

Производительность в полевых условиях

Александр Шушунов

```
A problem has been detected and windows has been shut down to prevent damage
to your computer.

PAGE_FAULT_IN_NONPAGED_AREA

If this is the first time you've seen this stop error screen,
restart your computer. If this screen appears again, follow
these steps:

Check to make sure any new hardware or software is properly installed.
If this is a new installation, ask your hardware or software manufacturer
for any windows updates you might need.

If you're having trouble with a new device you've added, you may need to
remove any newly installed hardware. Try disabling any recently installed
services. Restart your computer.

Disable automatic updates.

If you're having trouble with a new device you've added, you may need to
remove any newly installed hardware. Try disabling any recently installed
services. Restart your computer.

If you're having trouble with a new device you've added, you may need to
remove any newly installed hardware. Try disabling any recently installed
services. Restart your computer.

Advanced startup options, and then
select Troubleshoot.

Technical information:
*** STOP: 0x00000050 (0xFFFFFA042A69840,0x0000000000000000,0xFFFFF80002A729DC,0
x0000000000000005)

For more information about error messages that appear on your system, visit
http://go.microsoft.com/fwlink/?linkid=534222.

If you're having trouble with a new device you've added, you may need to
remove any newly installed hardware. Try disabling any recently installed
services. Restart your computer.

For more information about error messages that appear on your system, visit
http://go.microsoft.com/fwlink/?linkid=534222.
```







ABOUT THE AUTHOR

Vitaly Friedman loves beautiful content and doesn't like to give in easily. When he is not writing or speaking at a conference, he's most probably running ...

[More about Vitaly ↗](#)

JANUARY 12, 2021 • [15 comments](#)

Front-End Performance Checklist 2021

<https://www.smashingmagazine.com/2021/01/front-end-performance-2021-free-pdf-checklist/>

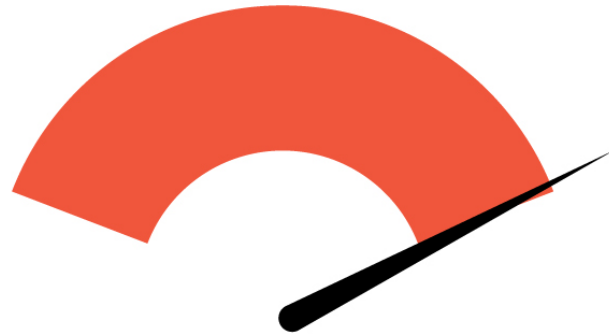
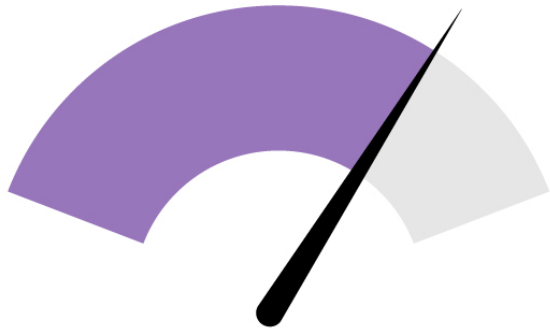
Такска #100501

Название

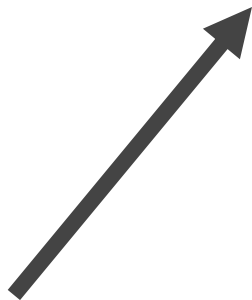
Ускорить сайт

Описание

Команда мониторинга наблюдает проблемы с производительностью.
Пользователи тоже жалуются.
Провести исследование и улучшить.

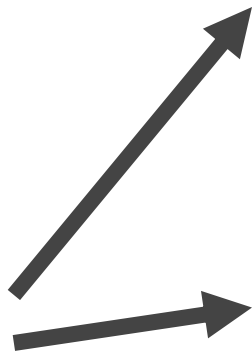


UX



Размер ресурсов

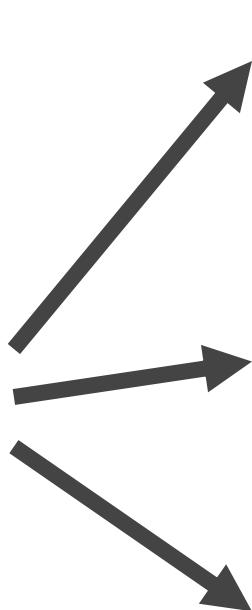
UX



Размер ресурсов

Время выполнения JS

UX



Размер ресурсов

Время выполнения JS

Очки в Lighthouse

TBT и TTI

Напрячь других

gzip



brotli

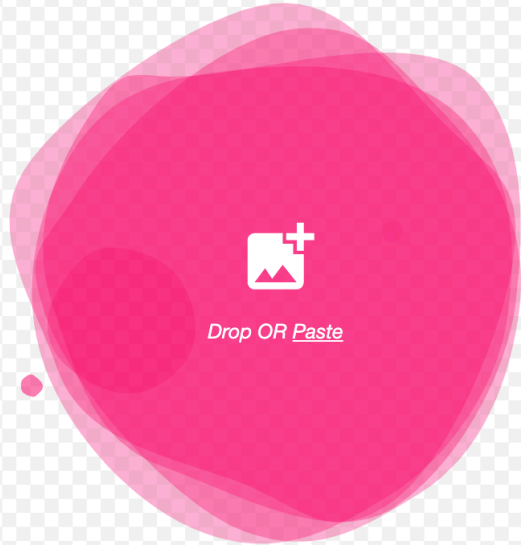
9.5%



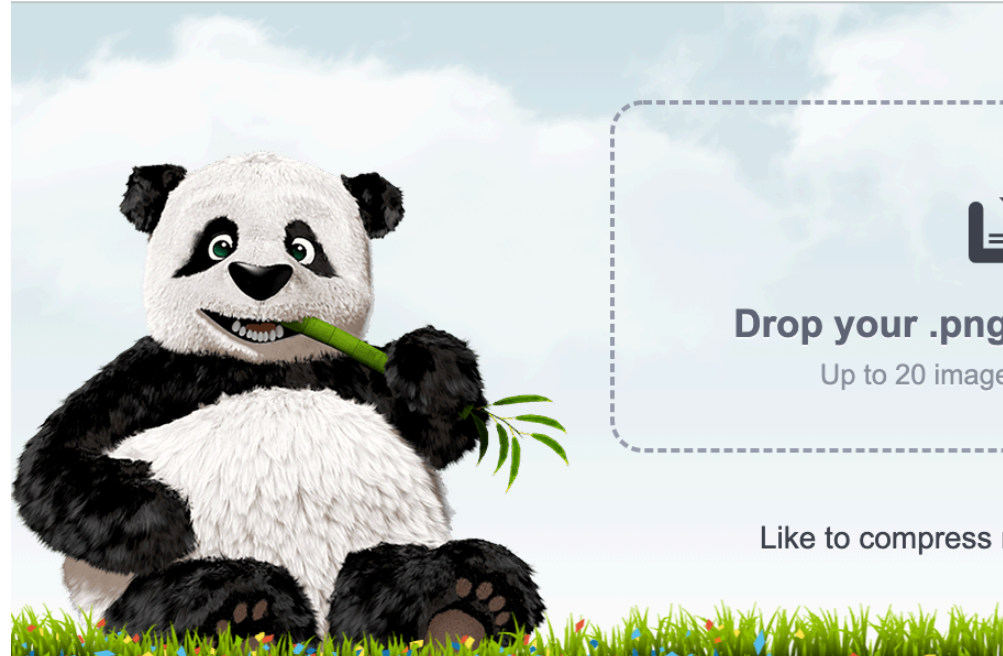
```
>  
> brotli -Z --output=roboto-500.br ./roboto-500.woff2  
>
```

```
>  
> brotli -Z --output=roboto-500.br ./roboto-500.woff2  
>  
> ls -l  
total 208  
-rw-r--r--  1 ashushunov  staff  51404 Feb 19 00:01 roboto-500.br  
-rw-r--r--  1 ashushunov  staff  51400 Feb 19 00:01 roboto-500.woff2  
>  
>
```

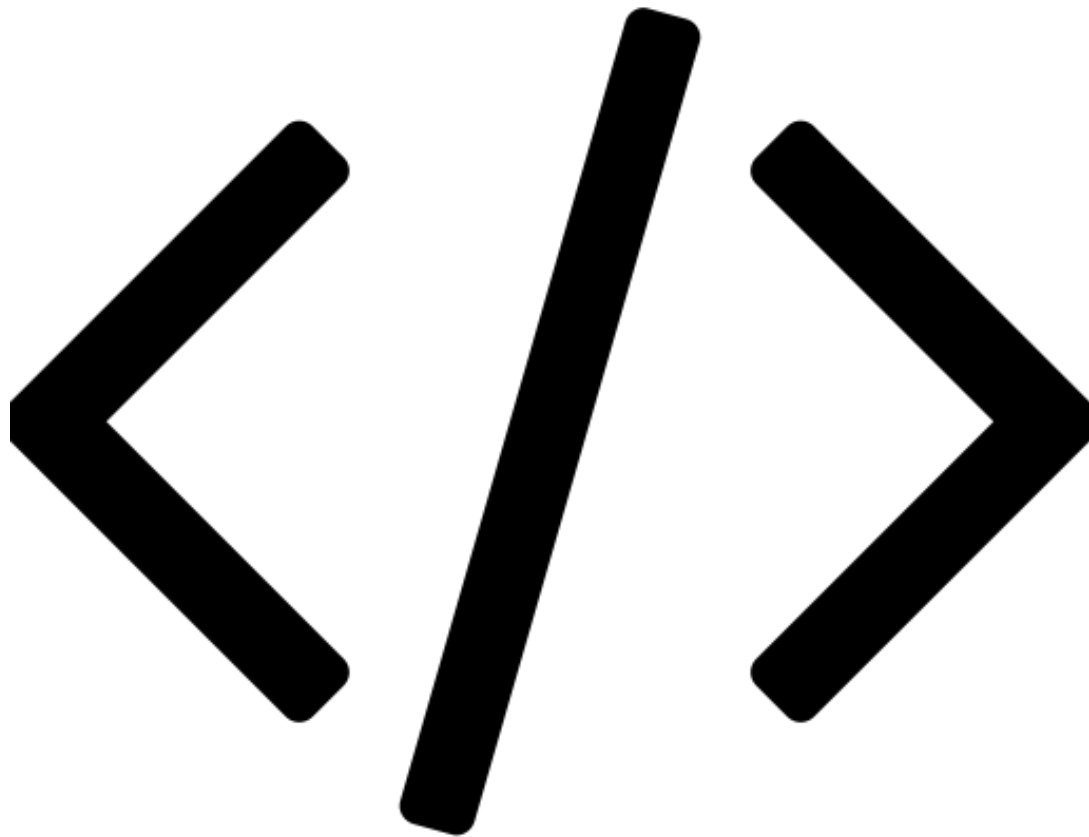
<https://squoosh.app/>



<https://tinypng.com/>



35 %



А мой ли код
тормозит?

