all possible WCAG failure types, this means that the actual WCAG 2 A/AA conformance level was certainly much lower.

WAVE Stand-alone API

thenextweb.com/contributors/2018/03/10/protect-website-cryptojacking-attacks/



Content-Security-Policy: default-src 'self'; script-src 'self' justcomments.com www.google-analytics.com productionassets.codepen.io storage.googleapis.com; style-src 'self' 'unsafeinline'; img-src 'self' data: images.contentful.com images.ctfassets.net www.gravatar.com www.google-analytics.com just-comments.com; font-src 'self' data:; connect-src 'self' cdn.contentful.com images.contentful.com videos.contentful.com images.ctfassets.net videos.ctfassets.net service.just-comments.com www.googleanalytics.com; media-src 'self' videos.contentful.com videos.ctfassets.net; object-src 'self'; frame-src codepen.io; frameancestors 'self'; worker-src 'self'; block-all-mixed-content; manifest-src 'self' 'self'; disown-opener; prefetch-src 'self'; report-uri https:// stefanjudis.report-uri.com/r/d/csp/reportOnly





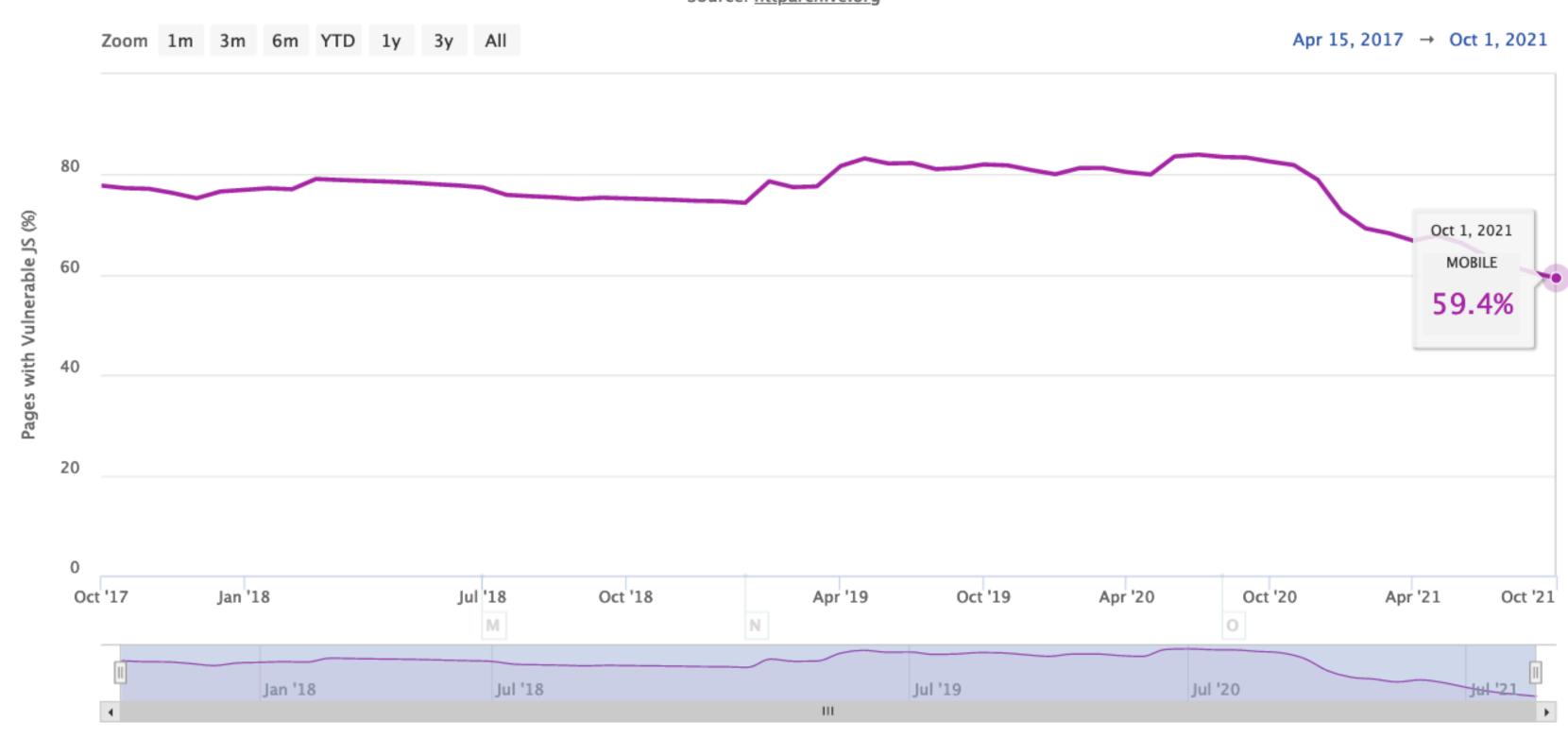
httparchive.org/reports/state-of-the-web

