

FAST & FURIOUS

*Debugging INP for better
web-page responsiveness*

Nobody likes slugs...



...not on your hands...

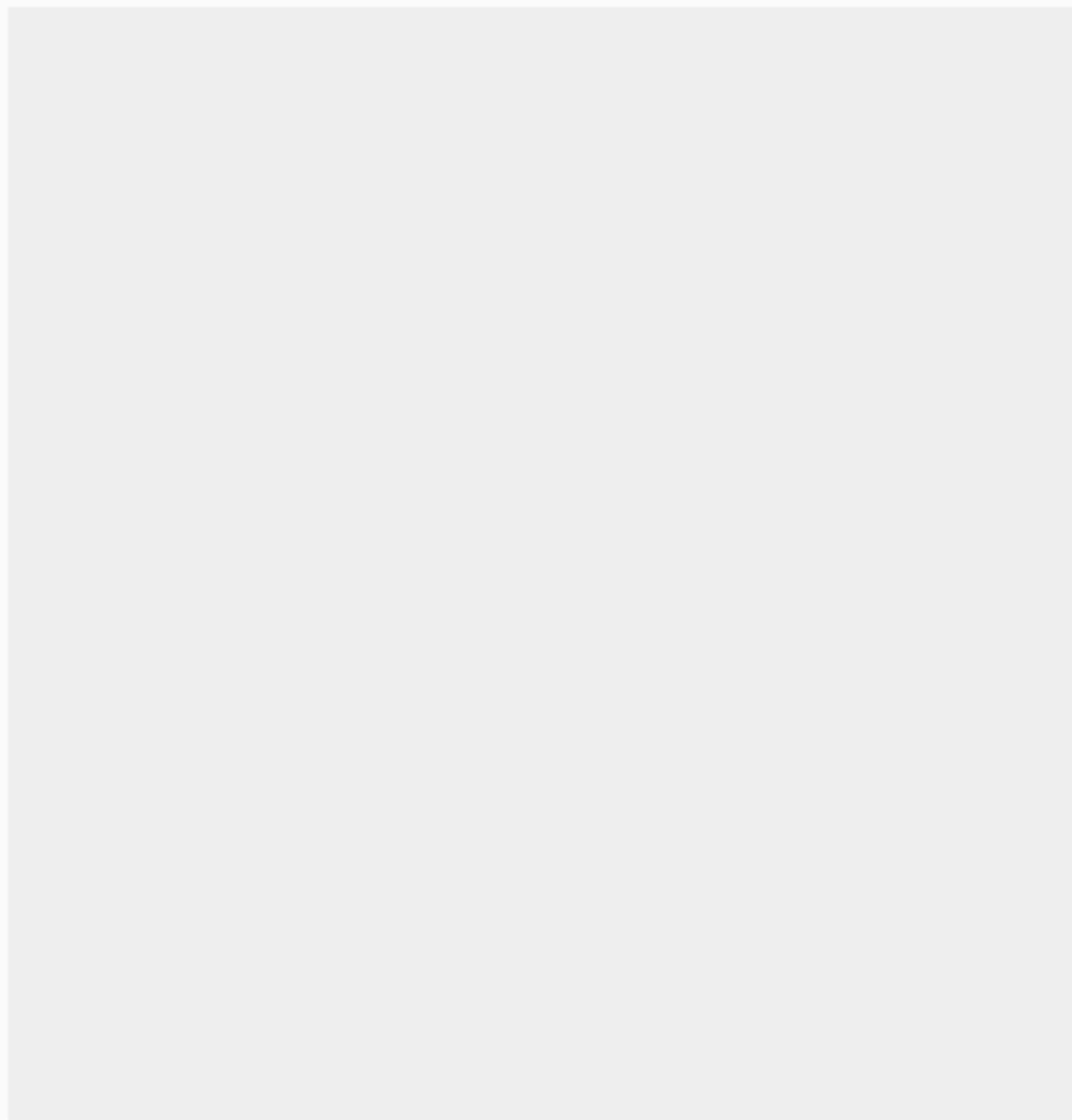




...not on your phone.

...not on your website.





Blocking operations (*100k)

0

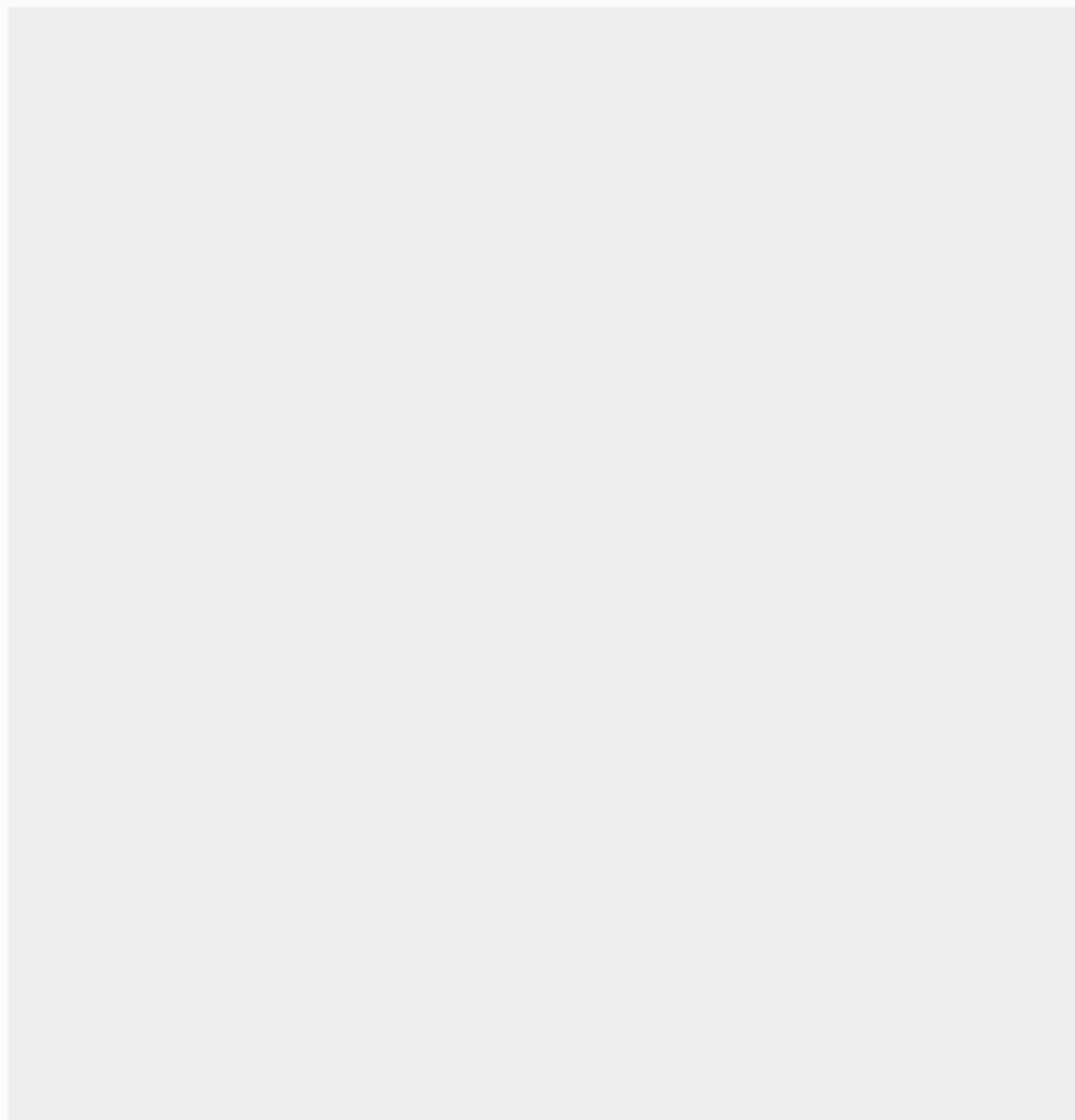
Toggle



Response time

< 0.1 seconds

"I'm in control here."

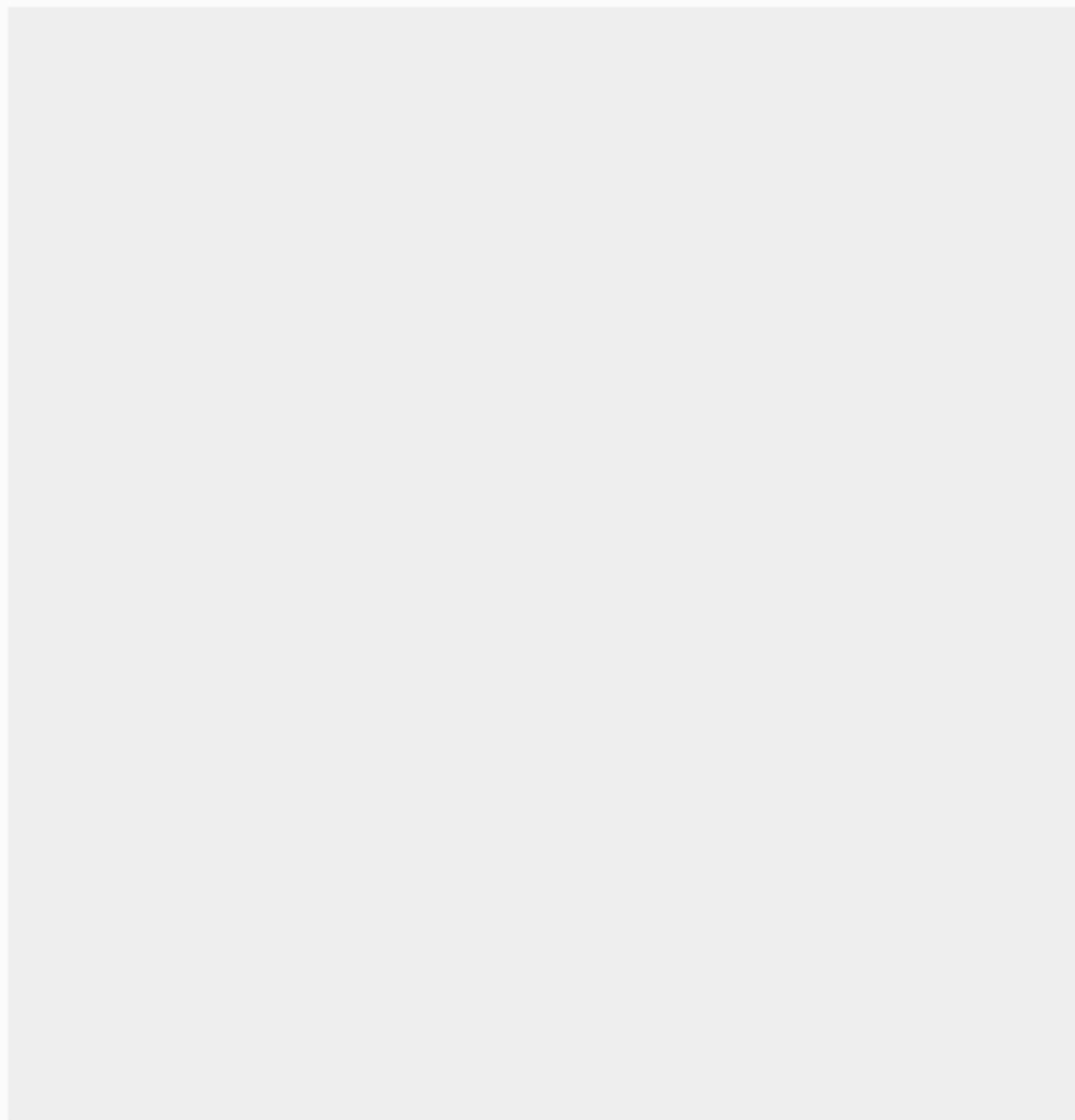


Blocking operations (*100k)

Toggle



```
toggle.addEventListener('click', () => {  
  let loopLength = input.value * 100000;  
  for (let i = 0; i < loopLength; i++) {  
    toggled.classList = toggled.classList;  
  }  
  toggled.classList.toggle('hidden');  
});
```

Blocking operations (*100k)

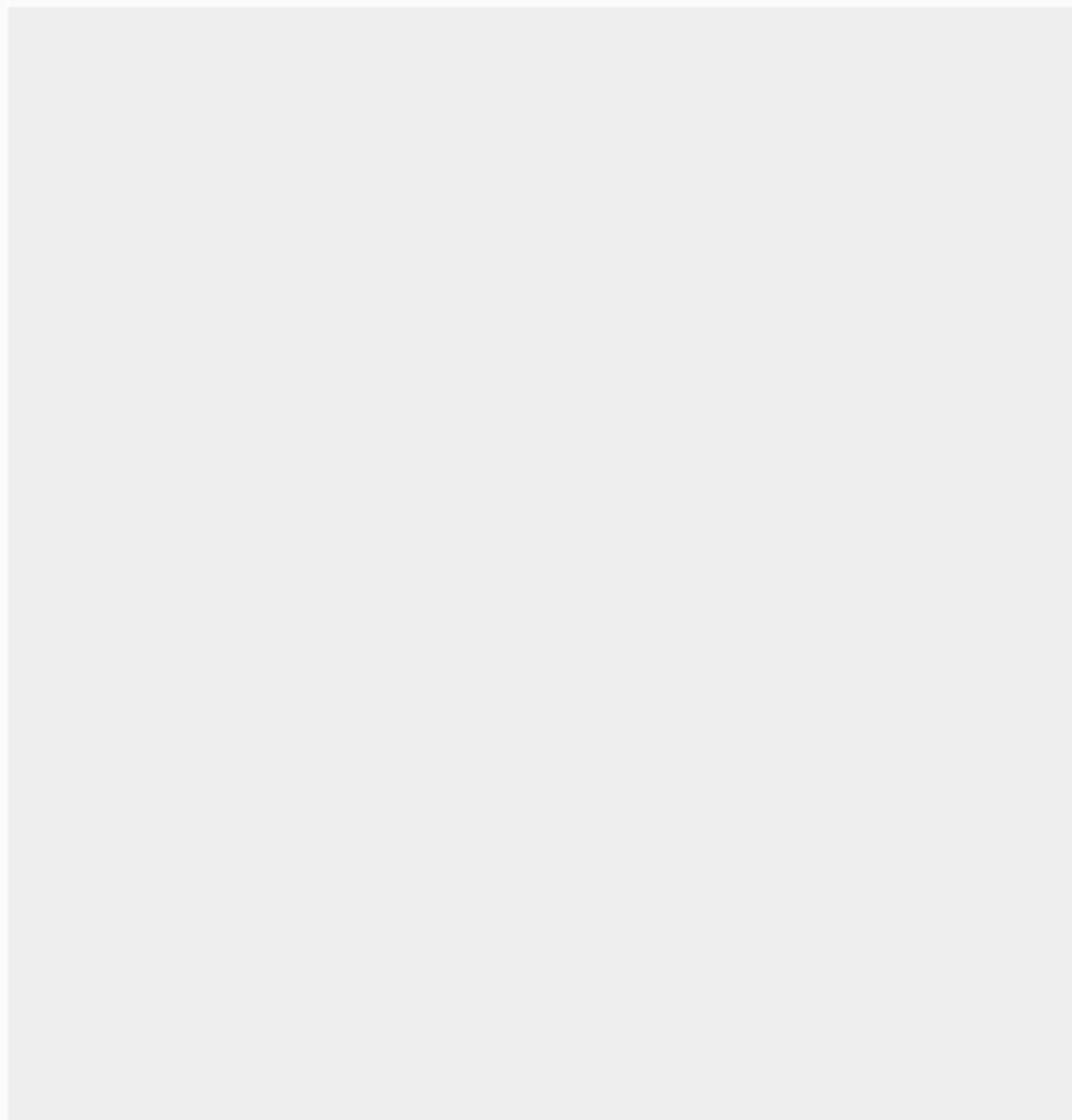
10

Toggle



Response time
0.2 to 1 seconds

*"Hmm, the computer's
computing..."*



Blocking operations (*100k)

20

Toggle



Response time

> 1 second

"&\$!#%"



Blocking operations (*100k)

5

Toggle




Gotcha!

I'm using on a Mac
with an M2 chip

Responsiveness

screenspan.net/prototypes/responsiveness



Blocking operations (*100k)
5


Toggle


Elements Console Sources Network Performance Memory Application Security

(no recordings) Screenshots Memory

Disable JavaScript samples CPU: No throttling Hardware concurrency 8

Enable advanced paint instrumentation (slow) Network: No throttling

Click the record button  or hit ⌘ E to start a new recording.

Click the reload button  or hit ⌘ ⇧ E to record the page load.