<https://www.thirdpartyweb.today/>

57%

37 запросов

12 доменов

application

845 KB

third-party

2.9 MB

[Разные](#) > [Расширения](#) > HTTP Request Blocker



HTTP Request Blocker

Автор: cristi.lupascu

★★★★★ 18

[Инструменты разработчика](#)

 Пользователей: 10 000+

<https://chrome.google.com/webstore/detail/http-request-blocker/eckpjmeijpoipmldfbckahppeonkoeko>



Performance

Metrics



| | | | |
|--------------------------|--------|-----------------------------------|----------|
| ▲ First Contentful Paint | 4.8 s | ▲ First Meaningful Paint | 7.9 s |
| ▲ Speed Index | 13.5 s | ▲ First CPU Idle | 19.2 s |
| ▲ Time to Interactive | 19.2 s | ▲ Max Potential First Input Delay | 1,800 ms |



Performance

Metrics



| | | | |
|--------------------------|--------|-----------------------------------|----------|
| ▲ First Contentful Paint | 4.1 s | ▲ First Meaningful Paint | 6.9 s |
| ▲ Speed Index | 9.1 s | ▲ First CPU Idle | 17.8 s |
| ▲ Time to Interactive | 17.8 s | ▲ Max Potential First Input Delay | 1,460 ms |



Performance

Metrics



| | | | |
|--------------------------|--------|-----------------------------------|----------|
| ▲ First Contentful Paint | 4.5 s | ▲ First Meaningful Paint | 7.1 s |
| ▲ Speed Index | 8.7 s | ▲ First CPU Idle | 11.4 s |
| ▲ Time to Interactive | 11.4 s | ▲ Max Potential First Input Delay | 1,690 ms |



Performance

Metrics



| | | | |
|--------------------------|-------|-----------------------------------|----------|
| ▲ First Contentful Paint | 4.1 s | ▲ First Meaningful Paint | 6.3 s |
| ▲ Speed Index | 7.5 s | ▲ First CPU Idle | 9.8 s |
| ▲ Time to Interactive | 9.8 s | ▲ Max Potential First Input Delay | 1,460 ms |

И что дальше?

Надо договариваться.

Порядок загрузки

155 КВ

Супер важные сторонние скрипты



Приложение



Важные сторонние скрипты



Остальные сторонние скрипты

Задача #100502

Название

Прикрутить видео обзор

Описание

Добавить скрипт `super-fature.js` в `<head>`.

~ 3 MB

Load On Interaction

Хочу обзор



Load On Interaction

Хочу обзор



Load On Interaction







~ 3 MB



< 1 KB

A green rectangular road sign with rounded corners and a white reflective border. The sign is mounted on two wooden posts and features the text "The Beginning" in a large, white, sans-serif font. The background is a bright blue sky with scattered white clouds.

The Beginning

Тулы

BABEL



babel.config.json

.browserslistrc

-5%



webpack

```
mode: 'production',
```

npm update

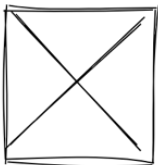


```
optimization: {  
  ...  
  minimize: false,  
},
```

Картинки

loading="lazy"

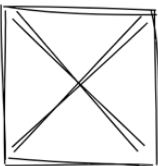
Магаз покупай у нас



Описание товара

100 руб

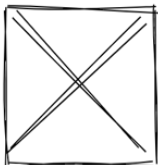
КУПИТЬ!



Описание товара

100 руб

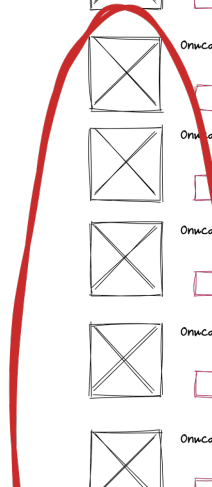
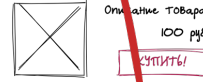
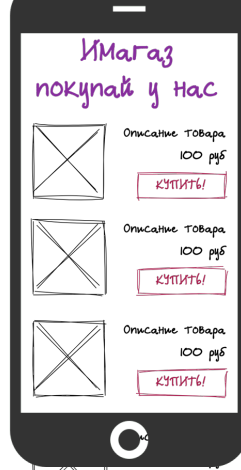
КУПИТЬ!



Описание товара

100 руб

КУПИТЬ!




| IE | Edge * | Firefox | Chrome | Safari | iOS Safari * | Opera Mini * | Chrome for Android | UC Browser for Android | Samsung Internet |
|----|--------|-----------------|--------|-------------------|-------------------|--------------|--------------------|------------------------|------------------|
| | | | 86 | | 12.4 | | | | |
| | 87 | ¹ 84 | 87 | ² 13.1 | ² 13.7 | | | | |
| 11 | 88 | ¹ 85 | 88 | ² 14 | ² 14.4 | all | 88 | 12.12 | 13.0 |
| | | ¹ 86 | 89 | ² TP | | | | | |
| | | ¹ 87 | 90 | | | | | | |
| | | | 91 | | | | | | |

jpeg → webp → avif

Шрифты



The image shows the developer console of a web browser. The console is open to the 'Console' tab, which is highlighted with a blue underline. The console displays a single warning message. The warning icon is a yellow triangle with an exclamation mark, and the number '1' is shown next to it. The message text is in a monospaced font and describes a performance issue related to a preloaded font that was not used. The console interface includes standard navigation icons (back, forward, refresh) and a search filter box.

 The resource <http://localhost:63342/performance-issues/fonts/redundant-font.html>:1
[ant-font/assets/roboto-v20-700-italic.woff2](#) was preloaded using link preload but not used
within a few seconds from the window's load event. Please make sure it has an appropriate
'as' value and it is preloaded intentionally.

>

```
<link href="/roboto-italic.woff2" rel="preload" ...>
```

```
<link href="/roboto-700-italic.woff2" rel="preload" ...>
```

```
<link href="/roboto-regular.woff2" rel="preload" ...>
```

```
<link href="/roboto-700.woff2" rel="preload" ...>
```

```
@font-face {  
  font-family: 'Roboto';  
  src: url('./roboto-italic.woff2')  
        format('woff2');  
  font-weight: 400;  
  font-style: italic;  
}
```


Find in Path

File mask: *.scss



Q→ **italic**

× ↶ Aa W .*

In Project Module Directory Scope

Nothing found

Check search scope or try search options

Nothing to show



Open in Find Window

- 1 10 Kb

```
@font-face {  
  font-family: 'Roboto';  
  src: url('./roboto-regular.woff2')  
        format('woff2'),  
        url('./roboto-regular.woff')  
        format('woff');  
  font-style: normal;  
  font-weight: 400;  
}
```

```
@font-face {  
  font-family: 'Roboto';  
  src:  
  
    url('./roboto-regular.woff2')  
      format('woff2'),  
    url('./roboto-regular.woff')  
      format('woff');  
  font-style: normal;  
  font-weight: 400;  
}
```

```
@font-face {
  font-family: 'Roboto';
  src: local('Roboto'),
       local('Roboto-Regular'),
       url('./roboto-regular.woff2')
         format('woff2'),
       url('./roboto-regular.woff')
         format('woff');
  font-style: normal;
  font-weight: 400;
}
```



Home

Working

Speaking

Writing

Web Font Anti-Pattern: Using local fonts

Never mix locally installed fonts and web fonts in `@font-face` rules. Assuming two fonts are identical because they share a name is a recipe for disaster.

The `@font-face` `src` property takes one or multiple URLs, which tells the browser where to find a web font. The `src` property also accepts a `local()` value which refers to a local font by name. The browser will check if the font

```
@font-face {
  font-family: 'Roboto';
  src:
    local('Roboto'),
    local('Roboto-Regular'),
    url('./roboto-regular.woff2')
      format('woff2'),
  font-style: normal;
  font-weight: 400;
}
```

```
@font-face {  
  font-family: 'Roboto';  
  src:  
    local('Roboto'),  
    local('Roboto-Regular'),  
    url('./roboto-latin_cyrillic-regular.woff2')  
      format('woff2'),  
  font-style: normal;  
  font-weight: 400;  
}
```


Noto Serif

serif

4 styles regular, italic, 700, 700italic

7 charsets cyrillic, cyrillic-ext, greek, greek-ext, latin, latin-ext, vietnamese

Rank 24 in popularity of 1035 fonts in total

Last modified 2020-09-10 (v9)

I. Select charsets: (default is `latin`)

cyrillic cyrillic-ext greek greek-ext latin latin-ext vietnamese

```
@font-face {  
  font-family: 'Roboto';  
  src:  
    local('Roboto'),  
    local('Roboto-Regular'),  
    url('./roboto-latin_cyrillic-regular.woff2')  
      format('woff2'),  
  font-style: normal;  
  font-weight: 400;  
  
}
```

```
@font-face {
  font-family: 'Roboto';
  src:
    local('Roboto'),
    local('Roboto-Regular'),
    url('./roboto-latin_cyrillic-regular.woff2')
      format('woff2'),
  font-style: normal;
  font-weight: 400;
  font-display: swap;
}
```

JANUARY 12, 2021 • [15 comments](#)

Front-End Performance Checklist 2021

<https://github.com/zachleat/web-font-loading-recipes/>

Удаляем код

Какой-то длинный текст. Нужно отобразить две строки.
А все что не помещается скрыть и... **показать все**

Какой-то длинный текст. Нужно отобразить две строки.
А все что не помещается скрыть и добавить в конце
три точки. И кнопку "показать все".

Elements Console Network Sources Performance Memory

top ▼ Filter All le

[Violation] Forced reflow while executing JavaScript took 176ms

Какой-то длинный текст. Нужно отобразить две строки.
А все что не помещается скрыть и добавить в конце
три точки. И кнопку "показать все".

