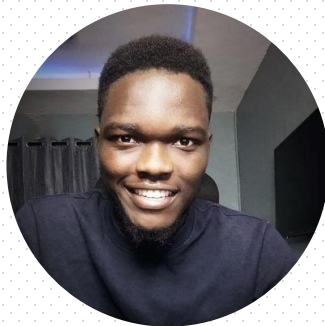




Islands Architecture



Olabode Lawal-Shittabey

Software Engineer, Open Source Enthusiast & Advocate



@babblebey

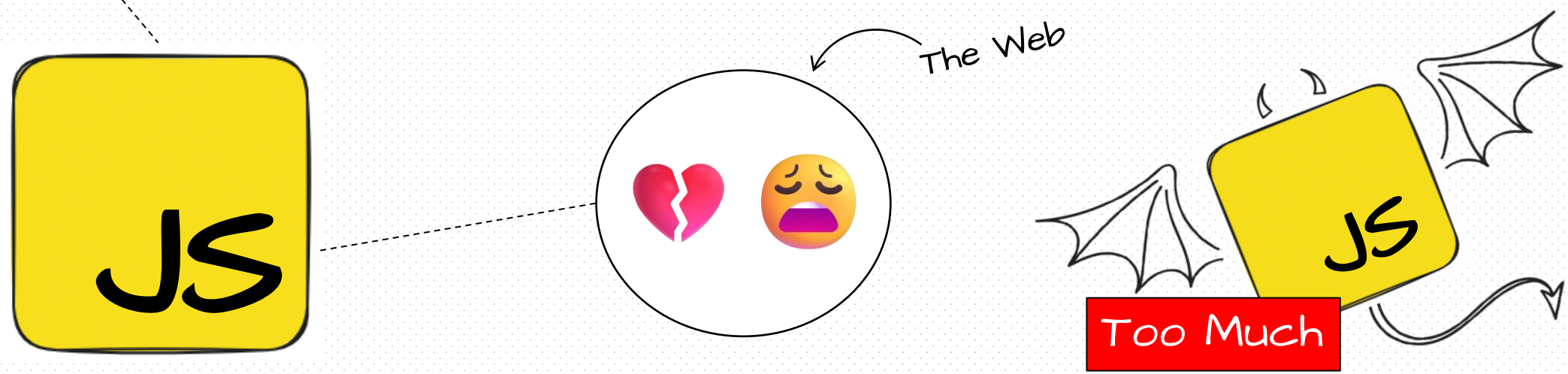
| babblebey.dev

Performance

Performance

Prestazione
Leistung
Actuación
Desempenho
प्रदर्शन (pradarshan)
表现 (Biǎoxiàn)

Important Architectural Criteria (especially on the web)





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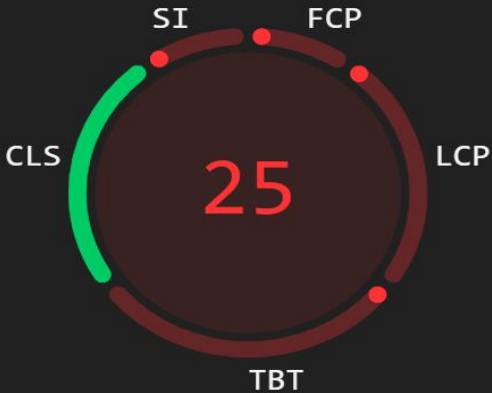
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[Why Qubly](#)

Get actionable insights



Performance

Values are estimated and may vary. The [performance score is calculated](#) directly from these metrics. [See calculator.](#)



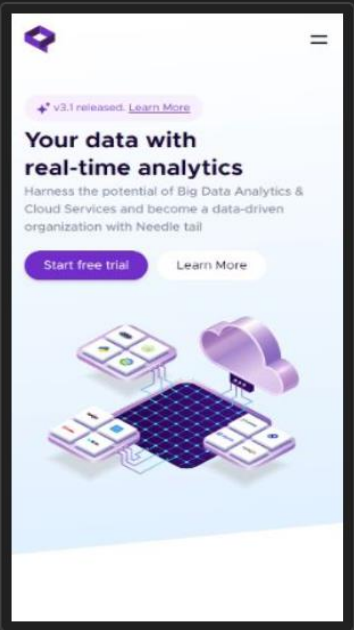
0–49



50–89



90–100



METRICS

Expand view



First Contentful Paint

13.1 s



Total Blocking Time

8,970 ms



Speed Index

13.2 s



Largest Contentful Paint

19.0 s



Cumulative Layout Shift

0

Can you relate!?

- Loaded a website and stared at a white screen (or best case a loading spinner) for a while!?


Bad FMP (First Meaningful Paint)

- Loaded a website and an interactive component just isn't working after multiple action!?

Slow TTI (Time to Interact)

Qubly - Landing Page

qubly-island.netlify.app



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Why Qubly

Get actionable insights from Big Data in 3 steps

ElementsConsolePerformance

(no recordings)

2

Screenshots

Memory

Disable JavaScript samples


Enable advanced paint instrumentation (slow)


CPU: 6× slowdown

Network: 2g Regular

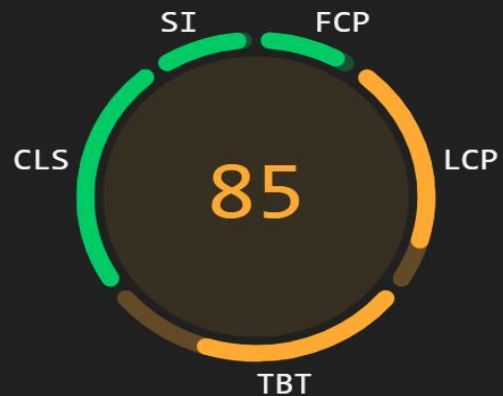
Hardware concurrency

2

Click the record button  or hit **Ctrl + E** to start a new recording.

Click the reload button  or hit **Ctrl + Shift + 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](#)



Performance

Values are estimated and may vary. The [performance score is calculated](#) directly from these metrics. [See calculator.](#)



0–49



50–89



90–100



METRICS

Expand view

● First Contentful Paint

1.8 s

■ Total Blocking Time

380 ms

● Speed Index

2.9 s

■ Largest Contentful Paint

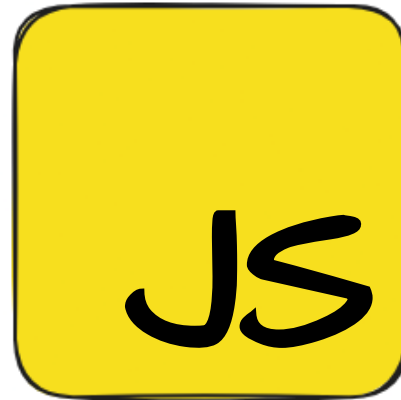
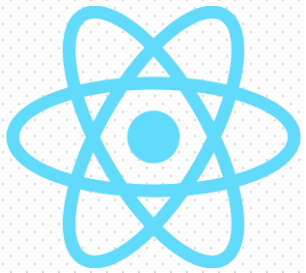
2.8 s