After recording, select an area of interest in the overview by dragging. Then, zoom and pan the timeline with the mousewheel or **WASD** keys. [Learn more](#)

**“A dragon in one hand
is a slug in another.”**

– Completely made-up Chinese proverb

***How to measure
response times?***



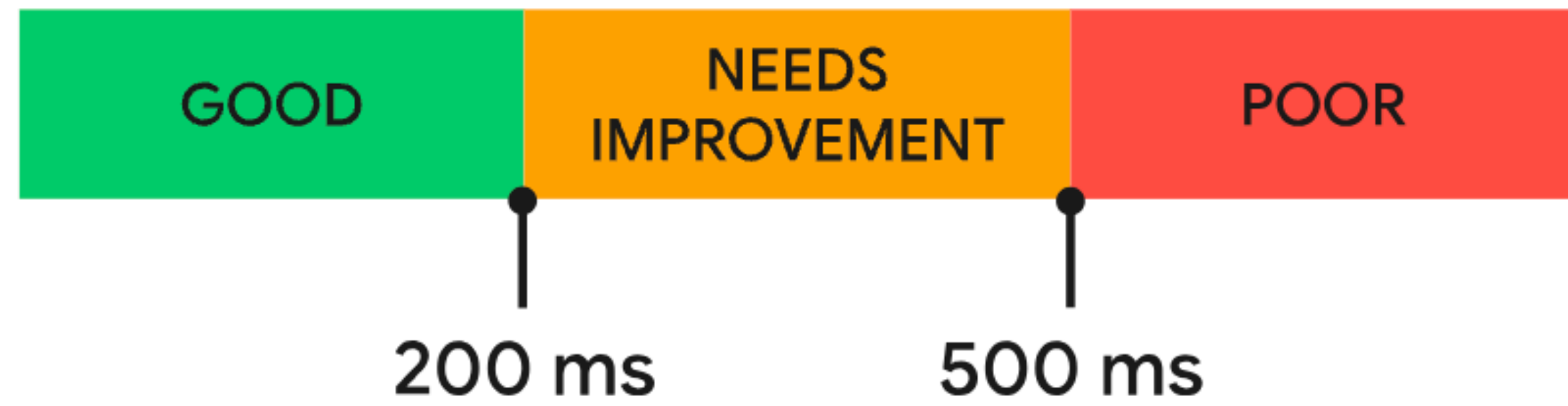
INP

Interaction to Next Paint

INP is a metric that assesses a page's overall responsiveness to user interactions by observing the latency of all click, tap, and keyboard interactions that occur throughout the lifespan of a user's visit to a page. The final INP value is the longest interaction observed, ignoring outliers.

INP

Interaction to Next Paint

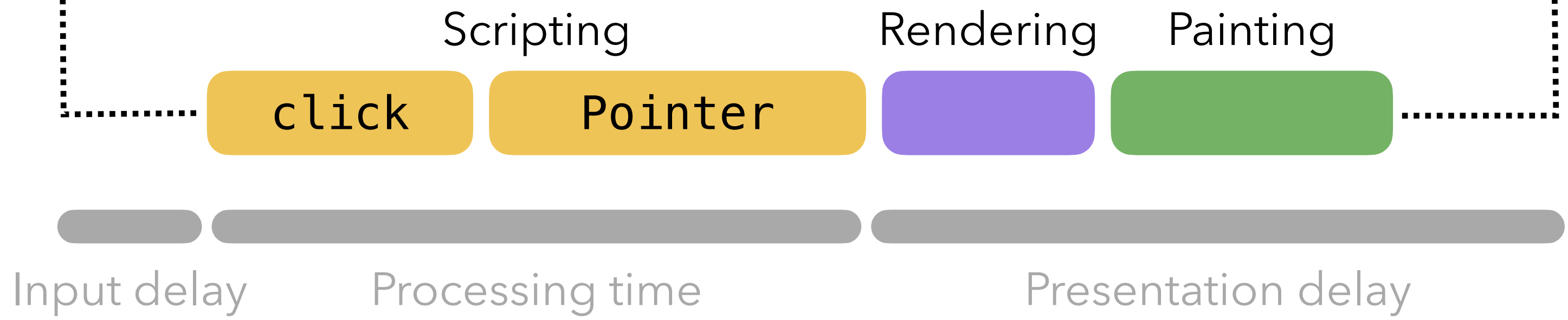
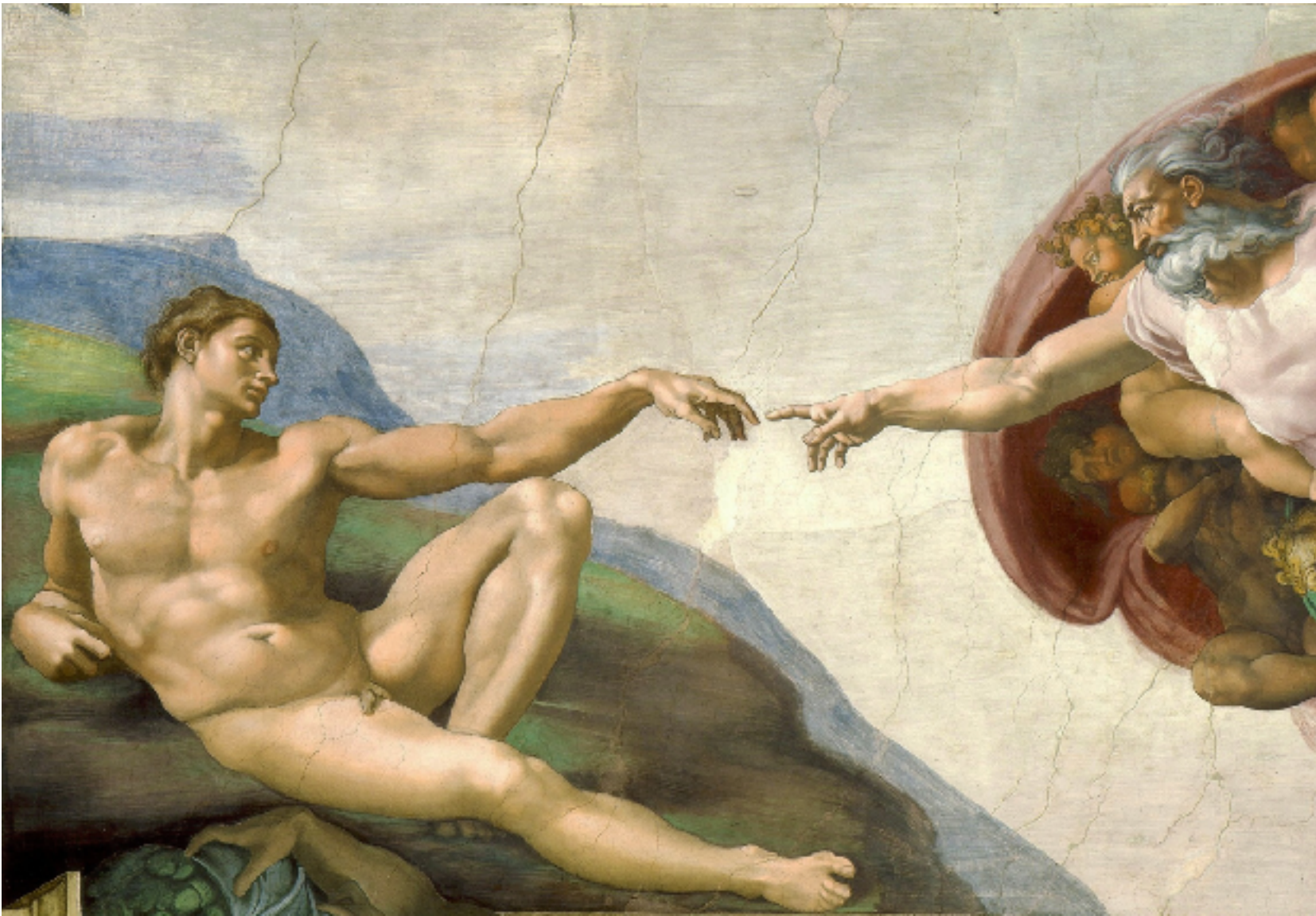














INP measures responsiveness throughout the page lifecycle

“For pages with few interactions, the interaction with the worst latency (the 100th percentile) is chosen. For pages with many interactions, the 99th or 98th percentile is chosen.”

– web.dev/inp



Measure INP in JavaScript

```
new PerformanceObserver((entryList) => {
  for (const entry of entryList.getEntries()) {
    if (entry.interactionId) {
      const duration = entry.processingEnd - entry.startTime;
      console.log('Interaction:', entry.name, duration, entry);
    }
  }
}).observe({ type: 'event', buffered: true, durationThreshold: 16 });
```


Measure INP in JavaScript

```
new PerformanceObserver({
  type: 'event', buffered: true, durationThreshold: 16
}).observe({
  type: 'event', buffered: true, durationThreshold: 16
});

for (const entry of entryList.getEntries()) {
  if (entry.interactionId) {
    const duration = entry.processingEnd - entry.startTime;
    console.log('Interaction:', entry.name, duration, entry);
  }
}
```

interactionId



96



X



96



X

Event Timing API



76



89

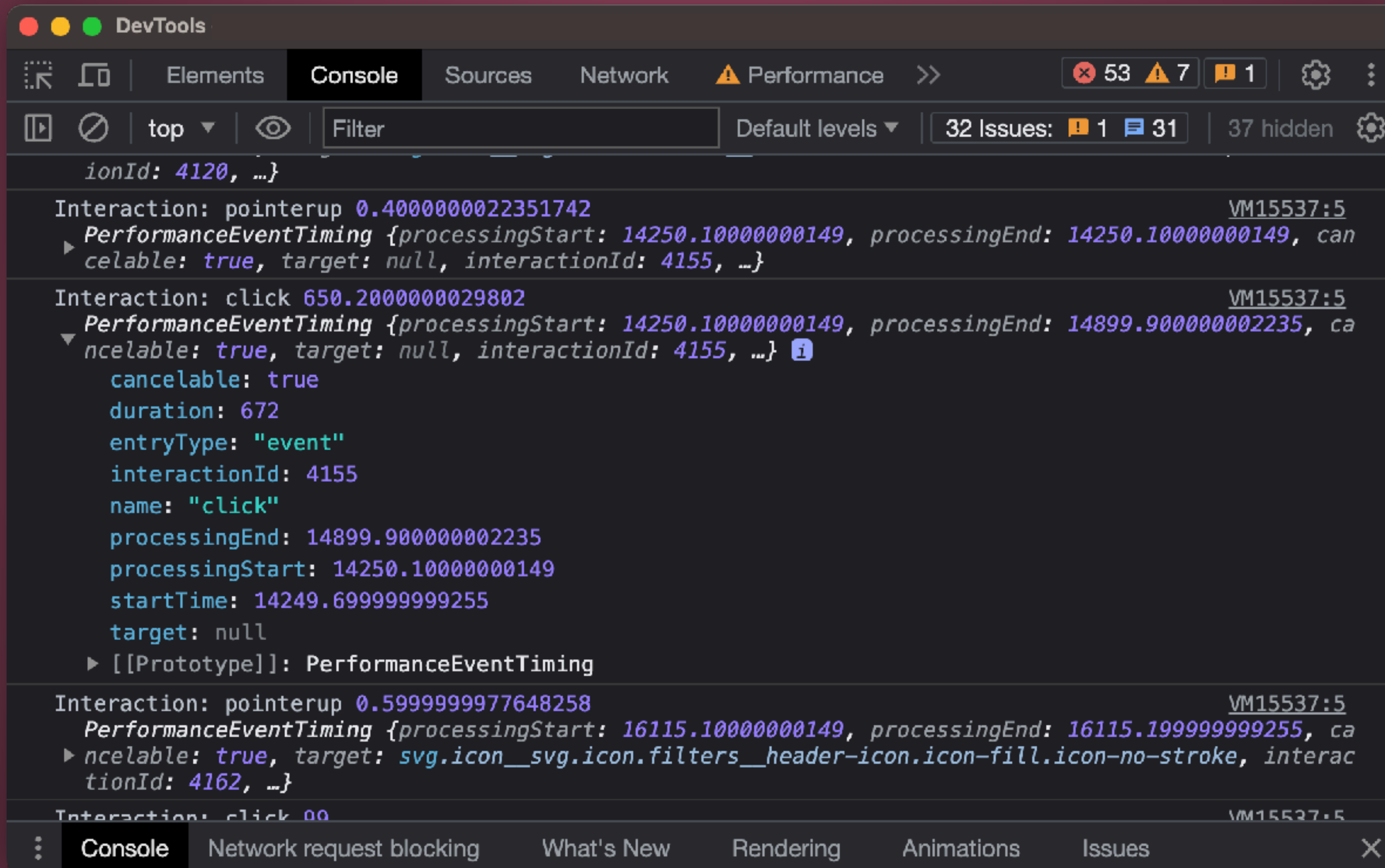


79



X

Measure INP in JavaScript



The screenshot shows the Chrome DevTools Console with the Performance tab selected. The console displays several PerformanceEventTiming objects, which are used to measure INP (Input-Driven Performance). The objects are grouped by interaction type: pointerup and click. The console shows the following objects:

```
ionId: 4120, ...}
Interaction: pointerup 0.4000000022351742 VM15537:5
  PerformanceEventTiming {processingStart: 14250.10000000149, processingEnd: 14250.10000000149, cancelable: true, target: null, interactionId: 4155, ...}
Interaction: click 650.2000000029802 VM15537:5
  PerformanceEventTiming {processingStart: 14250.10000000149, processingEnd: 14899.900000002235, cancelable: true, target: null, interactionId: 4155, ...}
    cancelable: true
    duration: 672
    entryType: "event"
    interactionId: 4155
    name: "click"
    processingEnd: 14899.900000002235
    processingStart: 14250.10000000149
    startTime: 14249.699999999255
    target: null
    [[Prototype]]: PerformanceEventTiming
Interaction: pointerup 0.5999999977648258 VM15537:5
  PerformanceEventTiming {processingStart: 16115.10000000149, processingEnd: 16115.199999999255, cancelable: true, target: svg.icon_svg.icon.filters_header-icon.icon-fill.icon-no-stroke, interactionId: 4162, ...}
Interaction: click 0.0000000000000000 VM15537:5
```

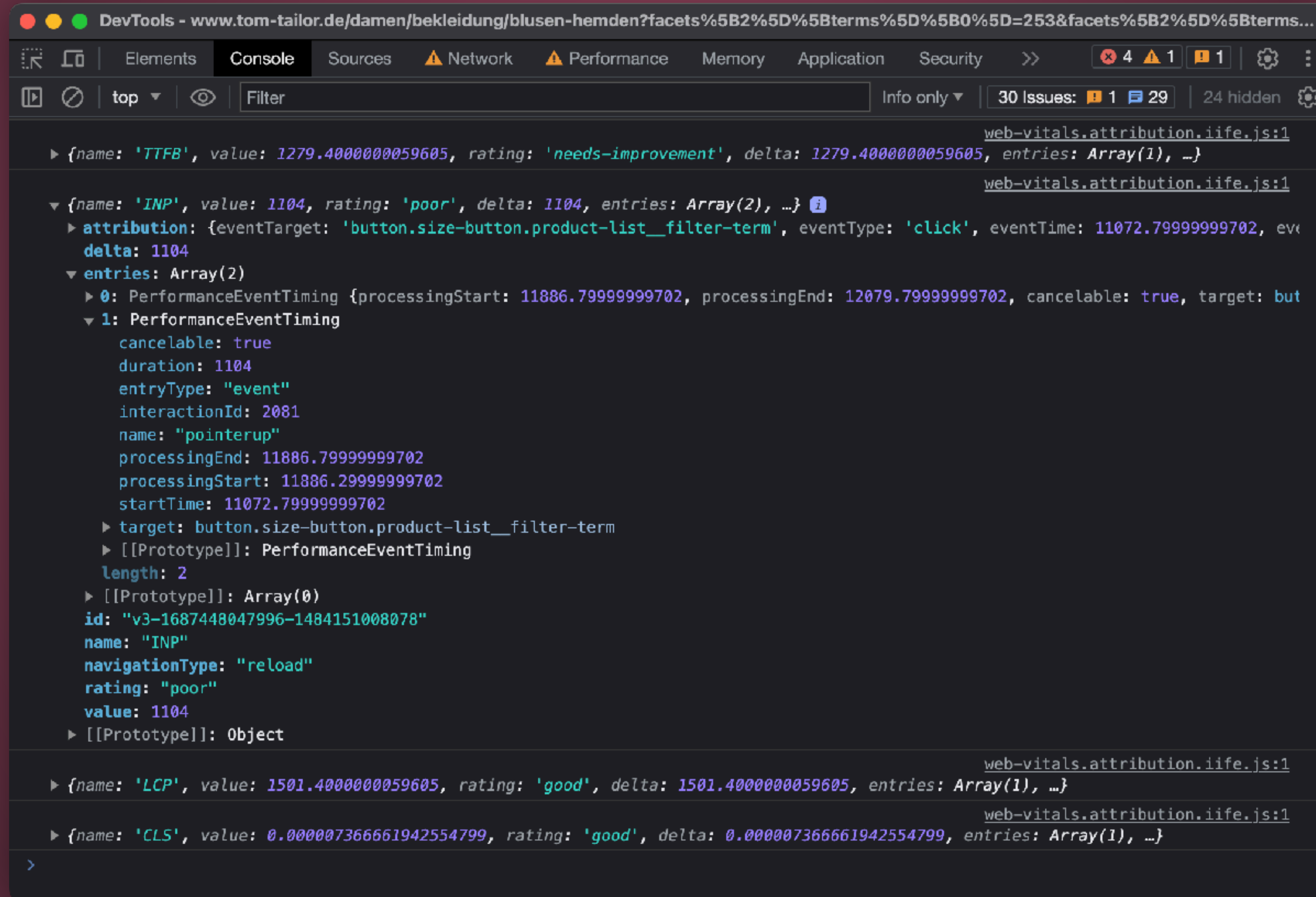
The console also shows a summary of 32 issues, with 1 warning and 31 messages. The bottom of the console shows the 'Console' tab selected, with other tabs like 'Network request blocking', 'What's New', 'Rendering', 'Animations', and 'Issues' visible.