- КОМПОНЕНТ

- 180 КВ

Elements Console Network Sources Performance Memory

top ▼ Filter All le

[Violation] Forced reflow while executing JavaScript took 176ms

Forced reflow





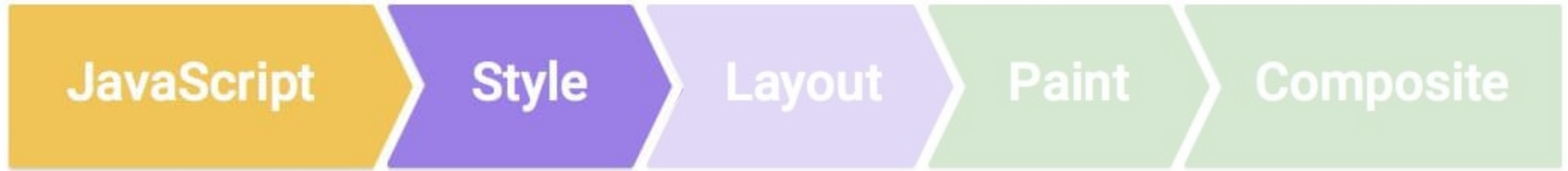
JavaScript

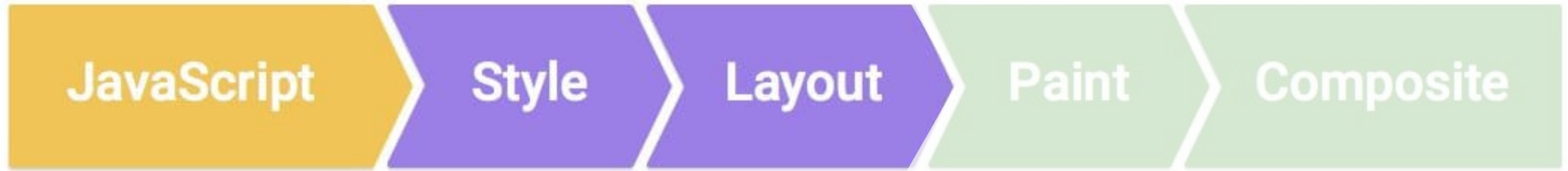
Style

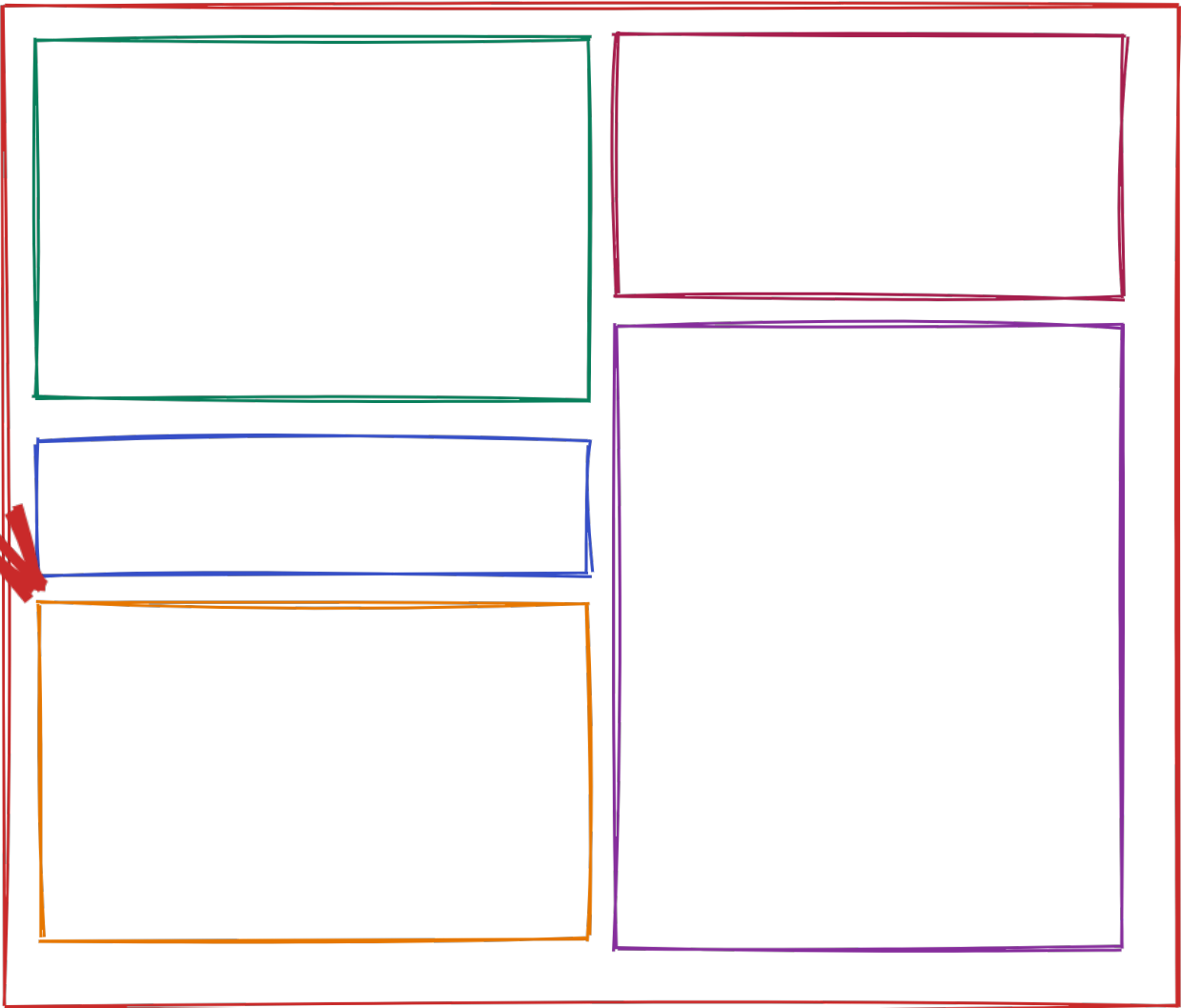
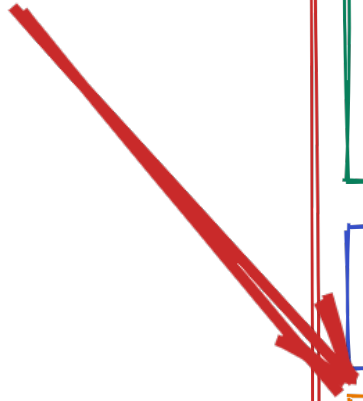
Layout

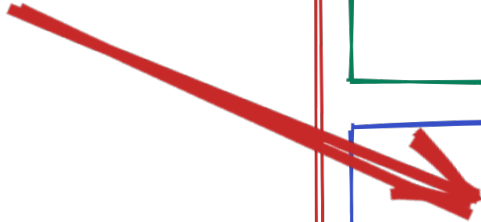
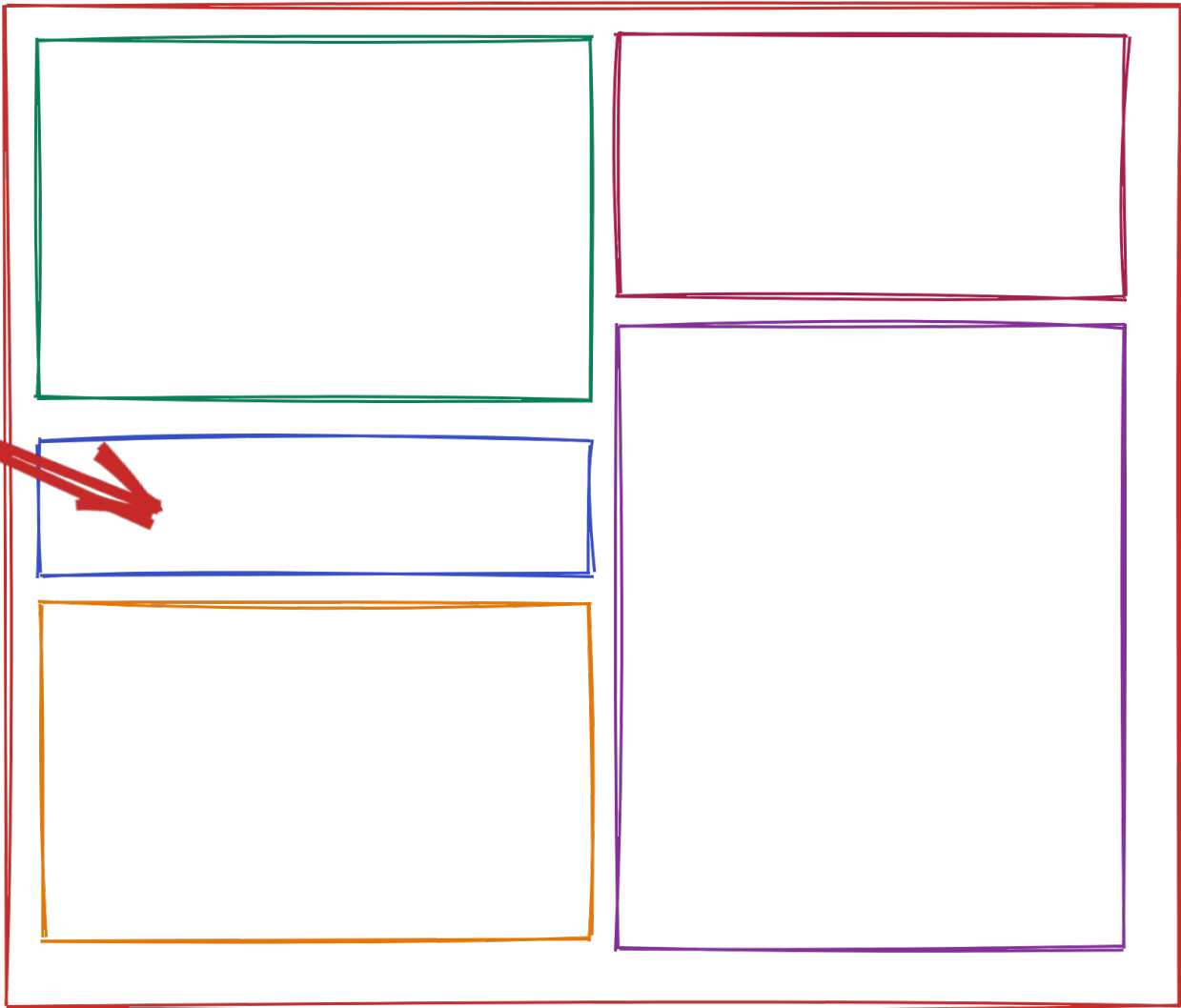
Paint