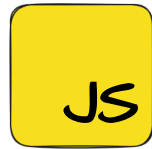
● Cumulative Layout Shift

0

The How

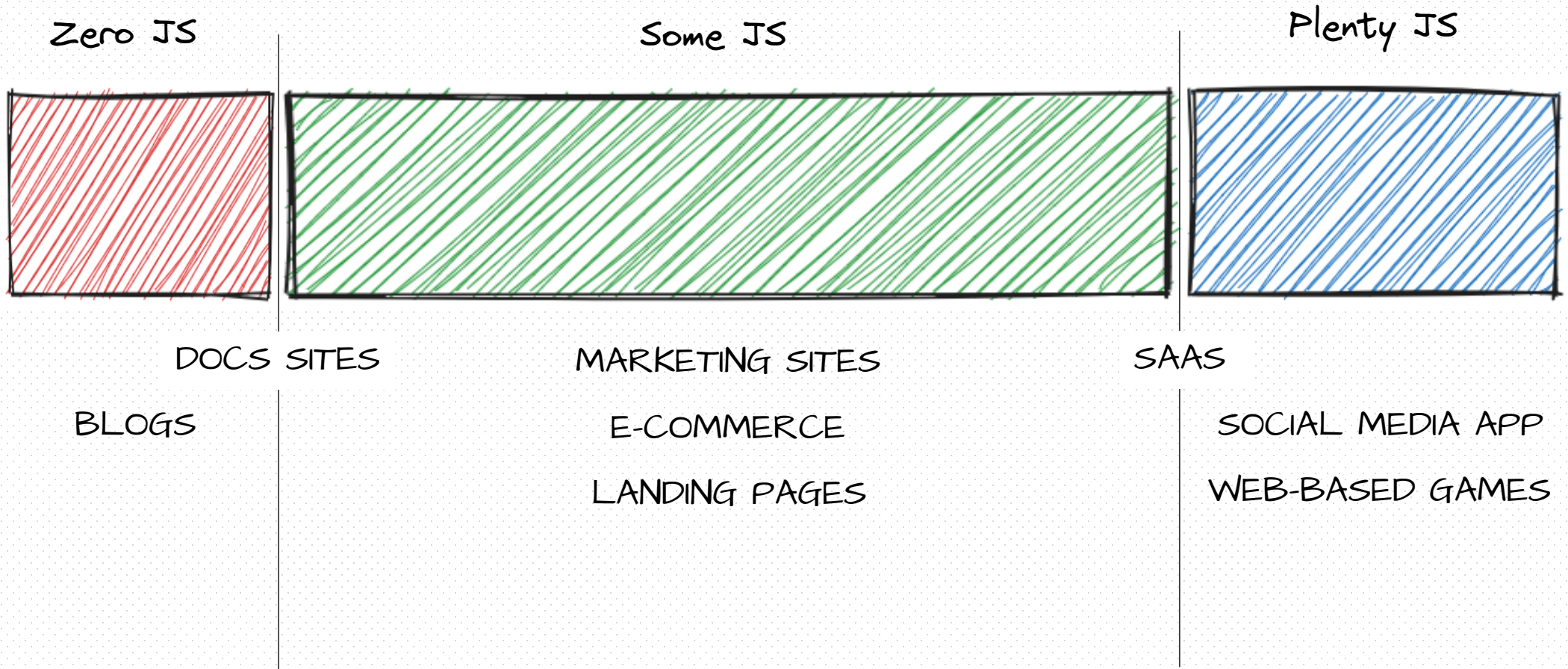
How we currently build on the web





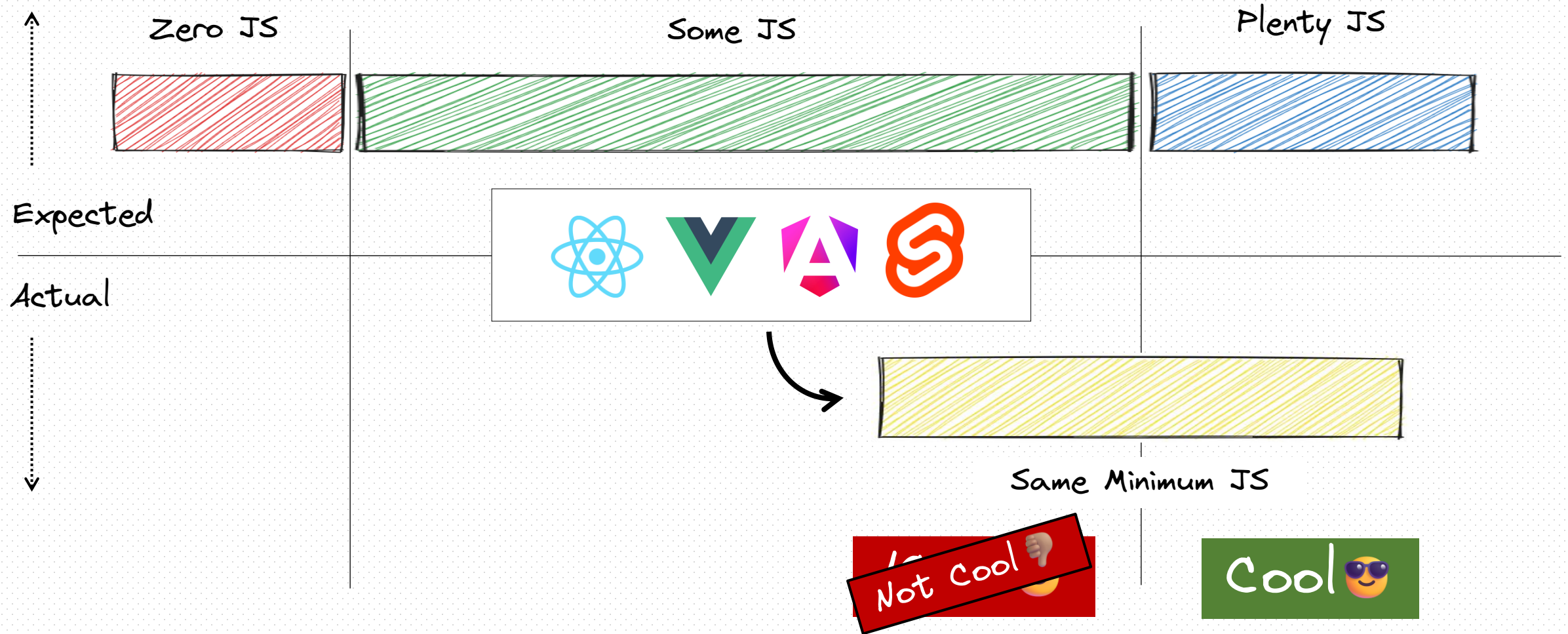
How much do we need?

For "Performance" sake

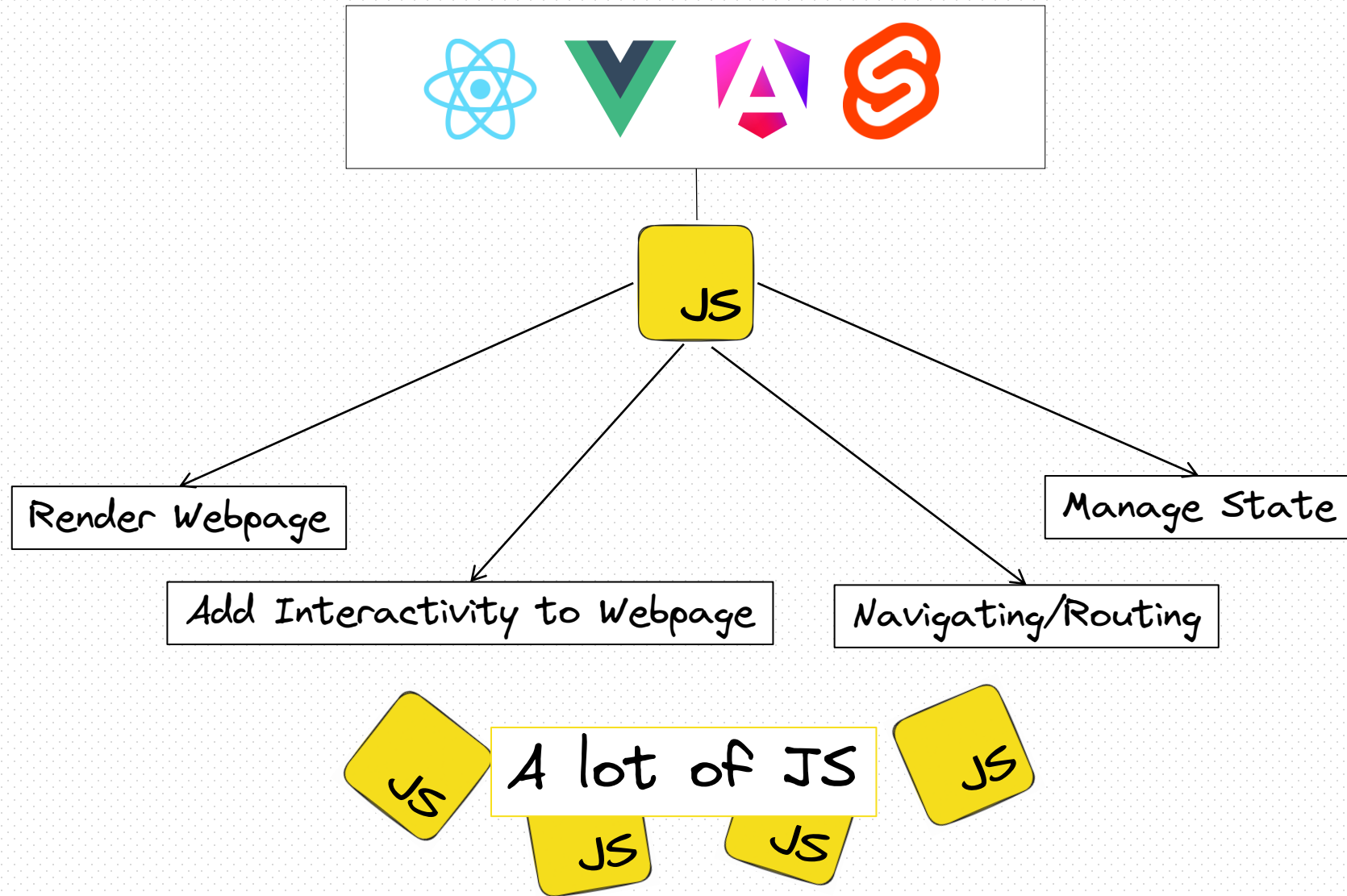




Expected vs Actual Output



How they roll



How do we address
this??????????

