THE STATE OF THE FRONT-END 2022

META

Deno

FRAMEWORKS

Fresh

Edge

Remix.Run

Qwik

NO JS

Hydration

HTML FIRST

MPA

NextJS

Nuxt

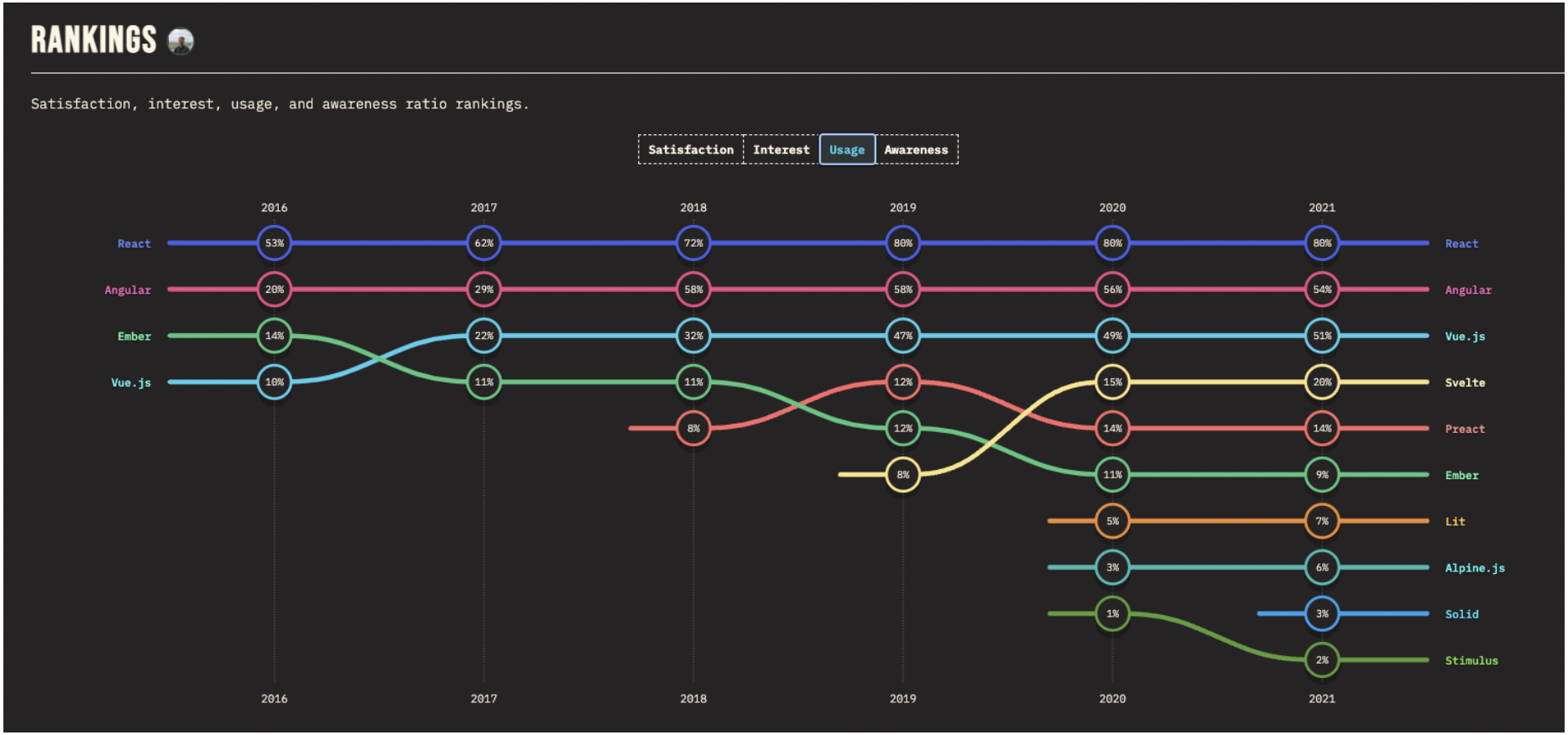
Fnm

PERFORMANCE

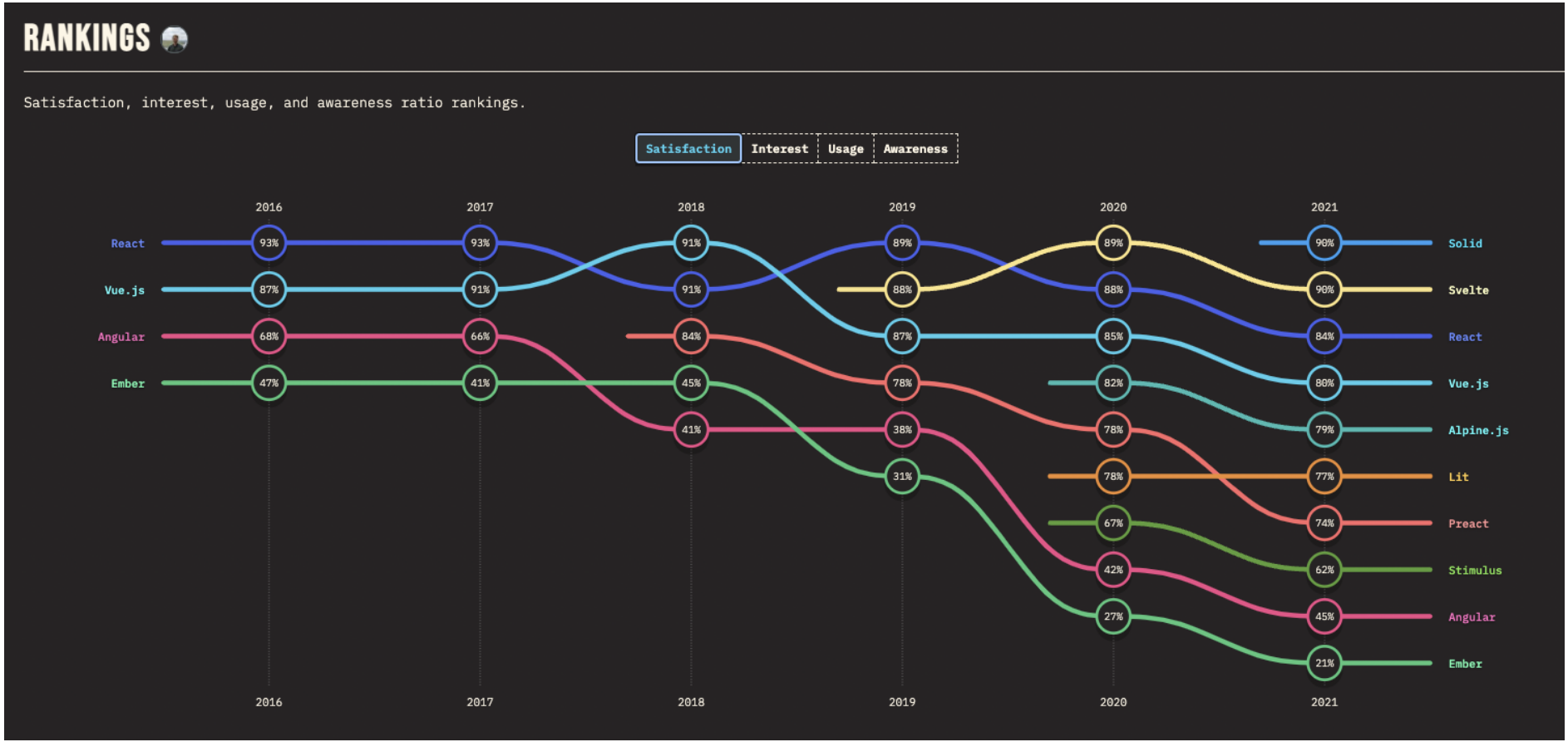
Volta

PRESENT