MOBILE **59.4%** ▼23.7%

Timeseries of Pages with Vulnerable JS

 \equiv

Source: httparchive.org



Mobile

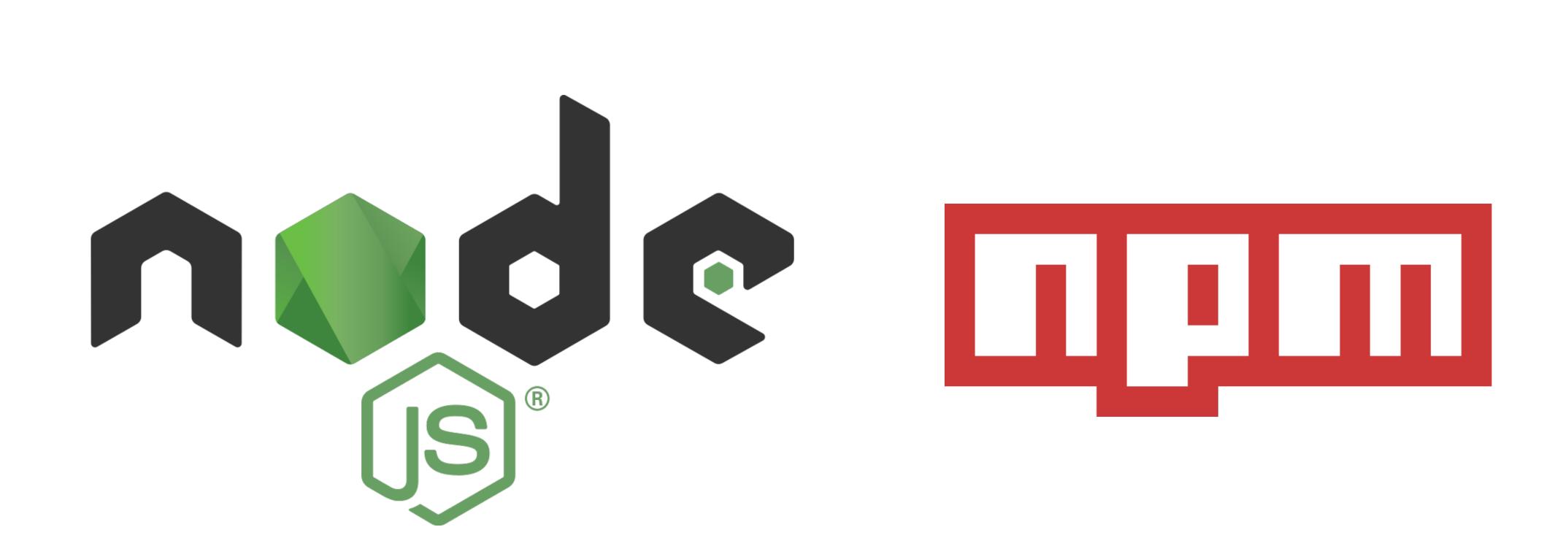


The web lost quality...



... but at least Frontend developers got more productive!











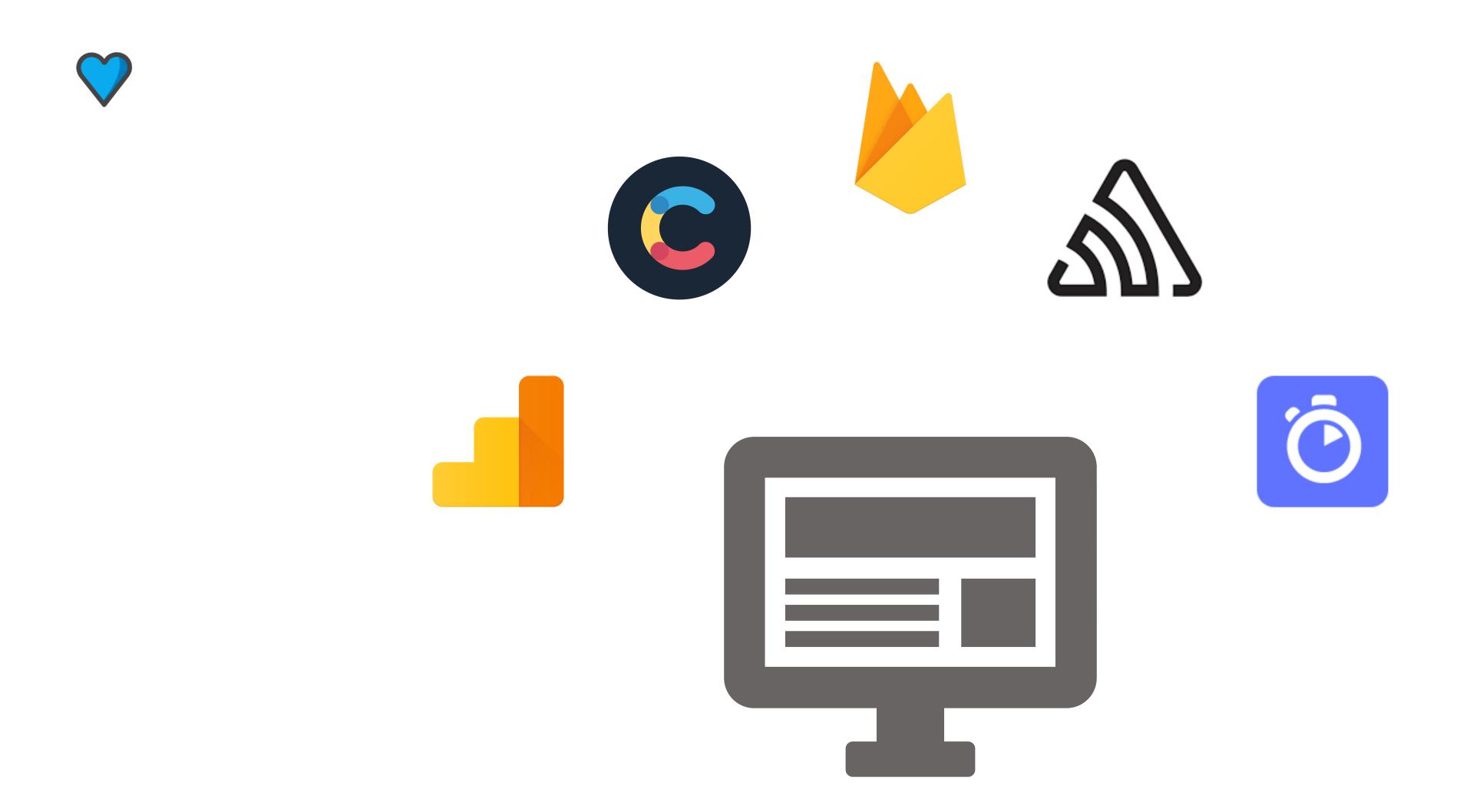




```
exports.sayHello = async (event) ⇒ {
   return 'Hello from Lambda!';
};
```



```
exports.sayHello = async (event) ⇒ {
  return {
    statusCode: 200,
    body: JSON.stringify({"msg": "Hello from Lambda!"})
  };
};
```



The options are limitless to build a product quickly!



2010

Hello world!

10KB / 50KB

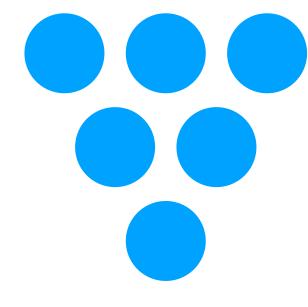
2020

Hello world!