Measure INP using the web-vitals JS library

```
import { onINP } from 'web-vitals';

onINP(({ value }) => {
  // Log the value to the console, or send it to your analytics provider.
  console.log(value);
});
```

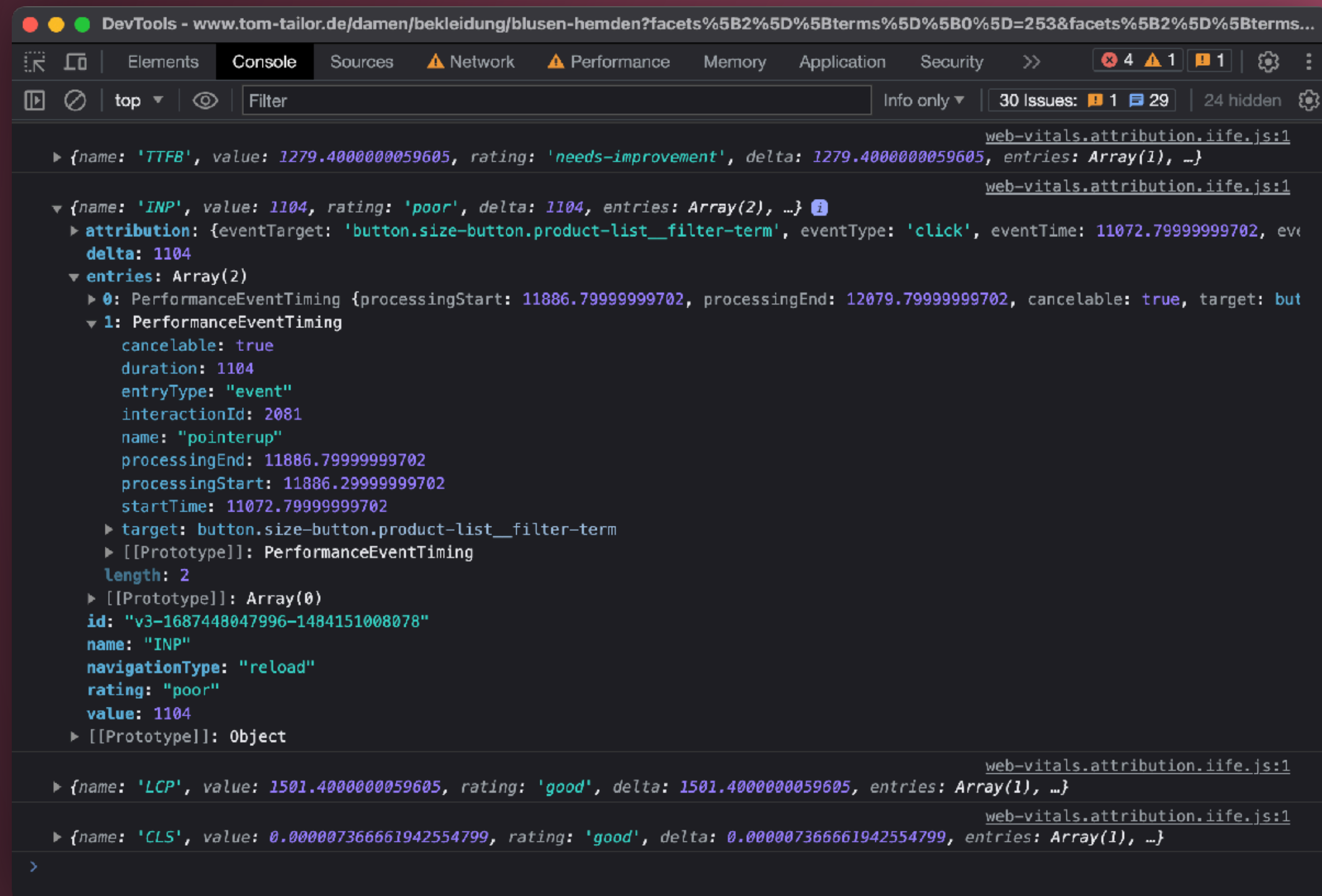
Measure INP using the web-vitals JS library



The screenshot shows the Chrome DevTools Console with the 'Console' tab selected. The URL in the address bar is `www.tom-tailor.de/damen/bekleidung/blusen-hemden?facets%5B2%5D%5Bterms%5D%5B0%5D=253&facets%5B2%5D%5Bterms...`. The console displays the following performance metrics:

```
web-vitals.attribution.iife.js:1
▶ {name: 'TTFB', value: 1279.4000000059605, rating: 'needs-improvement', delta: 1279.4000000059605, entries: Array(1), ...}
web-vitals.attribution.iife.js:1
▼ {name: 'INP', value: 1104, rating: 'poor', delta: 1104, entries: Array(2), ...} ⓘ
  ▶ attribution: {eventTarget: 'button.size-button.product-list__filter-term', eventType: 'click', eventTime: 11072.79999999702, ev
  delta: 1104
  ▼ entries: Array(2)
    ▶ 0: PerformanceEventTiming {processingStart: 11886.79999999702, processingEnd: 12079.79999999702, cancelable: true, target: but
    ▼ 1: PerformanceEventTiming
      cancelable: true
      duration: 1104
      entryType: "event"
      interactionId: 2081
      name: "pointerup"
      processingEnd: 11886.79999999702
      processingStart: 11886.29999999702
      startTime: 11072.79999999702
      ▶ target: button.size-button.product-list__filter-term
      ▶ [[Prototype]]: PerformanceEventTiming
      length: 2
      ▶ [[Prototype]]: Array(0)
      id: "v3-1687448047996-1484151008078"
      name: "INP"
      navigationType: "reload"
      rating: "poor"
      value: 1104
      ▶ [[Prototype]]: Object
  ▶ {name: 'LCP', value: 1501.4000000059605, rating: 'good', delta: 1501.4000000059605, entries: Array(1), ...}
web-vitals.attribution.iife.js:1
▶ {name: 'CLS', value: 0.000007366661942554799, rating: 'good', delta: 0.000007366661942554799, entries: Array(1), ...}
>
```


Measure INP using the web-vitals JS library



The screenshot shows the Chrome DevTools Console with the 'Console' tab selected. The URL in the address bar is 'www.tom-tailor.de/damen/bekleidung/blusen-hemden?facets%5B2%5D%5Bterms%5D%5B0%5D=253&facets%5B2%5D%5Bterms...'. The console displays several performance metrics from the 'web-vitals.attribution.iife.js:1' script:

```
{name: 'TTFB', value: 1279.4000000059605, rating: 'needs-improvement', delta: 1279.4000000059605, entries: Array(1), ...}
{name: 'INP', value: 1104, rating: 'poor', delta: 1104, entries: Array(2), ...}
  attribution: {eventTarget: 'button.size-button.product-list__filter-term', eventType: 'click', eventTime: 11072.79999999702, ev...
  delta: 1104
  entries: Array(2)
    0: PerformanceEventTiming {processingStart: 11886.79999999702, processingEnd: 12079.79999999702, cancelable: true, target: but...
    1: PerformanceEventTiming
      cancelable: true
      duration: 1104
      entryType: "event"
      interactionId: 2081
      name: "pointerup"
      processingEnd: 11886.79999999702
      processingStart: 11886.29999999702
      startTime: 11072.79999999702
      target: button.size-button.product-list__filter-term
      [[Prototype]]: PerformanceEventTiming
      length: 2
    [[Prototype]]: Array(0)
  id: "v3-1687448047996-1484151008078"
  name: "INP"
  navigationType: "reload"
  rating: "poor"
  value: 1104
  [[Prototype]]: Object
{name: 'LCP', value: 1501.4000000059605, rating: 'good', delta: 1501.4000000059605, entries: Array(1), ...}
{name: 'CLS', value: 0.000007366661942554799, rating: 'good', delta: 0.000007366661942554799, entries: Array(1), ...}
```

Recommended tracking parameters

- The INP value
- Attribution (element selector)
- The loading state of the page
- Interaction **startTime**
- Event type (e.g. **click**)

A close-up photograph of a yellow slug with a textured, wrinkled body, resting on a dark, rough, and layered surface. The slug is positioned horizontally, facing right. Overlaid on the image is white text. The word 'deslug' is in a lowercase, italicized font. Below it, the phrase 'How to debug INP' is written in a larger, bold, uppercase font, with the word 'debug' crossed out with a horizontal line.