FUTURE
PAST

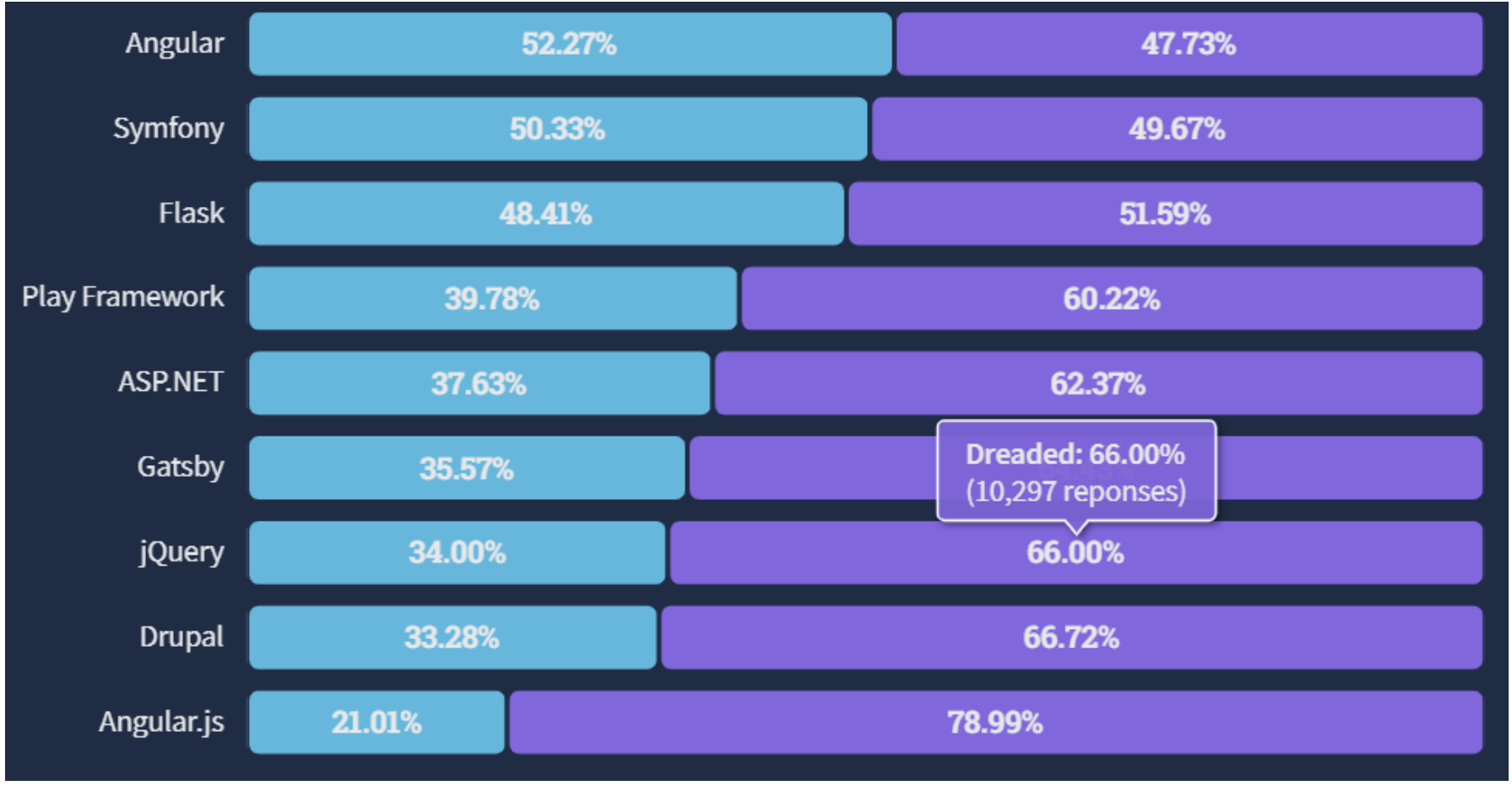
StateOfJs 2021 - Usage

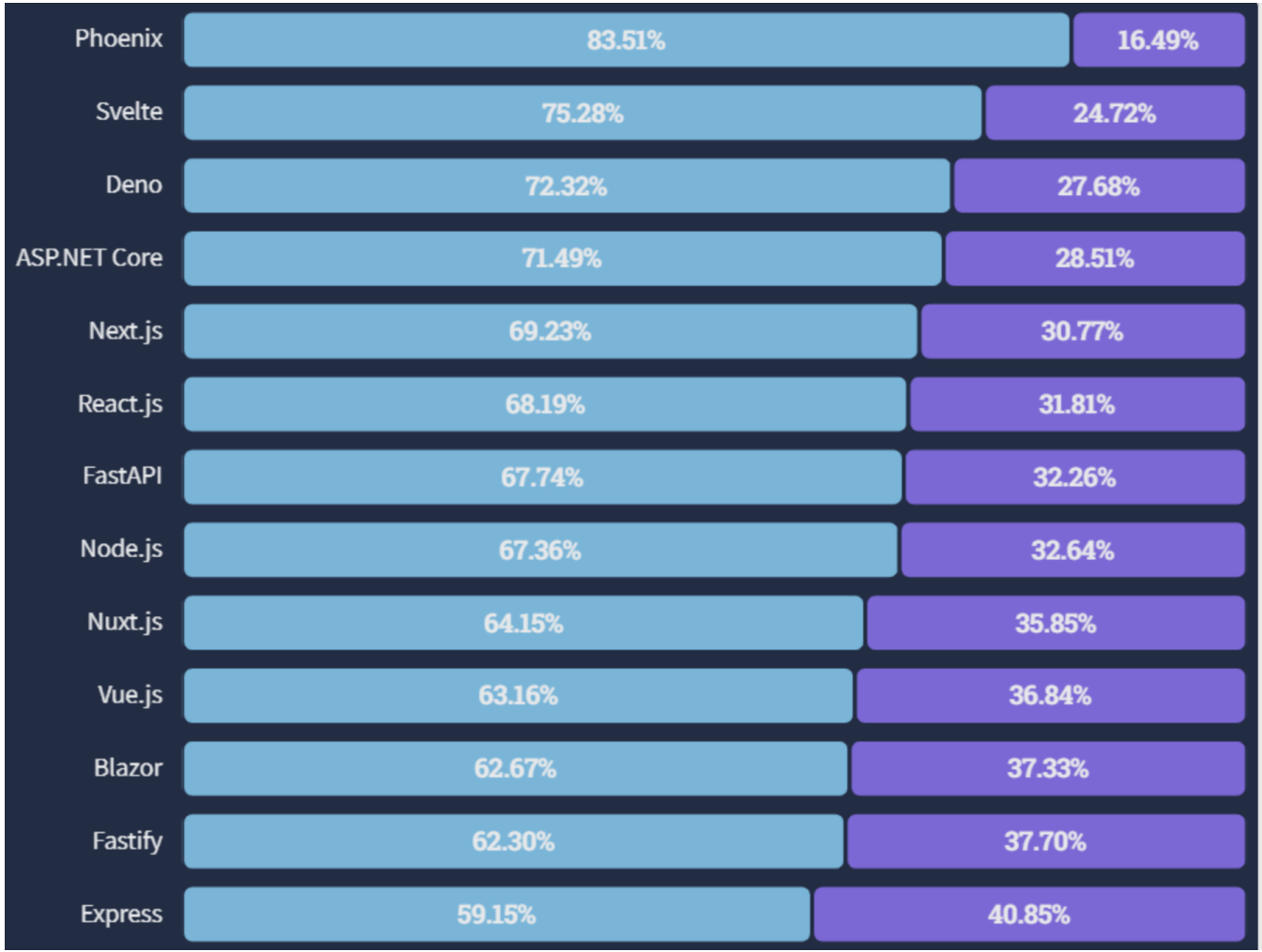


StateOfJs 2021 - Satisfaction



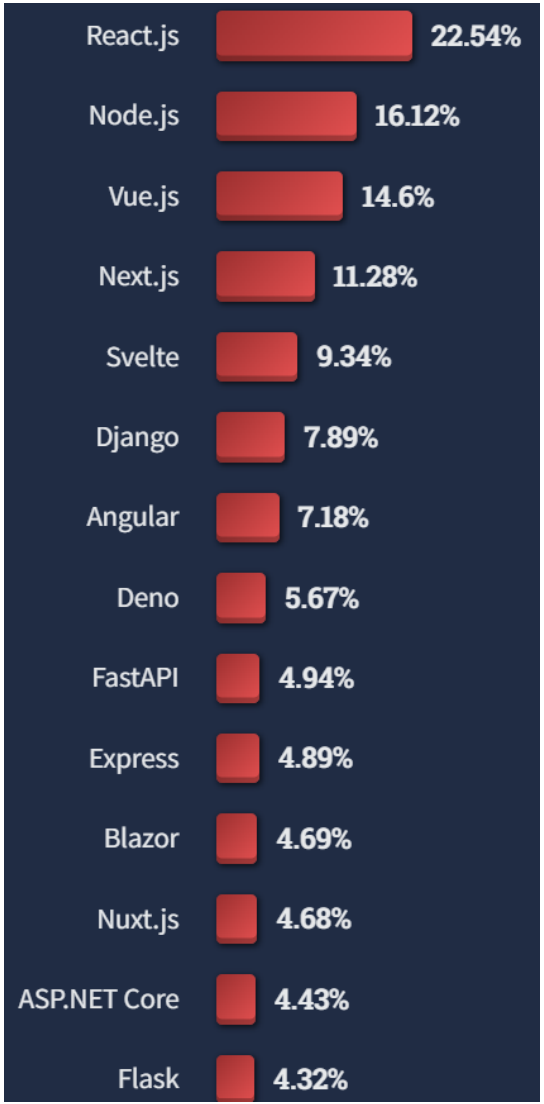
StackOverflow's developer survey - Most dreaded