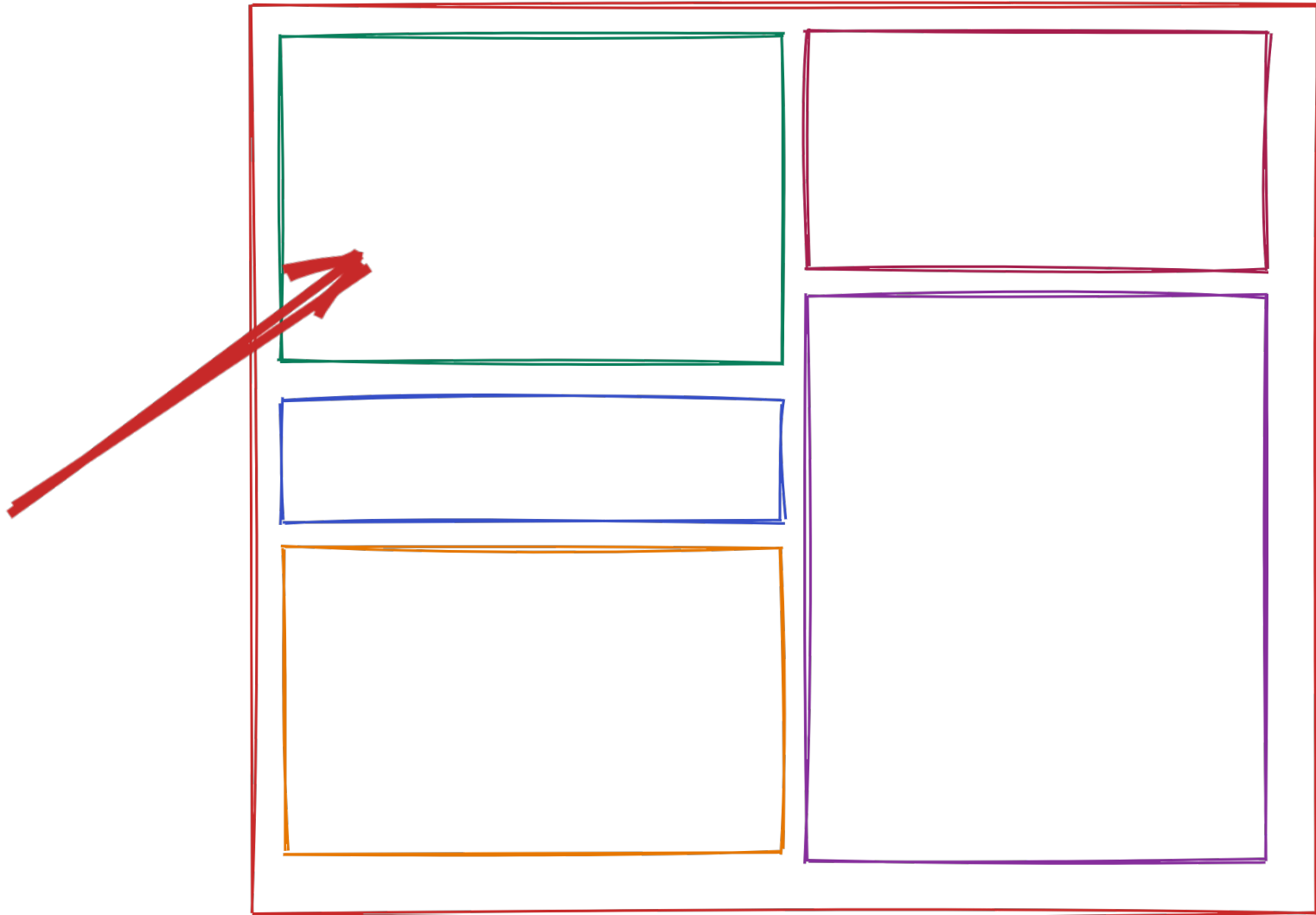
Composite

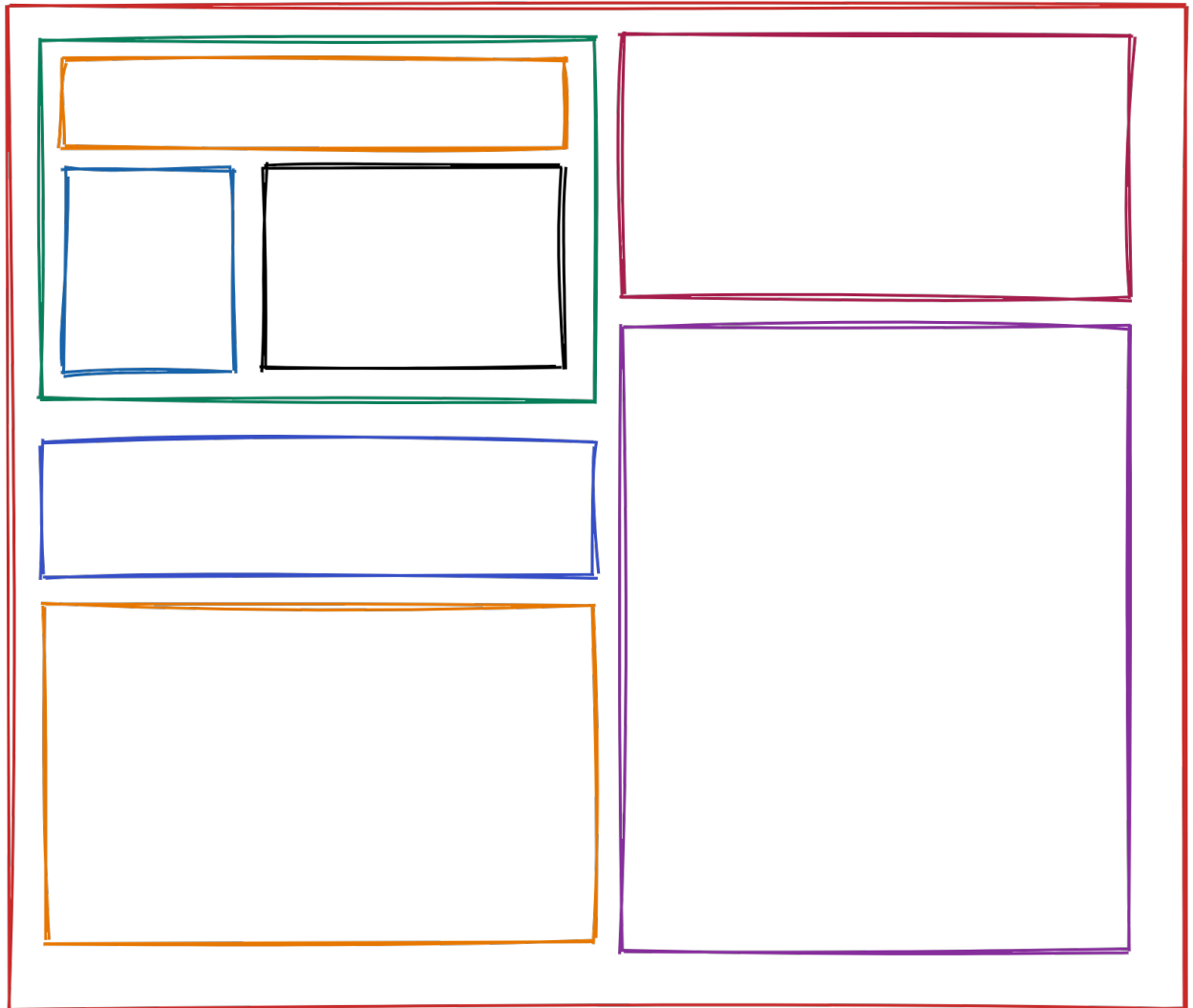






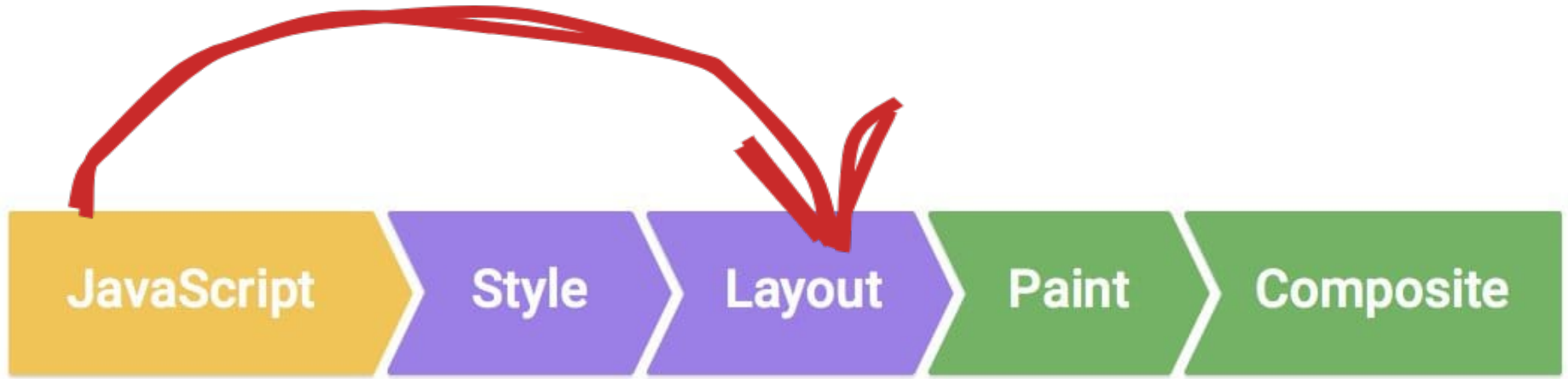












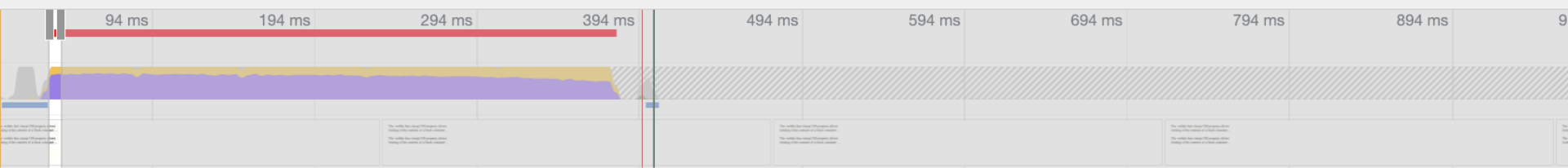
`e1.clientHeight`

Disable JavaScript samples

Network: Online ▼

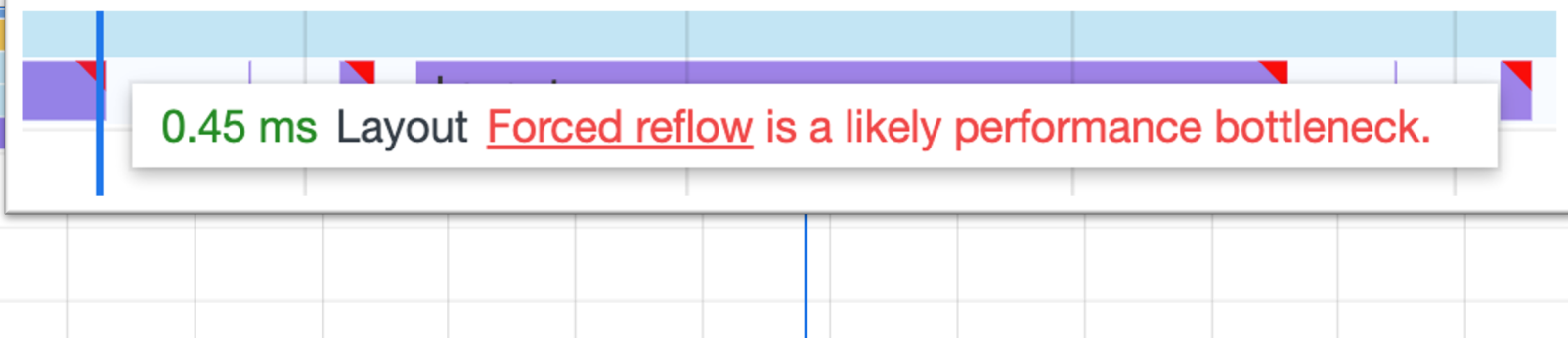
Enable advanced paint instrumentation (slow)

CPU: No throttling ▼



34.02 ms 34.07 ms 34.12 ms 34.17 ms 34.22 ms 34.27 ms 34.32 ms 34.37 ms 34.42 ms 34.47 ms 34.52 ms 34.57 ms 34.62 ms 34.67 ms 34.72 ms

- Evaluate Script
- (anonymous)
- clamp
- Layout
- ▼ Raster
- Rasterizer Thread 2
- ▼ GPU
- Chrome_ChildIOThread



Короткое название товара

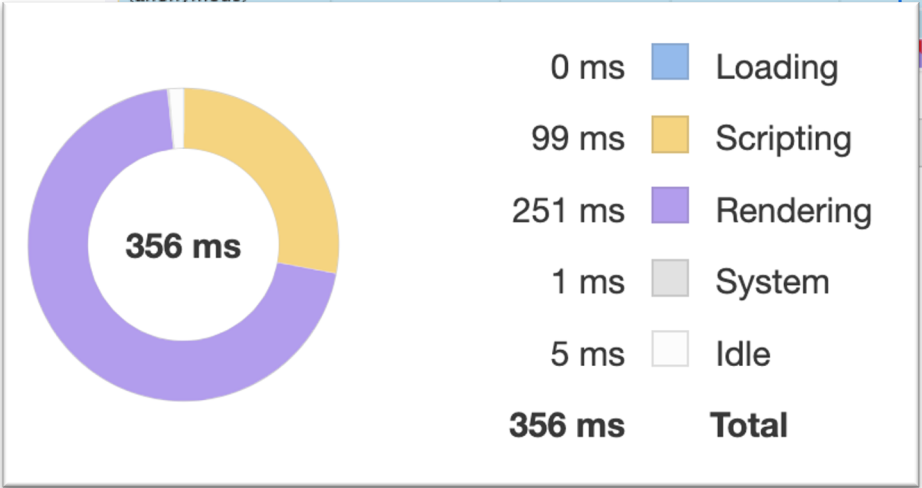
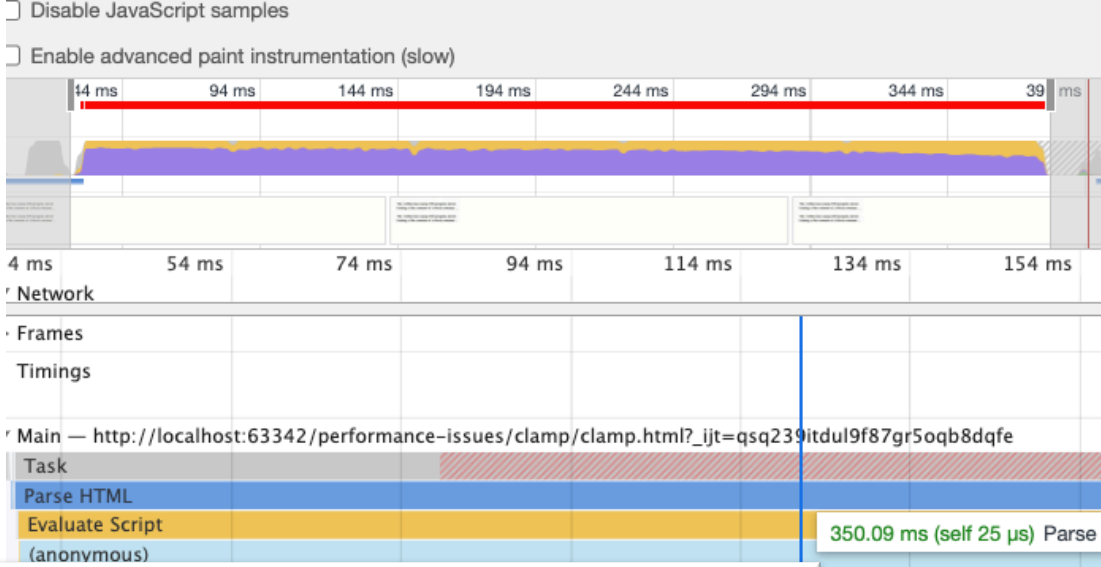
Короткое название товара