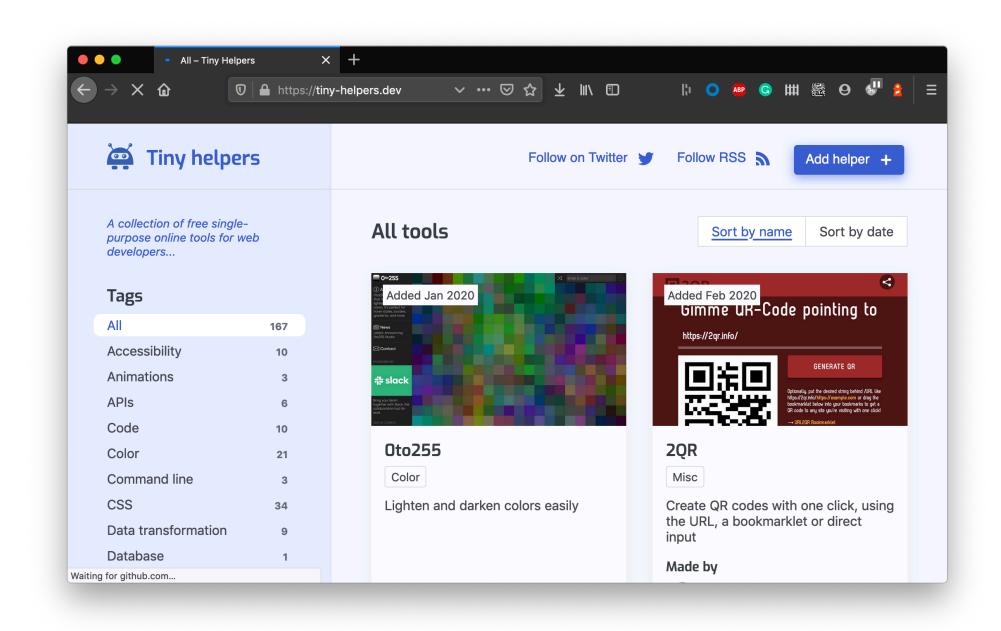
40KB / 130KB



Complexity



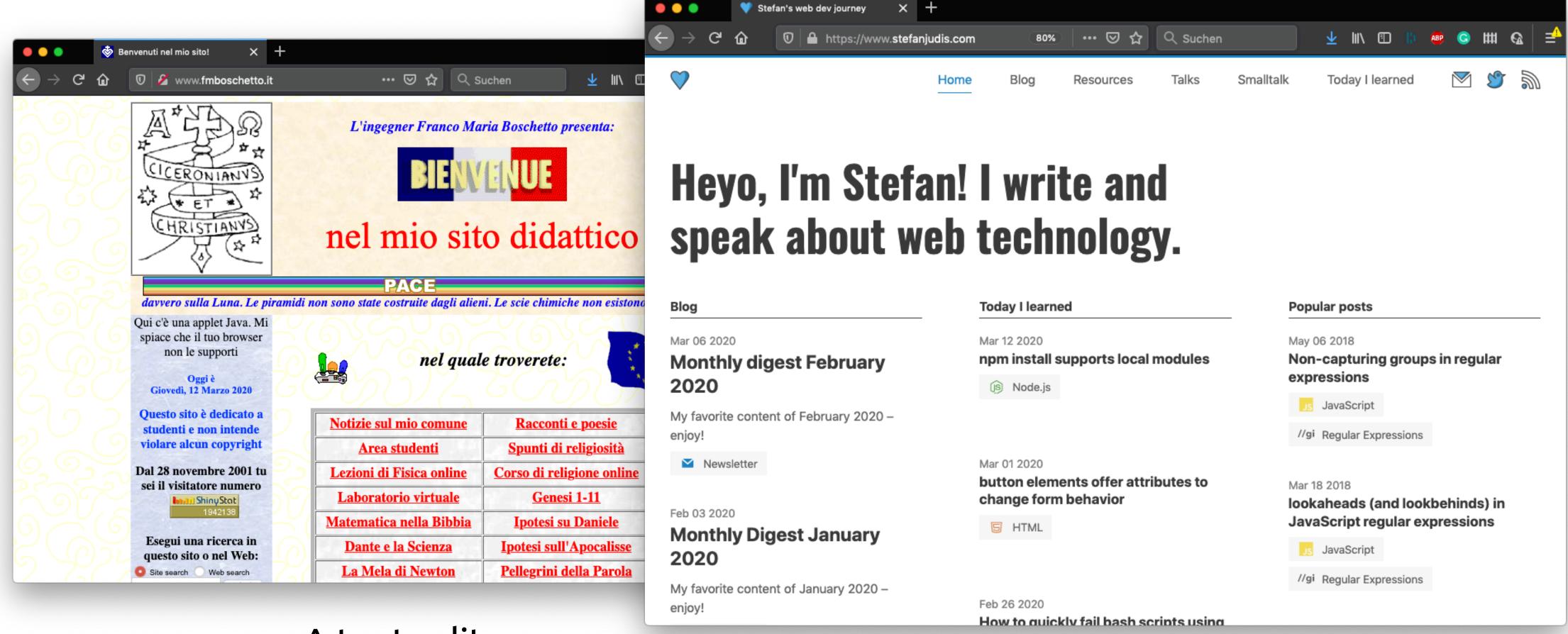




I just added two helpers to tiny-helpers.dev. The site is great, but that I had to download 700MB of Node.js stuff is brutal.:)







A text editor

A text editor, Node.js, npm, framework knowledge, ...



How many sites need to be complex apps, though?

I've been building on the web for 15+ years in some capacity, and it has never been so easy to build complex apps.

Josh Comeau



Where are we going with this trend?













HTML CSS JavaScript* React Vue Angular Svelte webpack Rollup Parcel **AWS GCIoud Netlify Vercel Heroku**

* a very incomplete list



Complexity rocks! (but what for?)





Stefan Judis @stefanjudis

I really like new and cutting-edge technology, but lately, I feel more and more that we're just over-engineering everything...

I spent the last hour solving problems that I wouldn't have had with a "traditional stack", static HTML and some hand-written JavaScript.