deslug
How to ~~debug~~ INP

Common slugs



Long Input Delay

Longa mora inputus



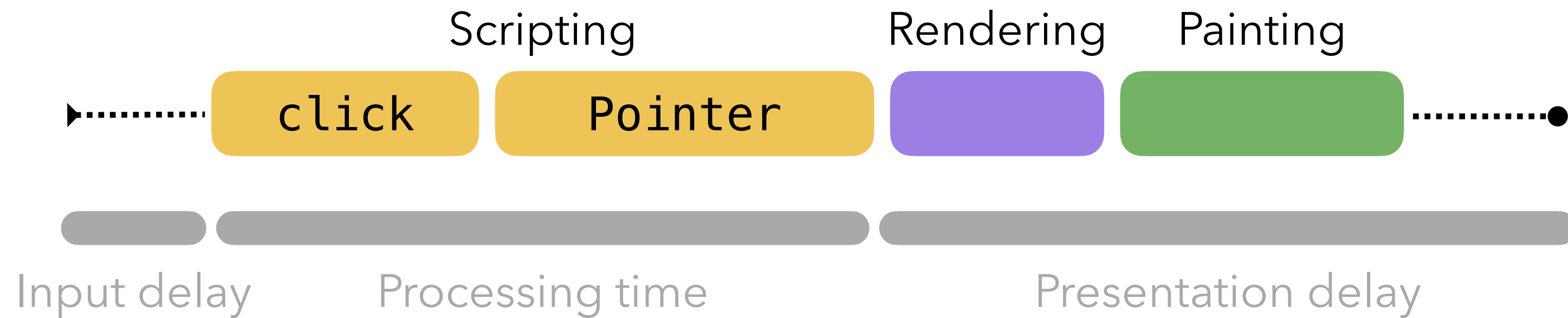
Event Callback

Reversio eventus



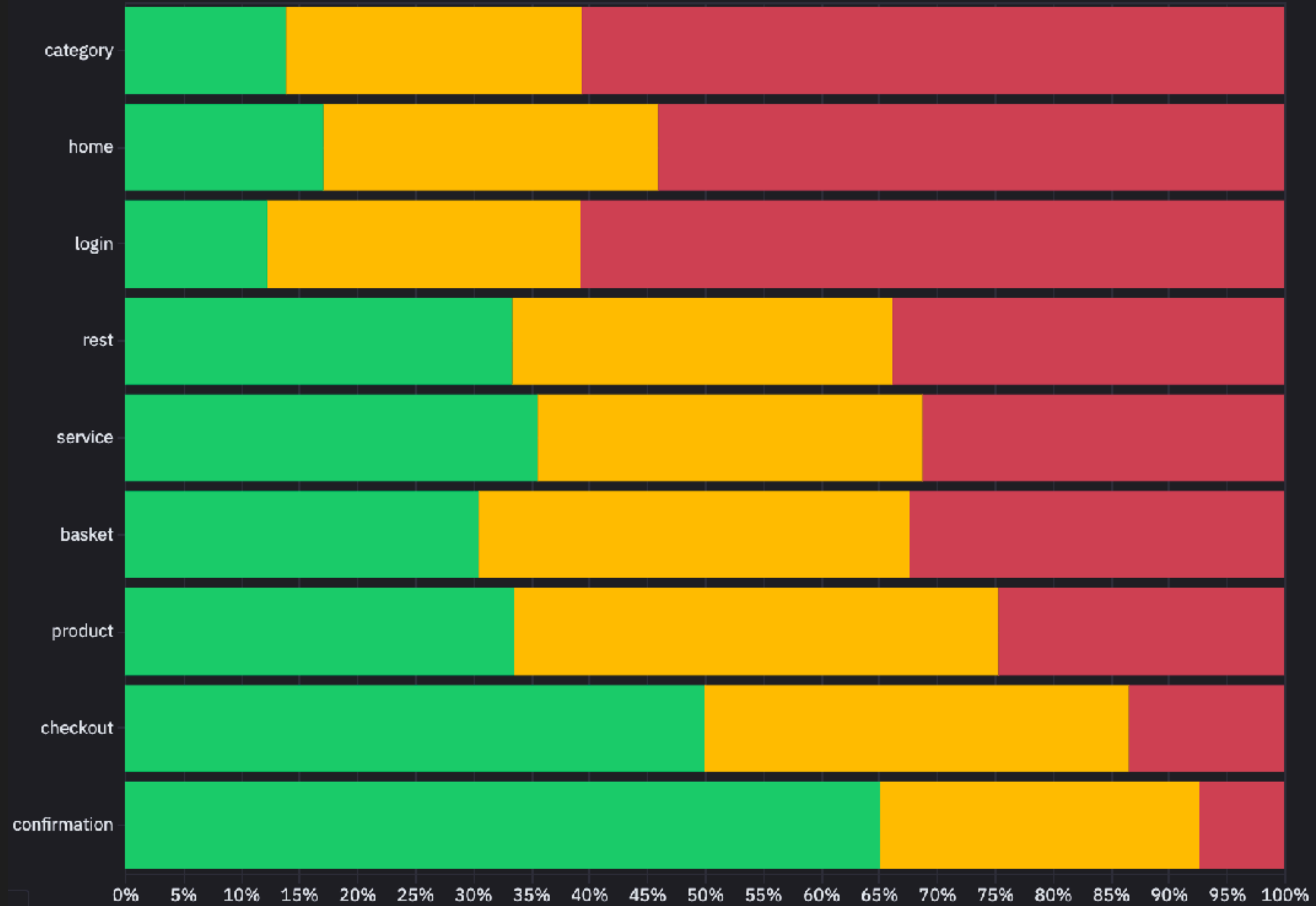
Presentation Delay

Mora praesentationis



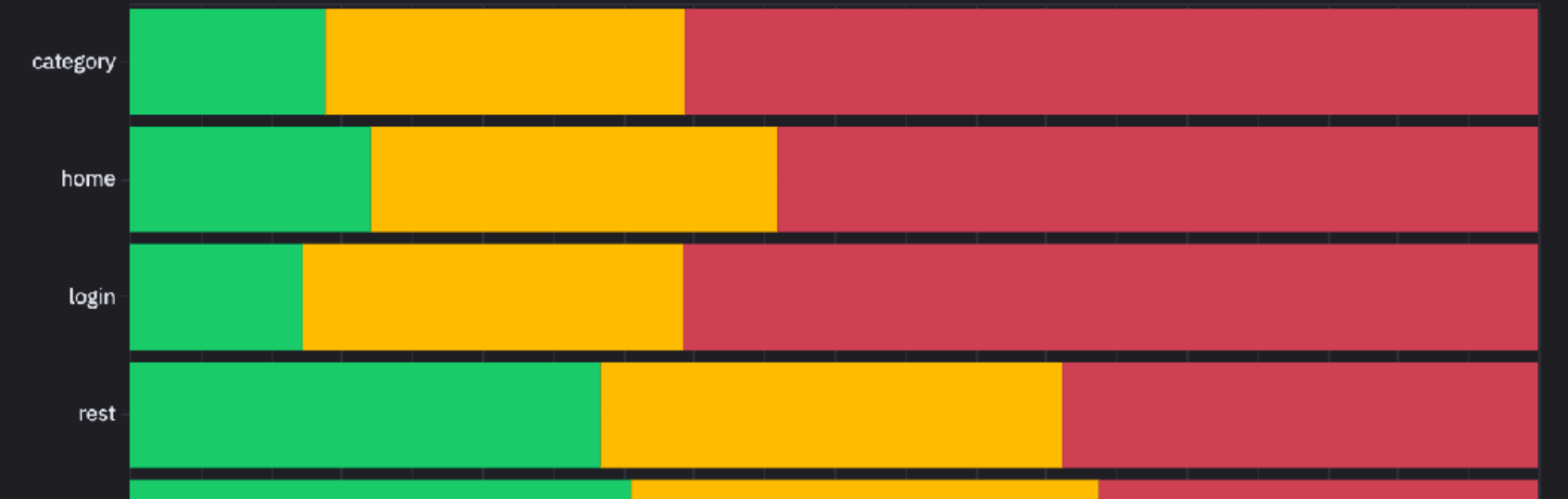
INP in RUM

INP by Page Type on Mobile



INP in RUM

INP by Page Type on Mobile

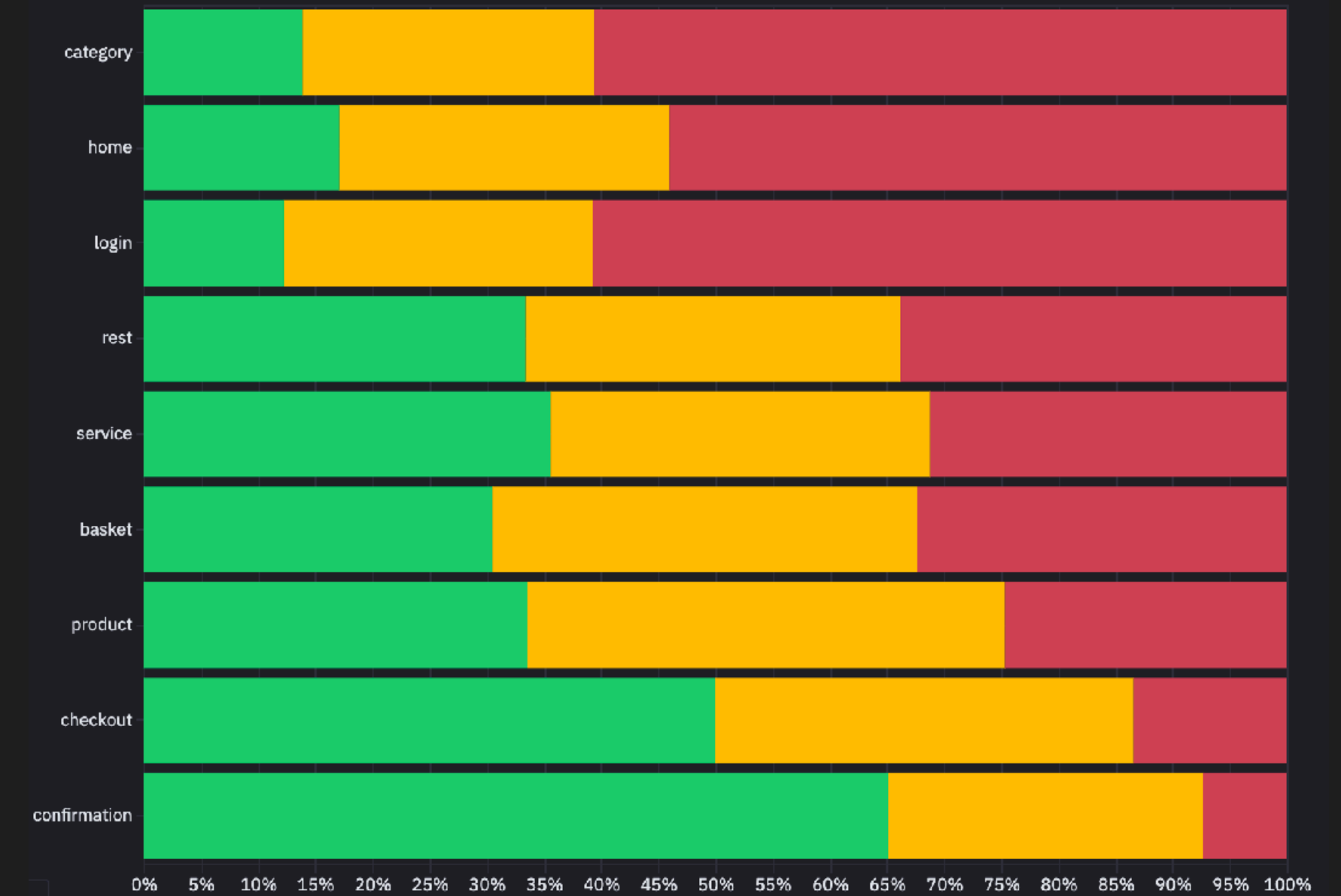


A pageType	A device	A selector	123 o...	123 % of occur...	123 lcp_p75
category	Mobile	DIV#search-result-items > DIV.grid-tile.col-6.col-md-4.odd > DIV.pro...	30984	5.58%	4031
category	Mobile	DIV#XnS7GxAAACEA_aOo > DIV.benefits-section.section-0 > DIV.be...	29236	5.27%	2011
category	Mobile	DIV#primary > DIV.row.flex-column.m-md-0 > DIV.search-headline-c...	19361	3.49%	1835
homepage	Mobile	DIV#YYDmxRUAACoApx_H-main-teaser-0 > DIV.main-teaser-content...	18642	3.36%	2431
product_page	Mobile	DIV#slick-slide20 > DIV > DIV.main-image-container.video-container ...	17098	3.08%	2896
product_page	Mobile	DIV#slick-slide00 > DIV > DIV.main-image-container.video-container ...	15144	2.73%	2957
product_page	Mobile	DIV#slick-slide20 > DIV > DIV.main-image-container > DIV.image-wr...	14719	2.65%	4415
product_page	Mobile	DIV#slick-slide20 > DIV > DIV.main-image-container > DIV.image-wr...	13975	2.52%	2830
product_page	Mobile	DIV#slick-slide20 > DIV > DIV.main-image-container.video-container ...	13847	2.49%	4747
product_page	Mobile	DIV#pdpMain > DIV.product-cols-wrapper > DIV.product-cols-contain...	13822	2.49%	1247
product_page	Mobile	DIV#slick-slide00 > DIV > DIV.main-image-container > DIV.image-wr...	10977	1.98%	2841
product_page	Mobile	DIV#slick-slide00 > DIV > DIV.main-image-container.video-container ...	10965	1.98%	4705

INP in RUM

- Focus on mobile
- Tri-bin charts by page type
- Prioritize high-traffic and \$-path pages
- Attribution helps to find the culprit

INP by Page Type on Mobile



pageType	device	selector	123 o...	123 % of occur...	123 lcp_p75
category	Mobile	DIV#search-result-items > DIV.grid-tile.col-6.col-md-4.odd > DIV.pro...	30984	5.58%	4031
category	Mobile	DIV#XnS7GxAAACEA_aOo > DIV.benefits-section.section-0 > DIV.be...	29236	5.27%	2011
category	Mobile	DIV#primary > DIV.row.flex-column.m-md-0 > DIV.search-headline-c...	19361	3.49%	1835
homepage	Mobile	DIV#YYDmxRUAACoApx_H-main-teaser-0 > DIV.main-teaser-content...	18642	3.36%	2431
product_page	Mobile	DIV#slick-slide20 > DIV > DIV.main-image-container.video-container ...	17098	3.08%	2896
product_page	Mobile	DIV#slick-slide00 > DIV > DIV.main-image-container.video-container ...	15144	2.73%	2957
product_page	Mobile	DIV#slick-slide20 > DIV > DIV.main-image-container > DIV.image-wr...	14719	2.65%	4415
product_page	Mobile	DIV#slick-slide20 > DIV > DIV.main-image-container > DIV.image-wr...	13975	2.52%	2830
product_page	Mobile	DIV#slick-slide20 > DIV > DIV.main-image-container.video-container ...	13847	2.49%	4747
product_page	Mobile	DIV#pdpMain > DIV.product-cols-wrapper > DIV.product-cols-contain...	13822	2.49%	1247
product_page	Mobile	DIV#slick-slide00 > DIV > DIV.main-image-container > DIV.image-wr...	10977	1.98%	2841
product_page	Mobile	DIV#slick-slide00 > DIV > DIV.main-image-container.video-container ...	10965	1.98%	4705

INP in the browser

Performance

This screenshot shows the Performance tab in a browser's developer tools. It displays a timeline of various tasks and their execution times. The CPU usage is shown as a bar chart, and the memory usage is shown as a line graph. The network activity is shown as a series of vertical bars representing requests and responses.

Lighthouse

This screenshot shows the Lighthouse performance audit results. It displays a list of metrics and their scores. The metrics include: CPU budget, JS heap size, DOM nodes, JS event listeners, Documents, Document Fragments, Layouts / sec, and Style recalcs / sec. The scores are shown as a percentage of the target.

Coverage

This screenshot shows the Coverage tool in a browser's developer tools. It displays a table of JavaScript execution coverage data. The table has columns for URL, Type, Total Bytes, Unused Bytes, and Usage Visualization. The usage visualization is shown as a horizontal bar chart.

This screenshot shows the Performance Monitor tool in a browser's developer tools. It displays a list of performance metrics and their values. The metrics include: CPU usage, JS heap size, DOM nodes, JS event listeners, Documents, Document Fragments, Layouts / sec, and Style recalcs / sec. The values are shown as a percentage of the target.

Performance Monitor

This screenshot shows the Web Vitals Extension tool in a browser's developer tools. It displays a list of Web Vitals data and their values. The data includes: Interaction to Next Paint (INP), Largest Contentful Paint (LCP), and Cumulative Layout Shift (CLS). The values are shown as a percentage of the target.

Web Vitals Extension


INP in the browser

General Workflow

Basics

- Use a browser profile without extensions
- Mobile
- Processor / network throttling
- Accept cookies

Baseline without interactions

- How much main  work *without* interaction?
 - TBT
 - Unused code
 - Effects of 3P code

Interactions

- Above-the-fold elements
- Quick/"Rage"-clicking

The image shows a browser window with the URL `tom-tailor.de/damen/bekleidung/blusen-hemden`. The DevTools Performance tab is open, showing the 'Performance' overview. The 'Record' button is highlighted, and the 'Reload' button is also visible. The website content includes a navigation bar, a search bar, a discount code 'PRIVATE20', and a privacy notice overlay.


Dimensions: Sa... 360 x 740 100%


Elements Console Sources Network Performance Memory Application Security Lighthouse >>

(no recordings) Screenshots Memory

Disable JavaScript samples CPU: No throttling Hardware concurrency 8

Enable advanced paint instrumentation (slow) Network: No throttling

Click the record button  or hit `⌘ E` to start a new recording.

Click the reload button  or hit `⌘ ⌥ E` to record the page load.

After recording, select an area of interest in the overview by dragging. Then, zoom and pan the timeline with the mousewheel or **WASD** keys. [Learn more](#)

Privatsphäre-Einstellungen

Diese Seite nutzt Website-Tracking-Technologien von Dritten, um ihre Dienste anzubieten, stetig zu verbessern und Werbung entsprechend den Interessen der Nutzer anzuzeigen.
[mehr...](#)

[DATENSCHUTZERKLÄRUNG](#) [IMPRESSUM](#) [EINSTELLUNGEN](#)

ALLE AKZEPTIEREN

Powered by Usercentrics Consent Management

DevTools Performance Tab (without interaction)

The image shows a web browser window with the URL `tom-tailor.de/damen/bekleidung/blusen-hemden`. The browser's developer tools are open, with the Performance tab selected. The Performance tab shows a recording overview with a play button, a record button, and a reload button. Below the recording controls, there are instructions: "Click the record button [record icon] or hit ⌘ E to start a new recording." and "Click the reload button [reload icon] or hit ⌘ ⬆ E to record the page load." Below these instructions, there is a note: "After recording, select an area of interest in the overview by dragging. Then, zoom and pan the timeline with the mousewheel or WASD keys. [Learn more](#)".

On the left side of the browser, a filter sidebar is visible. The sidebar is titled "Filtern" and has a close button (X). It contains several filter categories, each with a plus sign (+) to expand it: "Reduzierung", "Preis", "Größe", "Material", "Farbe", "Muster", and "Kragen". The "Größe" category is expanded, showing a list of size options: 34, 36, 38, 40, 42, 44, 46, S, XS, M, L, XL, XXL, 48, 50, 52, 54, and XXXL. At the bottom of the sidebar, there is a button that says "406 Artikel anzeigen".

DevTools Performance Tab (with interaction)

The image shows a browser window with the URL `tom-tailor.de/damen/bekleidung/blusen-hemden` and the DevTools Lighthouse tab open. The Lighthouse report is for a page titled "Blusen & Hemden für Damen" with 405 articles. The report settings are: Mode: Navigation (Default), Device: Mobile, Categories: Performance and Best practices checked, Plugins: Publisher Ads unchecked. A warning message states: "There may be stored data affecting loading performance in this location: IndexedDB. Audit this page in an incognito window to prevent those resources from affecting your scores."

Generate a Lighthouse report Analyze page load

Mode [Learn more](#)

- Navigation (Default)
- Timespan
- Snapshot

Device

- Mobile
- Desktop

Categories

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

Plugins

- Publisher Ads

⚠ There may be stored data affecting loading performance in this location: IndexedDB. Audit this page in an incognito window to prevent those resources from affecting your scores.



DevTools Lighthouse Tab

The image shows a browser window with the URL `tom-tailor.de/damen/bekleidung/blusen-hemden`. The page content includes a navigation bar with the TOM TAILOR logo, a search bar, and a promotional banner for "20% auf alle Styles*" with a coupon code "PRIVATE20". Below this is a category header "Blusen & Hemden für Damen" with 405 items. There are filter options for "Hemden" and "Langarmbluser", and a "Sortieren" dropdown. Two product cards are visible: "Gestreifte Bluse ..." priced at 39.99 € and "Gemusterte Bluse" priced at 27.99 € (discounted from 35.99 €).

The right side of the image shows the DevTools Performance Monitor tab. It displays the following settings and options:

- Buttons: Disable JavaScript samples, Enable advanced paint instrumentation (slow)
- CPU: 4x slowdown
- Hardware concurrency: 8
- Network: No throttling
- Recording status: (no recordings)
- Options: Screenshots, Memory

Below the settings, there are instructions for using the Performance Monitor:

- Click the record button  or hit `⌘ E` to start a new recording.
- Click the reload button  or hit `⌘ ⇧ E` to record the page load.
- After recording, select an area of interest in the overview by dragging. Then, zoom and pan the timeline with the mousewheel or **WASD** keys. [Learn more](#)

DevTools Performance Monitor Tab

The image shows a browser window with the URL `tom-tailor.de/damen/bekleidung/blusen-hemden`. The page content includes a navigation bar with the TOM TAILOR logo, a breadcrumb trail "Damen / Bekleidung / Blusen & Hemd...", a main heading "Blusen & Hemden für Damen" with 405 articles, and a product grid. Two products are visible: a striped blouse with a -18% discount and a patterned blouse with a -22% discount. The DevTools Performance tab is open, showing the "Web Vitals Extension" interface. The extension provides instructions: "Click the record button [record icon] or hit ⌘ E to start a new recording.", "Click the reload button [reload icon] or hit ⌘ ⇧ E to record the page load.", and "After recording, select an area of interest in the overview by dragging. Then, zoom and pan the timeline with the mousewheel or WASD keys. [Learn more](#)". The Performance tab also shows settings for CPU (4x slowdown), Network (No throttling), and Hardware concurrency (8).

Web Vitals Extension in DevTools

DevTools - www.tom-tailor.de/damen/bekleidung/blusen-hemden?facets%5B2%5D%5Bterms%5D%5B0%5D=253&facets%5B2%5D%5Bterms...