Очень длинное предлинное
название товара, со вс...

```
function clamp(e1) {  
  const words = e1.innerText.split('')  
  let cutCount = 1  
  while (e1.clientHeight > 40) {  
    e1.innerText =  
      words.slice(0, -cutCount)  
        .join('') + ' ...'  
    cutCount++  
  }  
}
```

```
function clamp(e1) {
  const words = e1.innerText.split(' ')
  let cutCount = 1
  while (e1.clientHeight > 40) {
    e1.innerText =
      words.slice(0, -cutCount)
        .join(' ') + ' ...'
    cutCount++
  }
}
```

```
function clamp(e1) {  
  const words = e1.innerText.split('')  
  let cutCount = 1  
  while (e1.clientHeight > 40) {  
    e1.innerText =  
      words.slice(0, -cutCount)  
        .join('') + ' ...'  
    cutCount++  
  }  
}
```

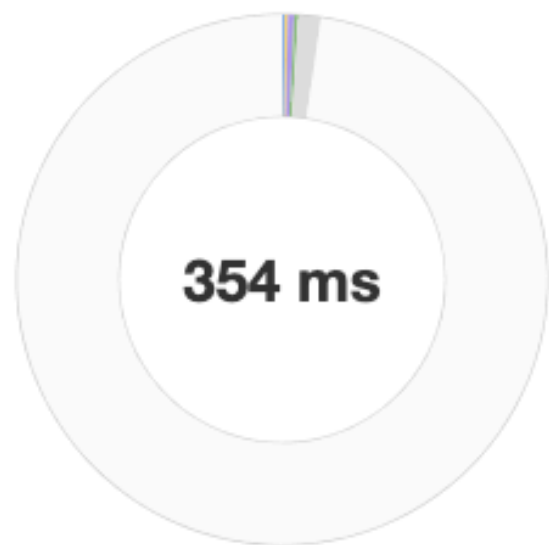




```
.clamp-css {  
  -webkit-line-clamp: 2;  
  display: -webkit-box;  
  -webkit-box-orient: vertical;  
  overflow: hidden;  
}
```

| IE | Edge * | Firefox | Chrome | Safari | iOS Safari * | Opera Mini * | Chrome for Android | UC Browser for Android | Samsung Internet |
|----|--------|---------|--------|--------|--------------|--------------|--------------------|------------------------|------------------|
| | | | 86 | | 12.4 | | | | |
| | 87 | 84 | 87 | 13.1 | 13.7 | | | | |
| 11 | 88 | 85 | 88 | 14 | 14.4 | all | 88 | 12.12 | 13.0 |
| | | 86 | 89 | TP | | | | | |
| | | 87 | 90 | | | | | | |
| | | | 91 | | | | | | |

Range: 36 ms – 390 ms



1 ms Loading

1 ms Scripting

1 ms Rendering

1 ms Painting

5 ms System

346 ms Idle

354 ms Total



Web Performance Calendar

The speed geek's favorite time of year

[2020 Edition](#)

HTML and CSS techniques to reduce your JavaScript

27th Dec 2020 by [Anthony Ricaud](#)

ABOUT THE AUTHOR



[Anthony Ricaud](#)
([@anthony_ricaud](#)) is a web engineer helping teams ship

More and more websites are relying on JavaScript for the interactions they provide. It enables pleasant experiences but also comes with undesirable effects:

- Longer page load times
- Page is unusable until the JavaScript loads and if it does so without any errors
- Usability, reactivity and accessibility can be lacking without a team with the means and resources to pay attention to those.

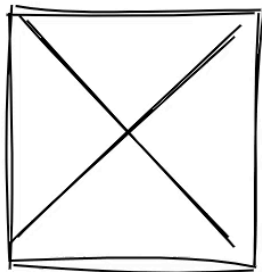
Given these drawbacks, relying on solutions provided natively by browsers enables you to benefit at low cost from the expertise of the community creating web standards. These solutions generally have the advantage of using less code, thus reducing maintenance efforts for a development team (for example, no need to update the libraries used).

In this article, we will explore some of these native solutions that are available to the majority of your users. We will see some examples but we won't go into all the subtleties,

<https://calendar.perfplanet.com/2020/html-and-css-techniques-to-reduce-your-javascript/>

ИМагаз

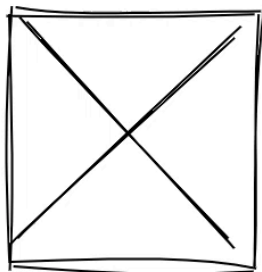
покупай у нас



Описание товара

100 руб

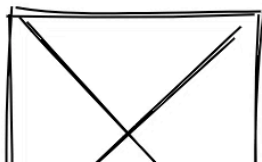
КУПИТЬ!



Описание товара

100 руб

КУПИТЬ!



Описание товара

100 руб


```
.header {  
    position: sticky;  
    top: 0;  
}
```

```
const header = getHeader()  
const fakeHeader = getFakeHeader()  
fakeHeader.style.height =  
    header.clientHeight + 'px'
```

```
.fake-header {  
  height: 264px;  
}
```

```
if (process.env.NODE_ENV !== 'production') {  
  const header = getHeader()  
  const fakeHeader = getFakeHeader()  
  if (header.clientHeight !== fakeHeader.clientHeight)  
    console.error(  
      `Высота Fake Header отличается от высоты настоящего`  
    )  
}
```





```
const firstHeight = firstEl.innerHeight  
changeDom(firstHeight)
```

```
const secondHeight = secondEl.innerHeight  
changeDom(secondHeight)
```

```
const firstHeight = firstEe.innerHeight
```

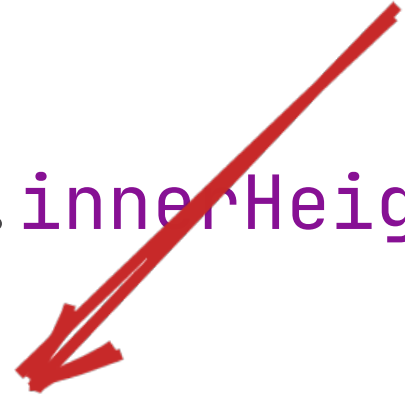
```
changeDom(firstHeight) ←
```

```
const secondHeight = secondEl.innerHeight
```

```
changeDom(secondHeight)
```

```
const firstHeight = firstEe.innerHeight  
changeDom(firstHeight)
```

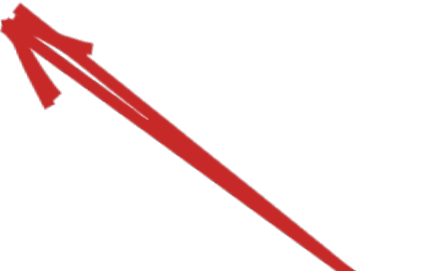
```
const secondHeight = secondEl.innerHeight  
changeDom(secondHeight)
```





```
const firstHeight = firstEl.innerHeight  
const secondHeight = secondEl.innerHeight  
changeDom(firstHeight)  
changeDom(secondHeight)
```

```
const firstHeight = firstEl.innerHeight  
const secondHeight = secondEl.innerHeight  
changeDom(firstHeight)  
changeDom(secondHeight)
```





Search or jump to...

Pulls Issues Marketplace Explore



wilsonpage / fastdom

Watch

125

Star

6.1k

Fork

256

Code

Issues 9

Pull requests 3

Actions

Projects

Wiki



master

Go to file

Add file

Code

About

Eliminates layout thrashing by batching DOM measurement and mutation tasks

Readme



wilsonpage 1.0.10



on 8 Jan

278



examples

Add CSS 'will-change' hint to gain 2...

3 years ago



extensions

better type definitions (#115)

2 years ago

paulirish / [what-forces-layout.md](#)

Last active 1 hour ago • Report abuse



Star

6.4k



Fork

 Code Revisions 25 Stars 5,000+ Forks 620

Download

What forces layout/reflow. The comprehensive list.

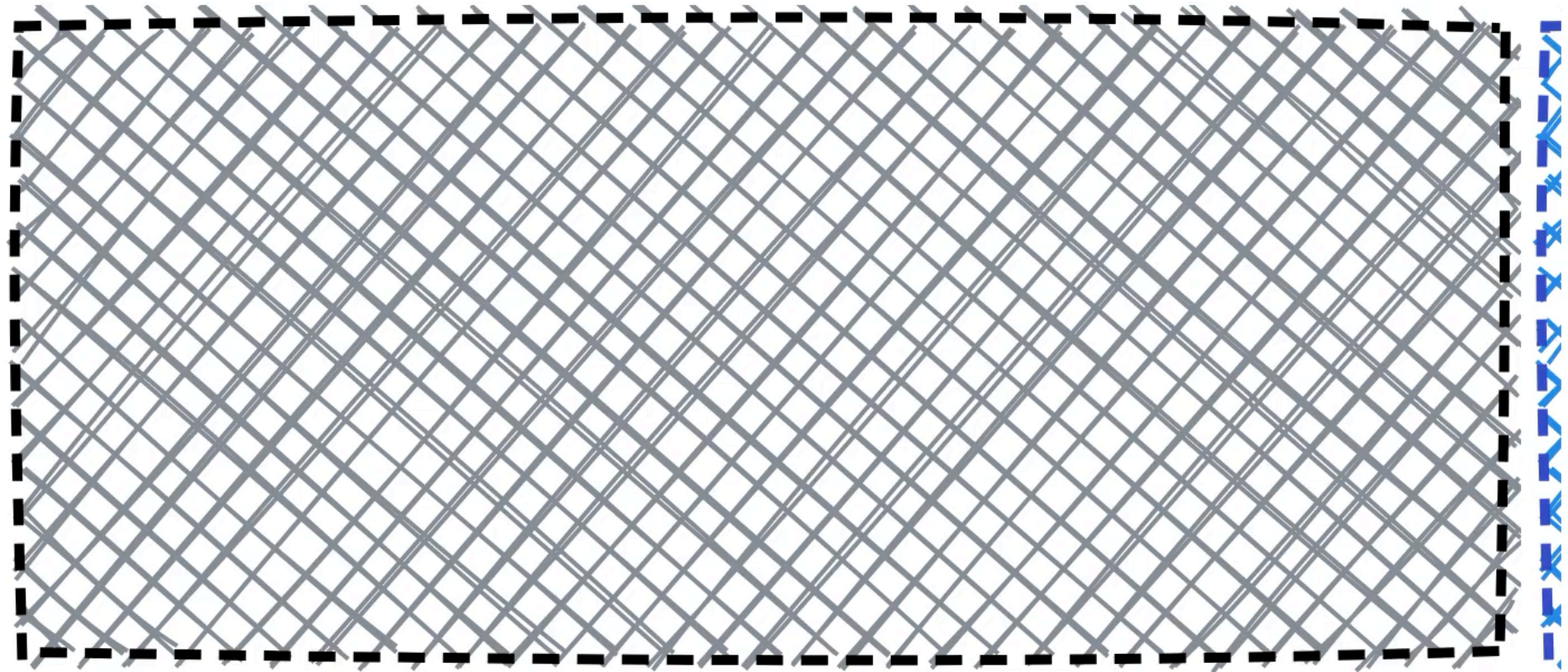
 [what-forces-layout.md](#)

What forces layout / reflow

All of the below properties or methods, when requested/called in JavaScript, will trigger the browser to synchronously calculate the style and layout*. This is also called reflow or [layout thrashing](#), and is common performance bottleneck.