StackOverflow's developer survey

Most loved



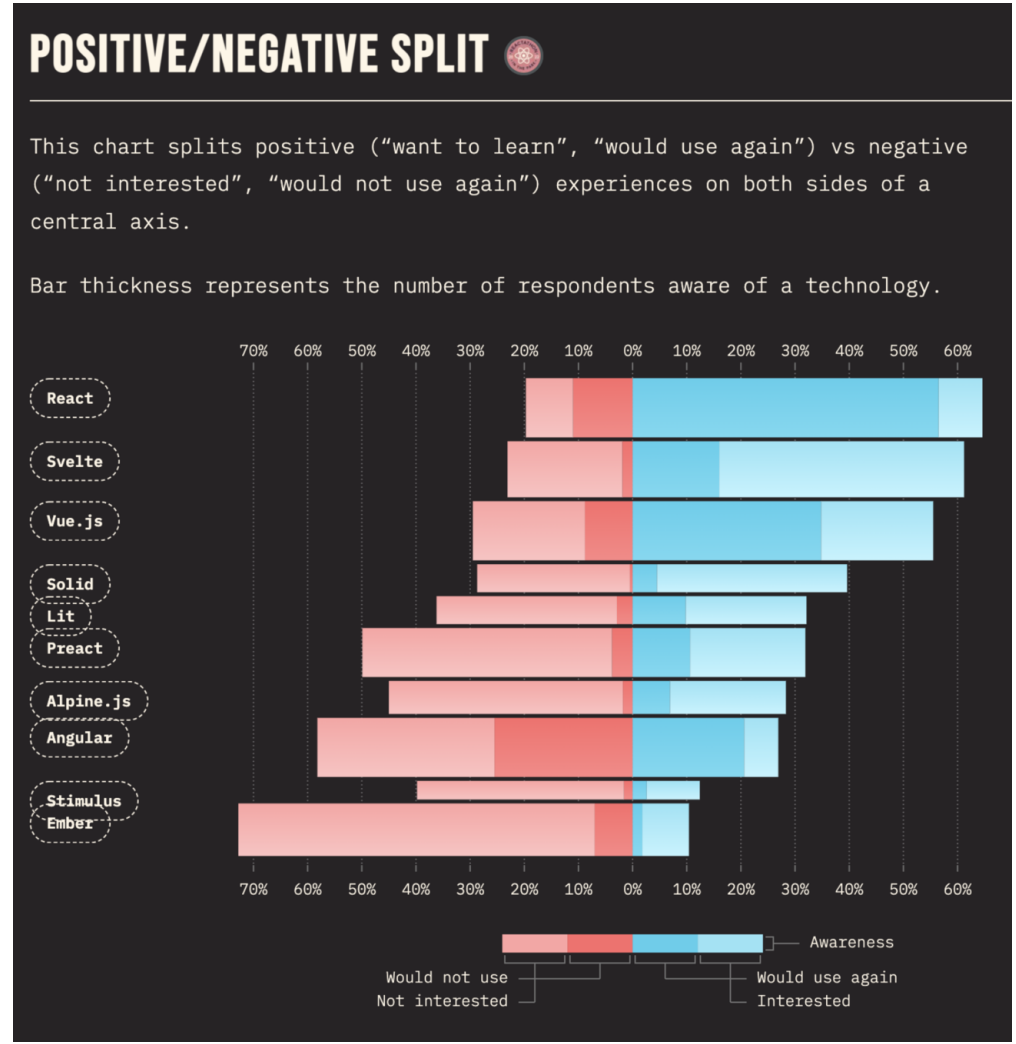
% of developers who are not developing with the language or technology but have expressed interest in developing with it