Elements Console Sources Network Performance Memory Application Security

Console Coverage Animations Issues What's New Rendering Network conditions Network request blocking Search

Per function URL filter All Content scripts

URL	Type	Total Bytes	Unused Bytes	Usage Visualization
https://connect.facebook.net/signals/config/2036847156550670?v=2.9.108&r=stable	JS (per...	384 808	311 814 81%	
https://script.hotjar.com/modules.e4a2ad1c1125ca6fe735.js	JS (per...	270 455	155 639 57.5%	
https://app.usercentrics.eu/browser-ui/3.22.0/index.module.js	JS (per...	357 794	148 579 41.5%	
https://www.tom-tailor.de/_next/static/css/ade4825825c47e30.css	CSS	173 848	134 303 77.3%	
https://lcx-embed.bambuser.com/tom-tailor/embed.js	JS (per...	173 632	132 466 76.3%	
https://www.tom-tailor.de/_next/static/chunks/1923.4b00b292ca121e56.js	JS (per...	236 984	101 472 42.8%	
https://www.tom-tailor.de/_next/static/chunks/1586-f5c17dac4506f090.js	JS (per...	177 974	96 144 54%	
https://www.tom-tailor.de/_next/static/chunks/pages/_app-276d208f5ca70e0c.js	JS (per...	210 556	91 699 43.6%	
https://www.googletagmanager.com/gtag/js?id=G-TWZQ94GTLR&l=dataLayer&cx=c	JS (per...	235 370	87 240 37.1%	
https://www.googletagmanager.com/gtm.js?id=GTM-K2W89WK	JS (per...	382 037	84 442 22.1%	
https://www.googletagmanager.com/gtag/js?id=G-6HXT685515&l=dataLayer&cx=c	JS (per...	225 519	82 596 36.6%	
https://www.tom-tailor.de/_next/static/chunks/8456.476d1aab1daa9123.js	JS (per...	111 852	74 217 66.4%	
https://static.scarabresearch.com/wpjs/wpes6.js?ts=2790	JS (per...	103 247	55 067 53.3%	
https://www.tom-tailor.de/_next/static/chunks/8328-216f9b2d04dfe6ba.js	JS (per...	149 147	51 236 34.4%	
https://recommender.scarabresearch.com/js/10DF58B728AA2B8C/scarab-v2.js	JS (per...	97 510	39 487 40.5%	
https://www.tom-tailor.de/_next/static/chunks/framework-3f6ca6a6ff951304.js	JS (per...	130 000	34 527 26.6%	
https://www.tom-tailor.de/_next/static/chunks/main-323d0b07b8b2eb2c.js	JS (per...	117 469	34 078 29%	
https://www.dwin1.com/8617.js	JS (per...	38 861	27 578 71%	
https://www.tom-tailor.de/_next/static/chunks/961.fc3eee5dce2b7740.js	JS (per...	30 375	27 058 89.1%	
https://app.usercentrics.eu/browser-ui/latest/loader.js	JS (per...	63 051	26 856 42.6%	
https://tom-tailor.app.baqend.com/v1/speedkit/install.js?d=production	JS (per...	71 039	22 489 31.7%	
https://connect.facebook.net/en_US/fbevents.js	JS (per...	114 192	22 371 19.6%	
https://www.google-analytics.com/analytics.js	JS (per...	52 916	18 194 34.4%	
https://static.scarabresearch.com/js/10DF58B728AA2B8C/scarab-v2.js	JS (per...	97 510	39 487 40.5%	

2.2 MB of 4.2 MB (54%) used so far, 1.9 MB unused.

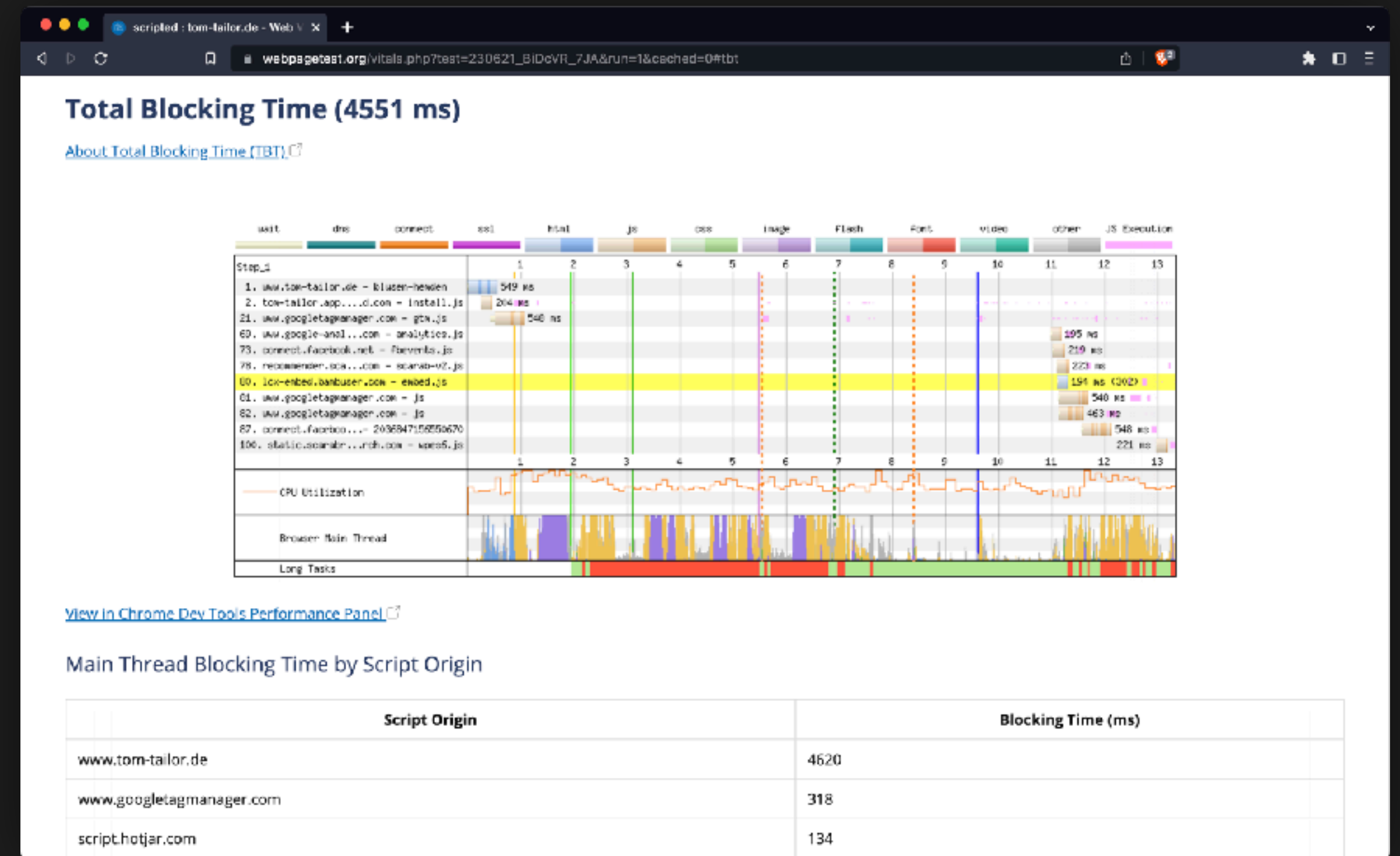
DevTools Coverage tab

TBT to measure load responsiveness in the lab

WebPageTest

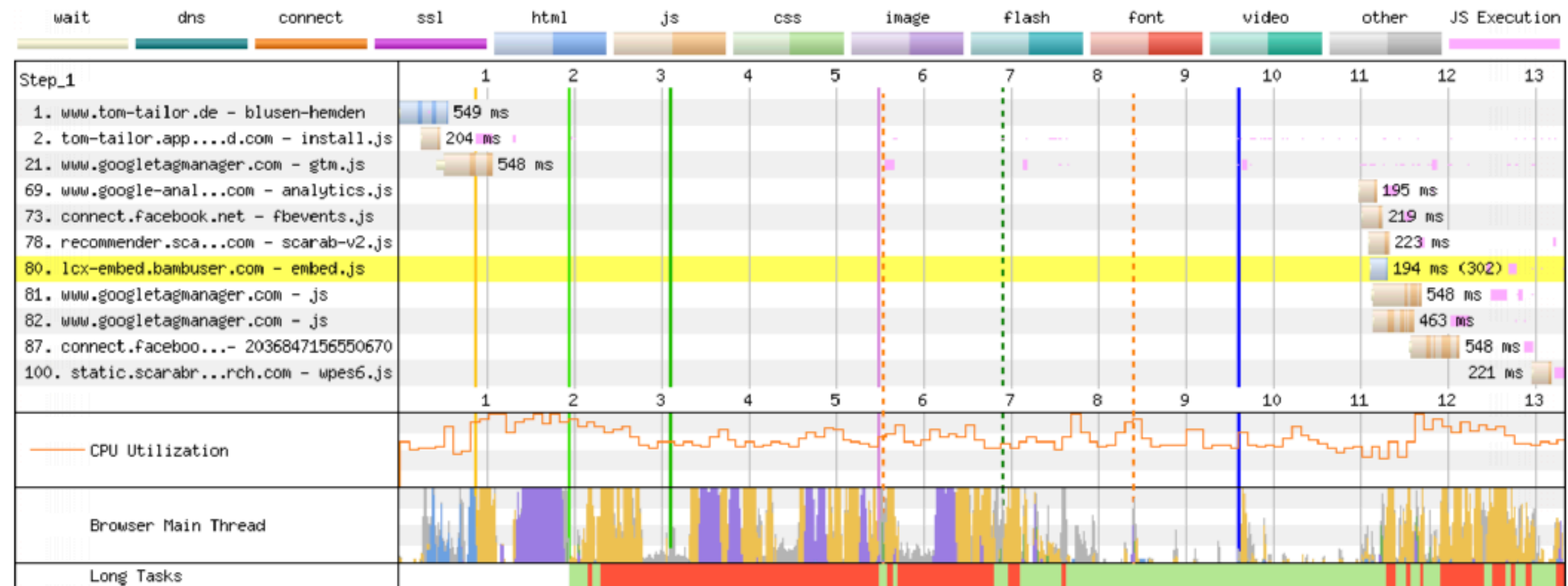
Scripted test:

```
logData 0
navigate %ORIGIN%
execAndWait
  document.querySelector('#accept-cookies-
  button').click();
exec document.open();
clearCache
logData 1
navigate %URL%
setActivityTimeout 5000
```



Total Blocking Time (4551 ms)

[About Total Blocking Time \(TBT\)](#)



[View in Chrome Dev Tools Performance Panel](#)

Main Thread Blocking Time by Script Origin

Script Origin	Blocking Time (ms)
www.tom-tailor.de	4620
www.googletagmanager.com	318
script.hotjar.com	134

WebPageTest - Visual Comparis x +

webpagetest.org/video/compare.php?tests=230621_BiDcVR_7JA-r:1-c:0

catchpoint

Platform ▶ WebPageTest Start Test Test History Products ▾ Resources ▾ About

Pro My Account Logout

URL: <https://www.tom-tailor.de/damen/bekleidung/blusen-hemden>
DATE: 21/06/2023, 14:08:42

Webpage Performance Test Result

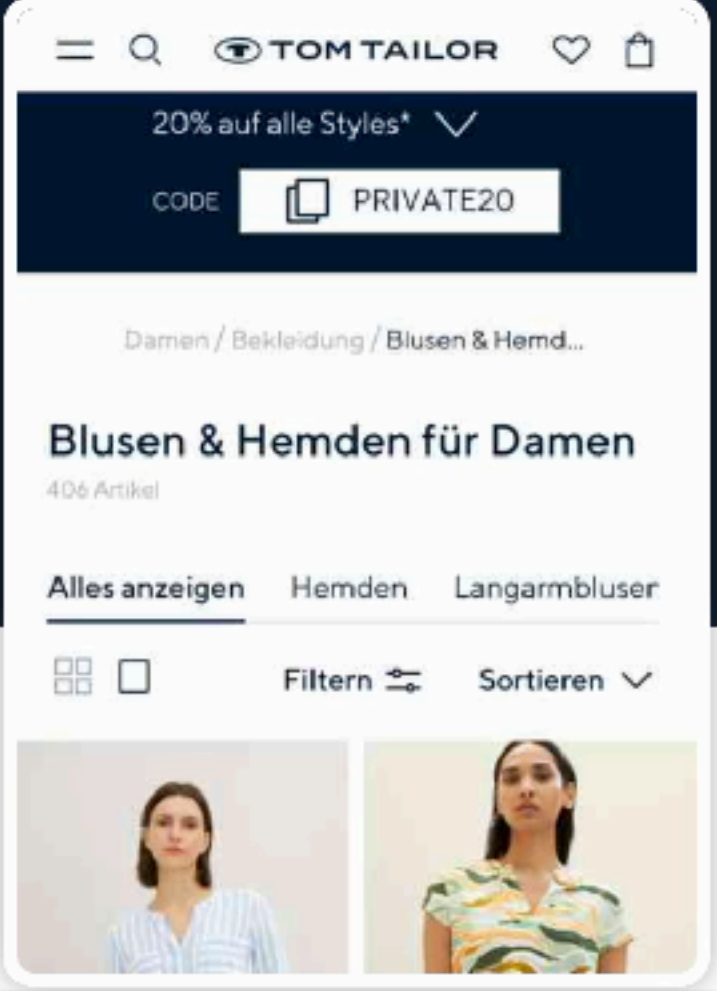
scripted SETTINGS: GALAXYS7 v114 4G Frankfurt, Germany More ▾ Share ▾

View: **Filmstrip** ▾

Tools: Export ▾

Filmstrip View

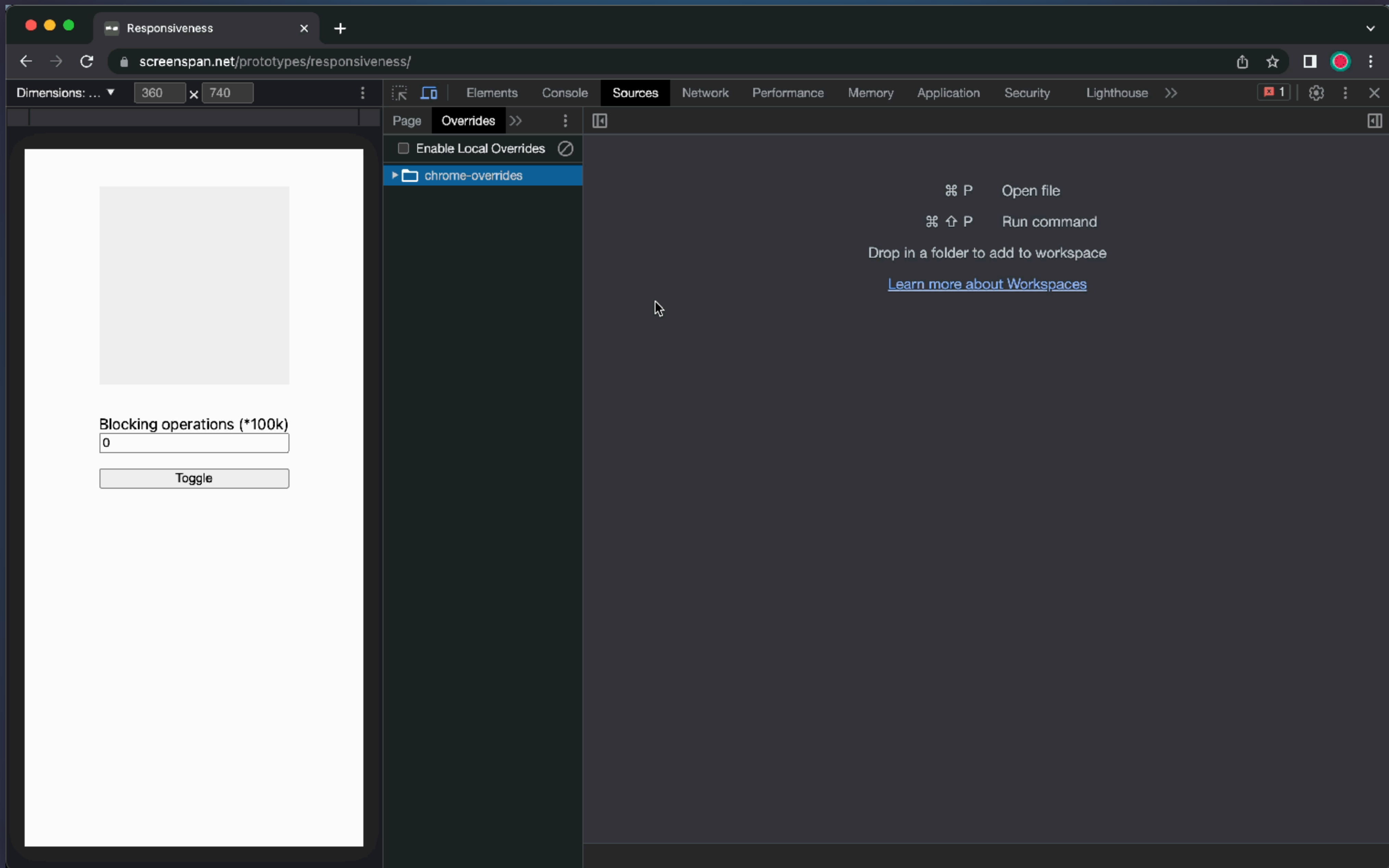
Use this page to explore and compare timing and request details from one or more tests.