Tweet übersetzen

8:33 nachm. · 5. Jan. 2020 · Twitter Web App

| Tweet-Aktivität anzeigen

21 Retweets 180 "Gefällt mir"-Angaben



twitter.com/ developit/status/1214258470226190350





justmarkup.com/articles/2019-12-04-hamburger-menu/

```
(function() {
  const fakeButton = document.querySelector('[data-menu-button]');
  const menu = document.querySelector('[data-menu]');
  const toggleMenuButton = document.createElement('button');
  toggleMenuButton.textContent = fakeButton.textContent;
  toggleMenuButton.setAttribute('aria-expanded', false);
  toggleMenuButton.setAttribute('aria-controls', 'menu');
  toggleMenuButton.classList.add('nav__toggle');
  fakeButton.parentNode.replaceChild(toggleMenuButton, fakeButton);
  toggleMenuButton.addEventListener('click', function() {
    let expanded = this getAttribute('aria-expanded') === 'true' || false;
   this.setAttribute('aria-expanded', !expanded);
   menu.hidden = !menu.hidden;
  });
 menu.hidden = true;
                             16 lines of hand-written JavaScript
})()
```



Maybe we'll have good enough abstractions one day, but today...



... you still have to know web fundamentals to create the best user experience.



You're shaping tomorrow's job market based on the technology choices you make today.

Henrik Joreteg



Your job as a web developer is to build beautiful experiences!



Your job as a web developer is to build beautiful experiences!

Your job as a developer is to decide, to decide what tools to use, to decide what frameworks to use, to decide what to prioritize, to decide what is the best way to maintain a project.

Michael Scharnagl



Chatted with someone who's been working at a company as a front-end developer for 3 years. Their friend asked them to help build a website, but they had to decline.

They didn't know how.

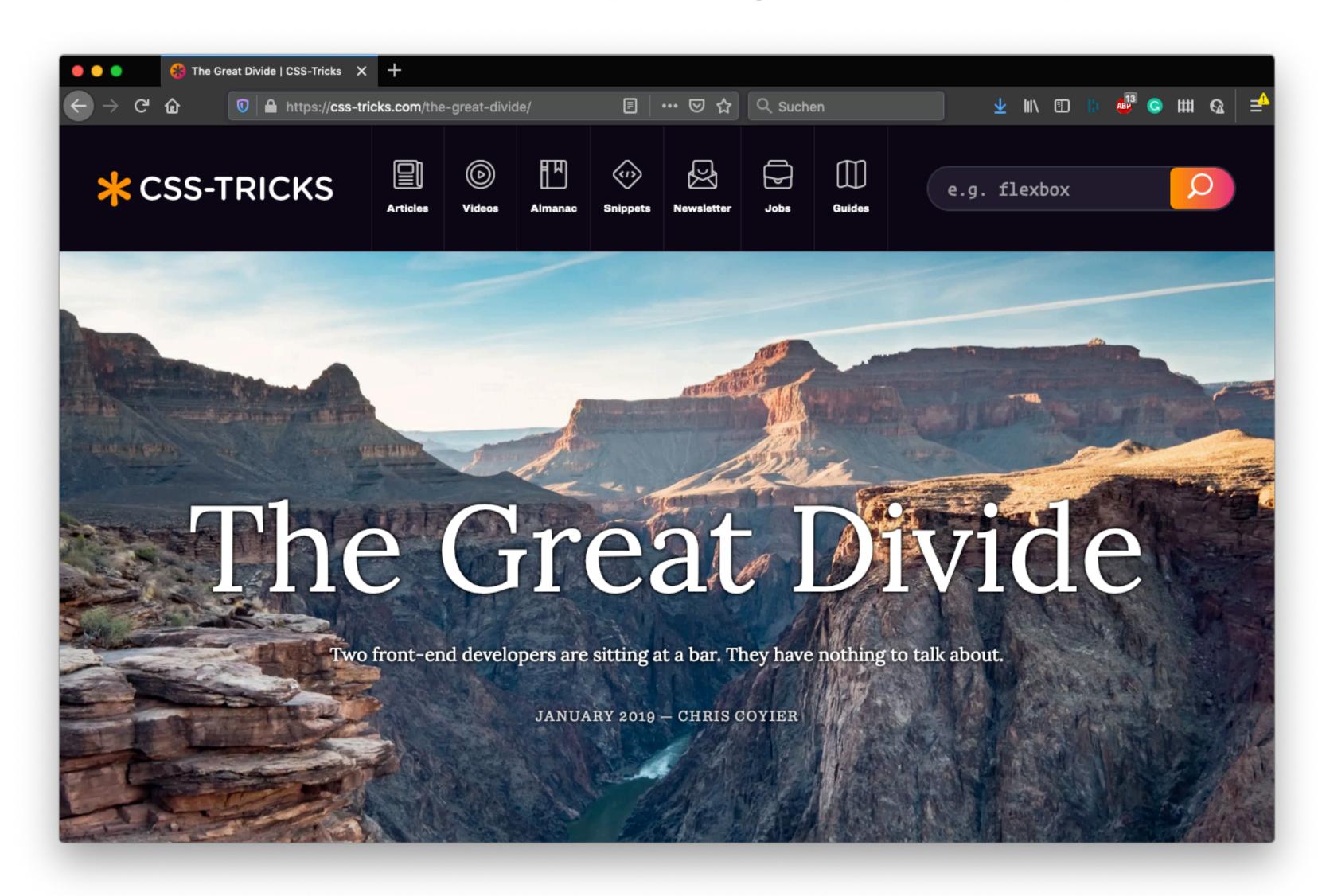
Chris Coyier (css-tricks.com)



HTML CSS JavaScript* React Vue Angular Svelte webpack Rollup Parcel **AWS GCIoud Netlify Vercel Heroku**

* a very incomplete list

css-tricks.com/the-great-divide/





css-tricks.com/the-great-divide/

Now Hiring: Front-End Developer

React / Next.js
Apollo GraphQL
styled-components
webpack
JS architecture and perf focused



Interaction Design & SVG
CSS/Sass Architecture
WordPress Themes
Light jQuery
UX and A11Y focused





css-tricks.com/the-great-divide/

Now Hiring: Front-End Developer

Apollo GraphQL
styled-components
webpack

JS architecture and perf focused



Interaction Design & SVG

UX and A11Y focused





It's time for our industry to realize the title "frontend developer" is obsolete.