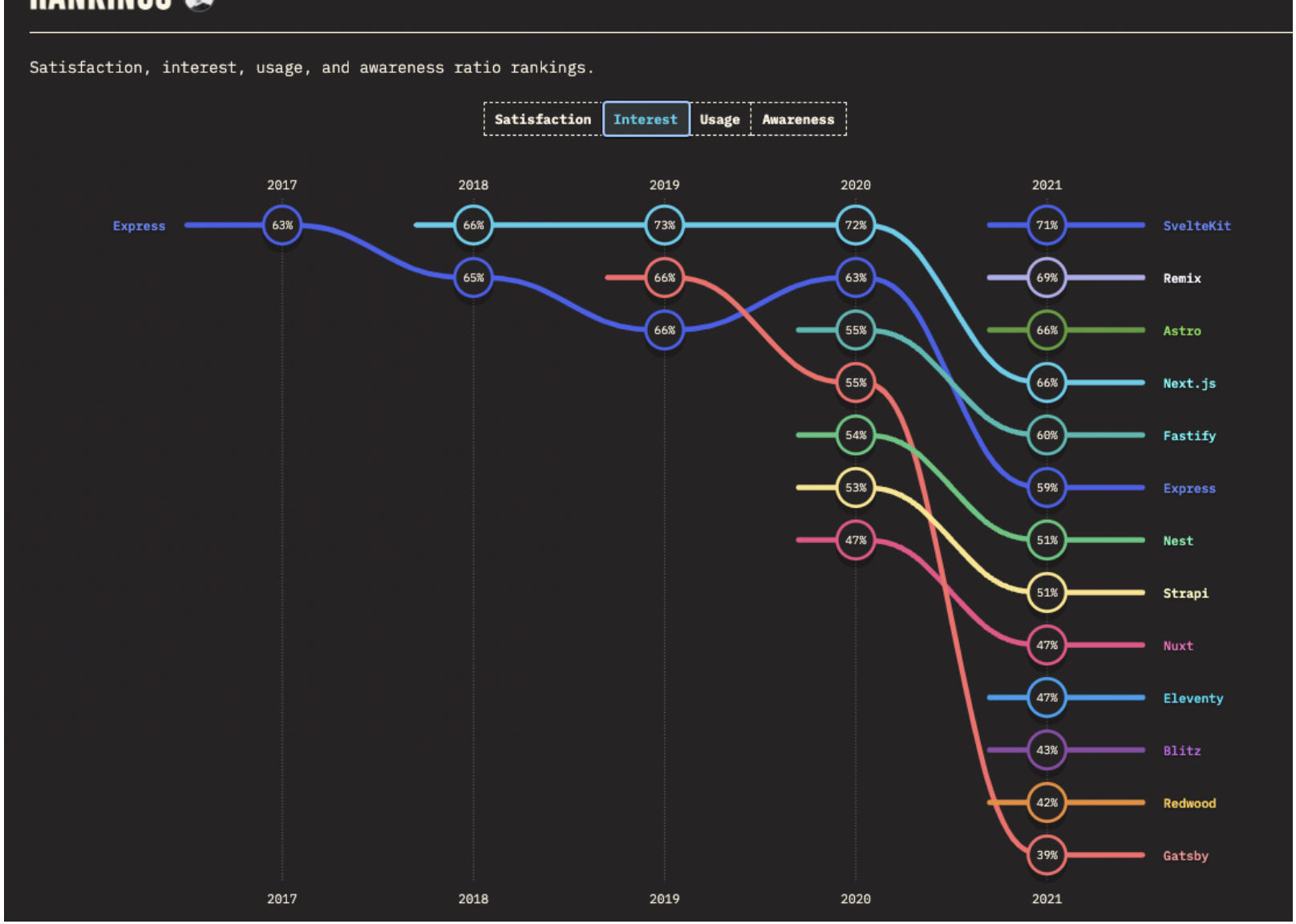
UI Frameworks

Want to learn
Would use again

vs

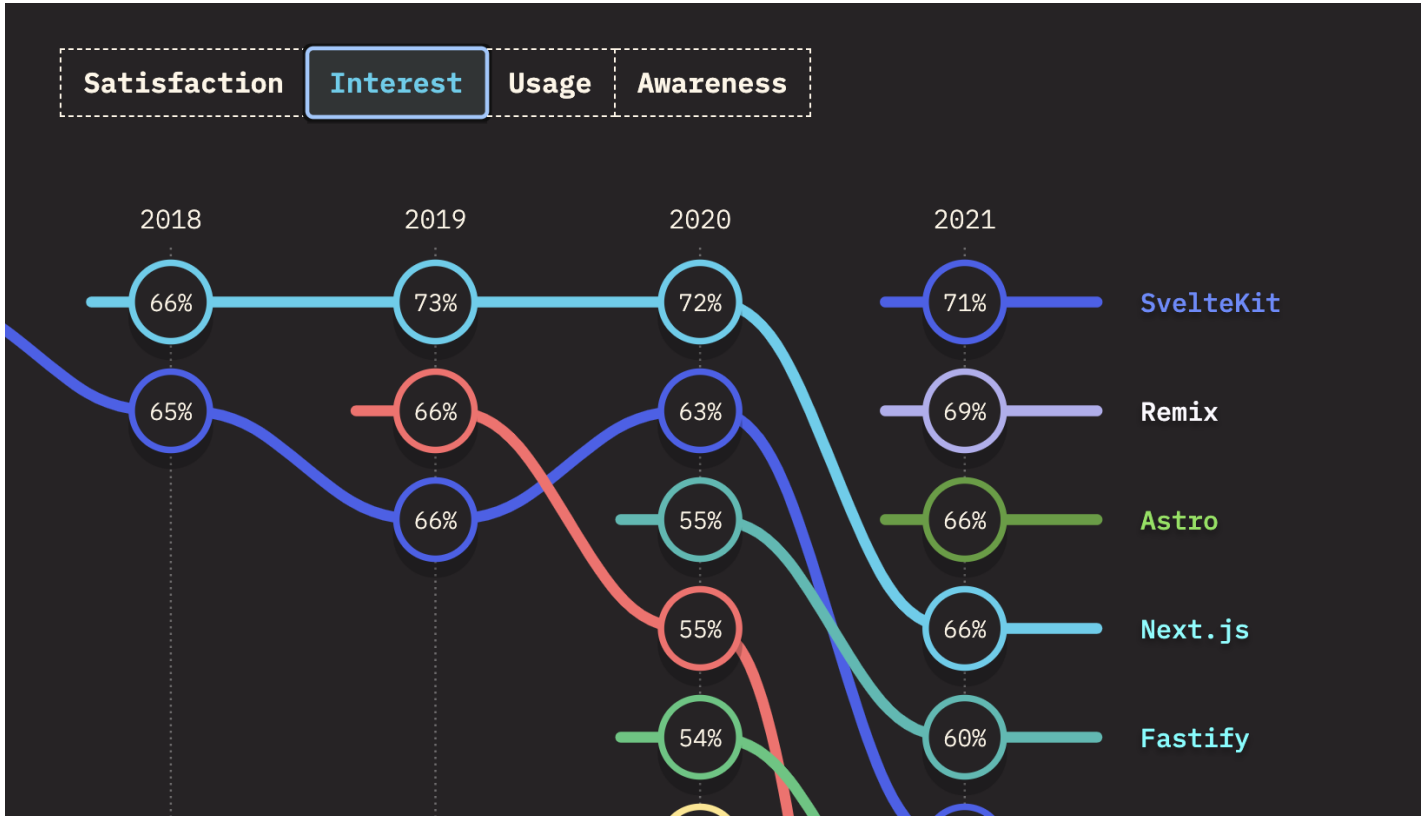
Not interested
Would not use again





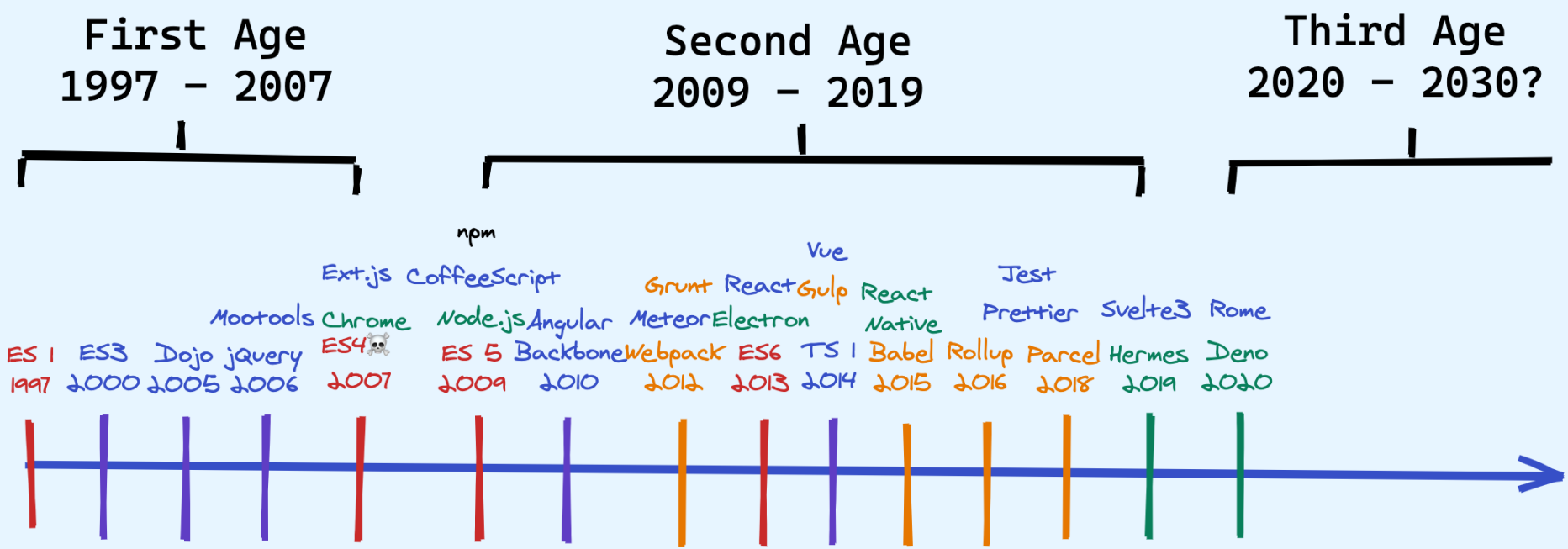
StateOfJS **Backend Frameworks**

Did you **noticed** the **new kids**?



StateOfJS
Backend
Frameworks

JavaScript's Third Age



Competition drives **innovation** 💡

- **React** is pushing VueJS
- **Svelte** is pushing React & Vue
- **Bun** is pushing Deno & NodeJS
- **Bun** & **Rome** is pushing npm, eslint, bundling
- **SvelteKit** is pushing Nuxt
- **Tailwind** is pushing CSS frameworks
- **Vite** is pushing WebPack

- Graphql inspired **Prisme**
- GraphQL inspired **TRPC**
- Prisme inspired **EdgeDB**
- Next inspired **Remix**
- Storybook inspired **Histoire**

But a **JavaScript developer** 2022, I have analyses **paralysis** 😮💨

- Should I use npm, yarn, pnpm or Bun
- Should I run my code in node, deno or Bun
- Should I compile with esbuild, swc of Bun again
- Should I use React, Next, Astro of Remix

Cory House

- Gatsby
- Babel
- VueCLI
- Vue 2
- WebPack
- Jest
- Lerna
- Yarn

- TypeORM
- CRA
- React 16.x
- Redux
- nvm

- Heroku ?
- other...?