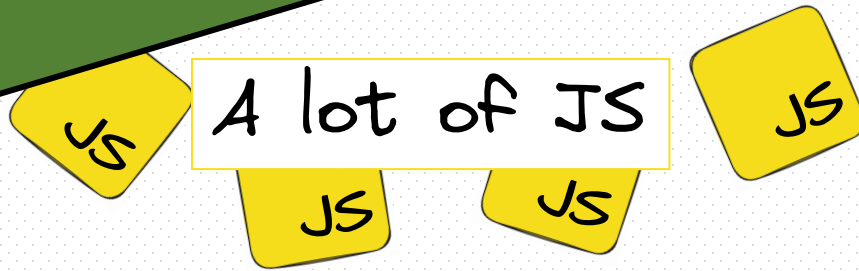


Islands Architecture

Global State

→
Navigating/Routing

A lot of JS



What is Islands
Architecture?

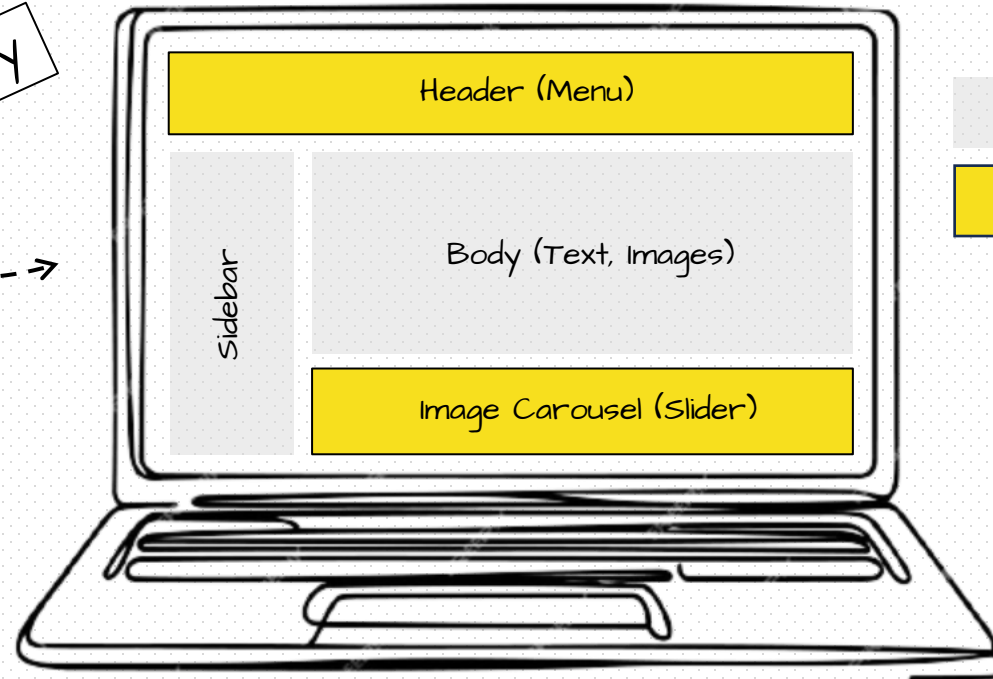
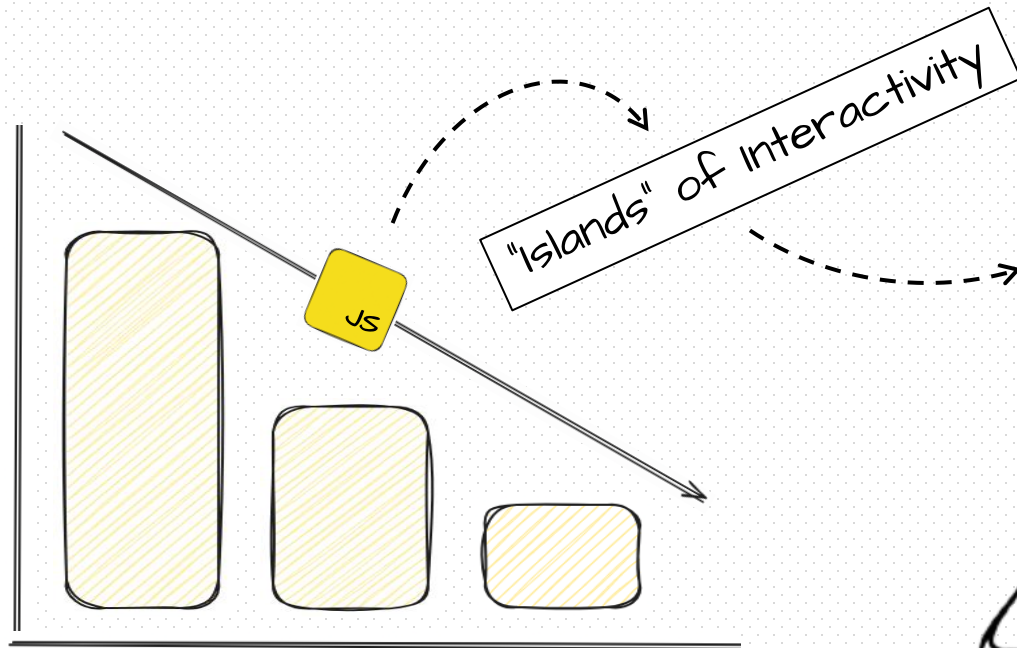