Benjamin De Cock – @bdc



Developers and software engineers put their job satisfaction above their users or customers.



Your users don't care about your technical implementation.



DX (developer experience)







UX (user experience)



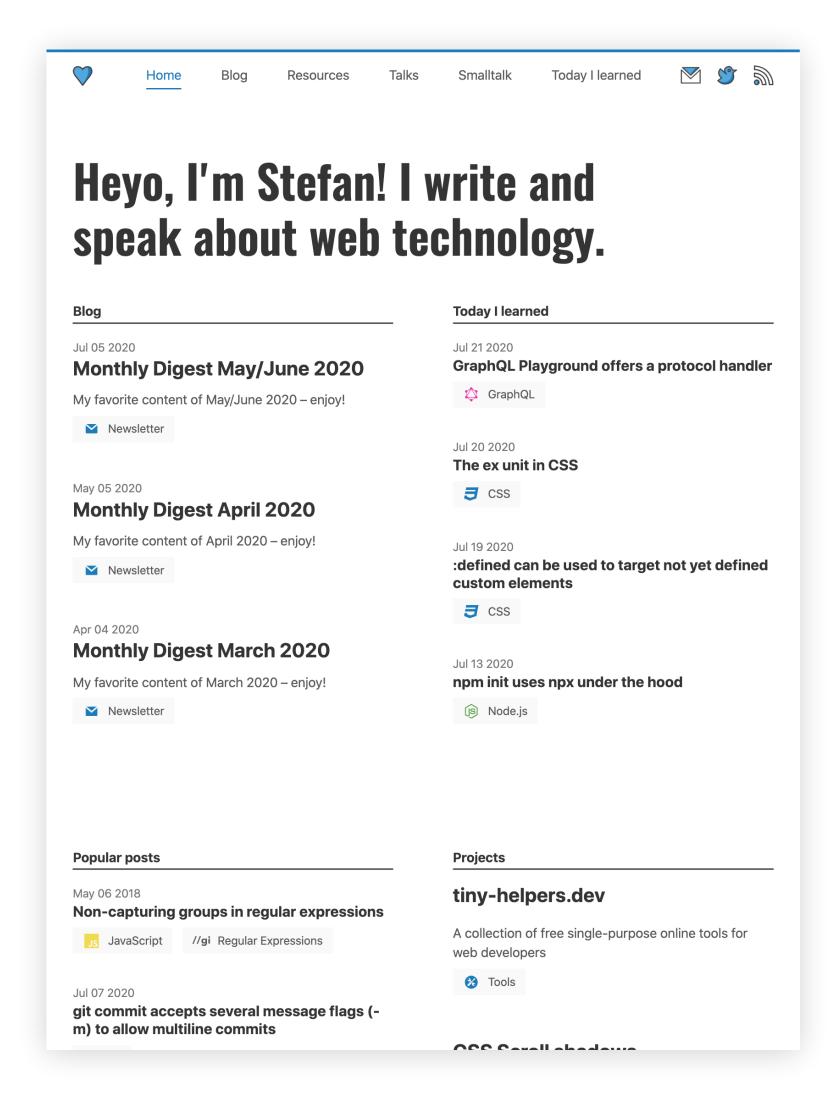
I love shiny tools and I love writing JavaScript...



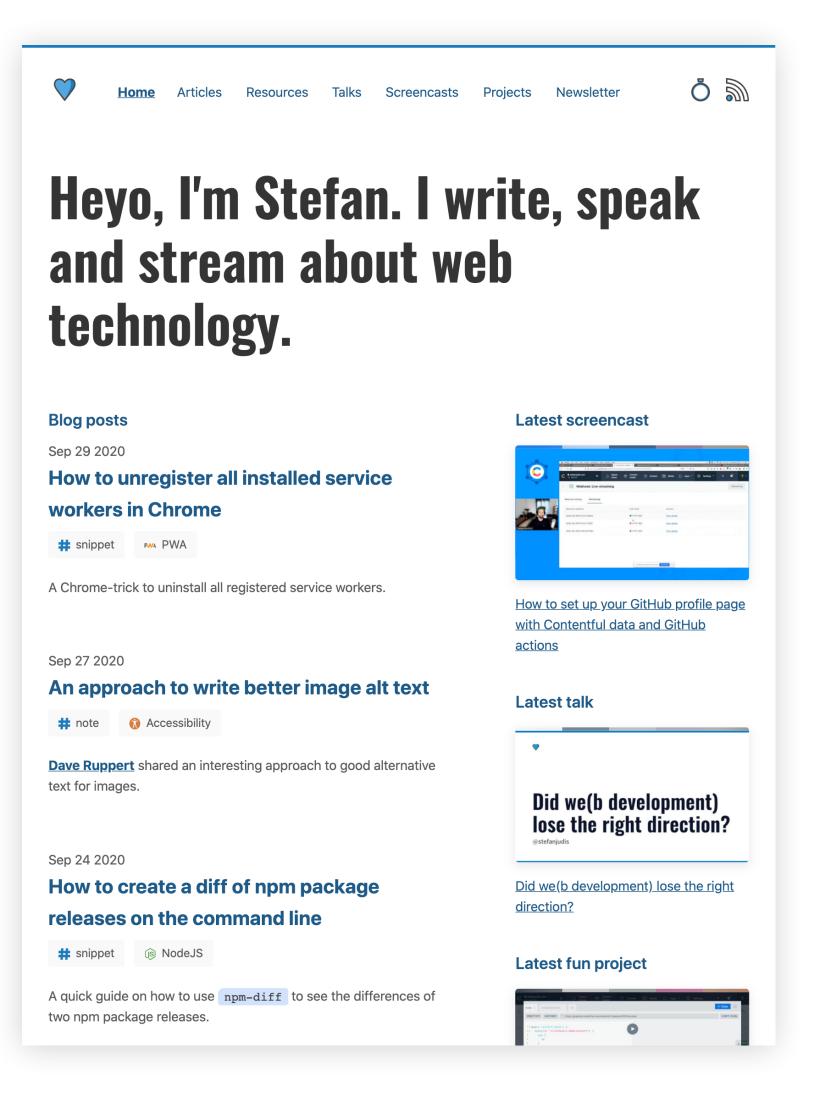
... but maybe we should take a step back?