Evolve or die

Rising Stars

- Vite / Vitest
- Nx / Turborepo
- pnpm

- excalidraw
- Volta/Fnm
- Prisma
- Deno / Bun
- Rome

- React-Query
- TRPC
- Svelte / Solid
- Astro / Remix

TRPC

	Backend	Tools	Client App	
REST API	Validation + REST endpoints + Swagger	TypeScript gen	interfaces + api functions + mappers	react-query useQuery
GraphQL API	GraphQL API	TypeScript gen	interfaces + Apollo Client useQuery	queries
TRPC	TRPC Server			TRPC React trpc.user.all.useQuery()

inspired

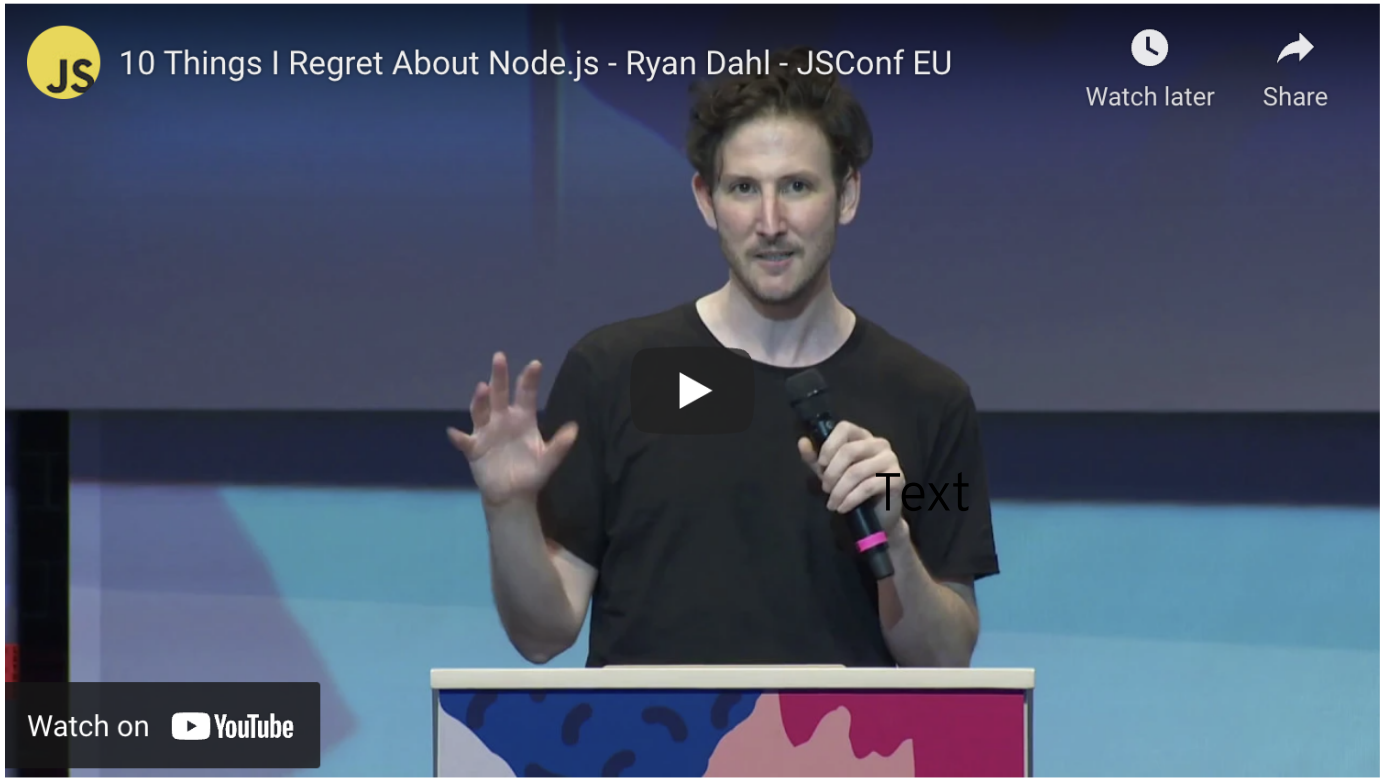
inspired

The **rise** of the **Meta Frameworks**

- Next.js / Nuxtjs
- SvelteKit
- Remix
- Astro
- Qwik
- Fresh

And...
- SolidStart
- Analog

Should we **Bun**, **Deno** or keep **Node**



Deno a better **Node**?

Deno is an executable built with Rust that aims to tackle all Node's flaws such as security, performance, and native TypeScript support. It is significantly faster and more secure than Node, and it comes with tools absent in Node.js.

Deno a better **Node**?

- Based on V8 (google)
- Provides web platform functionality and adopts web platform standards.
- No NPM
- All about ESM
- Secure by default.
- Supports TypeScript out of the box.

https://deno.land/showcase

Bun a better **runtime?**

- Based on JavaScript Core (Apple)
- With bundler & installer
- Provides web platform functionality and adopts web platform standards.
- Drop-in replacement for Node, Webpack, Babel, Yarn, and PostCSS 😱
- Supports TypeScript out of the box.
- Fast by default

- Still in beta (v0.1.8) 😢

The future of the JavaScript runtime

```
➜  ts-angular (main) yarn
yarn install v1.22.19
[1/4] 🔍  Resolving packages...
[2/4] 🚚  Fetching packages...
[3/4] 🔗  Linking dependencies...
[4/4] 🔨  Building fresh packages...
✨  Done in 10.38s.
```

```
➜  ts-angular (main) bun install
bun install v0.1.1
 + @angular-devkit/build-angular@14.2.1
 + @angular/cli@14.1.3
 + @angular/compiler-cli@14.2.0
 + @types/jest@28.1.8
 + @types/node@12.20.55
 + jest@28.1.3
 + jest-preset-angular@12.2.0
 + typescript@4.6.4
 + @angular/animations@14.2.0
 + @angular/common@14.2.0
 + @angular/compiler@14.2.0
 + @angular/core@14.2.0
 + @angular/forms@14.2.0
 + @angular/platform-browser@14.2.0
 + @angular/platform-browser-dynamic@14.2.0
 + @angular/router@14.2.0
 + @popperjs/core@2.11.6
 + bootstrap@5.2.0
 + rxjs@7.5.6
 + tslib@2.4.0
 + zone.js@0.11.8

 952 packages installed [2.65s]
```

Rome Docs Guides Company Support Try it out Search Login Sign Up

BLAZING FAST JAVASCRIPT TOOLS

Fast to install. Fast to use. Fast to iterate.

The fastest linter and formatter you've ever used, for JavaScript and TypeScript

```
$ npm install rome
added 1 package

$ rome format .
Checked 650 files in 42ms
```

Rome Formatter	0.1s
Prettier	5s
Rome Linter	?s
ESLint	?s

How we measure

Get Started

Rome is designed to replace Babel, ESLint, webpack, Prettier, Jest, and others.

Live after React

The **top 5** frameworks

1	React A declarative, efficient, and flexible JavaScript library for buildi...	+18.5k☆
2	Vue.js A progressive, incrementally-adoptable framework for building ...	+14.3k☆
3	Svelte Cybernetically enhanced web apps	+13.6k☆
4	Angular The modern web developer's platform	+9.3k☆
5	Solid A declarative, efficient, and flexible JavaScript library for buildin...	+8.5k☆

Svelte why **so much hype**?

```python
import React, { useState } from 'react';

export default () => {
  const [a, setA] = useState(1);
  const [b, setB] = useState(2);

  function handleChangeA(event) {
    setA(+event.target.value);
  }

  function handleChangeB(event) {
    setB(+event.target.value);
  }

  return (
    <div>
      <input type="number" value={a} onChange={handleChangeA}/>
      <input type="number" value={b} onChange={handleChangeB}/>

      <p>{a} + {b} = {a + b}</p>
    </div>
  );
};
```