Katie Saylor-Miller



Jason Miller

Islands Architecture



Static HTML

With JavaScript

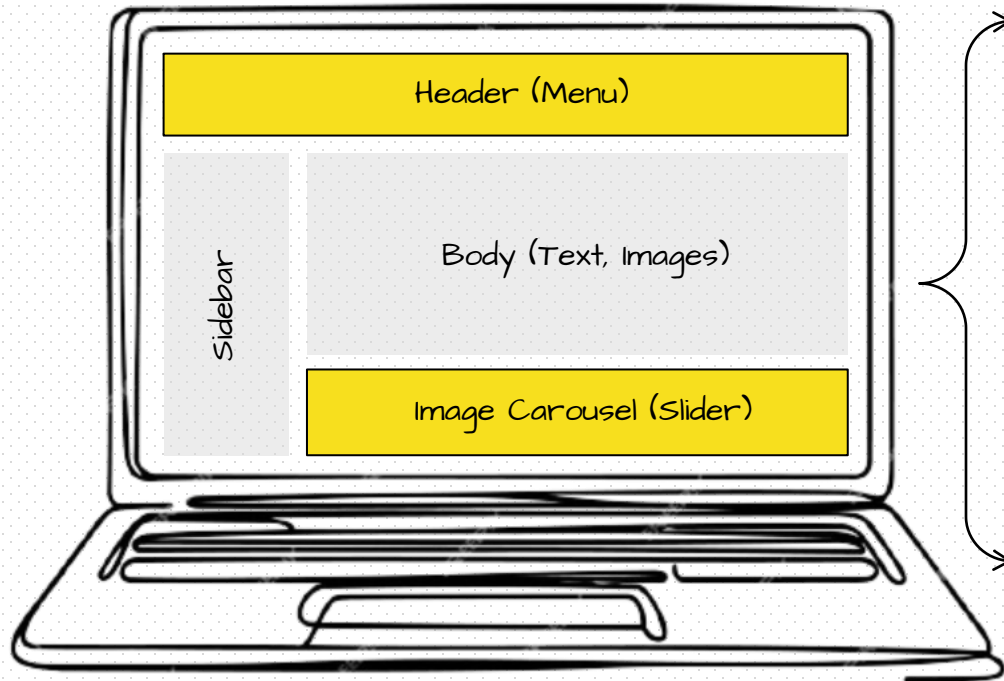


Katie Saylor-Miller



Jason Miller

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Performance Improvement

Fast Load Speed

Beautiful UX

Awesome DX

Important to Developers

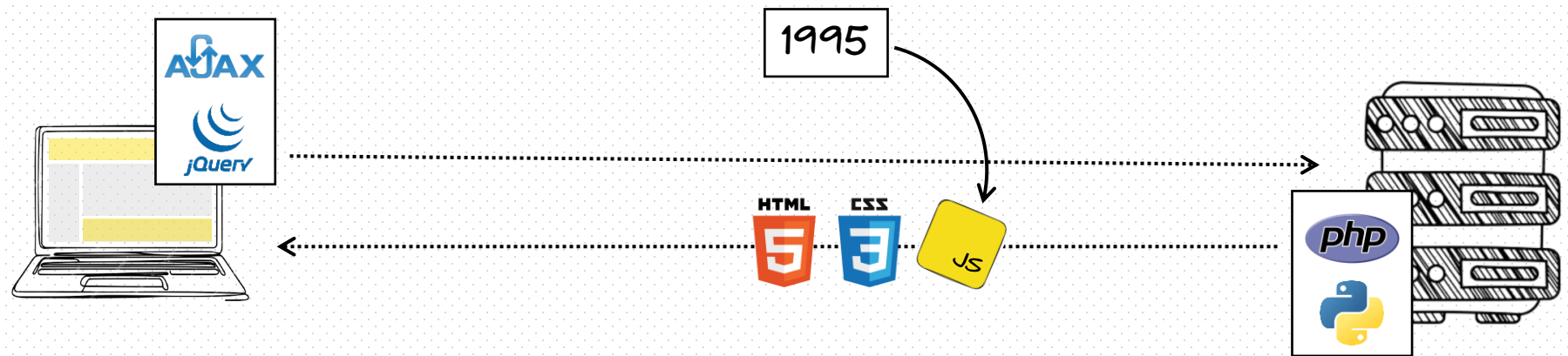
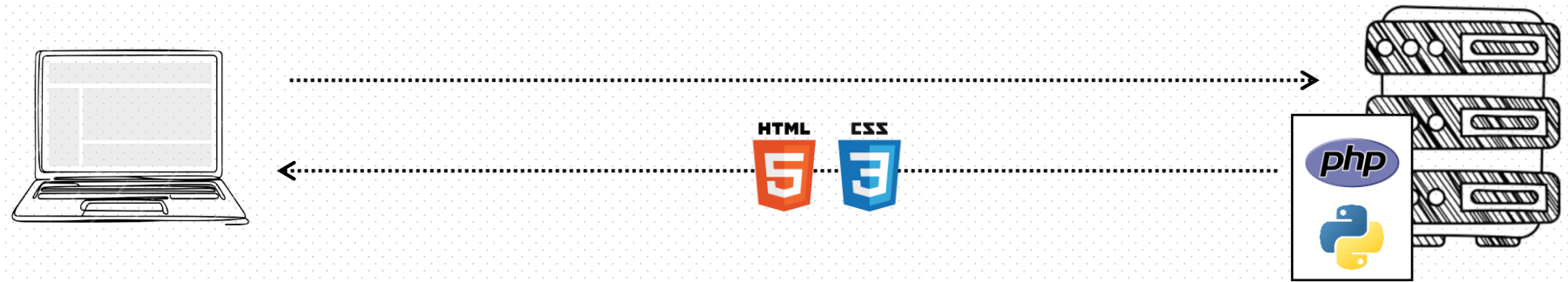
How ??



**"HOW" IS NEVER AS IMPORTANT AS
"WHY."**

Brief History: How we
built on the web

Multiple Page Applications



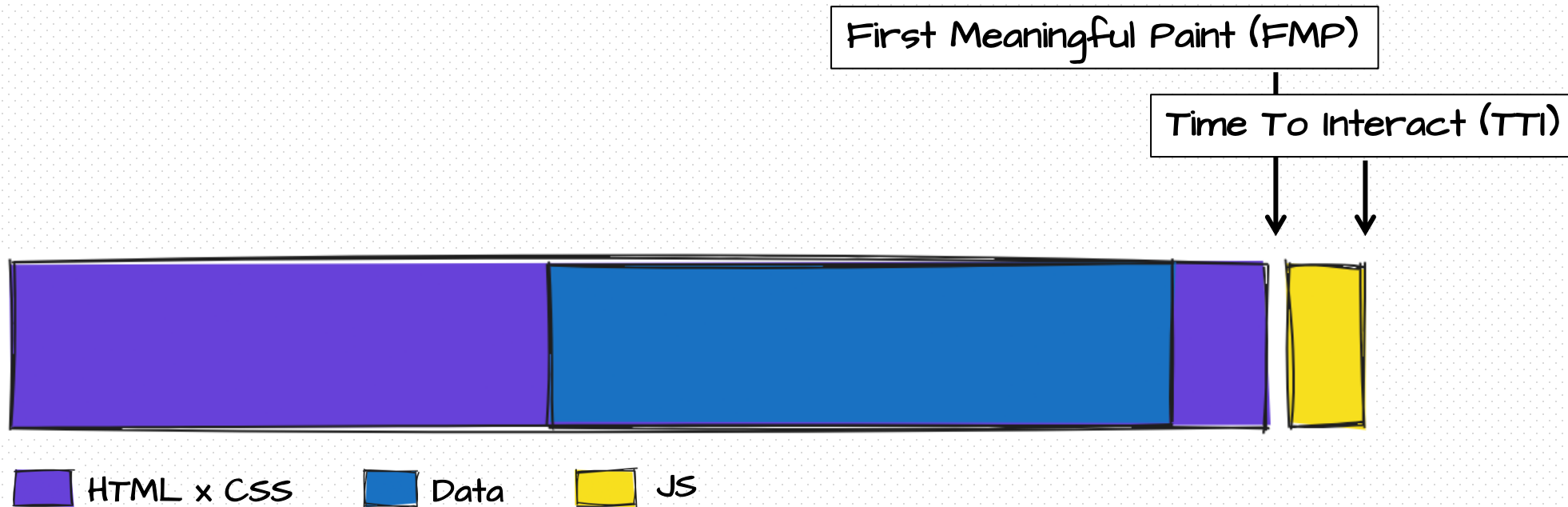
Static Site Generation (SSG)

Server-Side Rendering (SSR)

Multiple Page Applications

Static Site Generation (SSG)

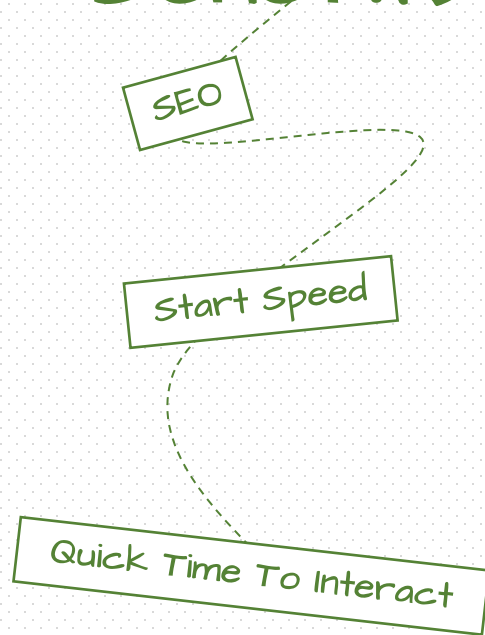
Server-Side Rendering (SSR)



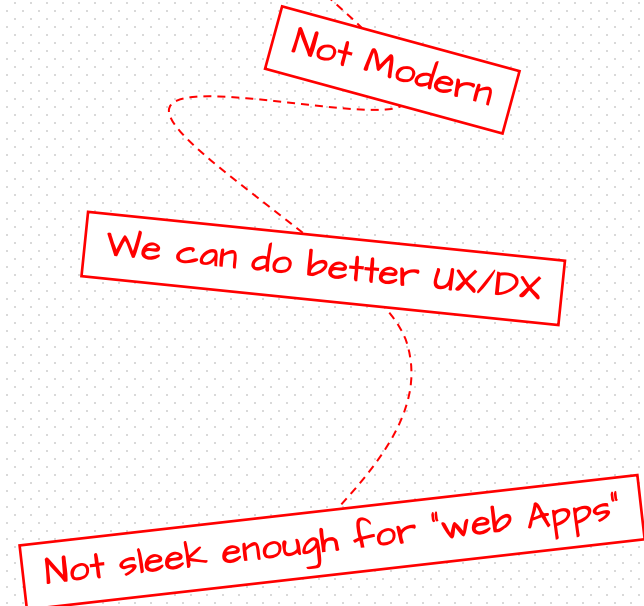
Multiple Page Applications

Static Site Generation (SSG)
Server Rendering (SSR)

