



We  LoAF & INP

- about interactivity & tips to improve -



This is actually a **love** story...



We love the PageSpeed Community



Karlijn Löwik

CEO & Co-founder RUMvision
Mage-OS NL board member &
Lady Magento co-founder

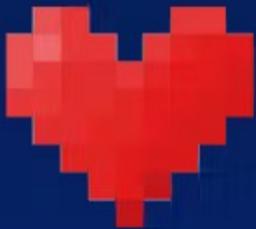
HI!
we  speed



Erwin Hofman

CTO & Co-founder RUMvision
Web dev + perf consultant &
Google Developer Expert

We love each other



We've been together for 13.5 years, married for 6 years this week



We **love** speed.. the web performance kind

(although Erwin is a big F1 fan too)

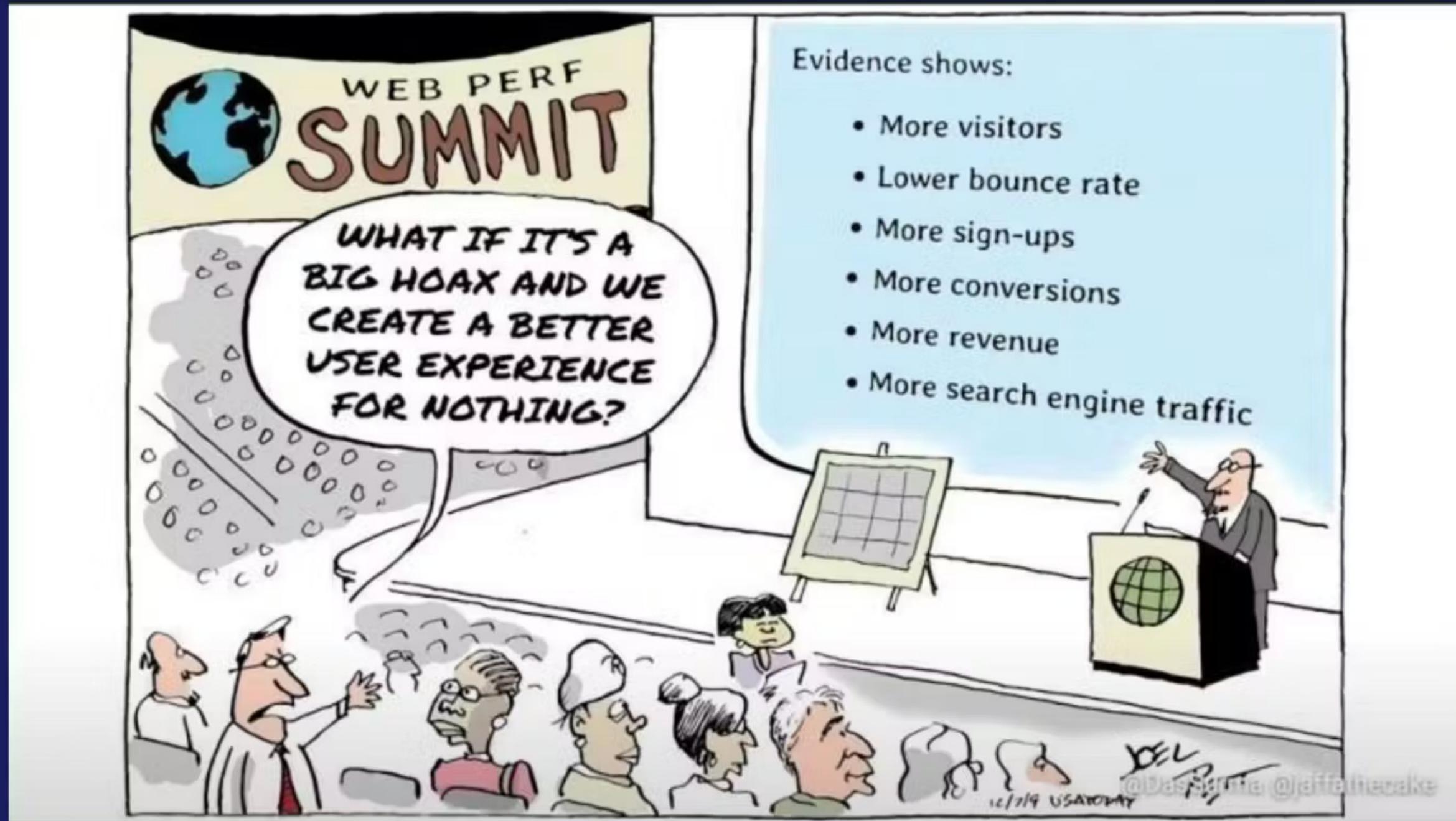


Because having good **SUX** is a very important
part of this **love** story

No, not sex.. although that is also important in a love story 😊

Sitespeed User eXperience

Turns out: **SUX** sells



eCommerce and site owners **love** that

And happier users **love** that too

 **vodafone**

8 %

More sales by
making our LCP
31% faster

Swappie

42 %

Mobile revenue
boost by
improving CWV

 **Google**

62 %

Visitors will not
return after bad
mobile experience

Deloitte.

-8.3 %

Less bounce after
focusing on
optimization

To love, you need to be able to **interact**

- In real life you want to talk, listen, joke, cry and laugh with each other
- On a website you want to click & scroll around, see movement, add to cart, dropdowns and slide-outs

To not get frustrated with your loved ones...

You also need a **quick response** when
interacting

Grab your phone!



Let's get to know each other first! What is your jobtitle?



Who attended this talk? 👍 👎



React / Next vs INP : le clash

par Jean-Pierre Vincent

🕒 45 minutes | Salle 2

Les frameworks JS populaires ne cessent d'afficher leurs benchmarks pour nous prouver qu'ils sont rapides, voire meilleurs que le DOM natif! Mais l'arrivée de l'INP ainsi que mes 5 dernières années à accélérer ces stacks chez mes clients démontrent...

[En savoir plus](#)



17



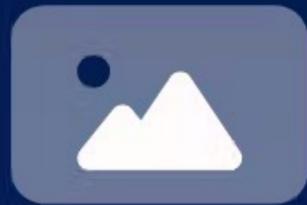
9



To pass Core Web Vitals there are **3 SUXces** criteria

Loading speed

=



Largest Contentful Paint (LCP)

The time it takes until the **largest element** (usually the hero) is **loaded**

< 2.5 seconds

Visual stability

=



Cumulative Layout Shift (CLS)

The biggest (5 seconds) sum of **unexpected shifts**, usually by banners and video ads

< 0.1

Interactivity

=



Interaction to Next Paint (INP)

The **biggest delay** between user interaction and **visual feedback** during the whole page life cycle