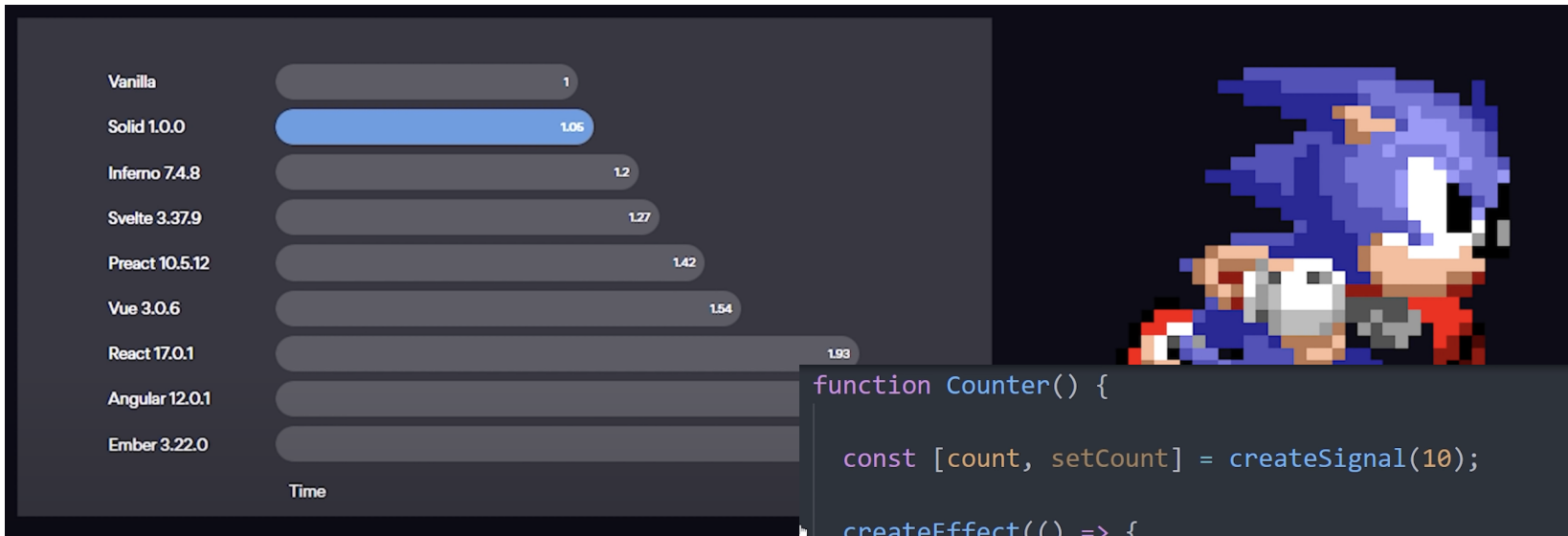
```
<script>
    let a = 1;
    let b = 2;
</script>

<input type="number" bind:value={a}>
<input type="number" bind:value={b}>

<p>{a} + {b} = {a + b}</p>
```

Svelte component

React: 50KB, Svelte 1.5k

React: Fast, Svelte Very fast

Why **Solid?**




```
function Counter() {

  const [count, setCount] = createSignal(10);

  createEffect(() => {
    console.log(`hello ${count()}`)
  });

  return <p>{ count() }</p>

}
```

NO DEPENDENCY ARRAY NEEDED!

It's just like react 😀, but

- Smaller & Faster
- And lot easier

THE INTERNET IS FASTER, BUT WEBSITES ARE SLOWER

builder.io

Performance Insights

BETA

Learn what improvements can have the greatest impact on your site's performance

https://www.nieuwsblad.be/

ANALYZE

This is your current speed

Current

26

Time to interactive:

20.3 s

Show more info

Your score if you:

Optimize Images

26

Time to interactive:

20.3 s

*Optimizing your images has **no effect on your speed score***

Show more info

Your score if you:

Optimize CSS

26

Time to interactive:

20.3 s

*Optimizing your CSS has **no effect on your speed score***

Show more info

Your score if you:

Optimize Javascript

72

Time to interactive:

3.2 s

*Reducing your JS can boost your speed score by **46** points and speed up your time to interactive by **17 seconds***

Show more info

Your score if you:

Optimize All

82

Time to interactive:

1.4 s

*Optimizing all areas can boost your speed score by **56** points and speed up your time to interactive by **19 seconds***

Show more info

WebPageTest by catchpoint

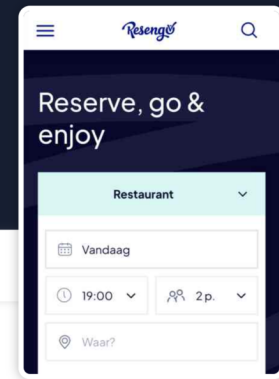
Start Test | Test History | Products | Pricing | Resources | About | Login | Sign-up

Save Test Results with a **Free Account** Sign Up & Save Test Result

URL: https://www.resengo.com/ DATE: 11/09/2022, 09:40:27

Webpage Performance Test Result

SETTINGS: NEXUS5 v105 3GFast Frankfurt, Germany More Share



View: Performance Summary Tools: Export Re-Run Test

Performance Summary

Opportunities & Experiments NEW

Explore All

Is it Quick? Needs Improvement.

This site was quick to connect and deliver initial code. It began rendering content with considerable delay. The largest contentful paint time was slower than ideal.

5 5 Pro 10

Is it Usable? Needs Improvement.

This site had minor layout shifts.It took a long time to become interactive. It had 5 accessibility issues, 2 critical. 96.41% of HTML was generated client-side, delaying usability.

3 3 Pro 3

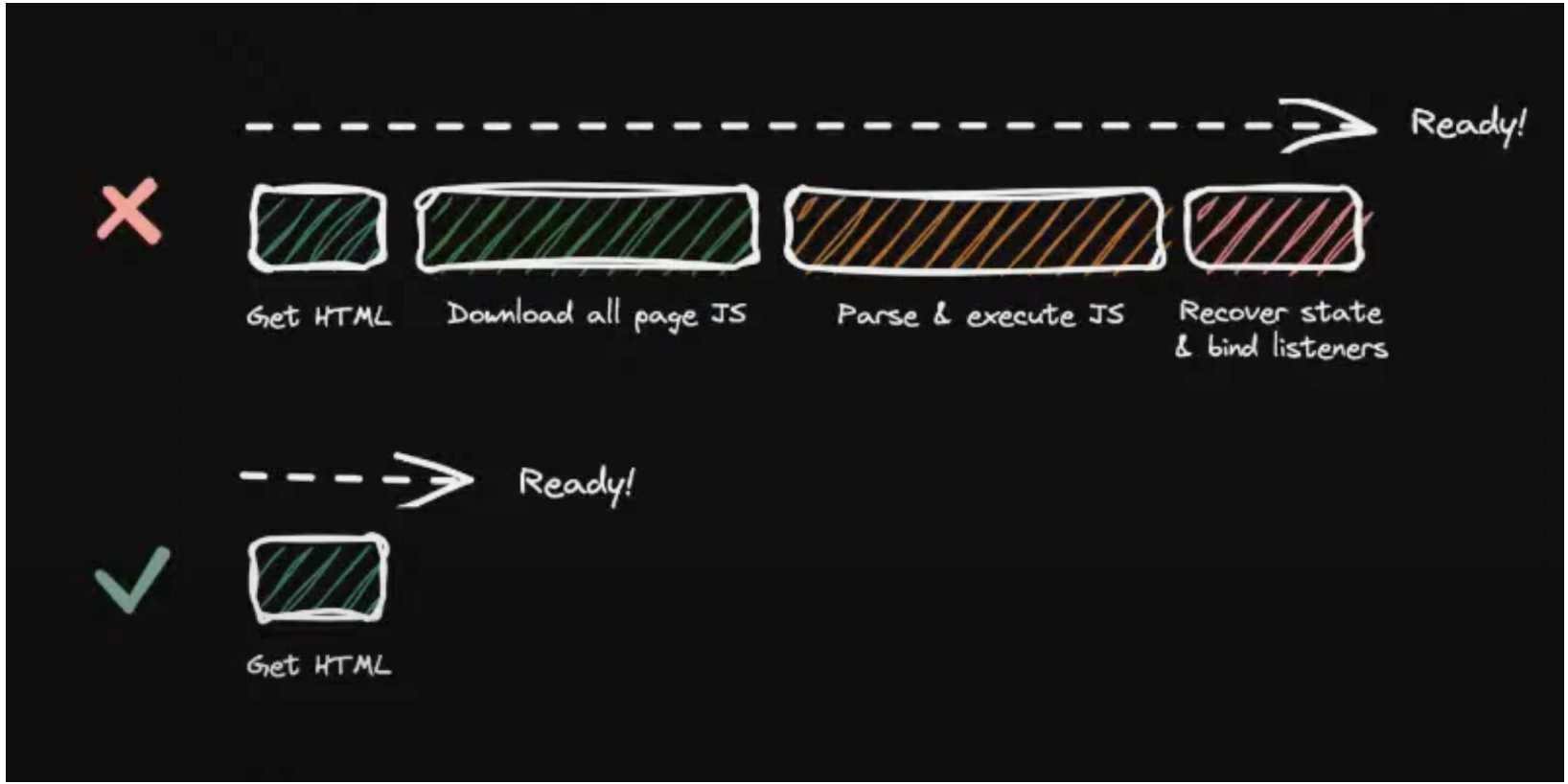
Is it Resilient? Not bad...