And consider the right tools for the best user experience?



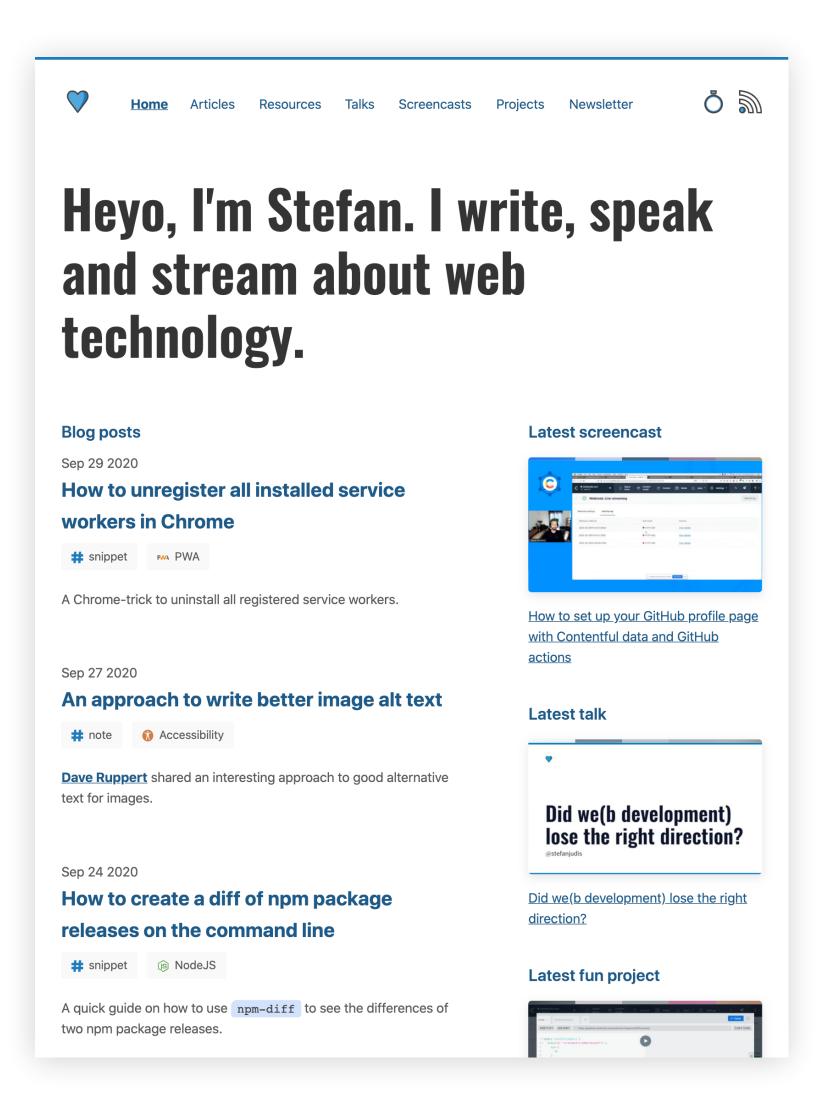


2017 - 2020



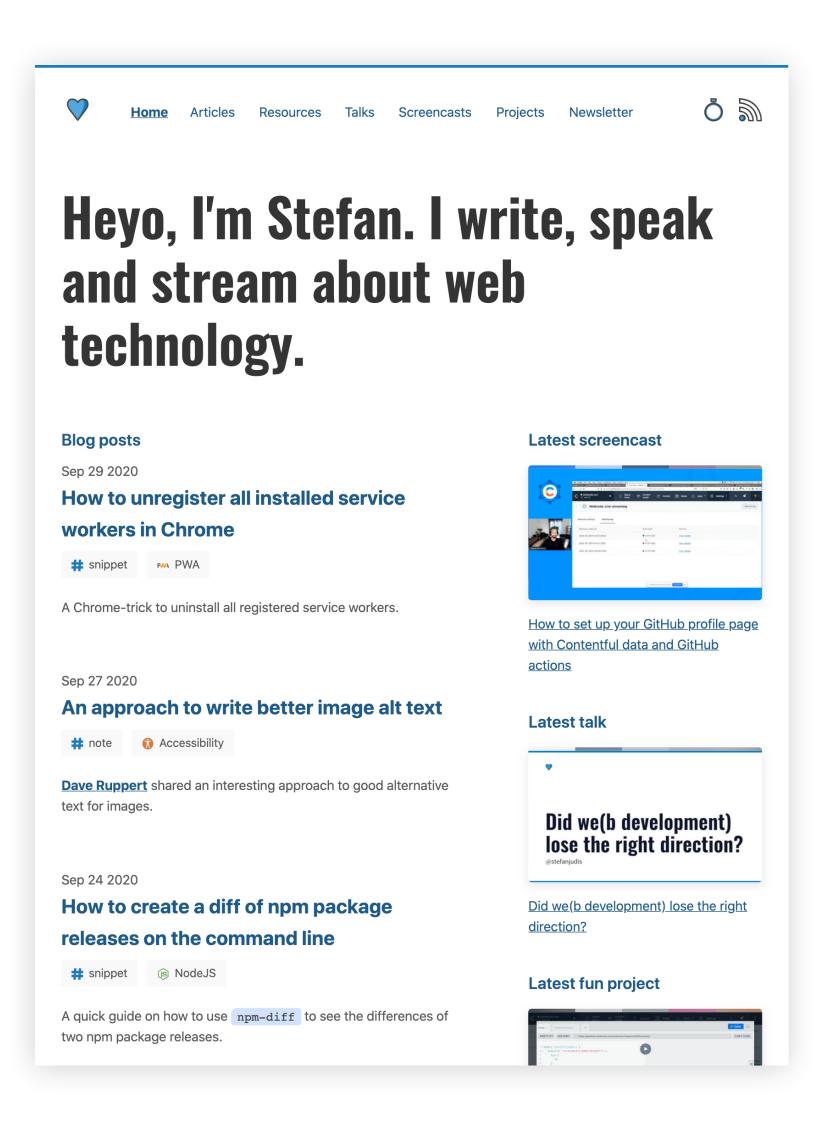


Reduction of overall page weight by 64%.