< 200 ms



16



5

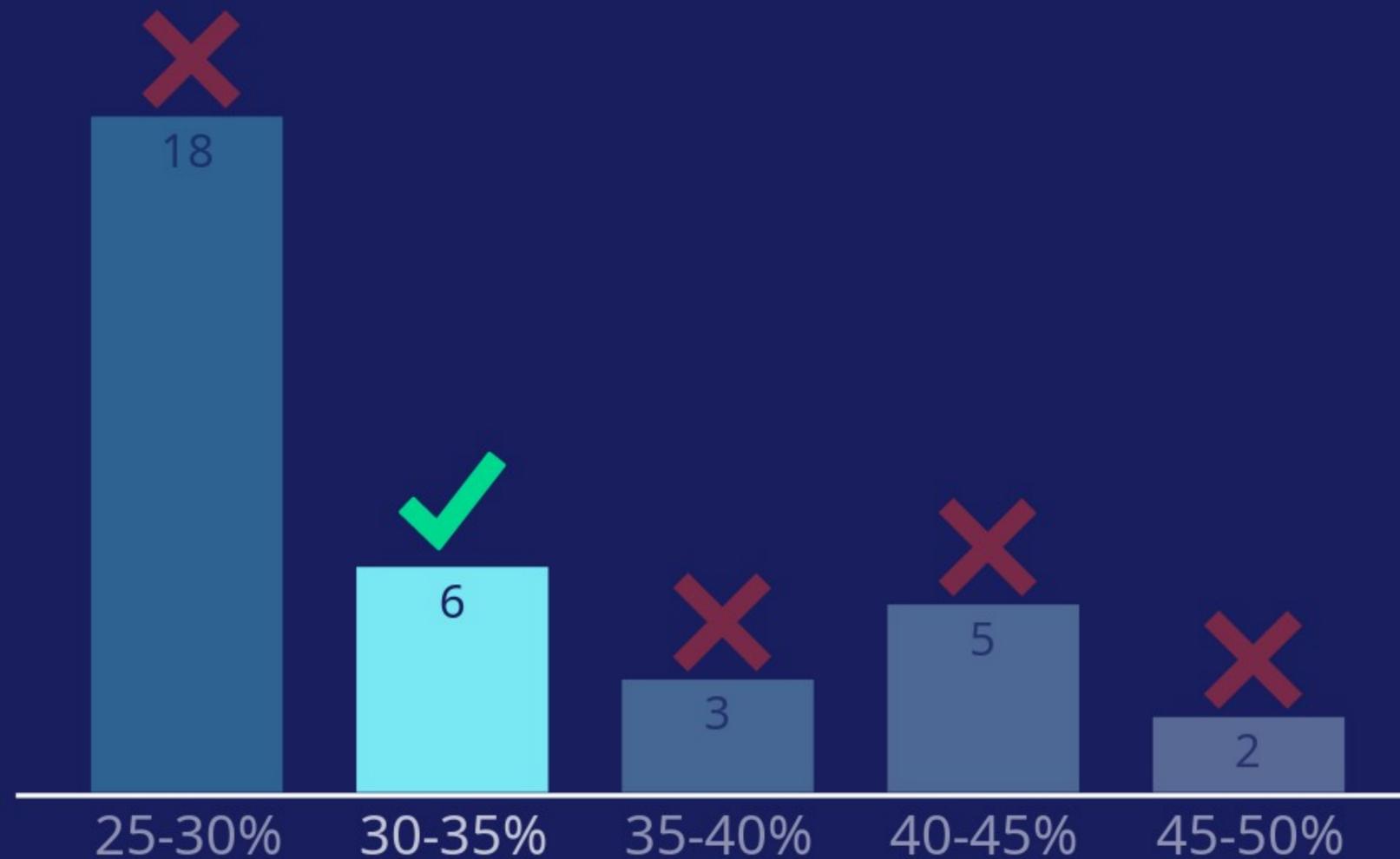


CRUX 202408, 75TH PERCENTILE

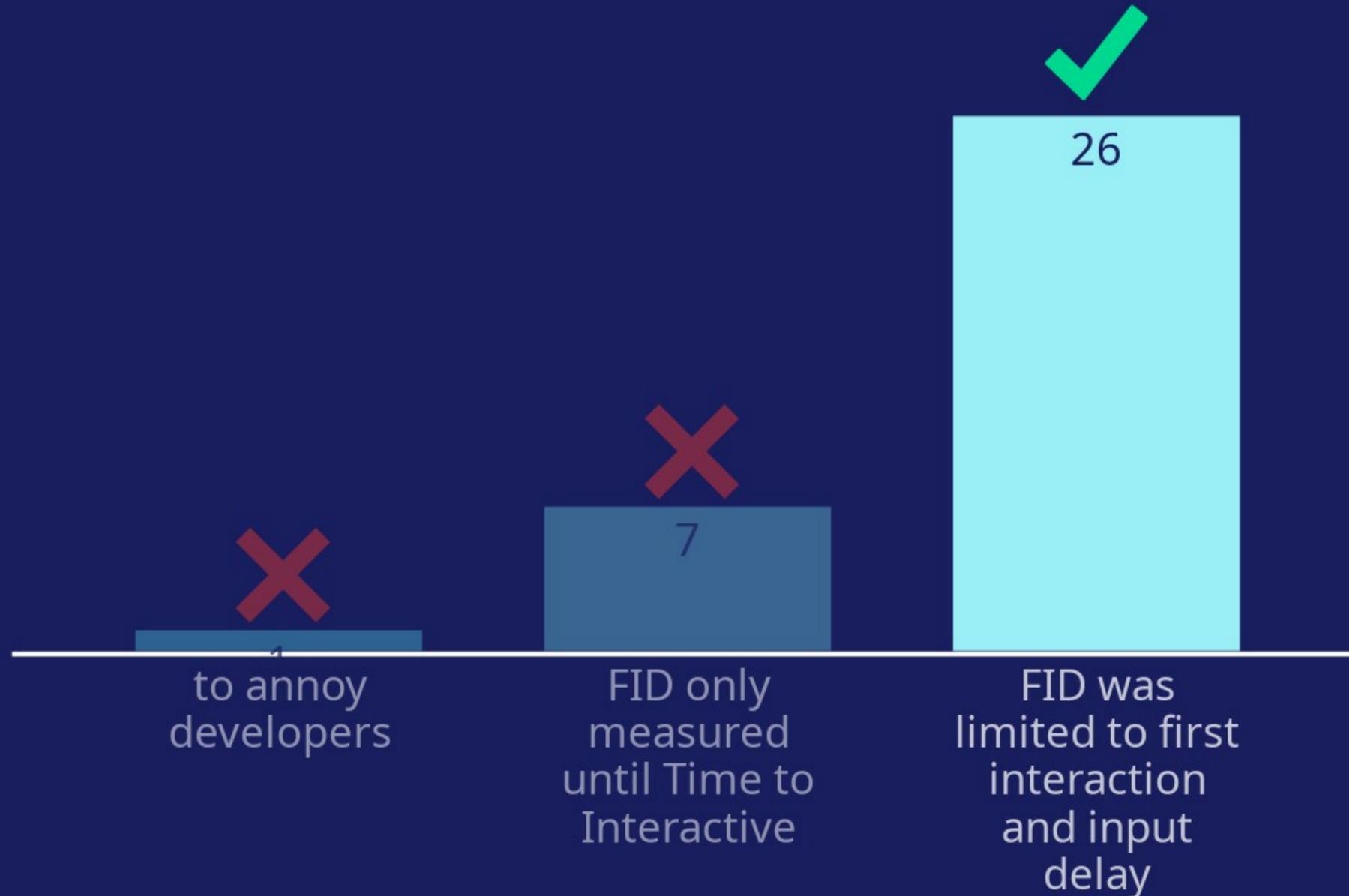
Globally, 24% of tablet and 49% of desktop passed Core Web Vitals

```
SELECT COUNT(origin) FROM chrome-ux-  
report.materialized.device_summary  
WHERE yyymm=202408 AND  
device='tablet' AND p75_lcp<=2500 AND  
p75_inp <= 200 AND p75_cls<=0.1 LIMIT  
1
```

What percentage was passing CWV on mobile in August 2024



Why did Google replace FID with INP?



📅 March 12th 2024

FID got replaced by INP as Core Web Vital

📅 September 10th 2024

Google fully removed FID from their tools





Core Web Vitals = nonsense

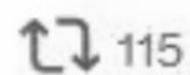
@i_hate_good_ux



Core Web Vitals? What a ridiculous concept! And Google just keeps changing the rules.

Now INP? I'm done playing this never-ending game.

4:18 PM · Jan 31, 2024 · 7.602 Views



a new metric literally doesn't change a thing though!