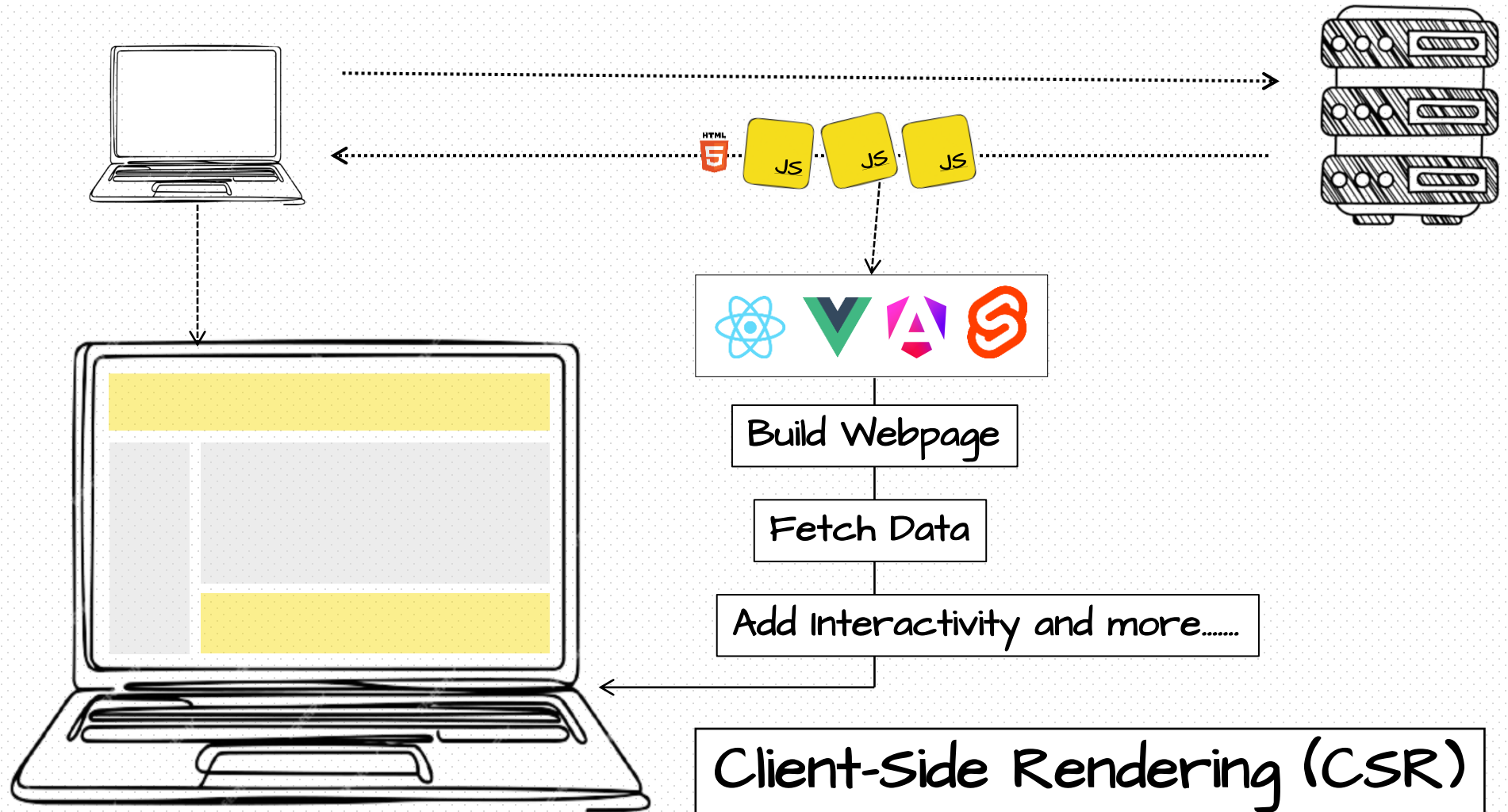
Benefits



Faults



Single Page Applications





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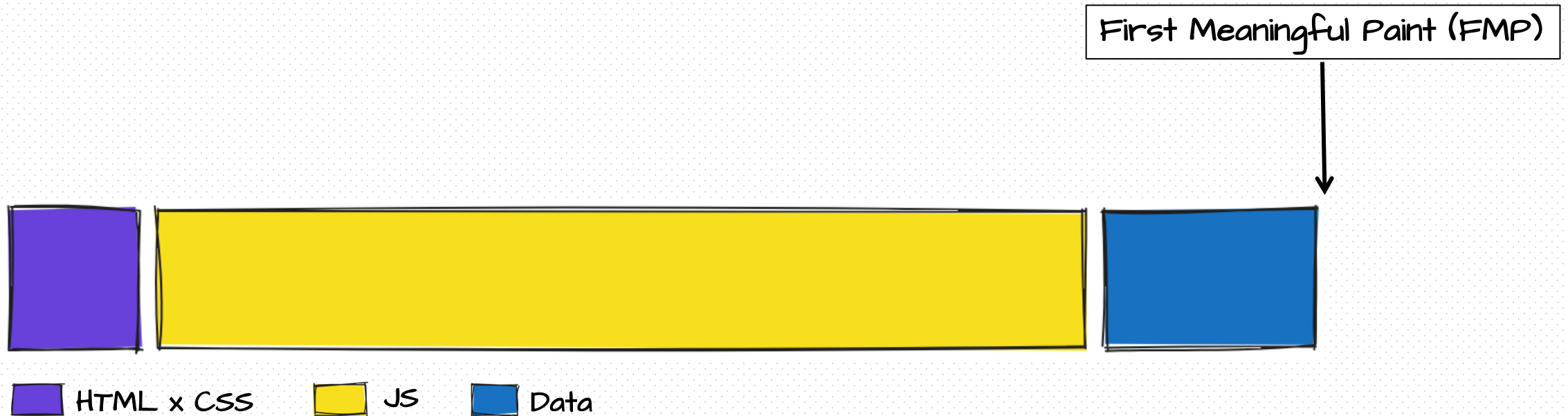


👁 Why Qubly

Get actionable insights

Single Page Applications

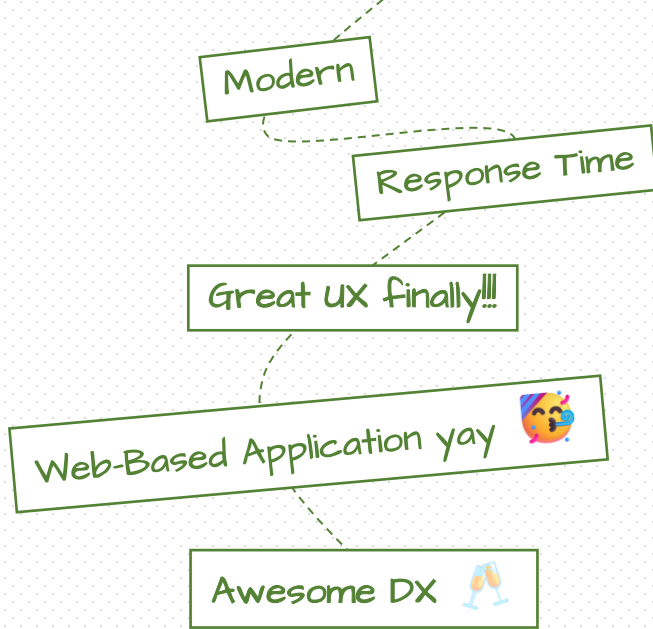
Client-Side Rendering (CSR)