The image shows a mobile preview of the TOM TAILOR website. At the top, there is a navigation bar with a search icon, the TOM TAILOR logo, a heart icon, and a shopping cart icon. Below the navigation bar, a promotional banner displays "20% auf alle Styles*" with a dropdown arrow and a coupon code "PRIVATE20". The main content area shows the category "Damen / Bekleidung / Blusen & Hemd..." and the product title "Blusen & Hemden für Damen" with "406 Artikel". There are tabs for "Alles anzeigen", "Hemden", and "Langarmbluser". Below the tabs, there are icons for "Filtern" and "Sortieren". At the bottom, two product images are visible, showing a woman wearing a blue and white striped blouse and a woman wearing a green and white patterned blouse.

Let's hunt slugs!!!





DevTools Performance Tab with Local Overrides

Responsiveness
 screenspan.net/prototypes/responsiveness/

Dimensions: ... 360 x 740

Elements Console Sources Network Performance Memory Application Security Lighthouse

screenspan.net #2 Screenshot Memory

Disable JavaScript samples CPU: 4x slowdown Hardware concurrency 8
 Enable advanced paint instrumentation (slow) Network: No throttling

500 ms 1000 ms 1500 ms 2000 ms 2500 ms 3000 ms 3500 ms 4000 ms 4500 ms
 CPU
 NET

ms 2000 ms 2200 ms 2400 ms 2600 ms 2800 ms 3000 ms 3200 ms 3400 ms 3600 ms 3800 ms 4000 ms 4200 ms 4400 ms 4600 ms

Frames 2416.6 ms

Timings

Interactions

Main — https://screenspan.net/prototypes/responsiveness/

GPU
 Chrome_ChildIOThread
 Compositor
 ThreadPoolForegroundWorker
 ThreadPoolServiceThread

Summary Bottom-Up Call Tree Event Log

Range: 1.73 s – 4.53 s

2800 ms

- 1 ms Scripting
- 2 ms Rendering
- 1 ms Painting
- 14 ms System
- 2781 ms Idle
- 2800 ms Total

Total blocking time: 0.00ms (estimated) [Learn more](#)

DevTools Performance Tab with Local Overrides

Before



Event Callback

Reversio eventus

```
toggle.addEventListener('click', async () => {  
  let loopLength = input.value * 100000;  
  for (let i = 0; i < loopLength; i++) {  
    // do work  
  }  
  toggled.classList.toggle('hidden');  
});
```

After

```
function yieldToMain() {  
  return new Promise(resolve => {  
    setTimeout(resolve, 0);  
  });  
}  
  
function doWork() {  
  let loopLength = input.value * 100000;  
  let gottenClassList = toggled.classList;  
  for (let i = 0; i < loopLength; i++) {  
    if (toggled.classList !== gottenClassList) {  
      toggled.classList = gottenClassList;  
    }  
  }  
}  
  
toggle.addEventListener('click', async () => {  
  toggled.classList.toggle('hidden');  
  await yieldToMain();  
  doWork();  
});
```

Before

```
toggle.addEventListener('click', () => {
  let loopLength = input.value * 100000;
  for (let i = 0; i < loopLength; i++) {
    toggled.classList = toggled.classList;
  }
  toggled.classList.toggle('hidden');
});
```

After

```
function yieldToMain() {
  return new Promise(resolve => {
    setTimeout(resolve, 0);
  });
}

function doWork() {
  let loopLength = input.value * 100000;
  let gottenClassList = toggled.classList;
  for (let i = 0; i < loopLength; i++) {
    if (toggled.classList !== gottenClassList) {
      toggled.classList = gottenClassList;
    }
  }
}

toggle.addEventListener('click', async () => {
  toggled.classList.toggle('hidden');
  await yieldToMain();
  doWork();
});
```


Before

```
toggle.addEventListener('click', () => {
  let loopLength = input.value * 100000;
  for (let i = 0; i < loopLength; i++) {
    toggled.classList = toggled.classList;
  }
  toggled.classList.toggle('hidden');
});
```

After

```
function yieldToMain() {
  return new Promise(resolve => {
    setTimeout(resolve, 0);
  });
}

function doWork() {
  let loopLength = input.value * 100000;
  let gottenClassList = toggled.classList;
  for (let i = 0; i < loopLength; i++) {
    if (toggled.classList !== gottenClassList) {
      toggled.classList = gottenClassList;
    }
  }
}

toggle.addEventListener('click', async () => {
  toggled.classList.toggle('hidden');
  await yieldToMain();
  doWork();
});
```

Before

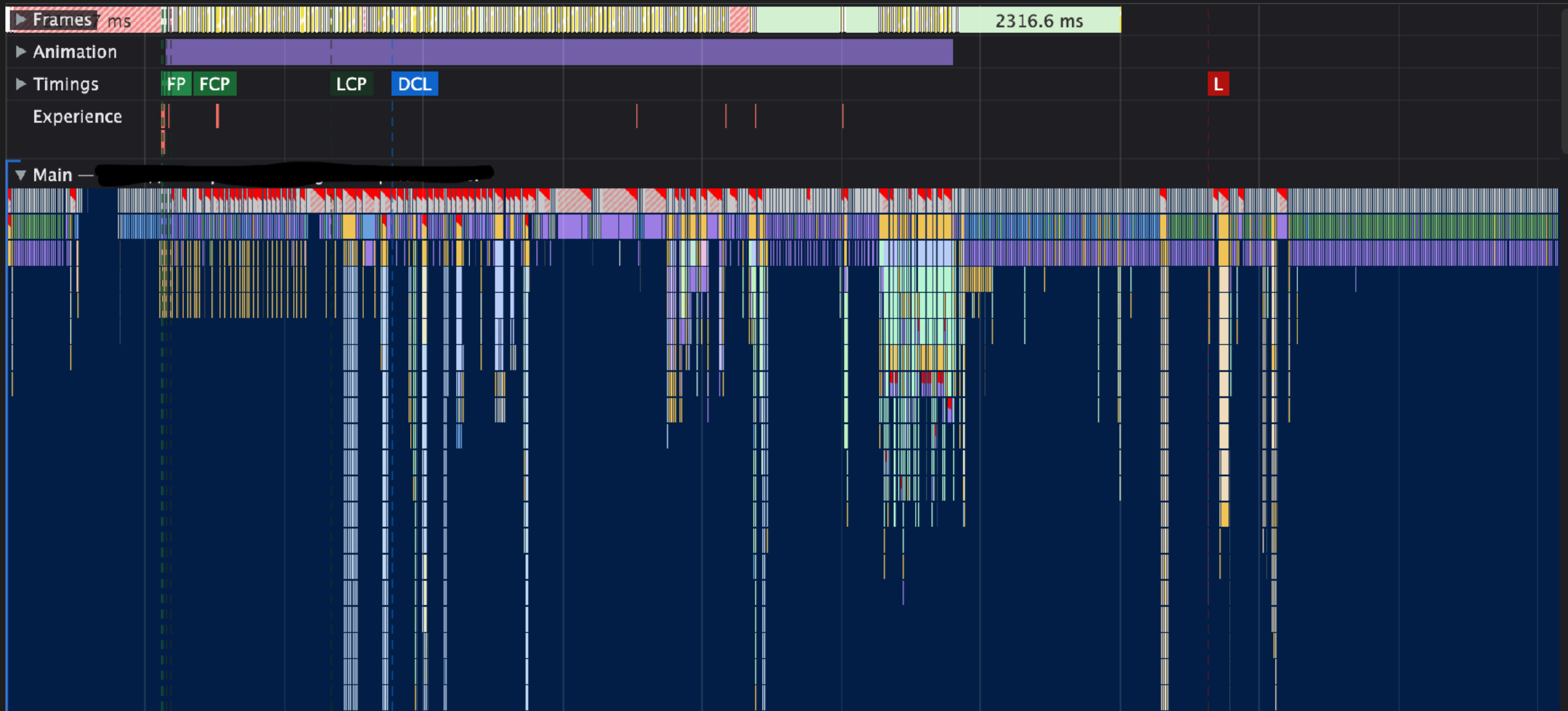
```
toggle.addEventListener('click', () => {
  let loopLength = input.value * 100000;
  for (let i = 0; i < loopLength; i++) {
    toggled.classList = toggled.classList;
  }
  toggled.classList.toggle('hidden');
});
```

After

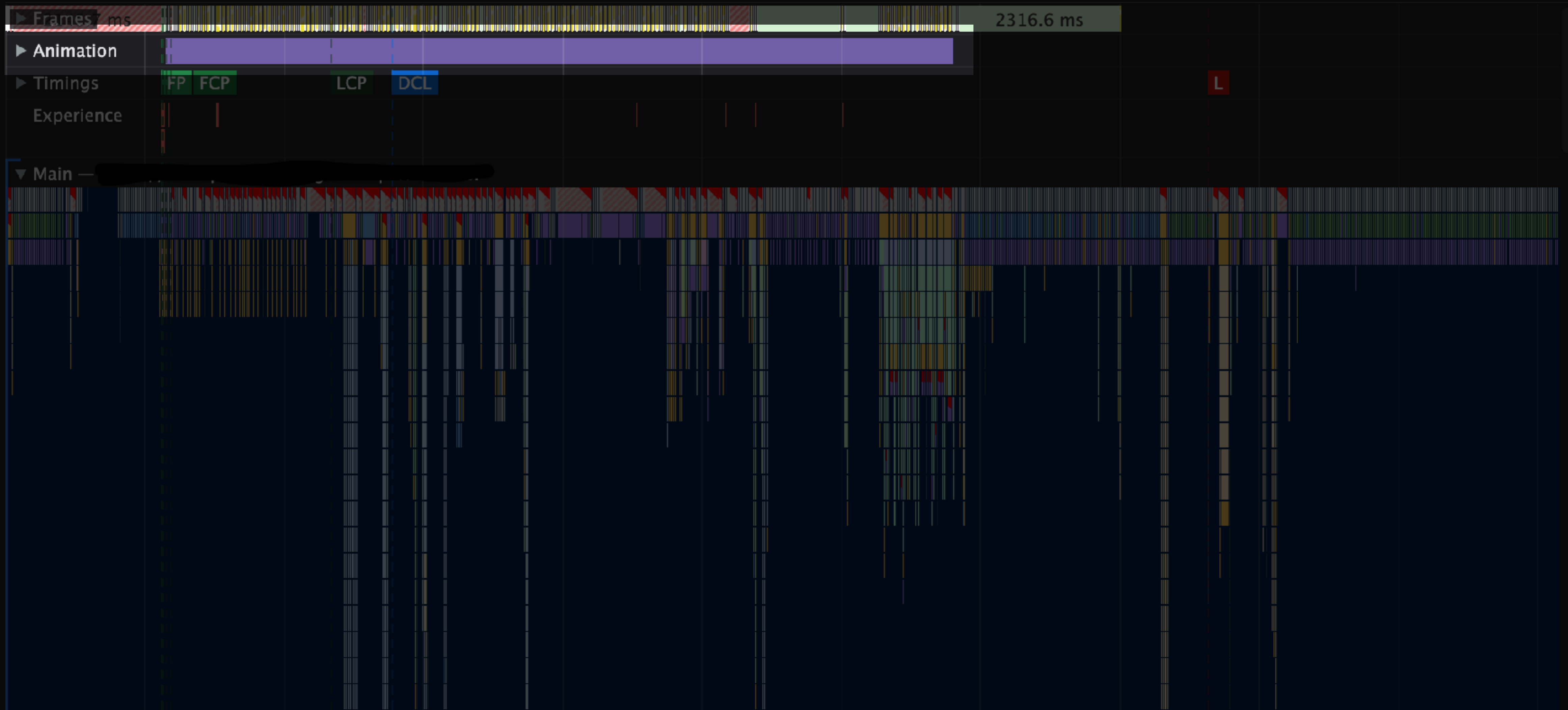
```
function yieldToMain() {
  return new Promise(resolve => {
    setTimeout(resolve, 0);
  });
}

function doWork() {
  let loopLength = input.value * 100000;
  let gottenClassList = toggled.classList;
  for (let i = 0; i < loopLength; i++) {
    if (toggled.classList !== gottenClassList) {
      toggled.classList = gottenClassList;
    }
  }
}

toggle.addEventListener('click', async () => {
  toggled.classList.toggle('hidden');
  await yieldToMain();
  doWork();
});
```

Total blocking time: 4107.94ms (estimated) [Learn more](#)



Total blocking time: 4107.94ms (estimated) [Learn more](#)



Long Input Delay

Longa mora inputus



Presentation Delay

Mora praesentationis

Elements Network Performance Console Sources Memory Application >> 2 2 1 | ⚙️ ⋮ ✕

```

<article class="tile offer-tile offer-tile--highlight" data-js-component="offer-tile" data-css-component="bubble|tile|offer-tile" data-css-component-initialized="true" data-js-component-initialized="true"> flex
  <script>_</script>
  <!-- bubble -->
  <div class="bubble bubble__price--yellow bubble--medium offer-tile__price-bubble">...</div> == $0
  <div class="offer-tile__image-wrapper">...</div>
  <div class="offer-tile__info-container">...</div>
</article>

```

div.bubble.bubble__price--yellow.bubble--medium.offer-tile__price-buk ...

Styles Computed Layout Event Listeners DOM Breakpoints >>

Filter :hov .cls + 🗨️ ⏪

```

tile__image-container, .skeleton--tile-list-item .offer-tile__unit-price, .skeleton--tile-list-item .tsr_body, .skeleton--tile-list-item .tsr_footer--difficulty .icon, .skeleton--tile-list-item .tsr_footer--difficulty span, .skeleton--tile-list-item .tsr_footer--preparation .icon, .skeleton--tile-list-item .tsr_footer--preparation span, .skeleton--tile-list-item .tsr_hdln, .skeleton--tile-list-item .tsr_media, .skeleton--validity-indicator {
  animation: skeleton-animation 1s linear infinite alternate;
  opacity: .5;
}

```









**Skeleton loading can kill
rendering performance**



**Tag Managers
can hurt too.**

Before

The image shows a Chrome browser window displaying the Swarovski website. The browser's address bar shows the URL: `swarovski.com/en-DE/c-010102/Categories/Jewelry/Necklaces-and-pendants/Necklaces/`. The page content includes a header with the Swarovski logo, a featured banner for "Crystal Necklaces" with the text "Find your new everyday favorite with our collection of necklaces. From delicate... [Read More](#)", and a product grid. The grid shows four items: a "Matrix Tennis necklace" (250 EUR) and a "Swarovski Infinity necklace" (125 EUR). The Chrome DevTools console is open, showing "web vitals in" and a "Waiting for beacon...." message.