Generally, all APIs that synchronously provide layout metrics will trigger forced reflow / layout. Read on for additional cases

<https://gist.github.com/paulirish/5d52fb081b3570c81e3a>



1

2

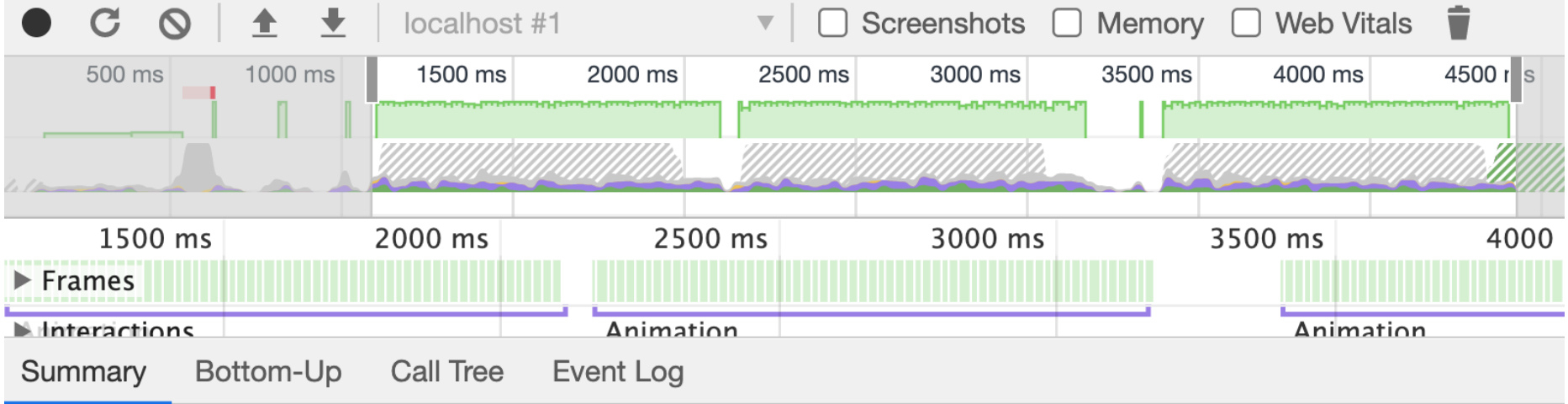
3

CSS

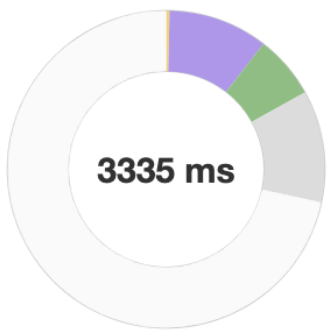
```
.slider__panel {  
  position: relative;  
  left: 0;  
  transition: left 1s;  
}
```

JS

```
...  
panel.style.left = `-${pageWidth}px`  
...
```



Range: 1.09 s – 4.43 s



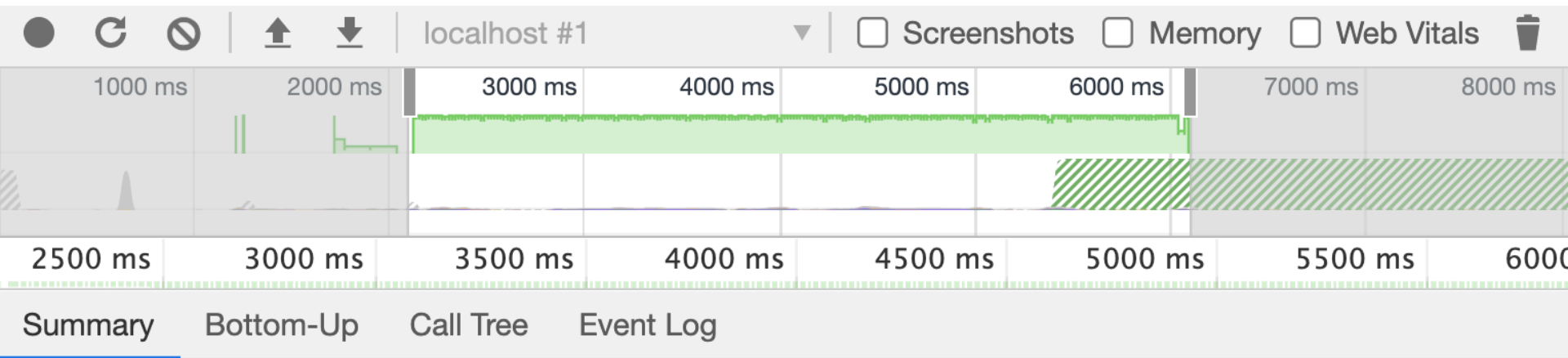
- 11 ms Scripting
- 339 ms Rendering
- 215 ms Painting
- 380 ms System
- 2389 ms Idle
- 3335 ms Total**

CSS

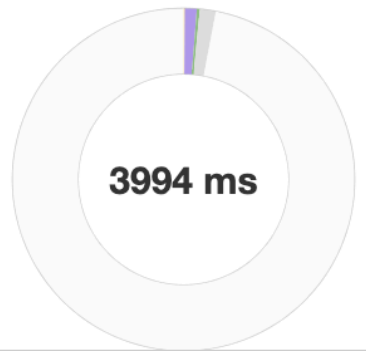
```
.slider__panel {  
  transform: translateX(0);  
  transition: transform 1s;  
}
```

JS

```
...  
panel.style.transform =  
  `-translateX(${pageWidth}px)`  
...
```



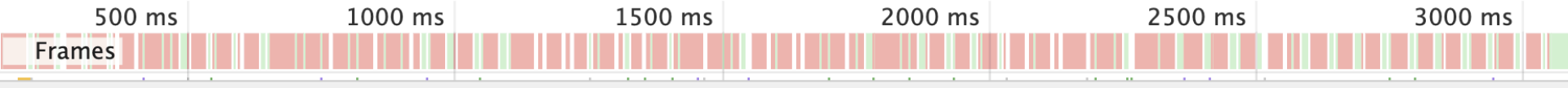
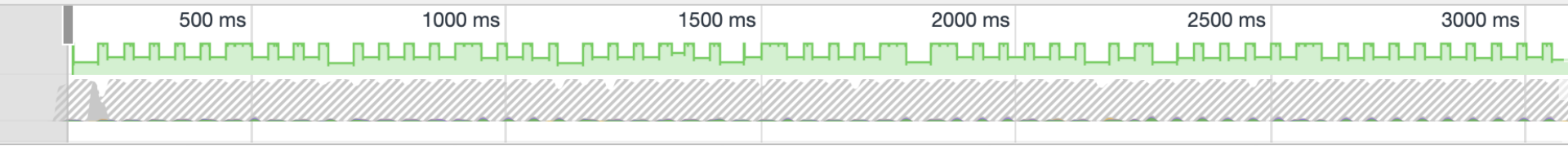
Range: 2.10 s – 6.10 s



- 5 ms Scripting
- 45 ms Rendering
- 11 ms Painting
- 61 ms System
- 3872 ms Idle

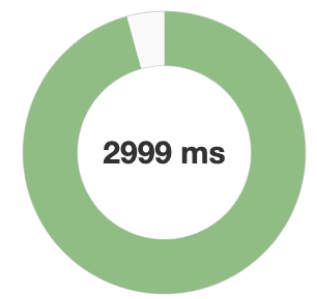

```
@keyframes placeholderShimmer {  
  0% {  
    background-position: -468px 0  
  }  
  to {  
    background-position: 468px 0  
  }  
}
```

Disable JavaScript samples Network: No throttling
 Enable advanced paint instrumentation (slow) CPU: No throttling



Summary | Bottom-Up | Call Tree | Event Log

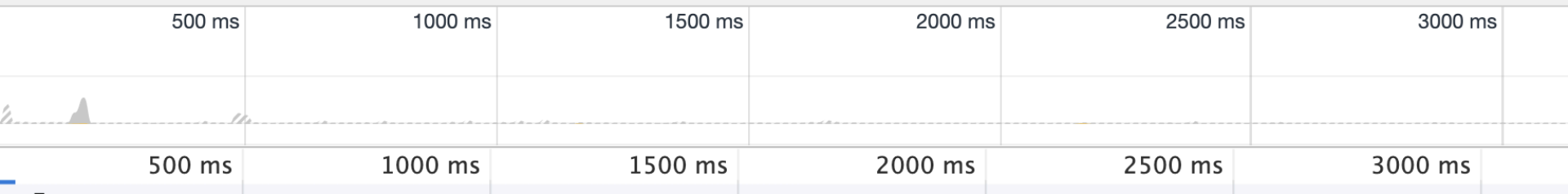
Range: 141 ms – 3.14 s



2871 ms GPU
128 ms Idle
2999 ms Total

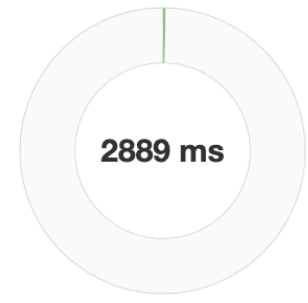
```
@keyframes placeholderShimmer {  
  0% {  
    transform: translateX(-40rem);  
  }  
  
  to {  
    transform: translateX(40rem);  
  }  
}
```


Disable JavaScript samples Network: No throttling
 Enable advanced paint instrumentation (slow) CPU: No throttling



Summary | Bottom-Up | Call Tree | Event Log

Range: 200 ms – 3.09 s



10 ms GPU
2879 ms Idle
2889 ms Total

● Layout
 ● Paint
 ● Composite

| | Blink | Gecko | WebKit | EdgeHTML | Blink | Gecko | WebKit | EdgeHTML |
|-----------------------|---------------------|-------|--------|----------|--------------------|-------|--------|----------|
| | Change from default | | | | Subsequent updates | | | |
| align-content | | | | | | | | |
| align-items | | | | | | | | |
| align-self | | | | | | | | |
| backface-visibility | | | | | | | | |
| background-attachment | | | | | | | | |

```
<div module="..."> ... </div>
```

```
function init() {  
  const modules = document  
    .querySelectorAll('[module]')  
  
  modules.forEach(  
    module => initModule(module)  
  )  
}
```

HTML



A hand-drawn diagram consisting of a horizontal bar divided into two sections. The left section is a small rectangle with a light blue background and diagonal hatching, containing the text 'HTML'. The right section is a much longer rectangle with a light red background and diagonal hatching, containing the text 'JS (init)'. The entire bar is outlined in black.