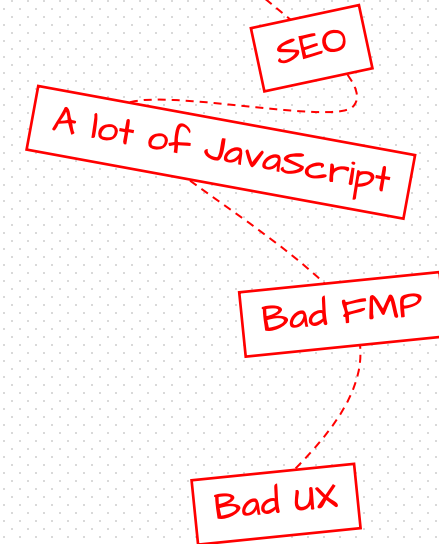
Single Page Applications

Client-Side Rendering (CSR)

Benefits



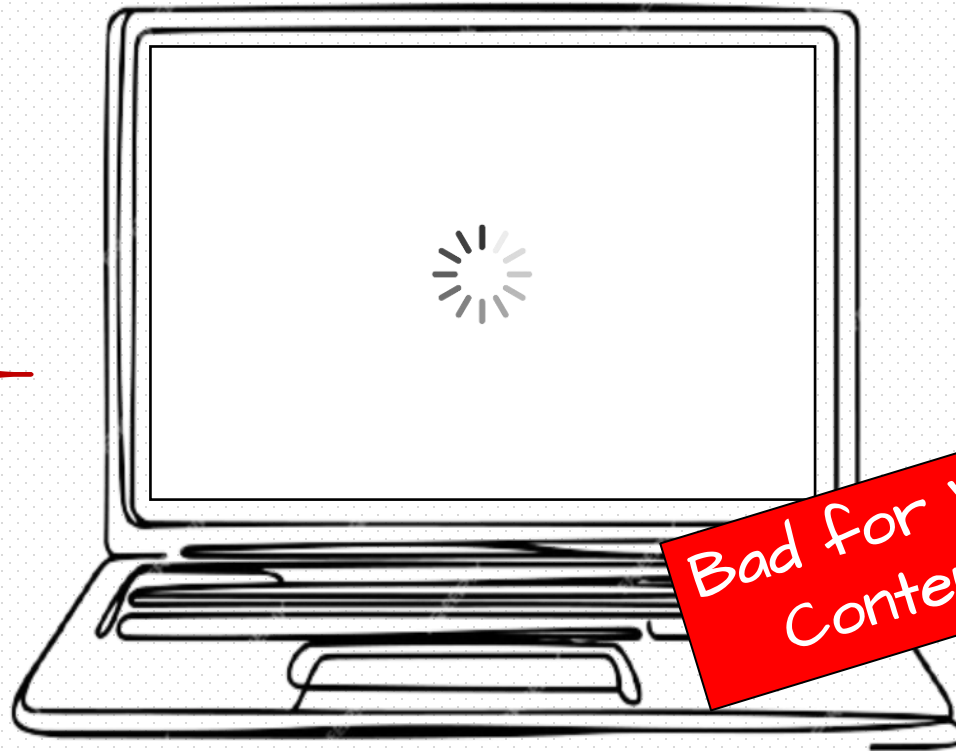
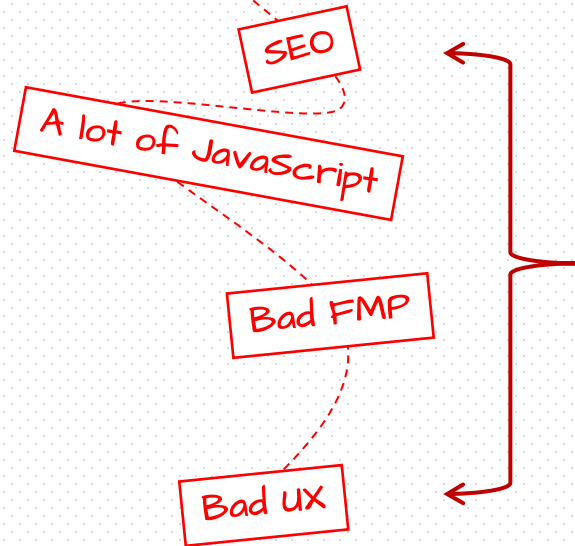
Problems



Single Page Applications

Client-Side Rendering (CSR)

Problems

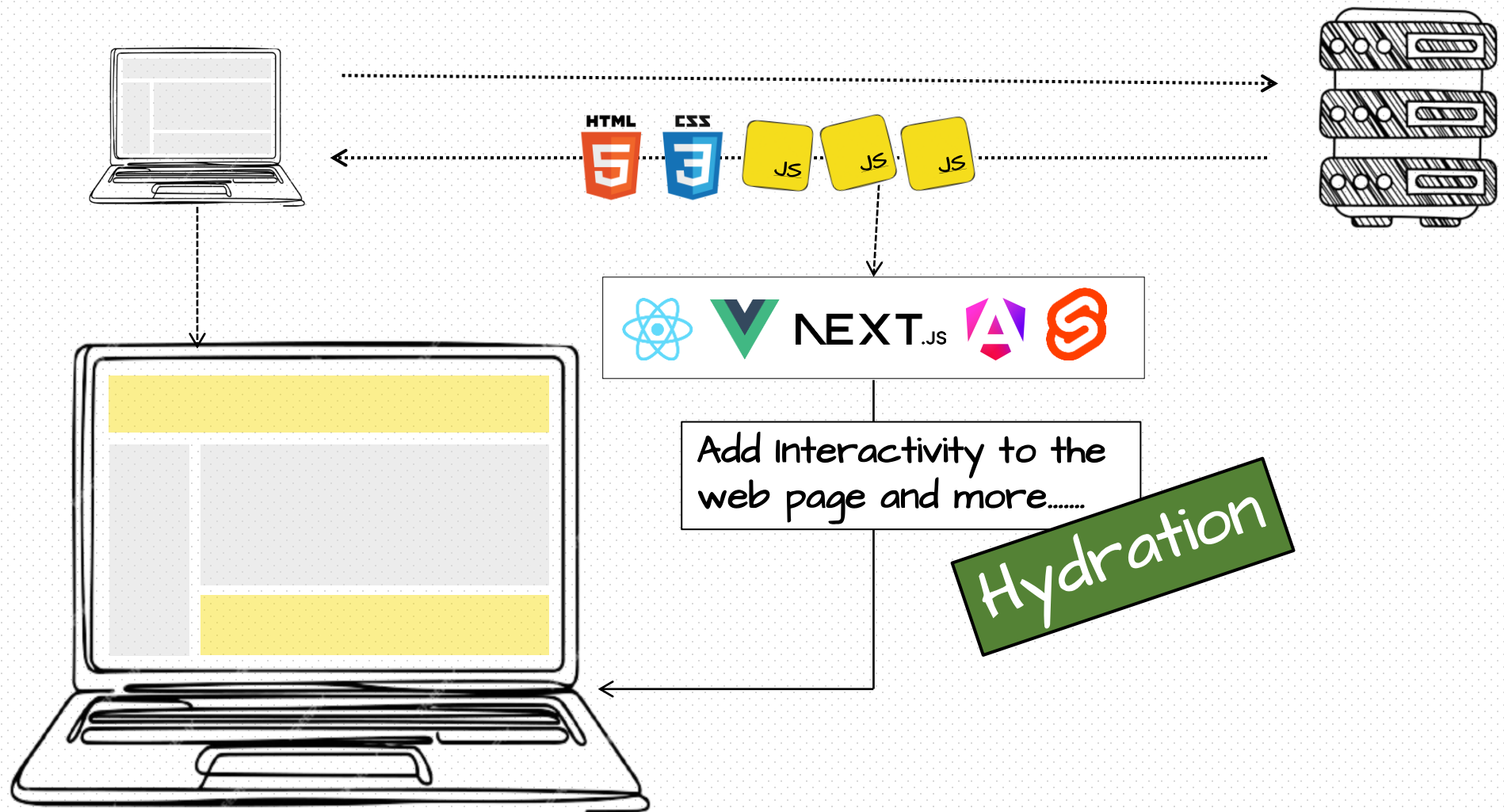


Loading JS bundles



Bad for Websites where Content is Important!!!