This site had render-blocking 3rd party requests. It had no security issues detected. Dependence on client-generated HTML risks fragility.

2 2 Pro 8

See also: https://www.webpagetest.org/result/220911_BiDcAP_3SF/

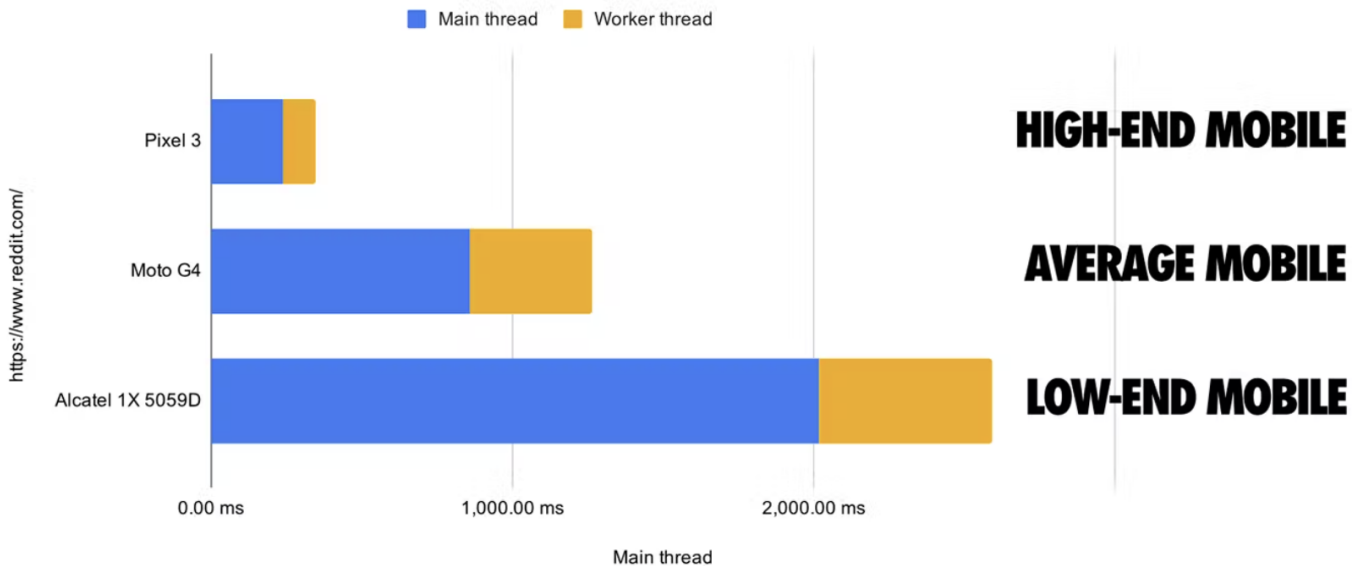
SPA VS HTML


Ready!
Get HTML
Download all page JS
Parse & execute JS
Recover state
& bind listeners
Ready!
Get HTML

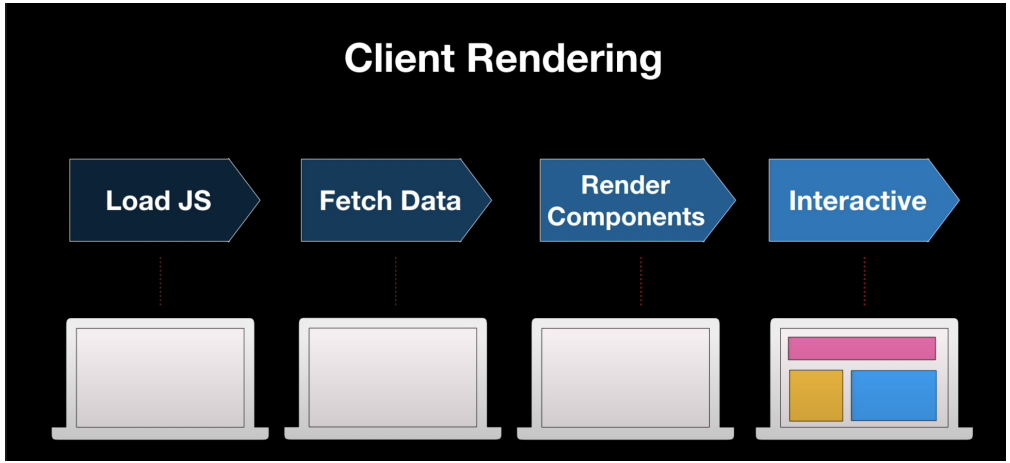
COST OF JAVASCRIPT

REDDIT.COM

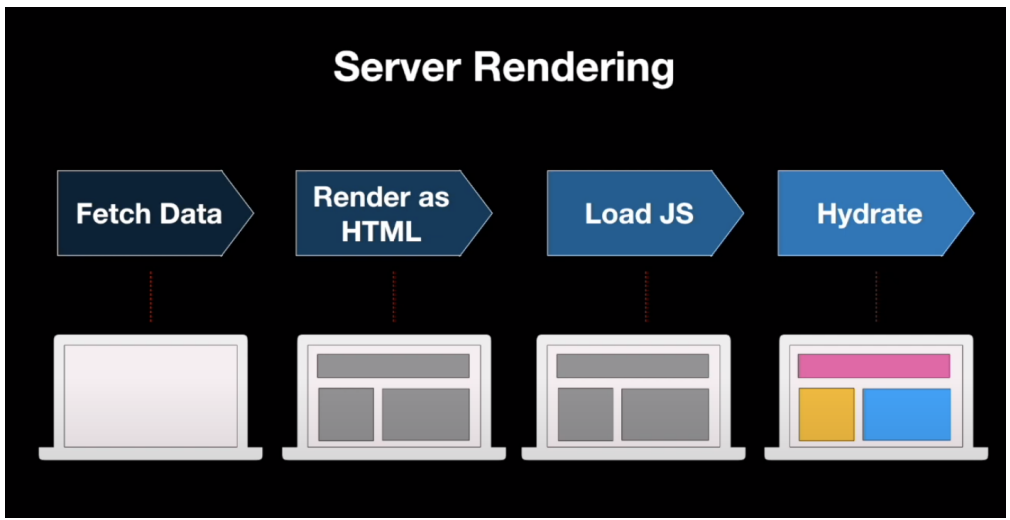
JavaScript Processing times for Reddit.com



https://v8.dev/blog/cost-of-javascript-2019



CSR



NEXT.JS

NUXTJS

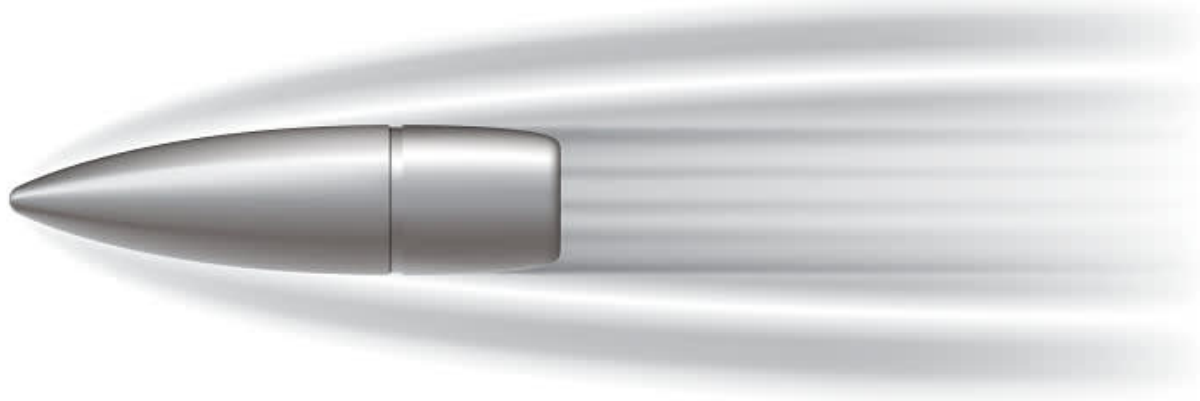
SVELTEKIT

SSR

Analog

Server Side Rendering

The Silver bullet?



Rendering on the server.
Better SEO. Better performance.
Best of both worlds. Yes?