HTML

JS (init)

click



HTML

JS (init)

click



HTML

JS (init)

onClick

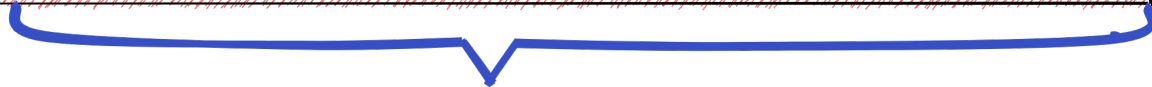
click



HTML

JS (init)

onClick



2,5 cek

click

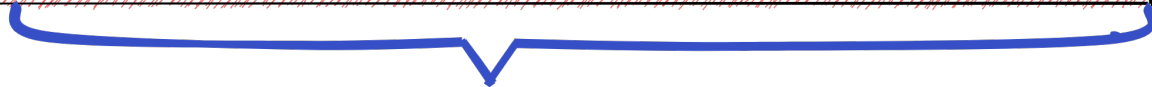


x30

HTML

JS (init)

onClick



2,5 cek

FID

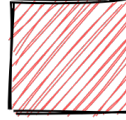
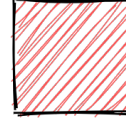
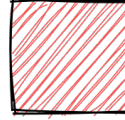
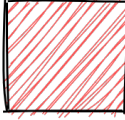
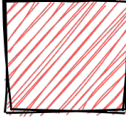
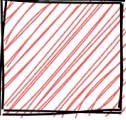
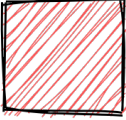
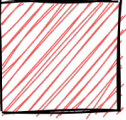
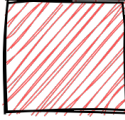
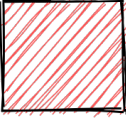
First Input Delay

FID

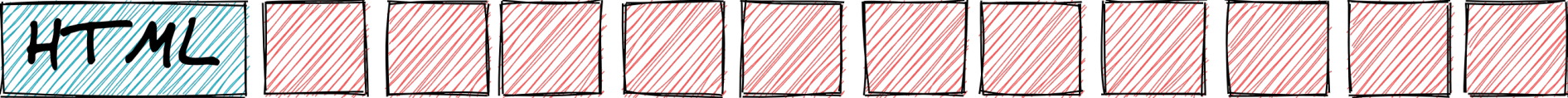
First Input Delay



HTML



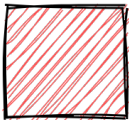
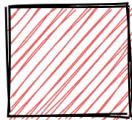
click



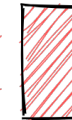
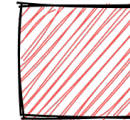
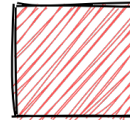
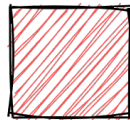
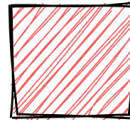
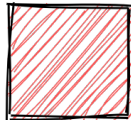
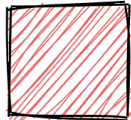
click



HTML



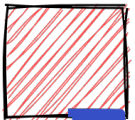
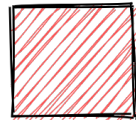
onClick



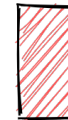
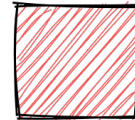
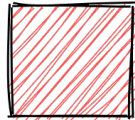
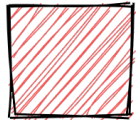
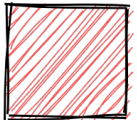
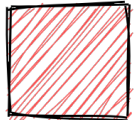
click



HTML



onClick



30 ms

```
function init() {  
  ...  
  modules.forEach(  
    module => initModule(module)  
  )  
}
```



```
function init() {  
  ...  
  modules.forEach(  
    module => setTimeout(  
      () => initModule(module),  
      0  
    )  
  )  
}
```

FID


First Input Delay



для МОБИЛЬНЫХ



для КОМПЬЮТЕРОВ

Данные наблюдений — Согласно [данным наблюдений](#) за последние 28 дней эта страница **не отвечает**  [требованиям к основным интернет-показателям](#).

■ First Contentful Paint (FCP) 2 s




● First Input Delay (FID)  23 ms



■ Largest Contentful Paint (LCP)  2.5 s



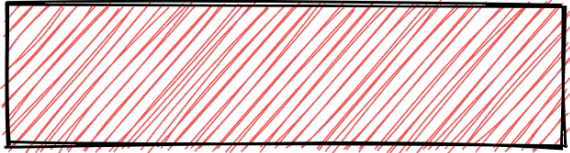
● Cumulative Layout Shift (CLS)  0.02

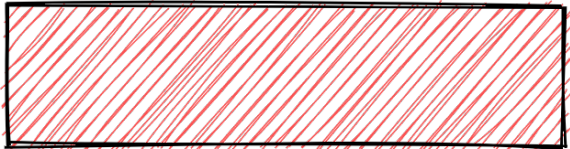


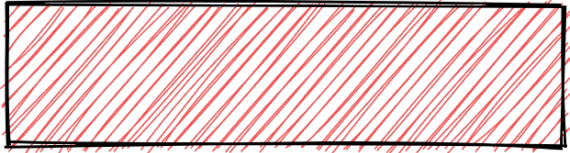
Показать данные об источнике

Total Blocking Time (TBT)

- ★ FID requires a real user and thus cannot be measured in the lab. However, the Total Blocking Time (TBT) metric is lab-measurable, correlates well with FID in the field, and also captures issues that affect interactivity. Optimizations that improve TBT in the lab should also improve FID for your users.



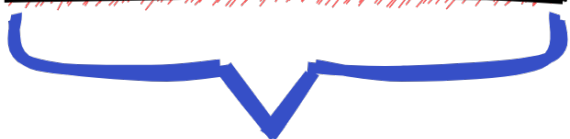
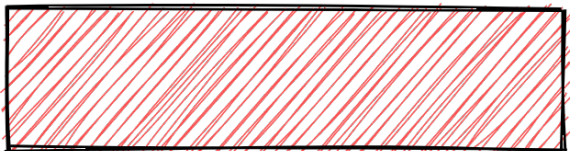




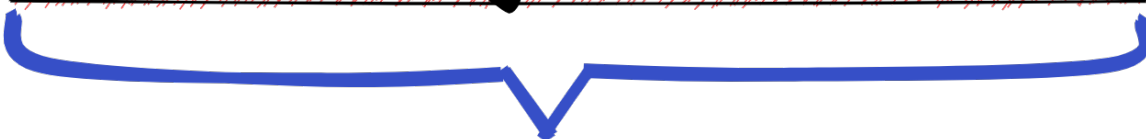
< 50 ms



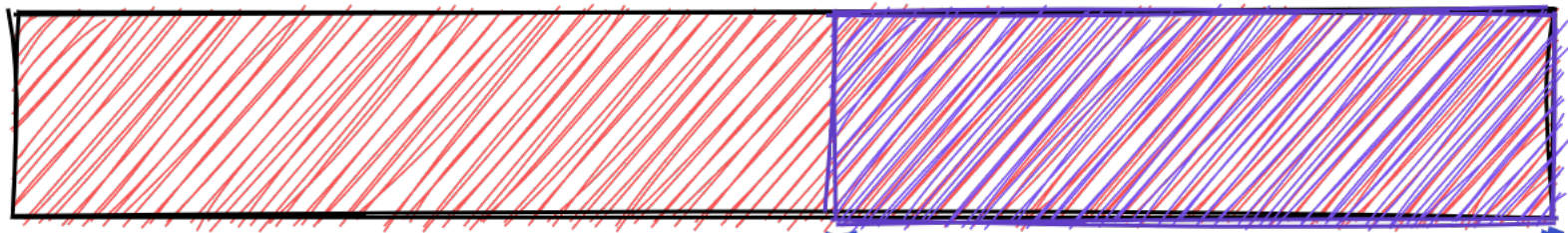
> 50 ms



< 50 ms



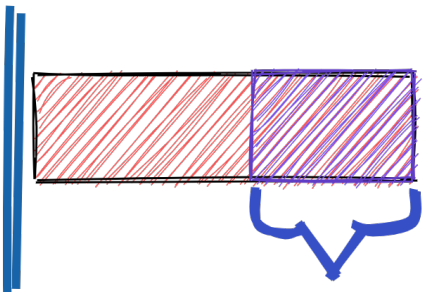
> 50 ms



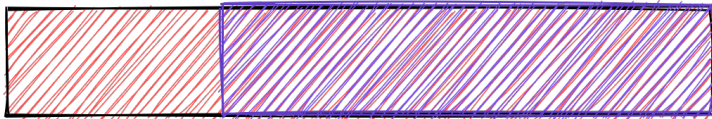
50 ms

40 ms

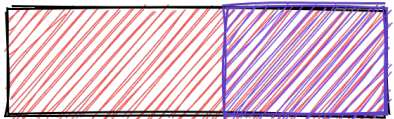
FCP



X



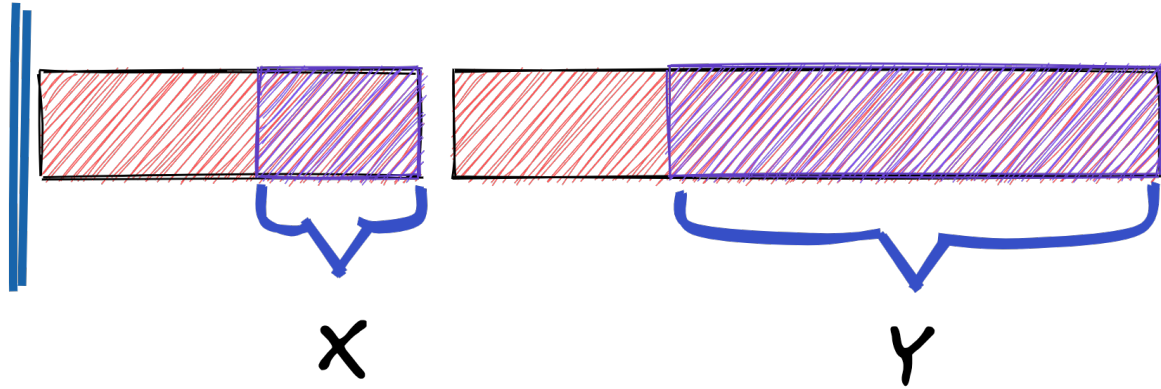
Y



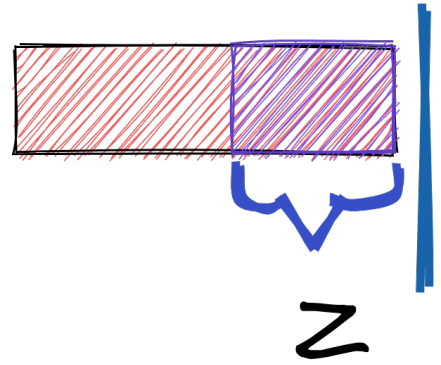
Z

TTI

FCP



TTI



$$TBT = x + y + z$$

```
function doSync () {  
  for (let i = 0; i < 1000; i++) {  
    job()  
  }  
}
```



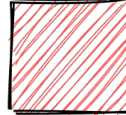
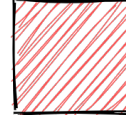
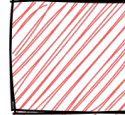
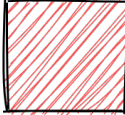
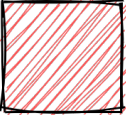
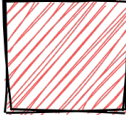
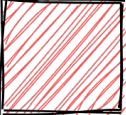
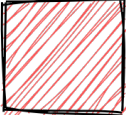
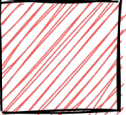
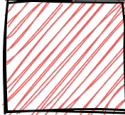
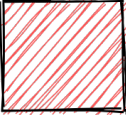
Performance

```
function doAsync () {  
  for (let i = 0; i < 1000; i++) {  
    setTimeout(job, 0)  
  }  
}
```