Chrome File Edit View History Bookmarks Profiles Tab Window Help

Crystal Necklaces | Silver & Gold

swarovski.com/en-DE/c-010102/Categories/Jewelry/Necklaces-and-pendants/Necklaces/

SWAROVSKI

Crystal Necklaces

Find your new everyday favorite with our collection of necklaces. From delicate... [Read More](#)

Filters 128 Results Sort by

4 Colors

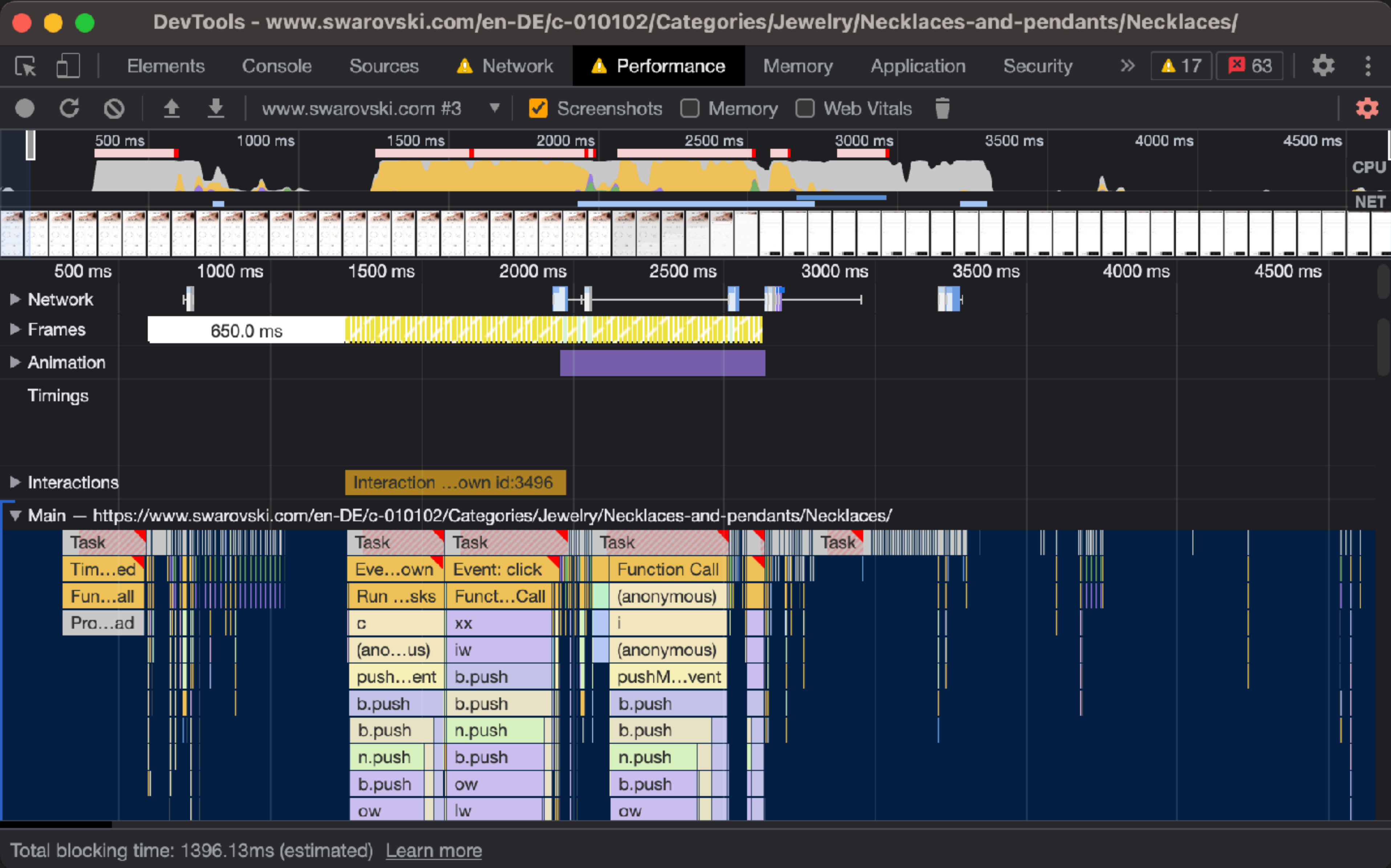
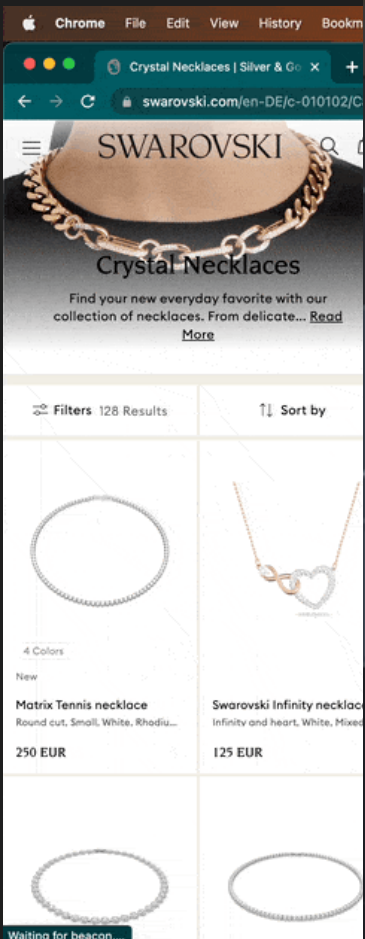
New

Matrix Tennis necklace
Round cut, Small, White, Rhodi...
250 EUR

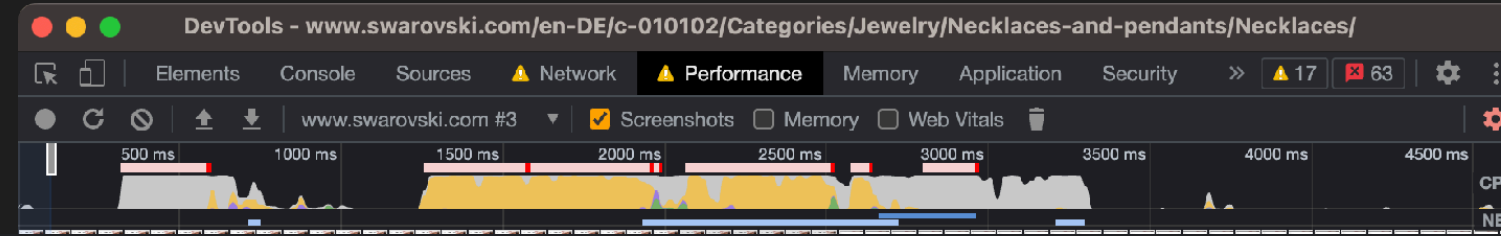
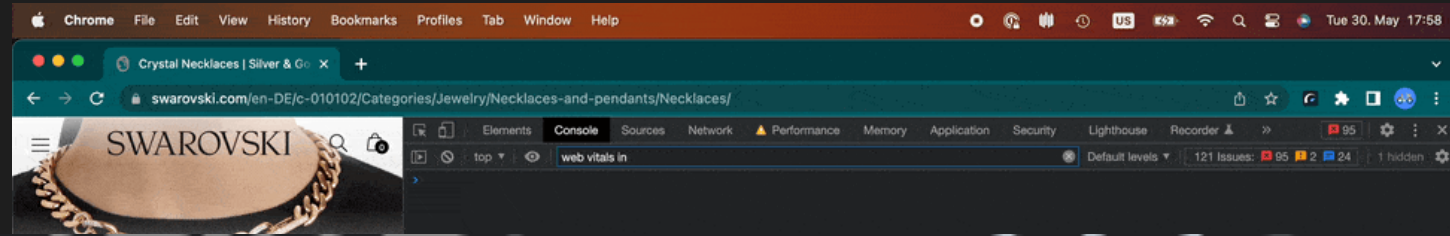
Swarovski Infinity necklace
Infinity and heart, White, Mixed...
125 EUR

Waiting for beacon....

Before



Before



14074
14075
14076
14077
14078
14079
14080
14081
14082
14083
14084

```
},  
Z.o.cl = ["google"],  
function() {  
  function a(b) {  
    var c = b.target;  
    if (c) {  
      var d = Sw(c, "gtm.click");  
      xx(d)  
    }  
  }  
} (function(b) {
```

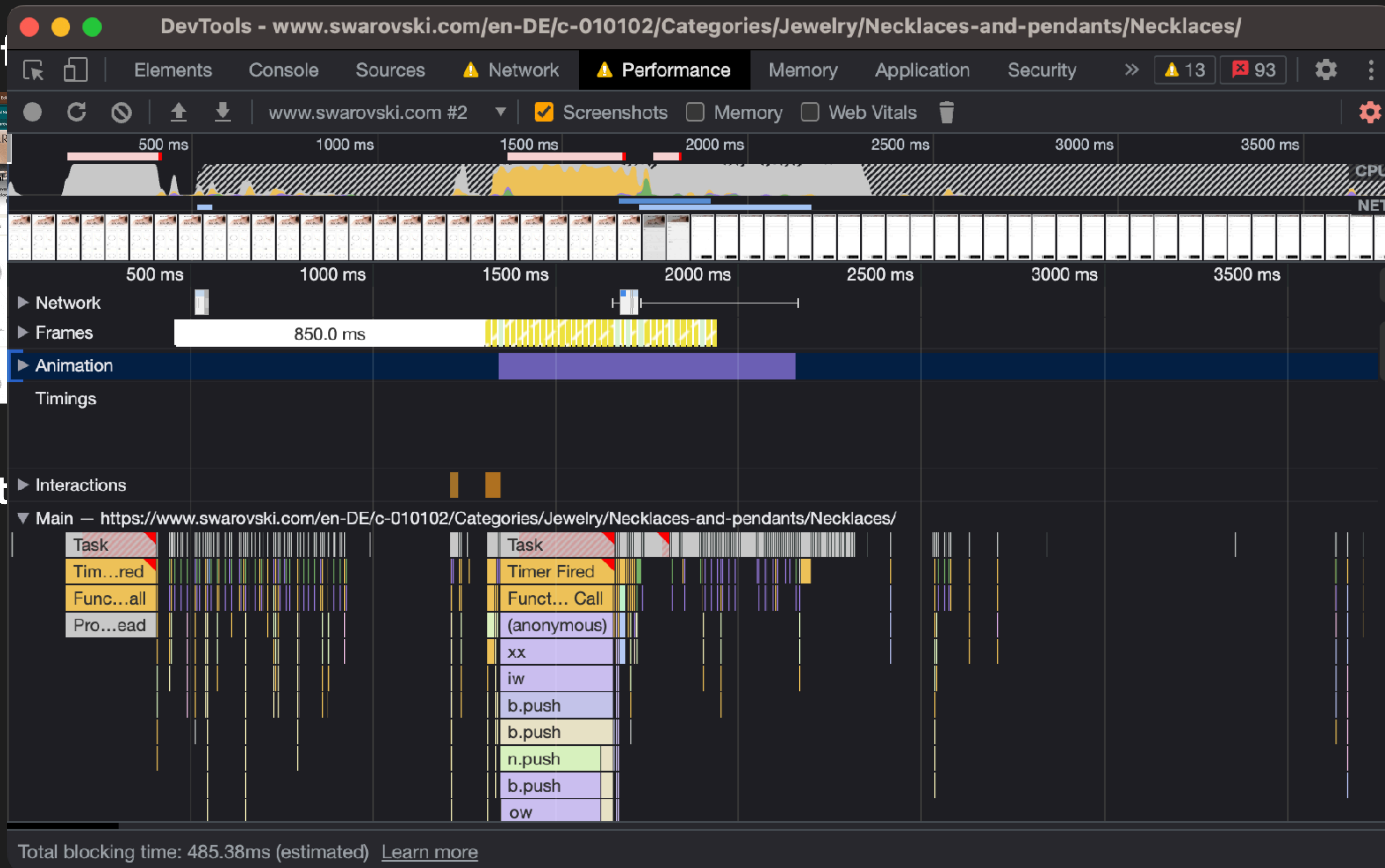
Before

14075
14076
14077
14078
14079
14080
14081
14082
14083
14084
14085
14086
14087
14088

A

```
Z.o.cl = ["google"],  
function() {  
  function a(b) {  
    var c = b.target;  
    if (c) {  
      setTimeout(() => {  
        var d = Sw(c, "gtm.click");  
        xx(d)  
      }, 0)  
    }  
  }  
}  
(function(b) {
```


Before



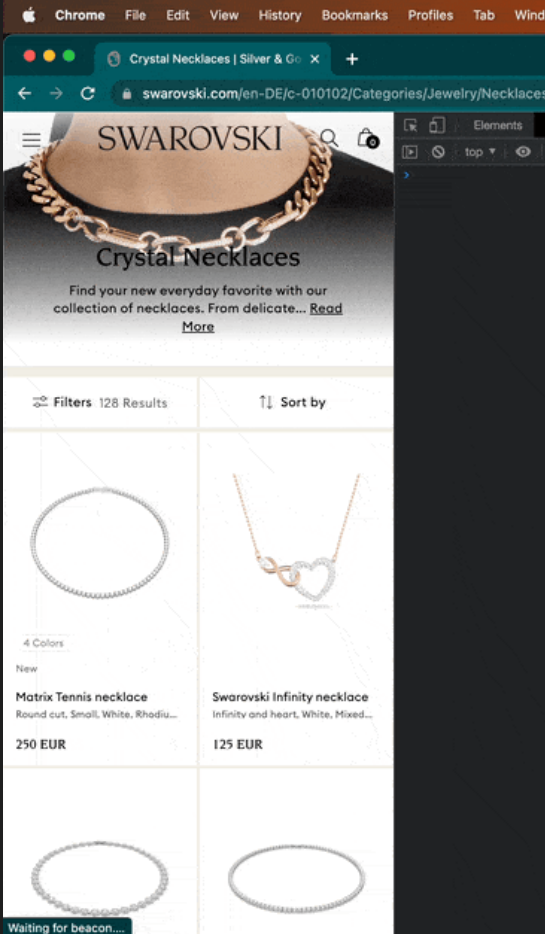
After

Total blocking time: 485.38ms (estimated) [Learn more](#)

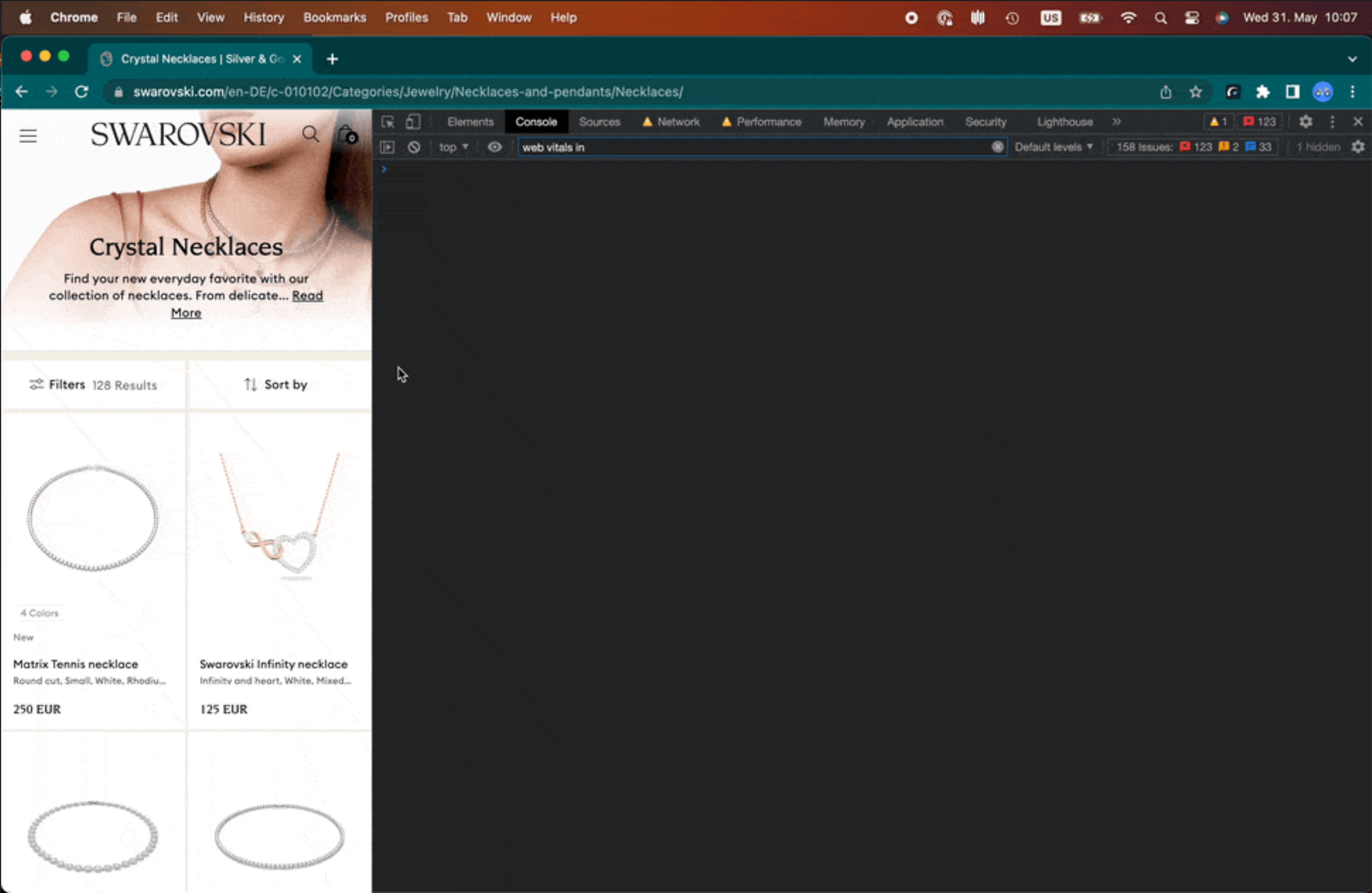
click");

ck");