Single Page Applications + SSR





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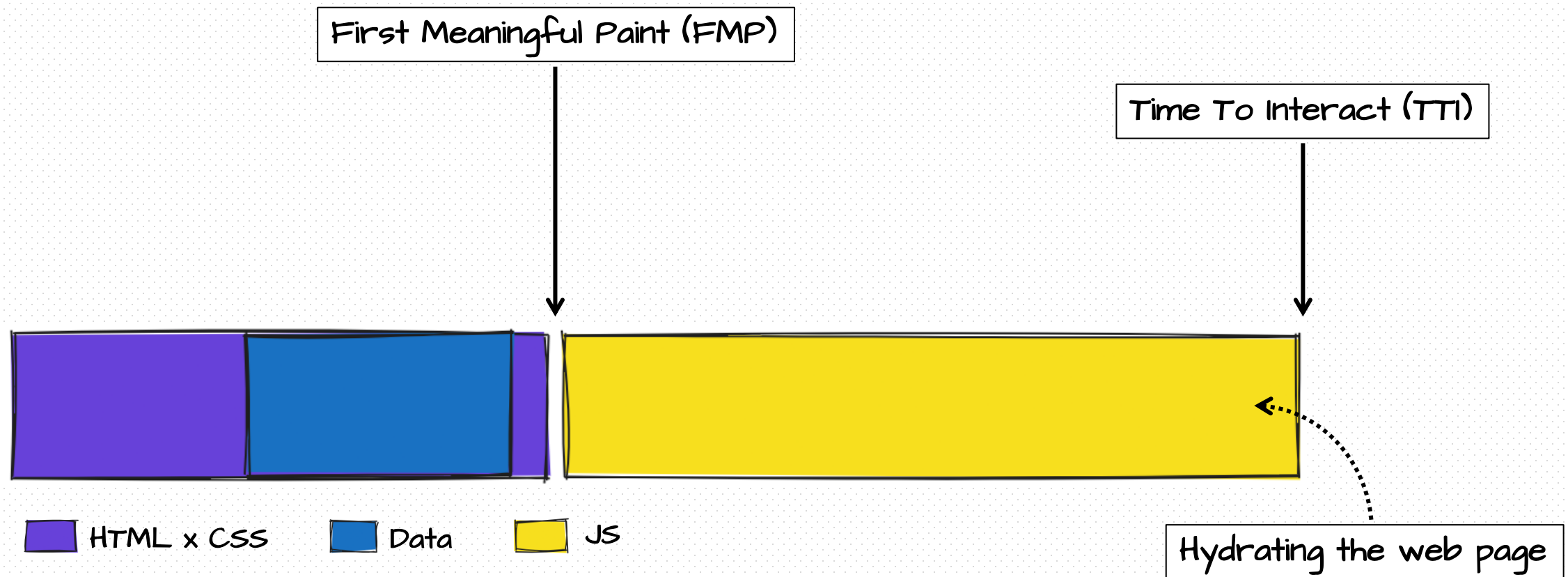
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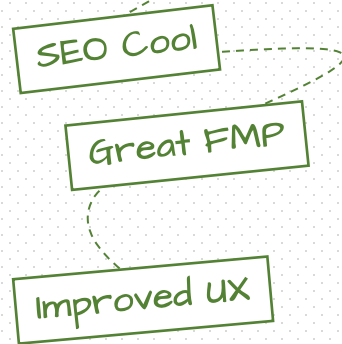
Get actionable insights

Single Page Applications + SSR

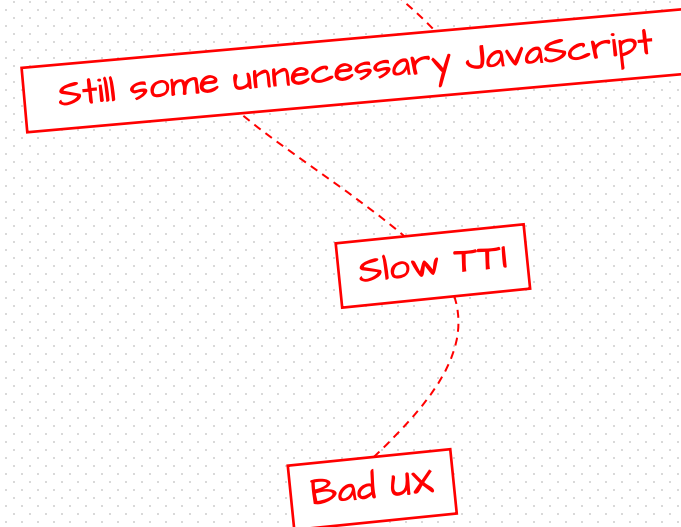


Single Page Applications + SSR

Problems Solved

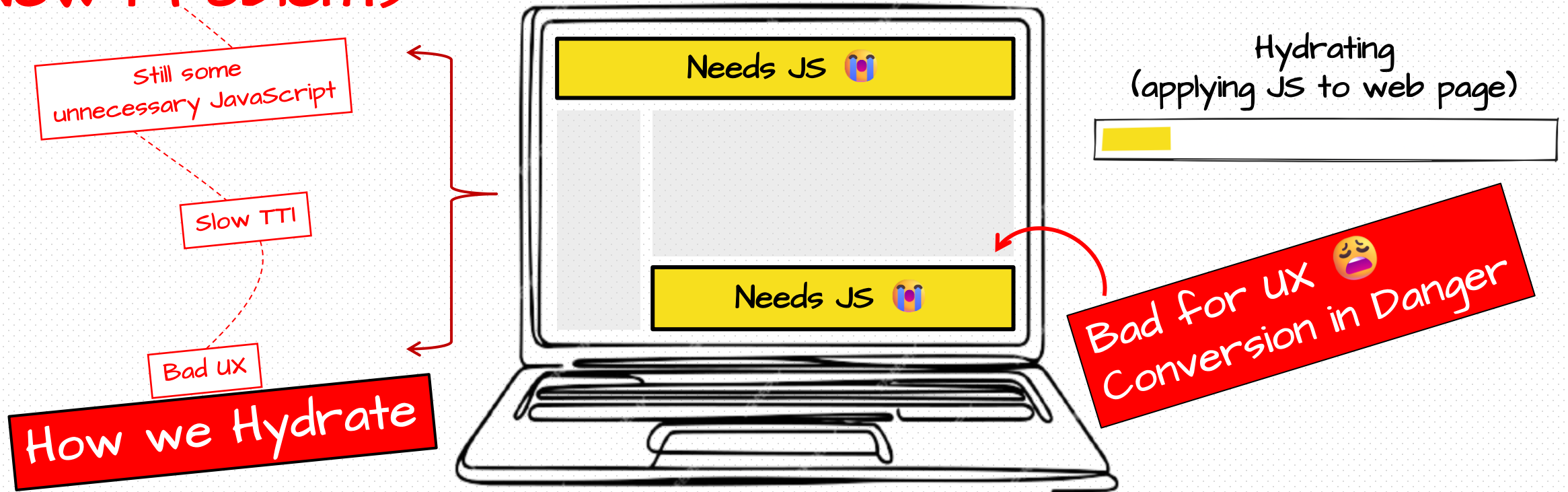


New Problems



Single Page Applications + SSR

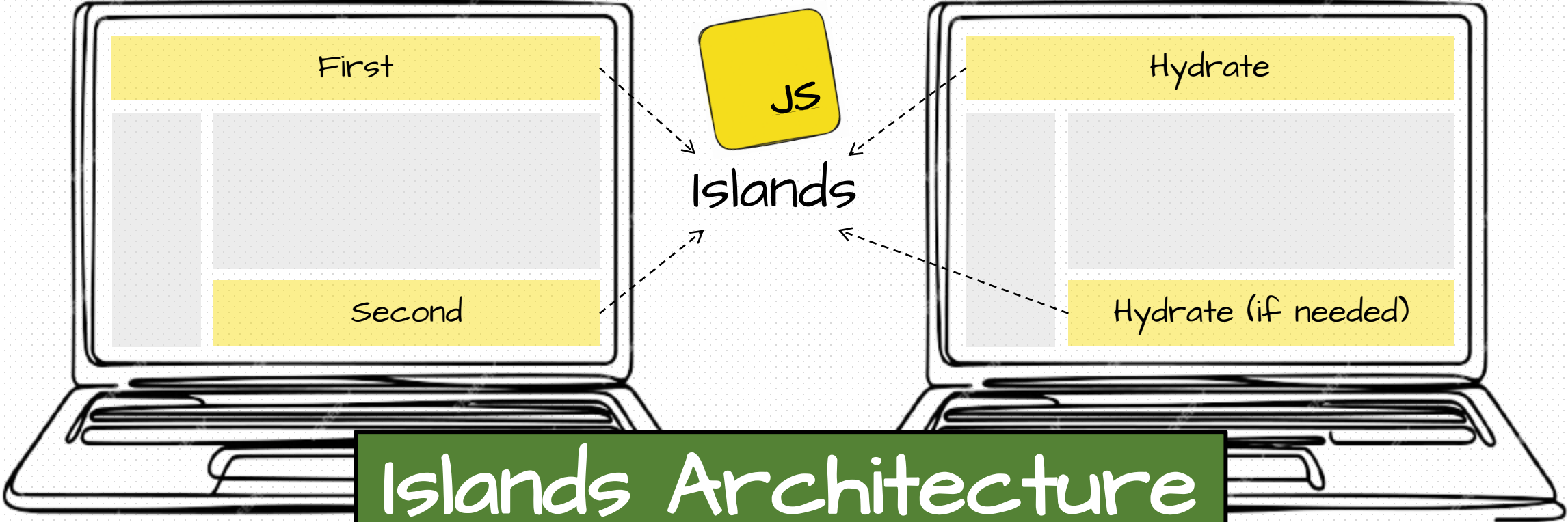
New Problems



New Hydration Approach


Progressive Hydration

Partial Hydration



Islands Architecture

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Only ship JavaScript where it is needed