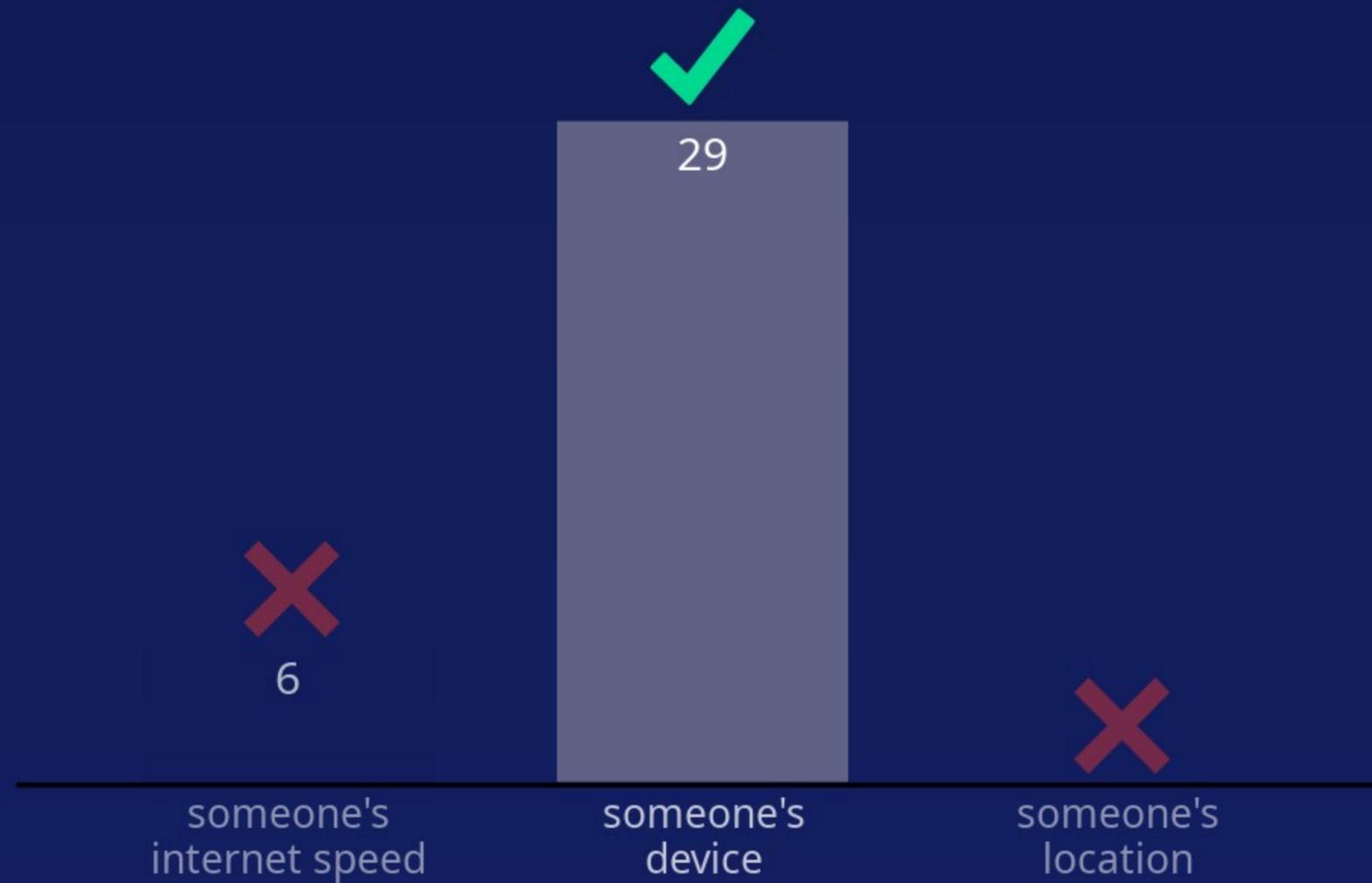
4

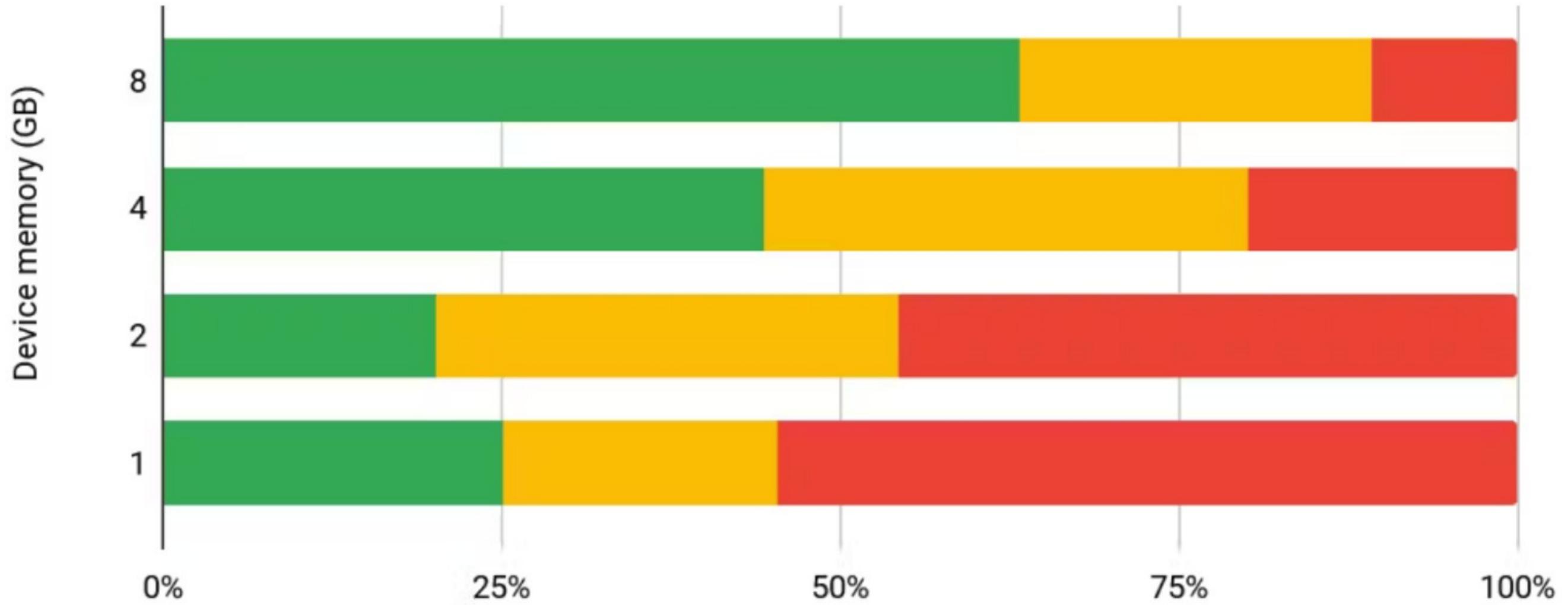


1



What has the highest correlation with INP?





Google + run VISION

```

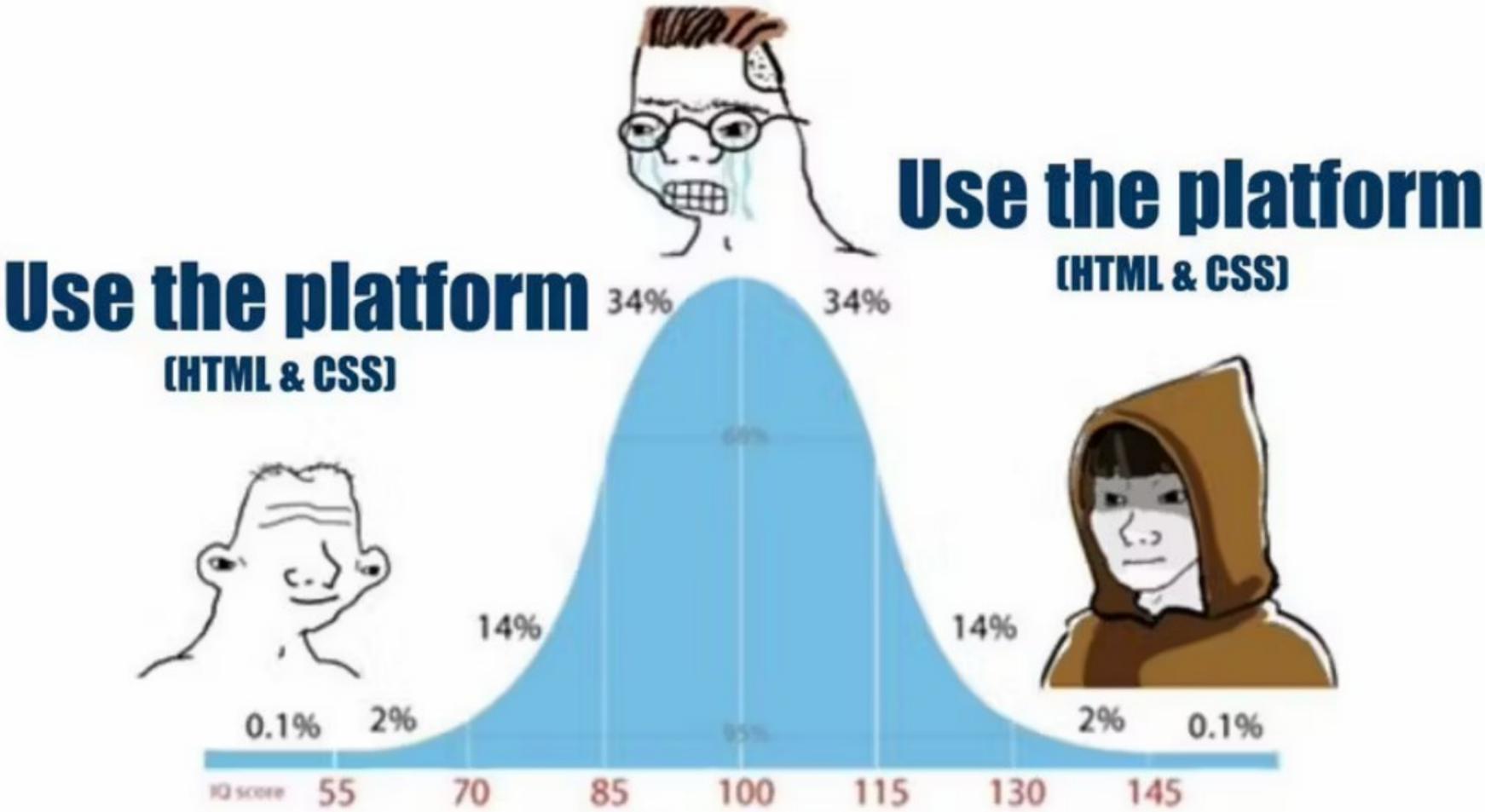
const capitalize = (str) =>
  str.replace(/(?:^\s|["'({})+\S/g, match =>
    match.toUpperCase());
);
;

div {
  text-transform: capitalize;
}

```

imgflip.com

Do everything in JS



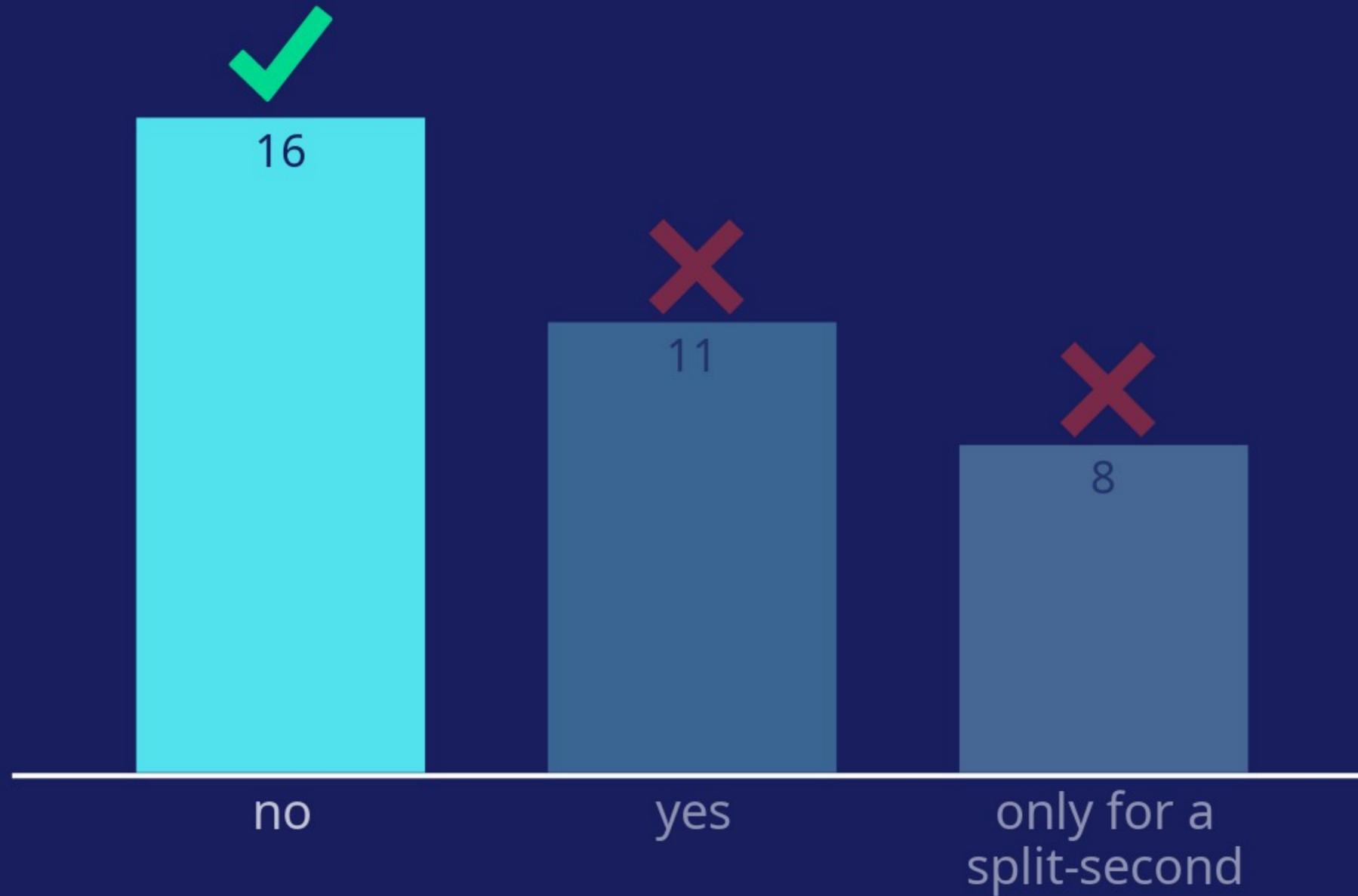


[linkedin.com/groups/121615/](https://www.linkedin.com/groups/121615/)

```
● ● ●  
  
// Create an h1 element with text  
const h1 = document.createElement('h1');  
h1.textContent = 'Hello, World!';  
document.body.appendChild(h1);  
  
// will the <h1> be visible?  
  
// Apply display: none to hide the h1  
h1.style.display = 'none';
```