Before



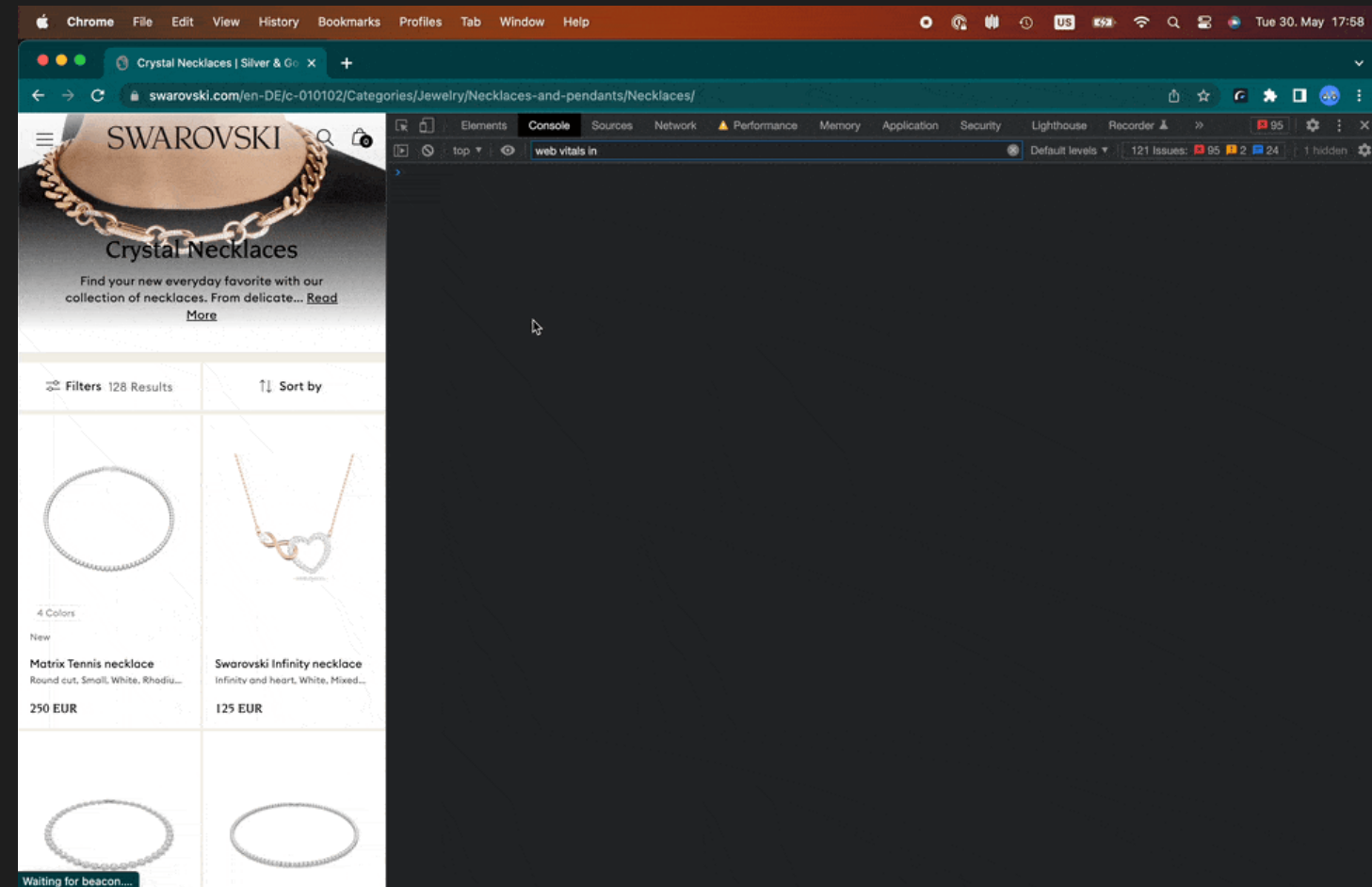
After



gtm.click");

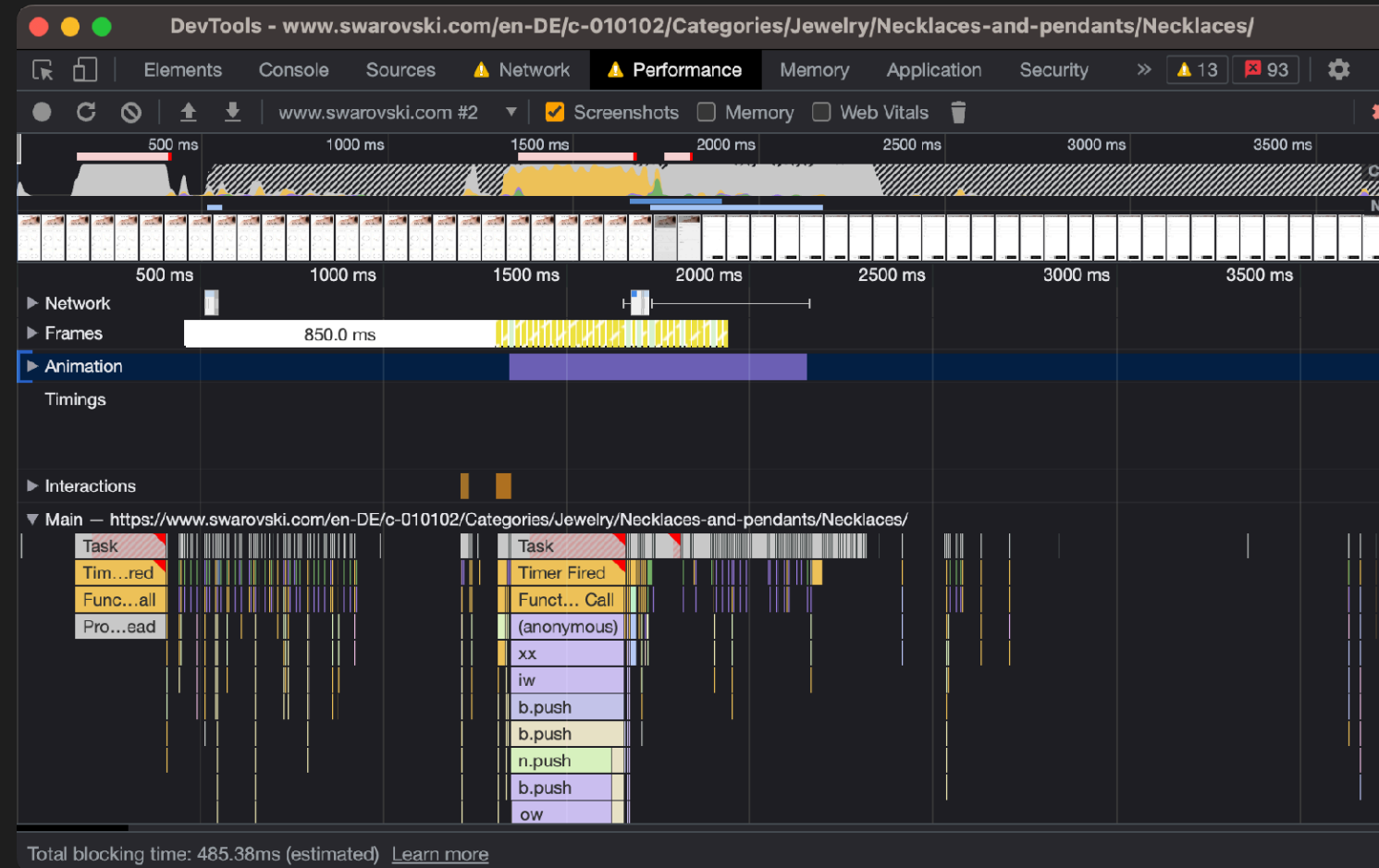
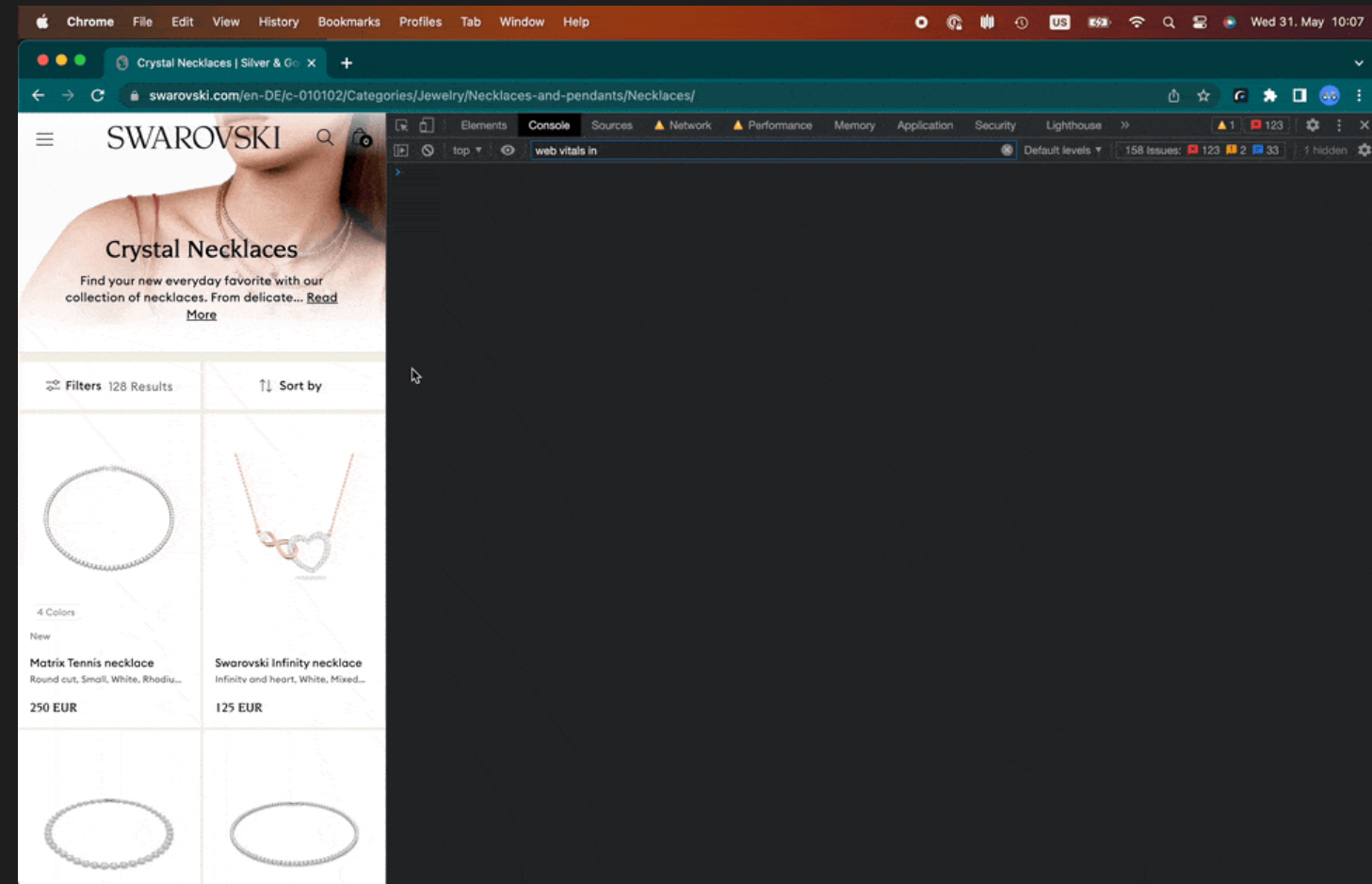
gtm.click");

Before



```
14075 Z.o.cl = ["google"],
14076 function() {
14077     function a(b) {
14078         var c = b.target;
14079         if (c) {
14080             var d = Sw(c, "gtm.click");
14081             xx(d)
14082         }
14083     }
14084     (function(b) {
```

After

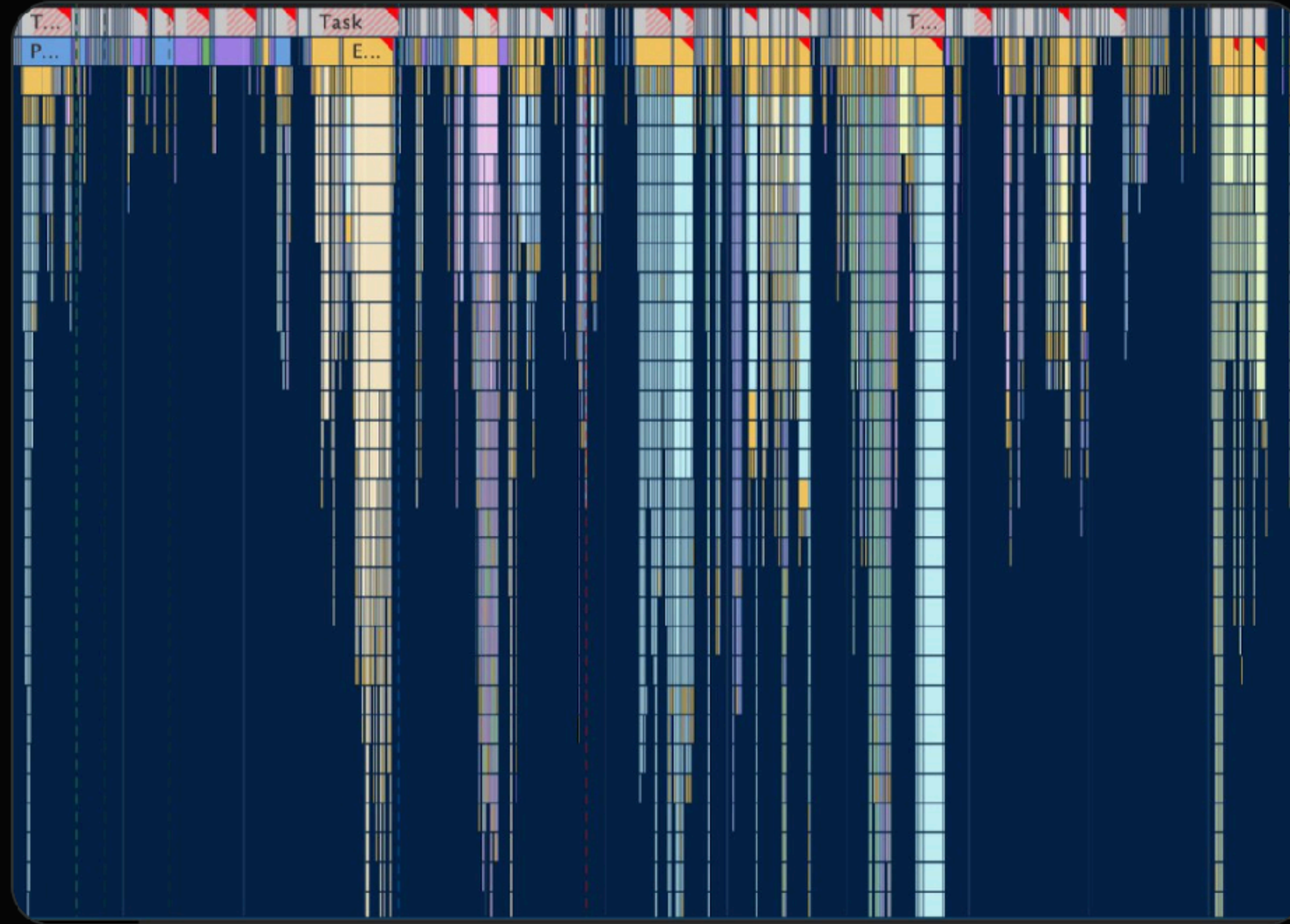


```
14075 Z.o.cl = ["google"],
14076 function() {
14077     function a(b) {
14078         var c = b.target;
14079         if (c) {
14080             setTimeout(() => {
14081                 var d = Sw(c, "gtm.click");
14082                 xx(d)
14083             }, 0)
14084         }
14085     }
14086     (function(b) {
```




Brian Louis Ramirez – @screenspan@mast... @scre... · Jun 9, 2022

Interaction to Next Paint (INP) is gonna be the toughest Core Web Vital to optimize for. It'll mean coming to grips with how much JS we use on sites and serious discussions with engineering and marketing teams.



5

38

144



**Optimizing
responsiveness is**



HARD



INP Gotchas

1. INP on SPAs
2. iFrames
3. Browser support (no Safari, Firefox)
4. No INP reported

Wrap-up

- Track INP in RUM
- Test interactions on slower devices
- Recurring components
(e.g. product tiles)
can multiply a perf bottleneck
- Animate with care (watch 💀)
- Audit tags, check tag triggers

Thanks! Gimme 5!