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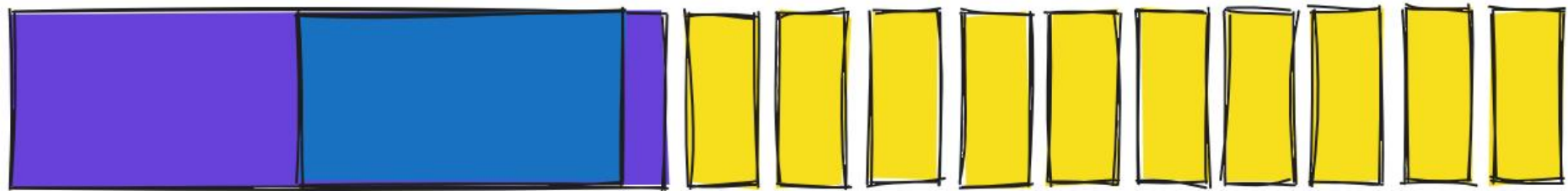
Get actionable insights

Islands Architecture

Hydrate Progressively

First Meaningful Paint (FMP)

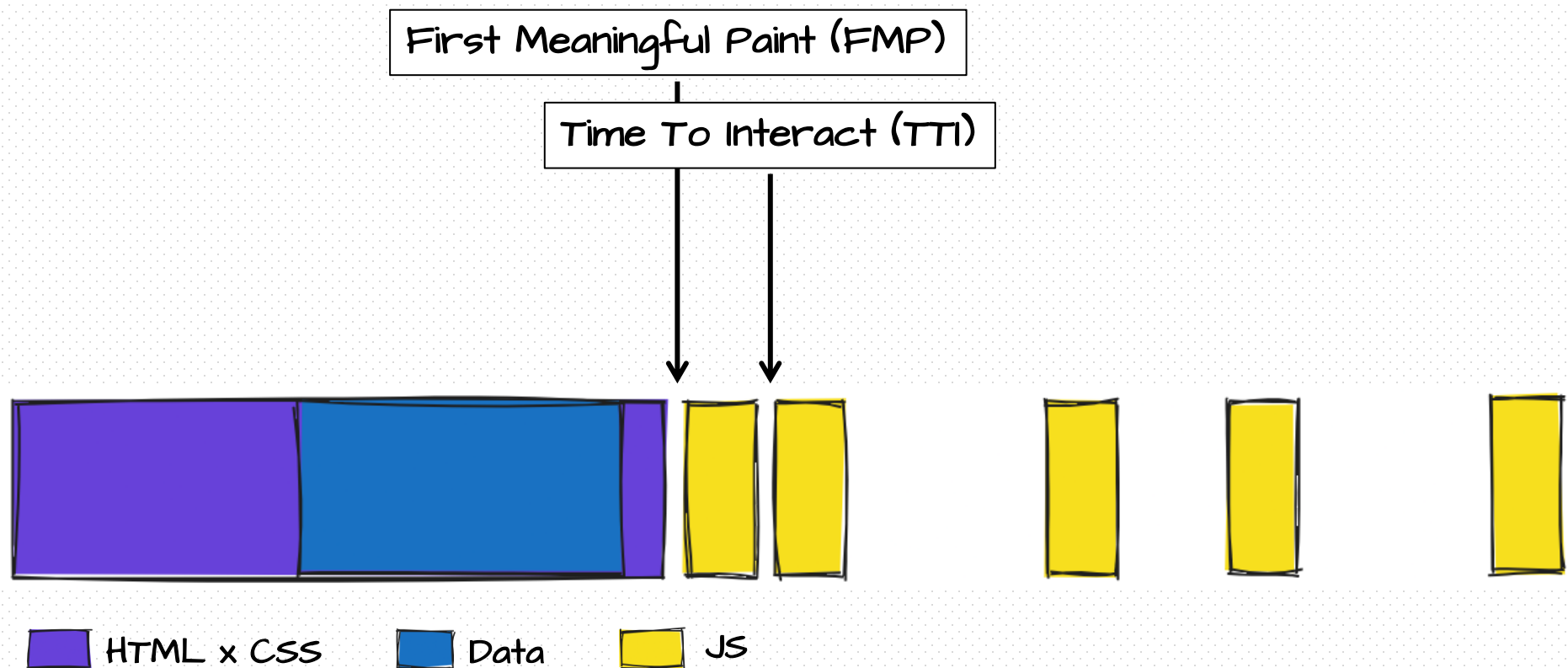
Time To Interact (TTI)



HTML x CSS Data JS

Islands Architecture

Hydrate Partially



Using

Islands Architecture

Frameworks



Markup + Compiler

```
<div>
  <h2>Images</h2>
  <div>
    <for|item| of=input.items>
      <div on-click(() => alert(item.title), item)>
        <img src=item.img alt="" />
      </div>
    </for>
  </div>
</div>
```

```
out.write("<div><h2>Images</h2><div>");
for (const item of input.items) {
  out.write("<div><img${_marko_attr`src`}`item.img alt=``` />");
}
out.write("</div></div>");
```

HTML Strings
on the server

```
out.beginElement("div", null, "0", component);
out.beginElement("h2", null, "1", component);
out.text("Images", component);
out.endElement();
out.beginElement("div", null, "2", component);
{
  let _keyValue = 0;
  for (const item of input.items) {
```

VDOM Nodes
in the browser

Using

Islands Architecture

Frameworks



FRESH

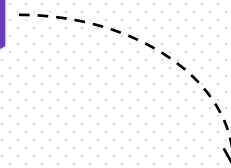
JSX + islands/preact_component

islands/my-island.tsx

```
import { useSignal } from "@preact/signals";

export default function MyIsland() {
  const count = useSignal(0);

  return (
    <div>
      Counter is at {count}.{" "}
      <button onClick={() => (count.value += 1)}></button>
    </div>
  );
}
```



route/index.tsx

```
import MyIsland from "../islands/my-island.tsx";

export default function Home() {
  return <MyIsland />;
}
```

Using

Islands Architecture

Frameworks



astro

JSX-like + (React, Vue, Preact etc.)

src/components/Greeting.jsx

```
import { useState } from 'react';

export default function Greeting({messages}) {
  const randomMessage = () => messages[Math.floor(Math.random() * messages.length)];
  const [greeting, setGreeting] = useState(messages[0]);

  return (
    <div>
      <h3>{greeting}! Thank you for visiting!</h3>
      <button onClick={() => setGreeting(randomMessage())}>
        New Greeting
      </button>
    </div>
  );
}
```

Hydration Directives

load, visible, only, etc.

src/pages/index.astro

```
---
import BaseLayout from '../layouts/BaseLayout.astro';
+import Greeting from '../components/Greeting.jsx';
const pageTitle = "Home Page";
---
<BaseLayout pageTitle={pageTitle}>
  <h2>My awesome blog subtitle</h2>
  + <Greeting client:load messages={["Hi", "Hello", "Howdy", "Hey there"]} />
</BaseLayout>
```

Islands Architecture

The Recipe 🤗

- Now your "Server" will not be jealous 😞 and your "client" can rest 😱
- Hydration done right 😎 (Only Selected Components)
- No Interaction, No JS! (I have proof 🙄)
- Bye-bye to "its fast on my machine", and hello to "Great stuff" 😁

Want to explore some islands 🏝️ with us???

Watch the space at jargons.dev



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Thank YOU



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| hi.new/ola



See Talk Repository For More Resources: <https://git.new/islands>