Appending a `<h1>` to the body

Will the <h1> be visible?



```
● ● ●  
  
// Create an h1 element with text  
const h1 = document.createElement('h1');  
h1.textContent = 'Hello, World!';  
// Append to body  
document.body.appendChild(h1);  
  
// then apply display: none to hide it  
h1.style.display = 'none';
```

Appending a `<h1>` to the body

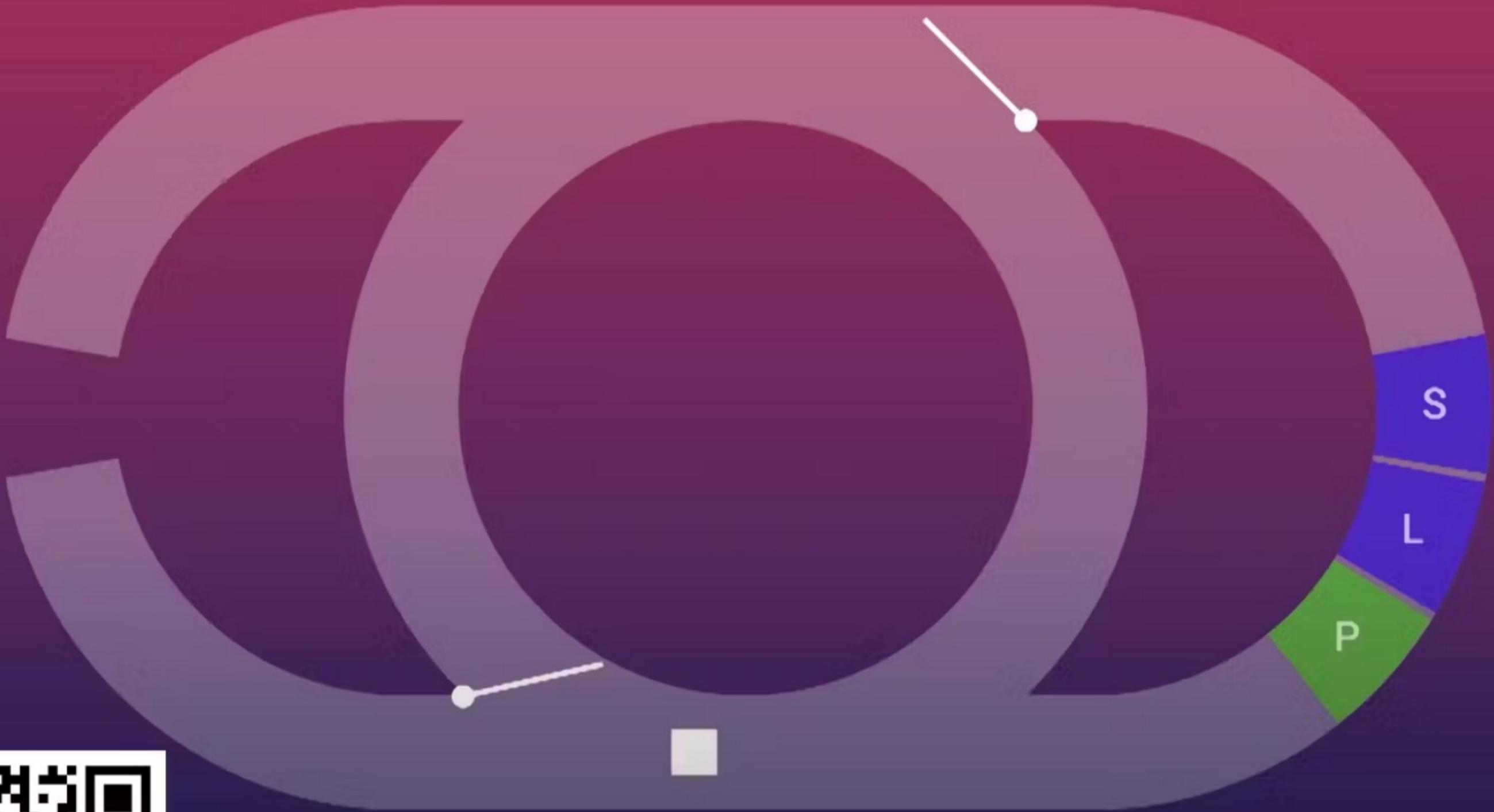


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// Create an h1 element with text
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// Then append to body
document.body.appendChild(h1);
```

Appending a `<h1>` to the body

T



The Event Loop by Jake Archibald



Lazyloads all JavaScript:



Performance



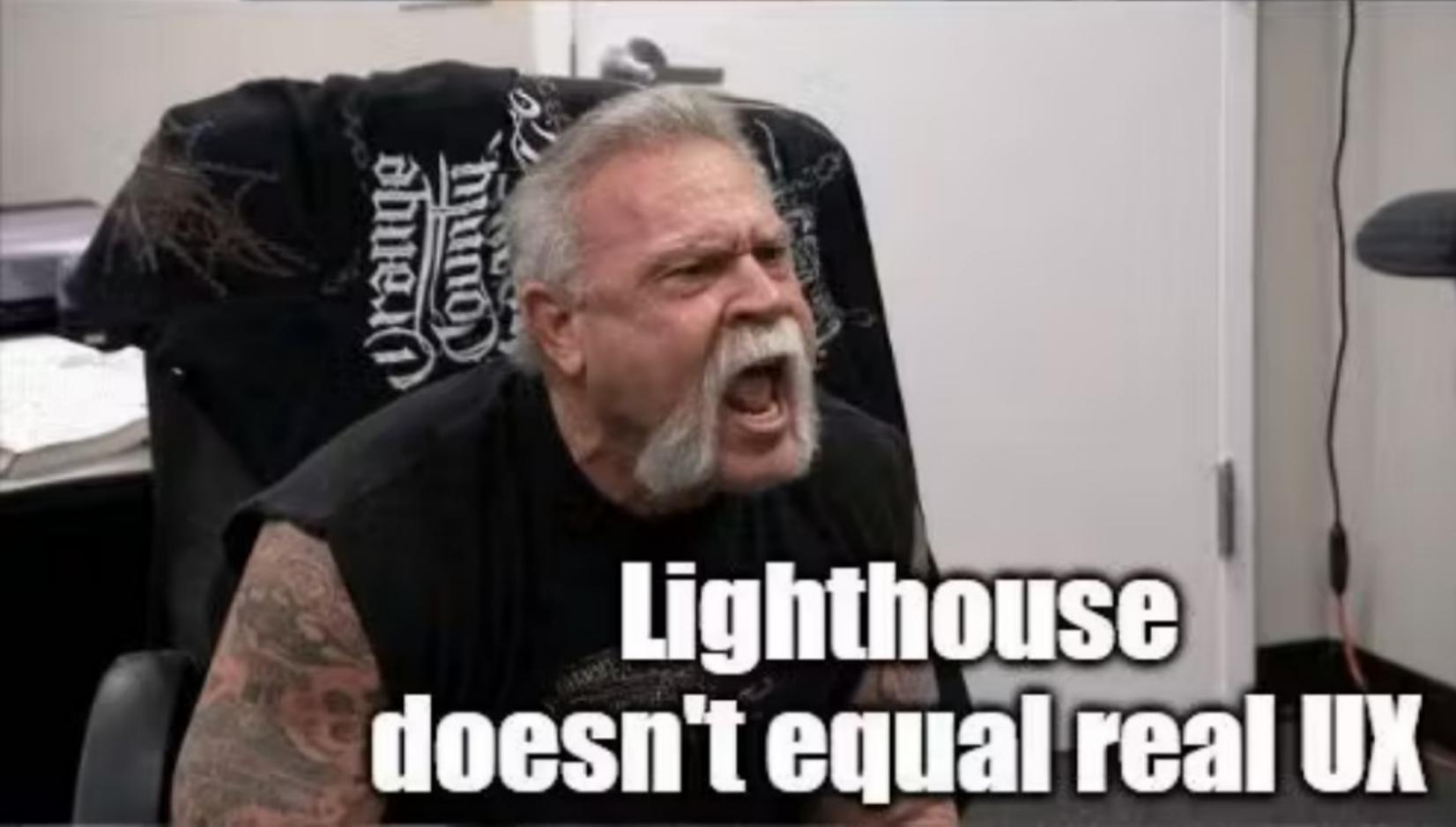
You know, I'm something of a pagespeed specialist myself



**why do we fail
Core Web Vitals**



**Lighthouse showed
green when we launched**

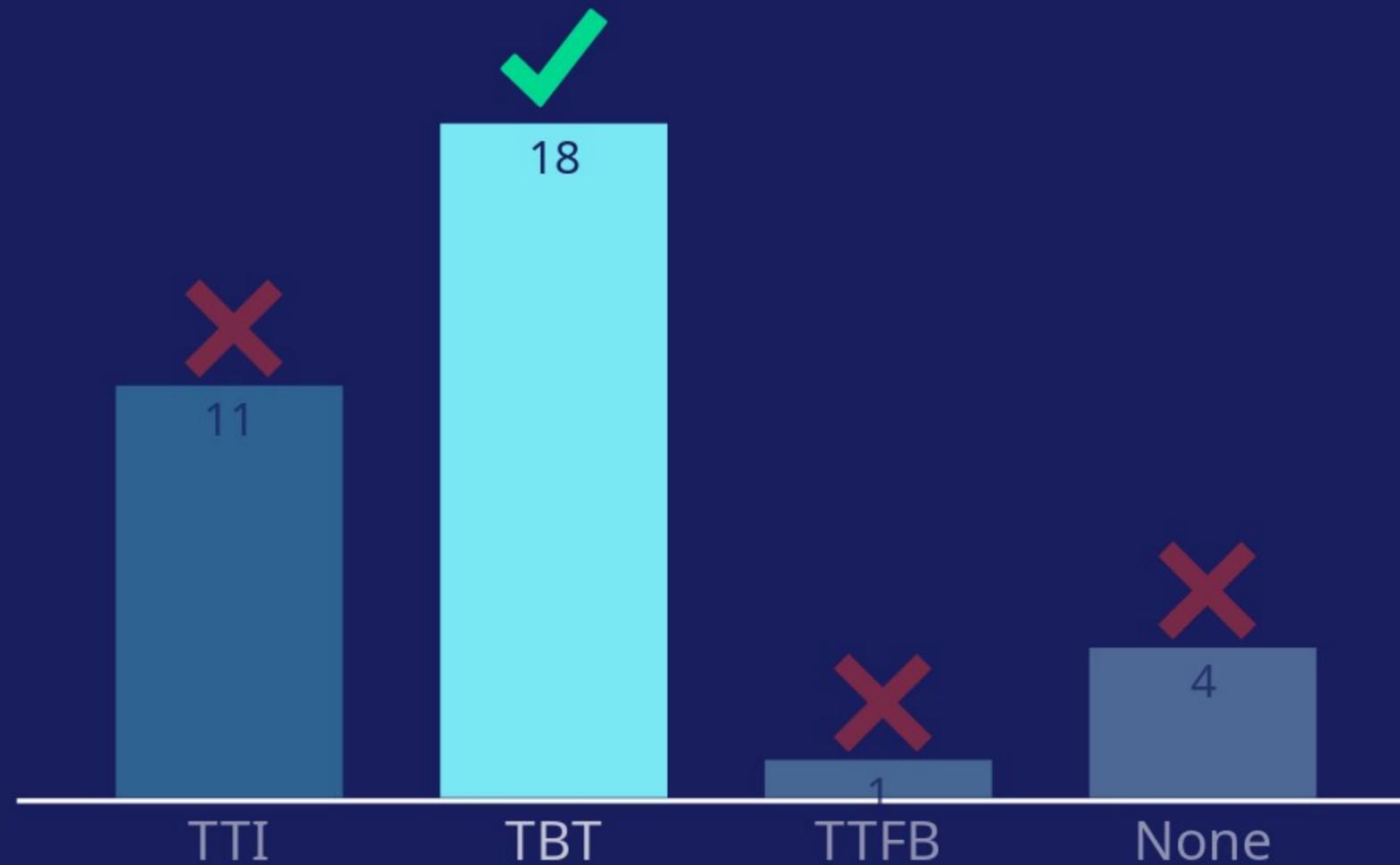


**Lighthouse
doesn't equal real UX**



**nobody
told me that**

Which Lighthouse metric is closest to INP?

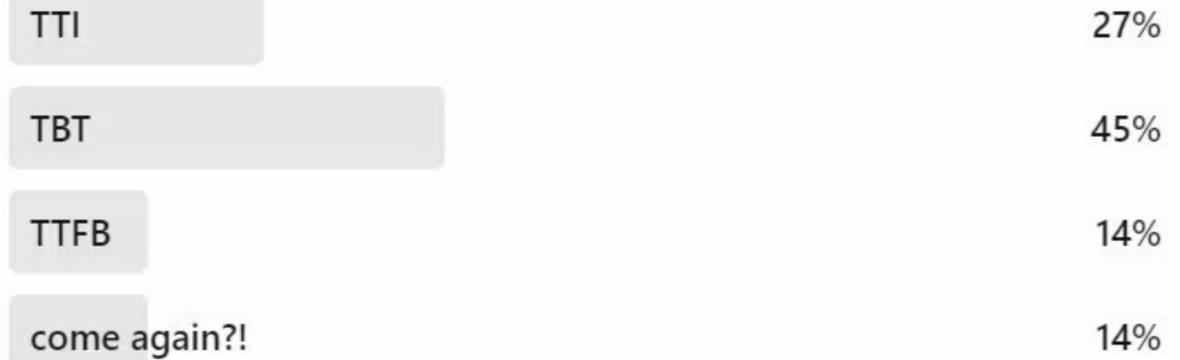


TBT vs INP

- TBT (Lighthouse)
- INP (Core Web Vitals)
- real users cannot be simulated

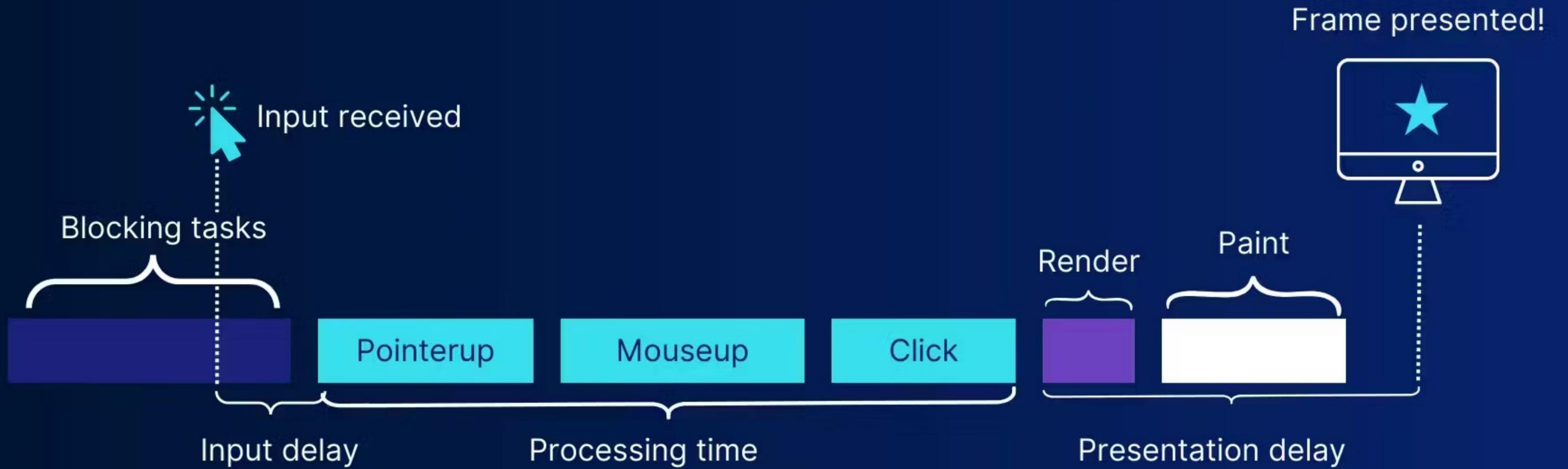
Which Lighthouse metric is closest to INP?

You can see how people vote. [Learn more](#)

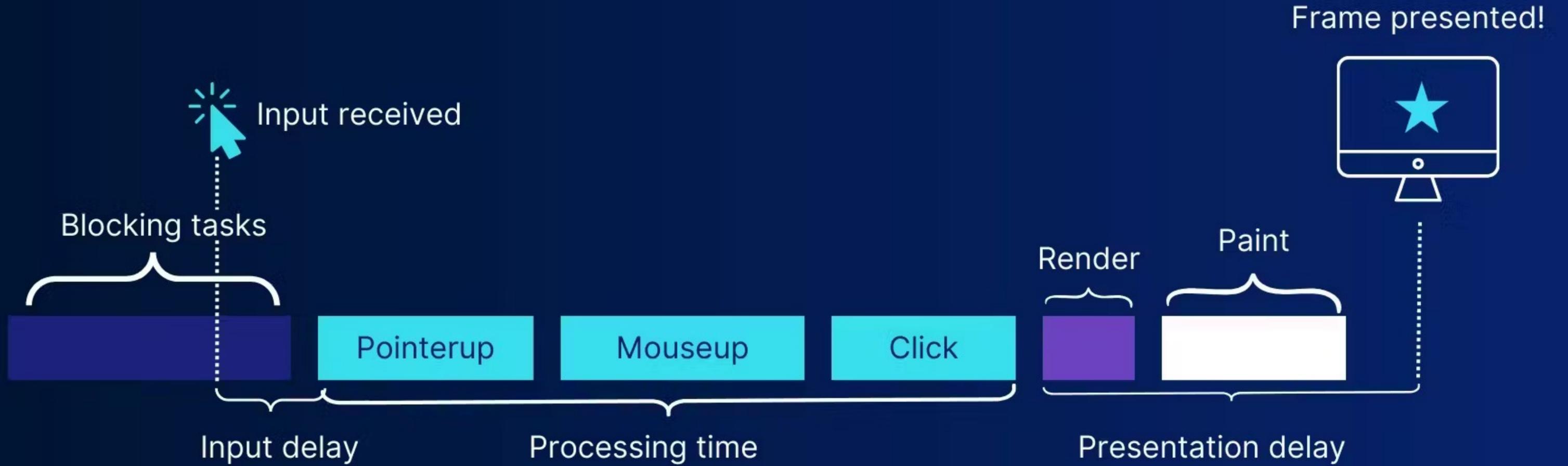


108 votes • 3d left • [Hide results](#)

The life of an interaction:



The life of an interaction:



INP phases breakdown

● 22% input delay

56 ms

● 36% processing time

89 ms

● 42% presentation delay

104 ms

Chrome 121
→ Whiskers

Chrome 123
→ LoAF

Chrome 129