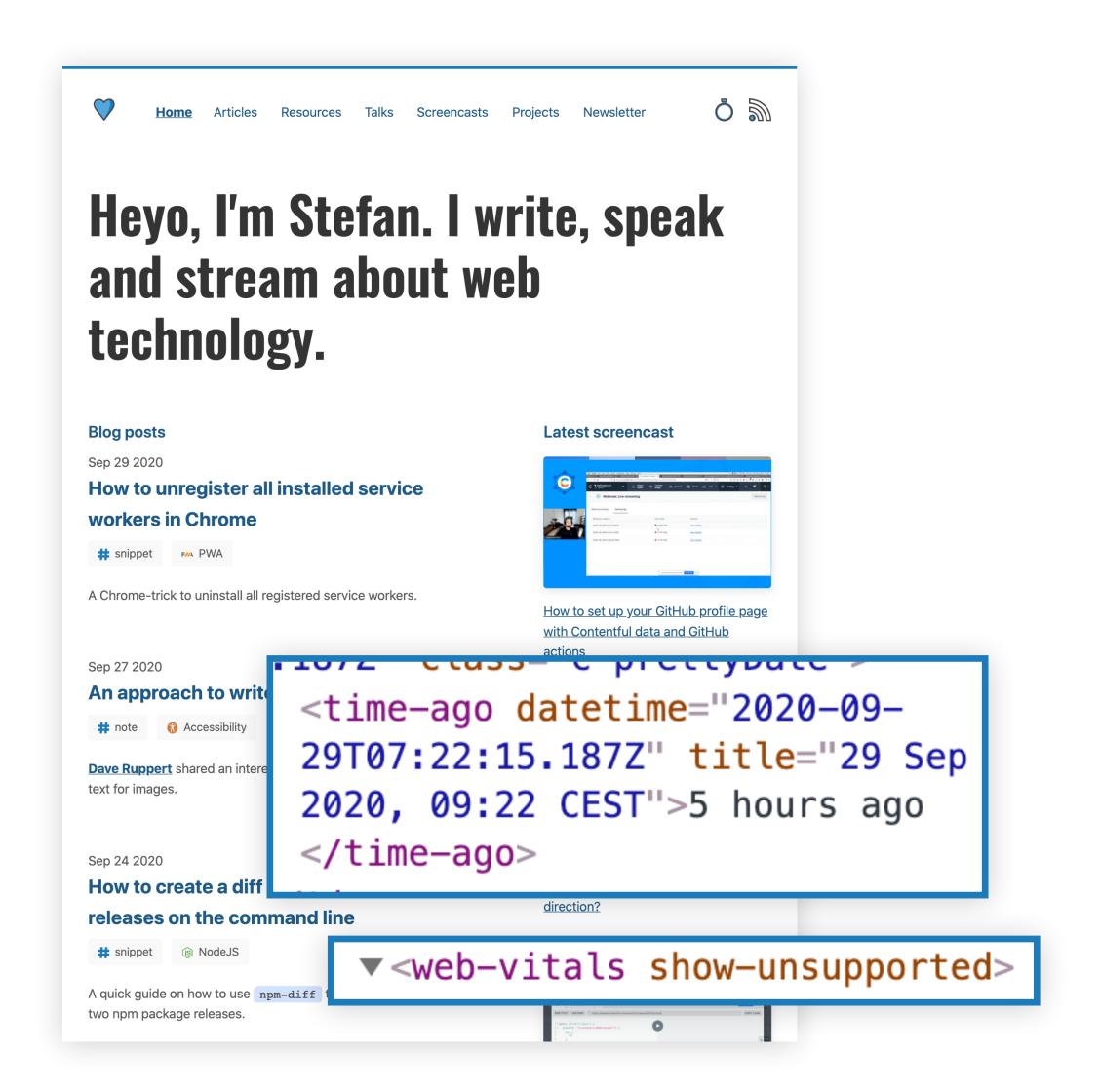


Reduction of build time from 4min to 40s.



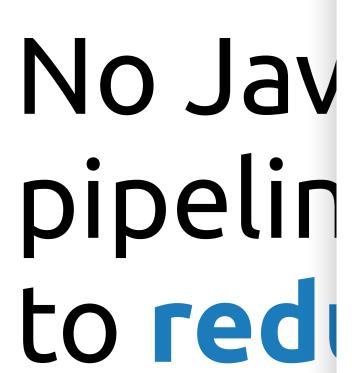


No JavaScript build pipeline leading to reduced complexity.











No Jav Need to get those "anti-JavaScript JavaScript Club" stickers made.

Tweet übersetzen

🔀 🤎 Taudry Hepburn 💚 @tabatkins · 24. Feb.

HTTP 262 JAVASCRIPT UNNECESSARILY REQUIRED; the content is available but you'd better have a good CPU and 15 seconds of free time before the first pixel gets painted