Performance

HTML



HTML



HTML



HTML



смысле

Init On Interaction

Наведи на меня



Init On Interaction

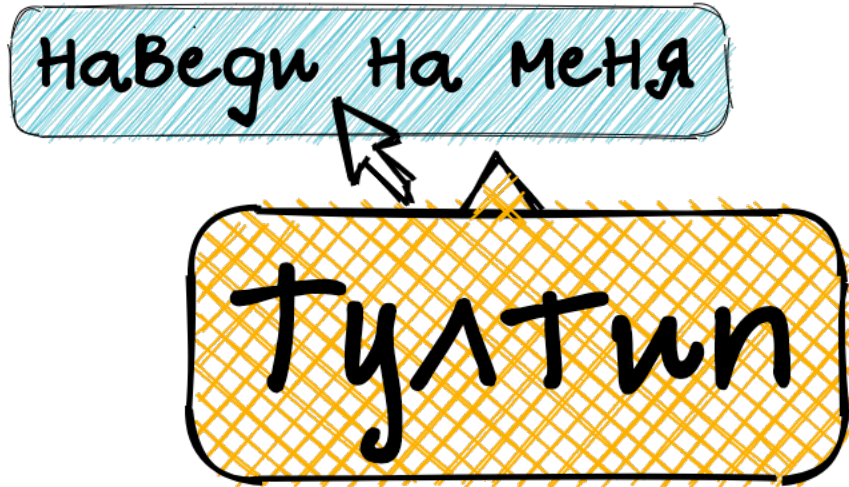
Наведи на Меня



Init On Interaction



Init On Interaction



```
function initOnHover(module) {  
    module.addEventListener('mouseenter',  
        function listener(event) {  
            initModule(module);  
        })  
}
```

```
function initOnHover(module) {  
  module.addEventListener('mouseenter',  
    function listener(event) {  
      initModule(module);  
      module.dispatchEvent(event);  
      module.removeEventListener(listener)  
    })  
}
```

-16 %

Intersection Observer API

[Веб-технологии для разработчиков](#) > [Интерфейсы веб API](#) > [Intersection Observer API](#)

Table of contents

[Основные понятия](#)

[Интерфейсы](#)

[Спецификации](#)

[Совместимость с браузерами](#)

[Смотрите также](#)

Intersection Observer API позволяет веб-приложениям асинхронно следить за изменением пересечения элемента с его родителем или областью видимости документа [viewport](#).

Исторически обнаружение видимости отдельного элемента или видимости двух элементов по отношению друг к другу было непростой задачей. Варианты решения этой задачи были ненадежными и замедляли работу браузера. К несчастью, по мере того как веб "взрослел", потребность в решении этой проблемы только росла по многим причинам, таким как:

- Отложенная загрузка изображений или другого контента по мере прокрутки страницы.

| IE | Edge * | Firefox | Chrome | Safari | iOS Safari * | Opera Mini * | Chrome for Android | UC Browser for Android | Samsung Internet |
|----|-----------------|---------|-----------------|--------|--------------|--------------|--------------------|------------------------|------------------|
| | | | ⁴ 86 | | 12.4 | | | | |
| | ⁴ 87 | 84 | ⁴ 87 | 13.1 | 13.7 | | | | |
| 11 | ⁴ 88 | 85 | ⁴ 88 | 14 | 14.4 | all | 88 | ³ 12.12 | 13.0 |
| | | 86 | ⁴ 89 | TP | | | | | |
| | | 87 | ⁴ 90 | | | | | | |
| | | | ⁴ 91 | | | | | | |



window.requestIdleCallback()

Веб-технологии для разработчиков > Интерфейсы веб API > Window > window.requestIdleCallback()

Русский

Change language

Table of contents

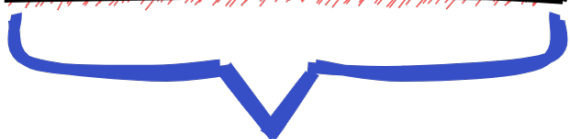
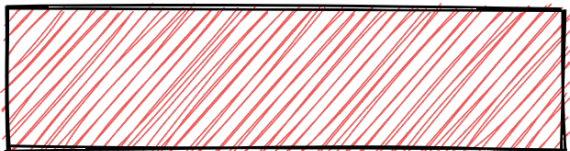
[Синтаксис](#)[Пример](#)[Спецификация](#)[Совместимость с браузерами](#)[Смотрите также](#)

Это экспериментальная технология

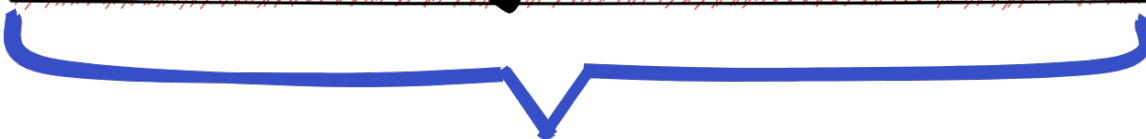
Так как спецификация этой технологии ещё не стабилизировалась, смотрите [таблицу совместимости](#) по поводу использования в различных браузерах. Также заметьте, что синтаксис и поведение экспериментальной технологии может измениться в будущих версиях браузеров, вслед за изменениями спецификации.

Метод `window.requestIdleCallback()` ставит в очередь функцию, которая будет вызываться во время периодов простоя браузера. Это позволяет разработчикам выполнять фоновую и низкоприоритетную работу в цикле основного события, без воздействия такими критично долгими

Related Topics



< 50 ms



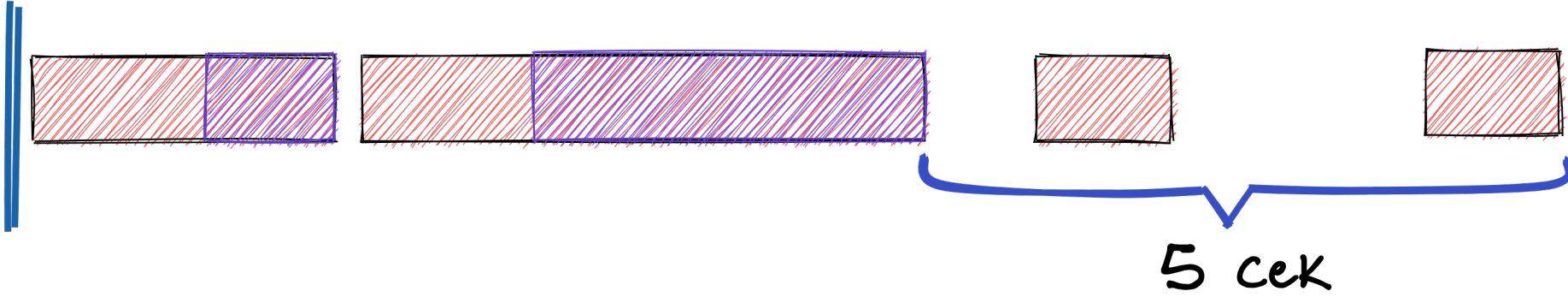
> 50 ms

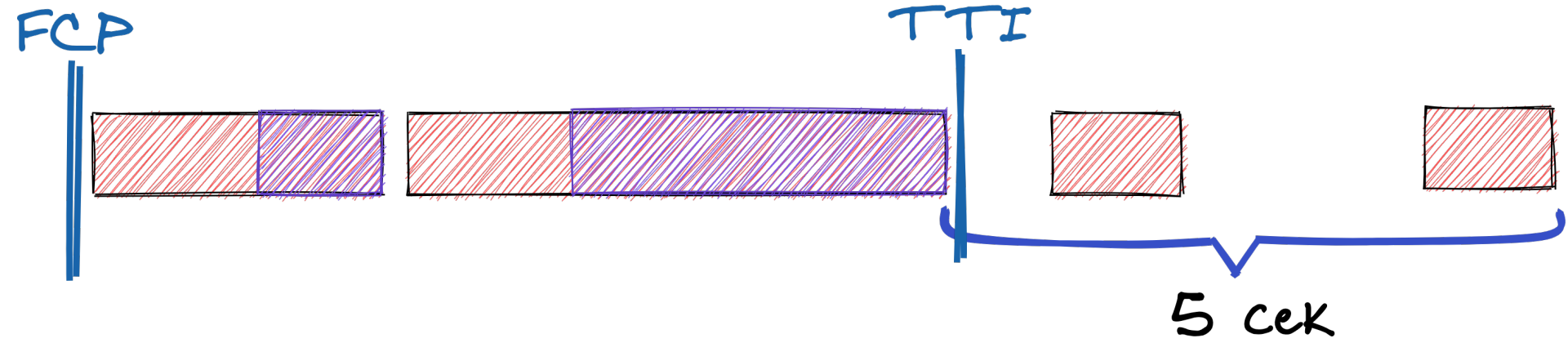
Time to Interactive (TTI)

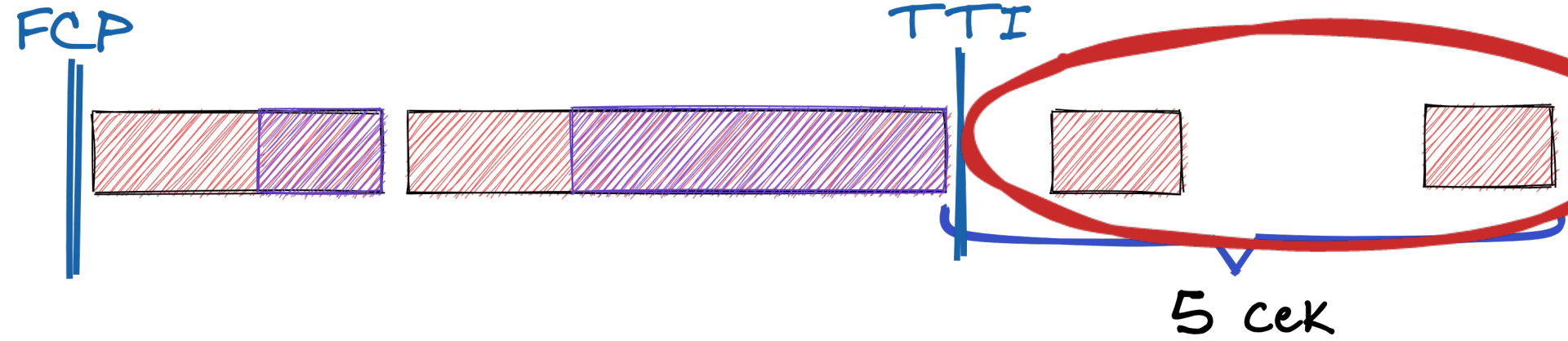
FCP



FCP







requestIdleCallback



Search or jump to...



Pulls

Issues

Marketplace

Explore



 **GoogleChromeLabs** / **idlize**

 Watch ▾

24

 Unstar

931

 Fork

35

 **Code**

 Issues **8**

 Pull requests **7**

 Actions

 Projects

 Wiki



 master ▾

Go to file

Add file ▾


 **Code** ▾

About



philipwalton Release version 0.1.1 

on 23 Oct 2018  12

 docs

fix typo in IdleQueue.md

3 years ago

Helper classes and methods for implementing the idle-until-urgent pattern



Ещё полезные ресурсы

- PageSpeed Insights
- WebPageTest

Ещё полезные ресурсы

- PageSpeed Insights
- WebPageTest
- <https://web.dev/learn/>
- <https://developers.google.com/web/fundamentals>
- Ник Мостовой. Оптимизация производительности фронтенда

Мелкими шажками в быстрый сайт

Материалы



Тверское
IT сообщество



[github.com/AlexanderShushunov/
performance-issues](https://github.com/AlexanderShushunov/performance-issues)



[@ashushunov](https://t.me/ashushunov)