→ new Performance panel
→ Scheduler.yield

Local and field metrics

Largest Contentful Paint (LCP)
Local: **723 ms** 1. Field 75th Percentile: **1.50 s** 2.
Your local LCP value of **723 ms** is good, and is similar to your users' experience.
LCP Element: `img.pagebuilder-mobile-only`

Cumulative Layout Shift (CLS)
Local: **0.00** Field 75th Percentile: **0.07**
Your local CLS value of **0.00** is good, and is similar to your users' experience.

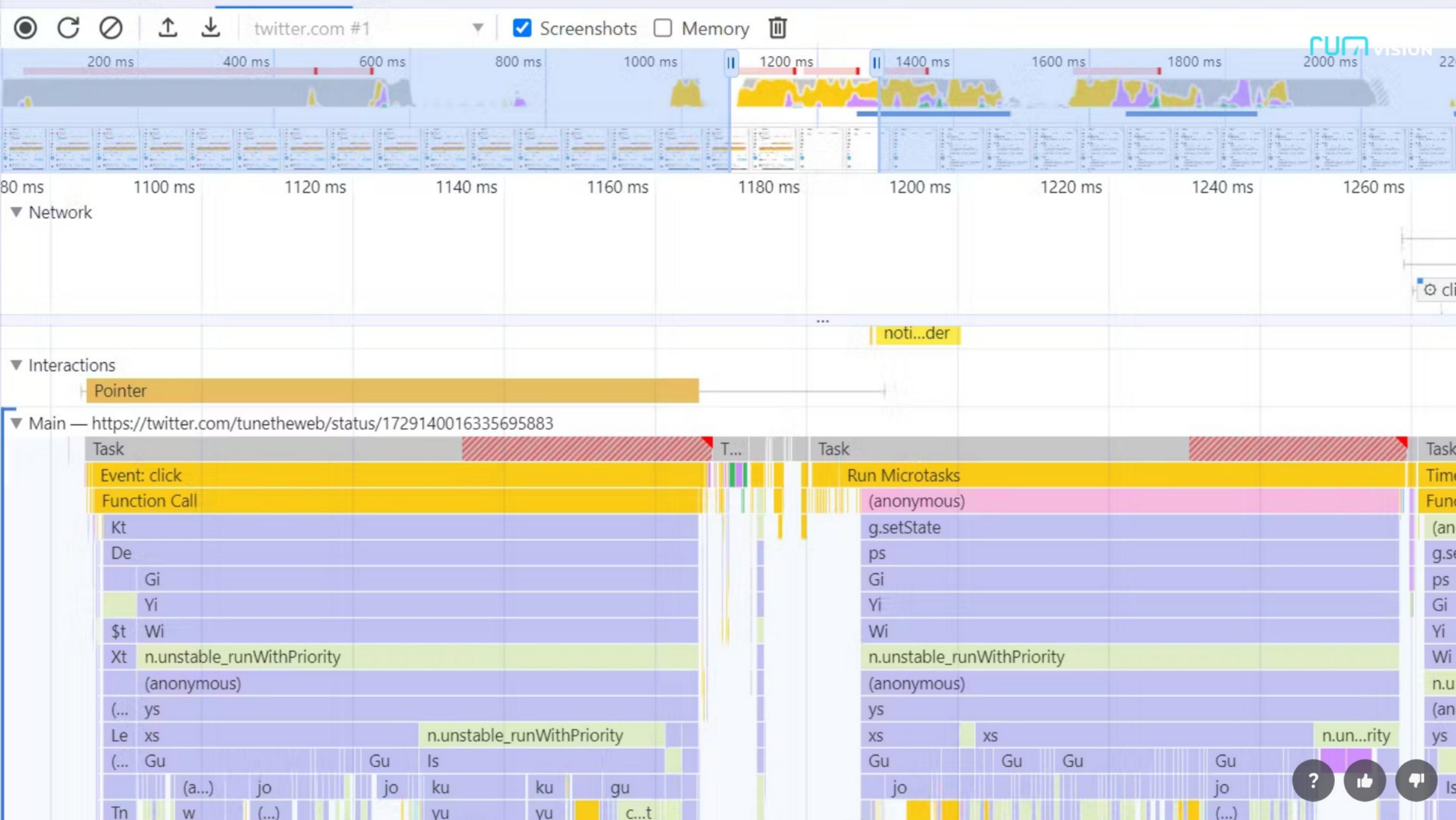
Interaction to Next Paint (INP)
Local: **288 ms** Field 75th Percentile: **261 ms**
Your local INP value of **288 ms** needs improvement, and is similar to your users' experience.

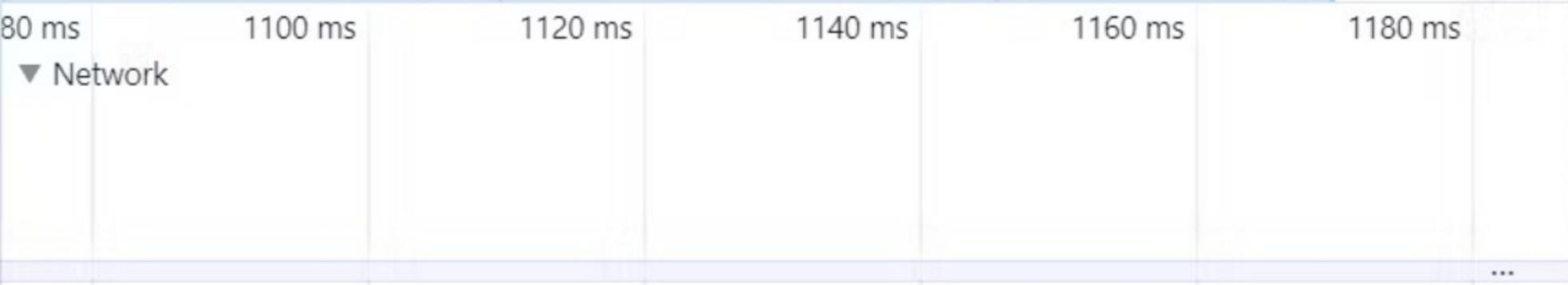
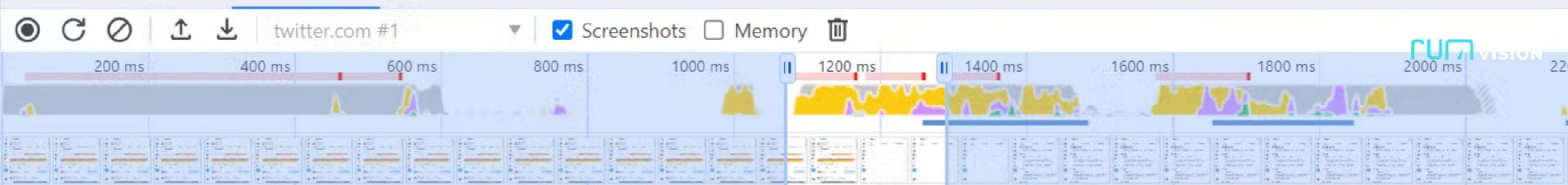
Next steps

Field data
Collection period: 5 aug 2024 - 1 sep 2024
URL: `https://www.██████████`
Device: Mobile 3. [Configure](#)

Recording settings
A majority of users are on mobile. Try simulating a mobile device that matches real users. [Learn more about simulating different devices.](#)
Try using **Fast 4G** network throttling to approximate real-user network latencies measured on this page by the Chrome UX Report.
CPU: No throttling 4.
Network: No throttling 4.
 Disable network cache

Record 5. [Ctrl + E](#)



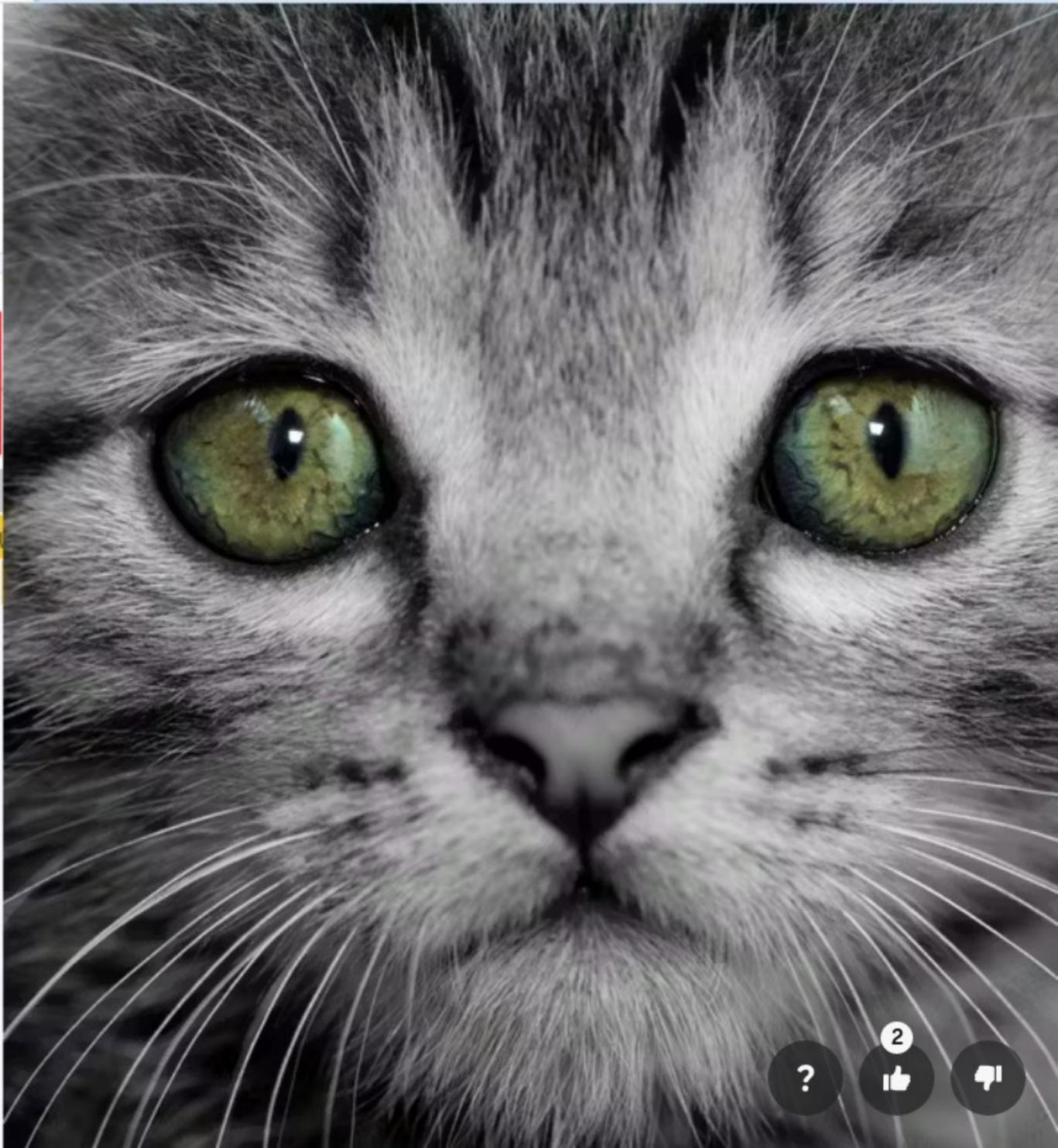


Interactions

Pointer

Main — <https://twitter.com/>

Task	Duration
Event: click	106.64 ms
Function Call	Input delay 1ms
	Processing time 81ms
	Presentation delay 24.635ms
Kt	
De	
Gi	
Yi	
\$t Wi	
Xt n.unstable_runWithPriority	
(anonymous)	
(... ys	
Le xs	n.unstable_runWithPriority
(... Gu	Gu ls