4:36 vorm. · 25. Feb. 2020 · Twitter Web App

3 Retweets 44 "Gefällt mir"-Angaben

2020-09tle="29 Sep hours ago

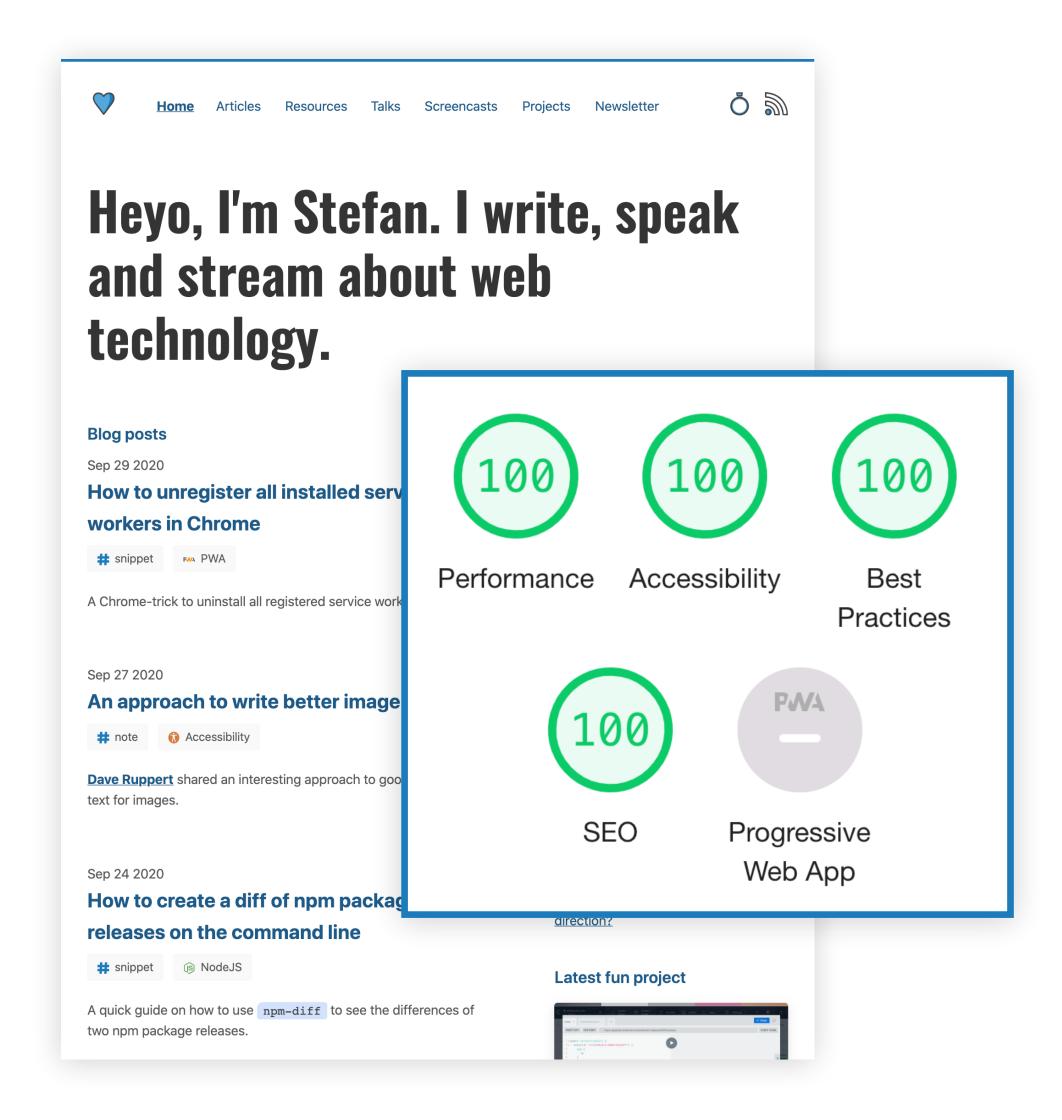
Ö 🔊

<u>le page</u>

ı-unsupported>

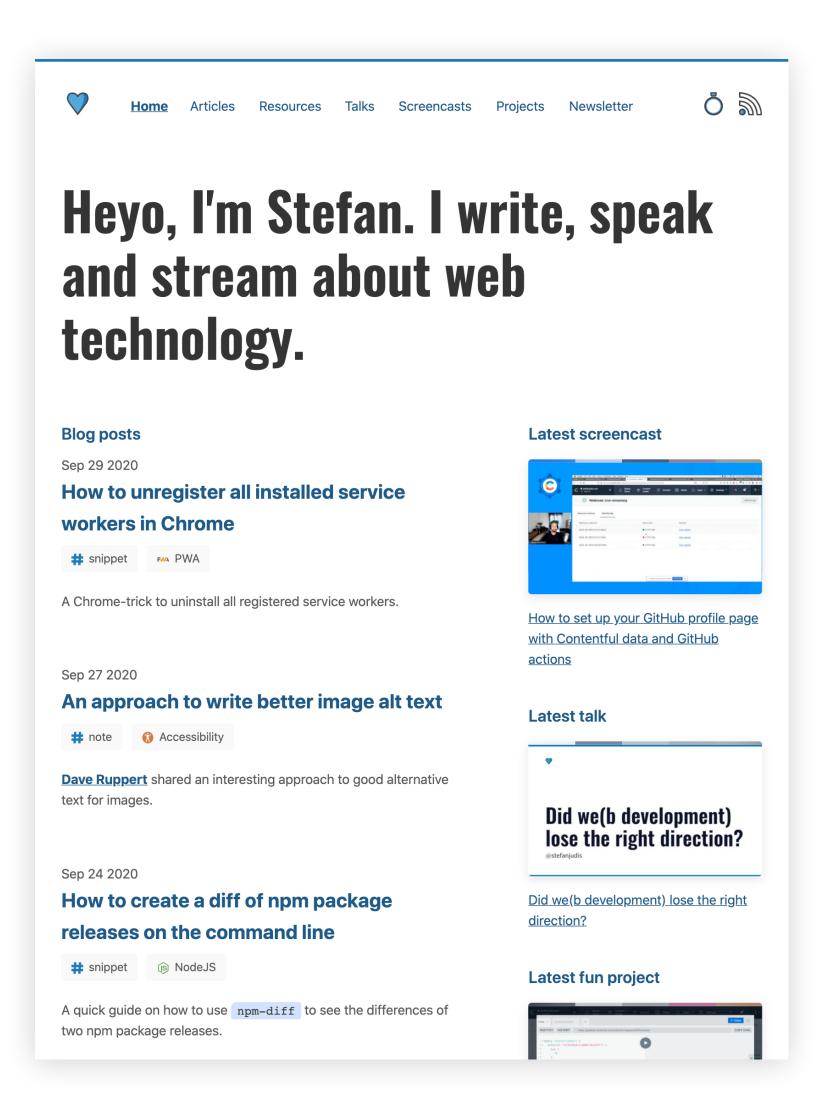


A green lighthouse score.





A site with a better user experience.





Is a JavaScript-driven stack really that bad?



Not at all, use whatever makes you happy!



Every technology decision has tradeoffs.

Kevlin Henney



But maybe we should focus more on building sites that just work...

(And worry less about the technology powering them)



my-links.online/did-we-lose-direction

Yes! I own that domain!





Thanks.

@stefanjudis www.stefanjudis.com newsletter.stefanjudis.com