(a...)	jo ku ku gu
Tn w	(...) yu yu c...t



How to track INP?

- Lighthouse + (new) DevTools Performance panel
- but what applies to you might not apply to me
- So: RUM + LoAF API (and track in all browsers)

INP can be measured both in [the field](#) and in [the lab](#) through a variety of tools.



Key point: The best way to measure your website's INP **is by gathering metrics from actual users in the field**. If you're accustomed to relying on lab data for assessing performance, take some time to read [Why lab and field data can be different \(and what to do about it\)](#).

In the field

Ideally, your journey in optimizing INP will start with field data. At its best, field data from Real User Monitoring (RUM) will give you not only a page's INP value, but also contextual data that highlights what specific interaction was responsible for the INP value itself, whether the interaction occurred during or after page load, the type of interaction (click, keypress, or tap), and other valuable information.

You can't improve **what you don't measure**

#Google

Consider a Real User Monitoring (RUM) vendor

RUM is a technology that uses JavaScript on the web to get field data, which provides valuable insight into real user experiences. Using one can save you time, and provide rich and detailed visualizations of aggregated real user performance data—including INP!

provide services that
can do this work for you.

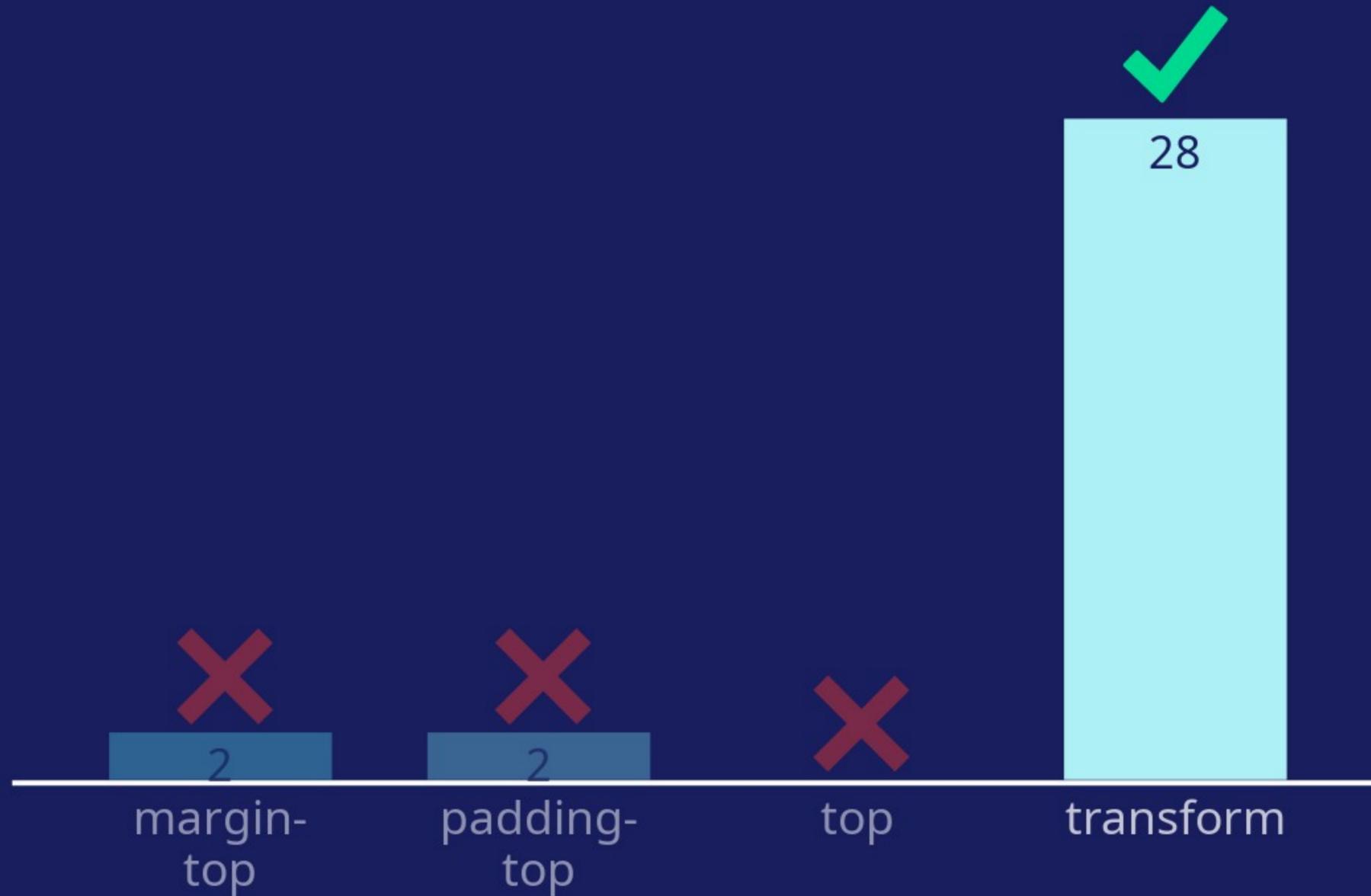
16:22 / 17:30

Chrome for Developers
750K subscribers



Explainer video INP by Google

Best CSS property to animate elements?



Debugging OneTrust

```

2397 yo.prototype.animate = function(s, a) {
2398     var l, c = this;
2399     for (var e in this.el = document.querySelector(this.selector),
2400         s)
2401         l = e,
2402         function() {
2403             var e = parseInt(s[1])
2404                 , t = s[1].split(parseInt(s[1]))[1] ? s[1].split(parseInt(s[1]))[1] : "px"
2405                 , o = "\n                @keyframes slide-" + ("top" === 1 ? "up" : "down") + "-custom {\n
2406                     + ("top" === 1 ? c.el.getBoundingClientRect().top : window.innerHeight) + "px !important;\n
2407                     + ("top" === 1 ? c.el.getBoundingClientRect().top : window.innerHeight) + "px !important;\n
2408                     + ("top" === 1 ? c.el.getBoundingClientRect().top : window.innerHeight) + "px !important;\n
2409                 , n = document.head.querySelector("#onetrust-style");
2410                 console.log('onetrust-style', o.replaceAll('                ', ''))
2411                 if (n ? n.innerHTML += o : ((i = document.createElement("style")).id = "onetrust-legacy-style",
2412                     i.type = "text/css",
2413                     i.innerHTML = o,
2414                     document.head.appendChild(i)),

```

```

onetrust-style
@keyframes slide-down-custom {
  0% {
    bottom: 953px !important;
  }
  100% {
    bottom: 0px;
  }
}

```

VM3706 otBannerSdk.js

OneTrust being bad for performance



APRIL 14, 1994

Tobacco company CEOs declare - under oath - that nicotine is not addictive



Debugging this is why we **love** LoAF

Long Animation Frames

Longtask came  short, so we needed
to reframe them

– Noam Rosenthal (chrome web platform engineer) & Karlijn Löwik



```
const observer = new PerformanceObserver((list) => {  
  console.log(list.getEntries());  
});  
  
observer.observe({ type: 'long-animation-frame', buffered: true });
```

Observe LoAFs (see buffered flag)

```
// A LoAF entry:  
{  
  "blockingDuration": 0,  
  "duration": 60,  
  "entryType": "long-animation-frame",  
  "firstUIEventTimestamp": 11801.0999999999627,  
  "name": "long-animation-frame",  
  "renderStart": 11858.8000000000745,  
  "scripts": [{..},{..}],  
  "startTime": 11802.4000000000373,  
  "styleAndLayoutStart": 11858.8000000000745  
}
```

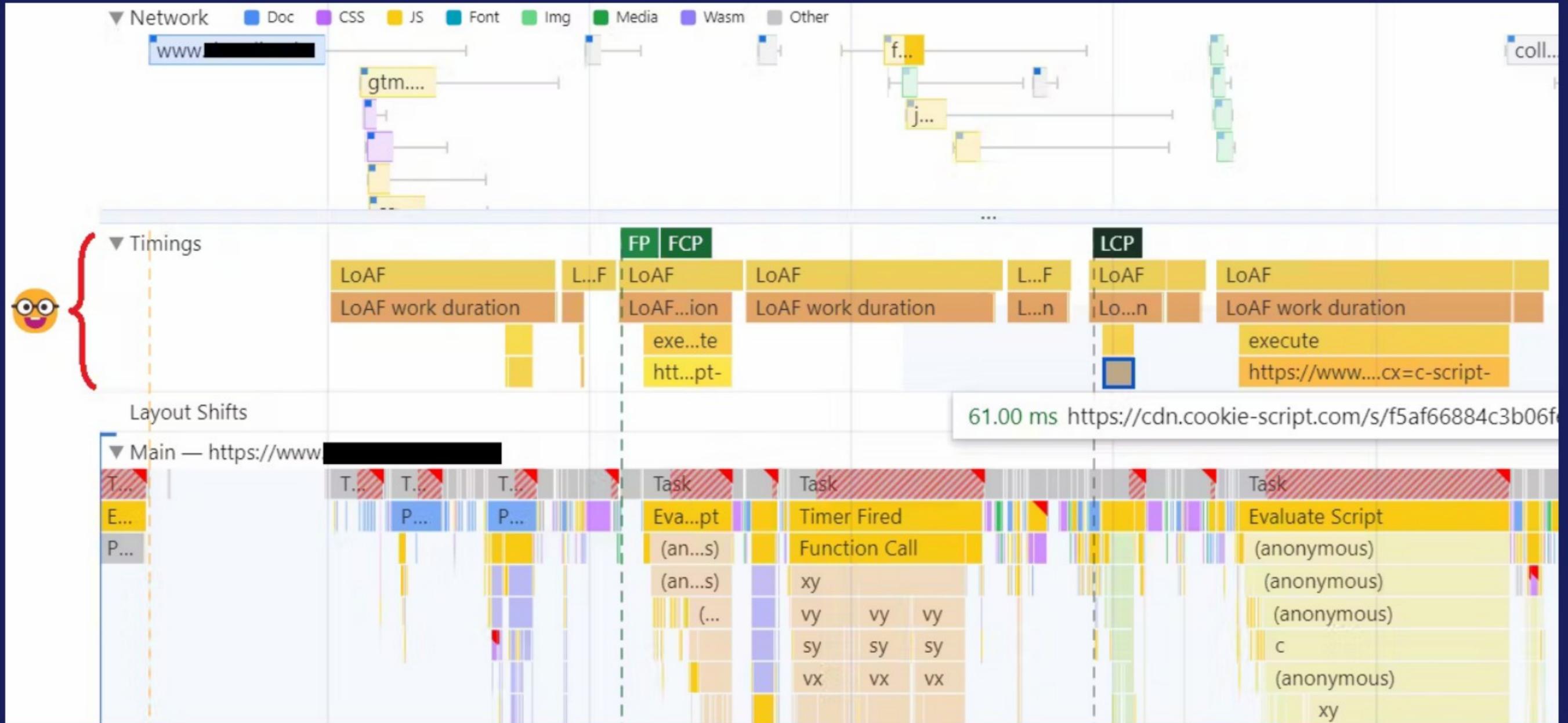
A LoAF entry

```
{
  ..
  "scripts": [
    {
      ..
      "duration": 45,
      "invoker": "DOMWindow.onclick",
      "invokerType": "event-listener",
      "sourceURL": "https://web.dev/js/index-ffde4443.js",
      "sourceFunctionName": "myClickHandler",
      "sourceCharPosition": 17796,
      ..
    }
  ],
  ..
}
```

Array of script-entries that contributed to a long animation frame

 low impact	246 hostname(s)	 moderate impact	47 hostname(s)	 critical impact	10 hostname(s) ^{s)}
static.klaviyo.com	86 ms	www.googletagmanager.com	322 ms	script.hotjar.com	1212 ms
code.jquery.com	168 ms	js.intercomcdn.com	453 ms	www.dwin1.com	686 ms
browser.sentry-cdn.com	96 ms	squeezely.tech	219 ms	cdn.consentmanager.net	909 ms
connect.facebook.net	142 ms	pagead2.googleadsyndication.com	239 ms	fw.adsafeprotected.com	546 ms
analytics.tiktok.com	170 ms	securepubads.g.doubleclick.net	318 ms	c.gumgum.com	577 ms
dev.visualwebsiteoptimizer.com	28 ms	dynamic.sooqr.com	226 ms	static.trackedweb.net	718 ms
embed.tawk.to	93 ms	static.widget.trengo.eu	406 ms	www.clickcease.com	740 ms
www.clarity.ms	96 ms	static.zdassets.com	350 ms	trc.taboola.com	653 ms
consent.cookiebot.com	180 ms	ajax.cloudflare.com	200 ms	d38xvr37kwwhcm.cloudfront.net	753 ms
cdn-4.convertexperiments.com	94 ms	cdn.cookieelaw.org	253 ms	www.googleadservices.com	526 ms
dynamic.criteo.com	93 ms	cdn-cookieeyes.com	298 ms		
widgets.trustedshops.com	135 ms	cdn.cookie-script.com	248 ms		

Exact third party impact by RUMvision



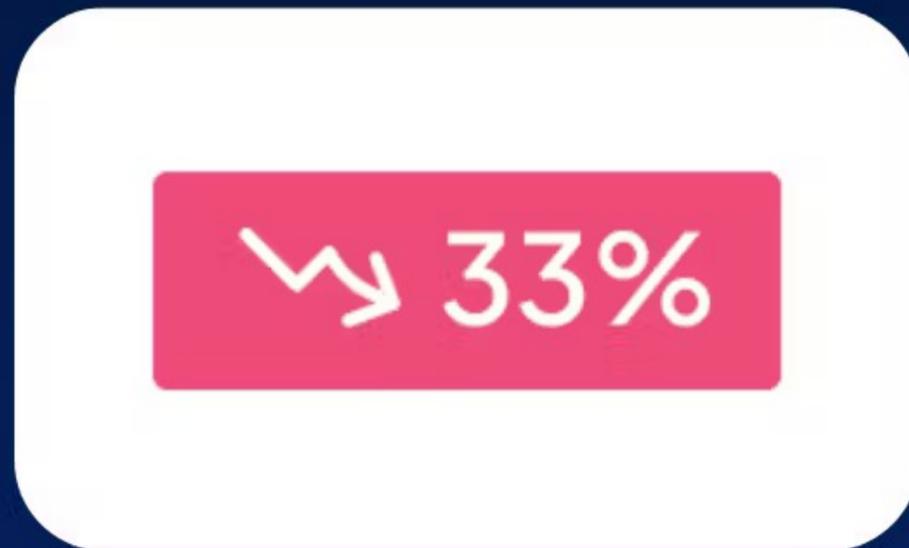
Add LoAFs to your *Timings* section

How to improve INP?

- bfcache
- Use less JS
- Scheduler.yield
- Prevent layout trashing
- Use content-visibility
- Regularly review unused third parties

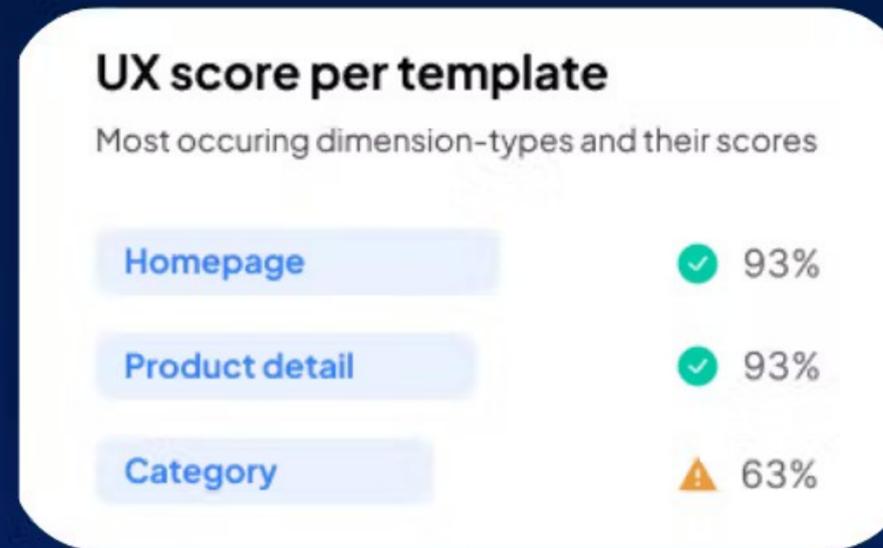
Real time **control** of SUX is within your reach

3 reasons why you need RUM in eCommerce or when you do a lot of changes in your code:



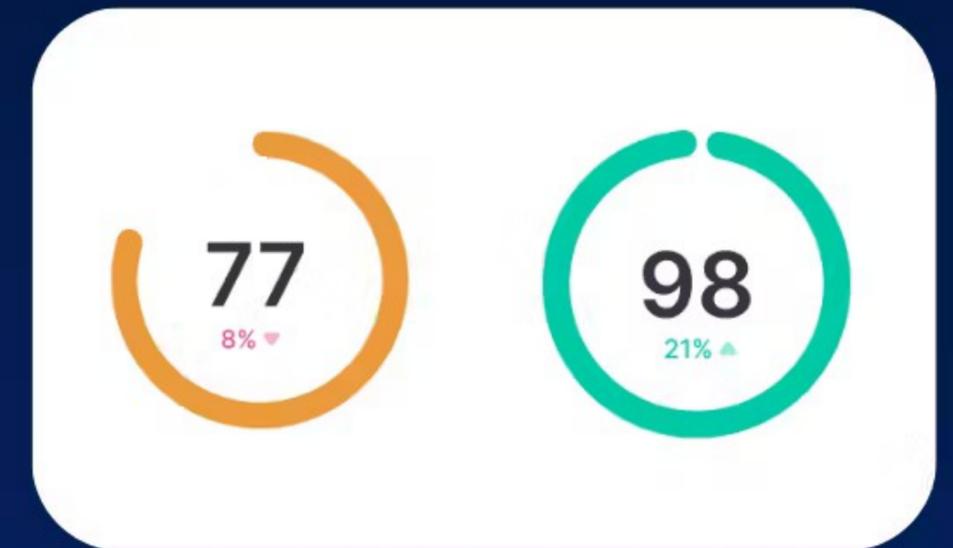
1. Validation

Sites are always changing. Make sure you check trends after a release.



2. Optimization

Visualizing issues easily saves developer time for fixing them. Everyone wins.



3. Assurance

Never let new **to you** 3rd parties or codechanges regress SUX and CWV, and **thus your bottom line**.

Leaderboard



Questions? Ask them now! If time allows..

0 questions
0 upvotes



Remember, **SUX** sells!

Just a 0.1-second boost in site speed can increase conversions by 8.4% and grow basket size by 9.2%.

Do not let lack of the right insights **cost you money. Focus on real people!**

Thanks for your time, any questions, we're around all day, and sponsoring the afterparty!



*Book your **free demo** now!*