... no, we have to hydrate ☐

Ryan Carniato for This is Learning
Posted on Feb 3 • Updated on Feb 8

Why Efficient Hydration in JavaScript Frameworks is so Challenging

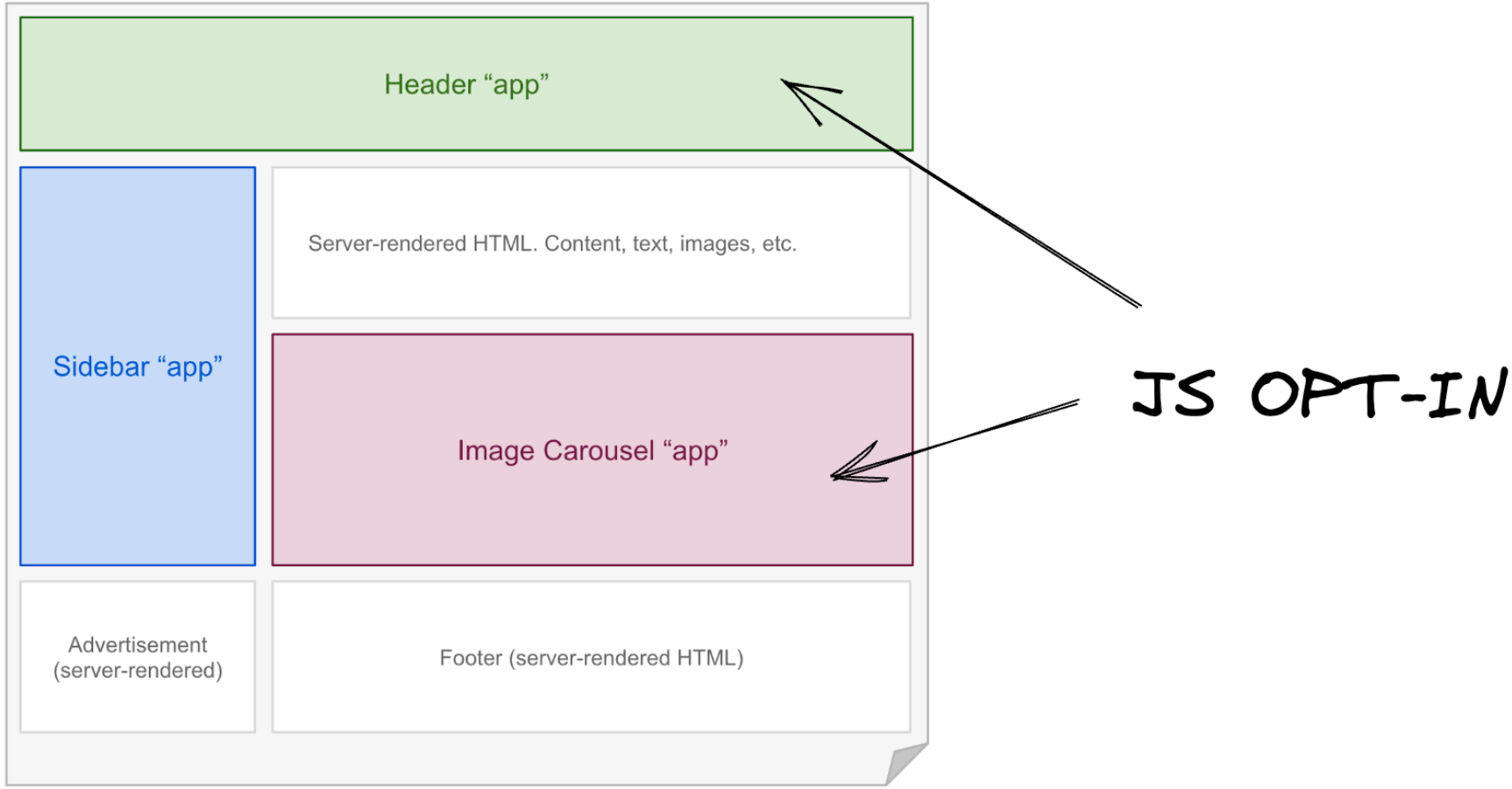
Put simply, hydration is overhead because it duplicates work. Resumability focuses on transferring all of the information (the WHERE and WHAT) from the server to the client. Feature image via Pixabay. 8 jun. 2022

https://thenewstack.io › Blog

JavaScript Hydration Is a Workaround, Not a Solution

Perhaps JavaScript should not be the starting point for the developer, but should be thought of as an extension.

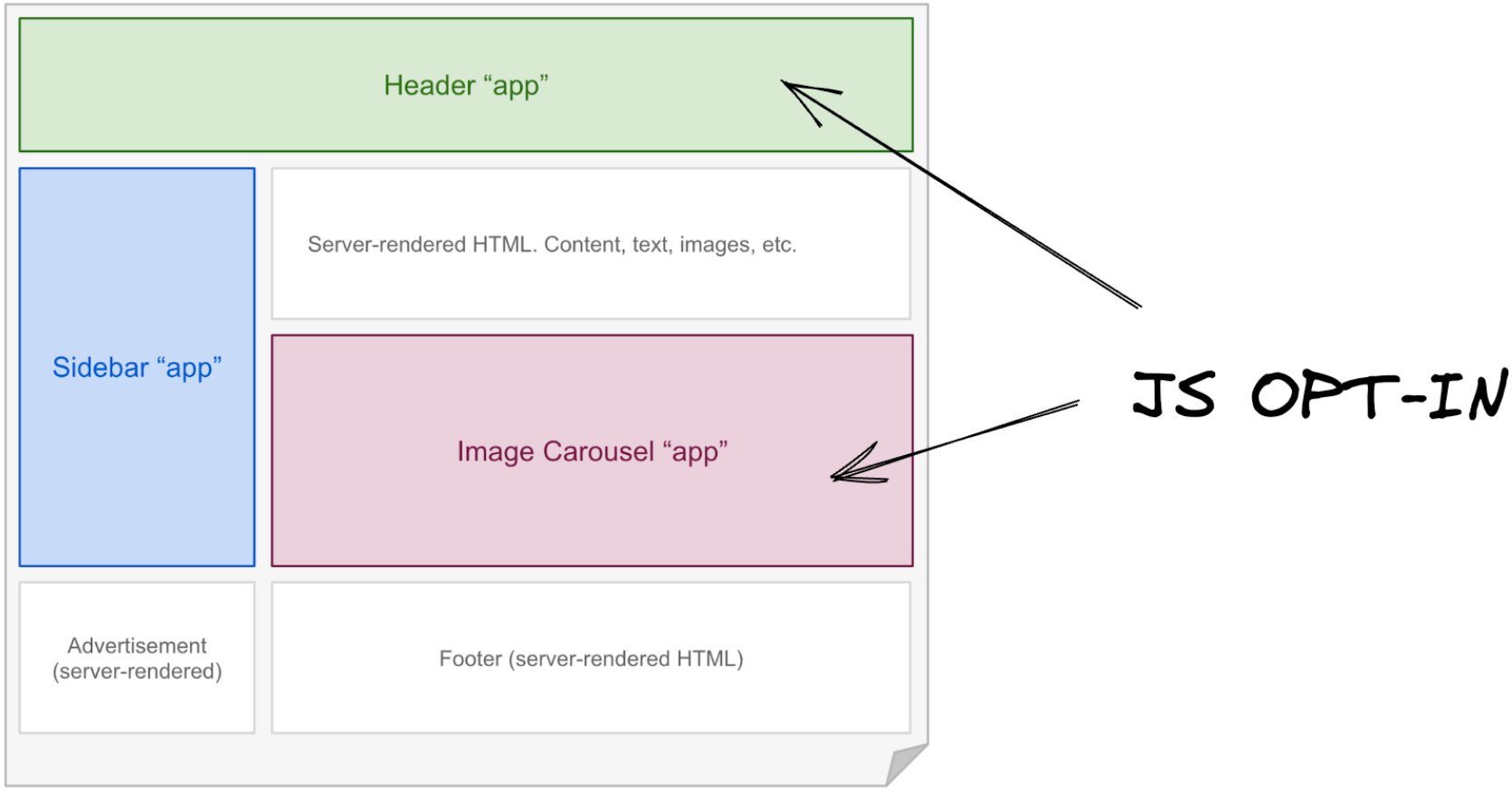
WHAT IF WE COULD LOAD JS ON DEMAND



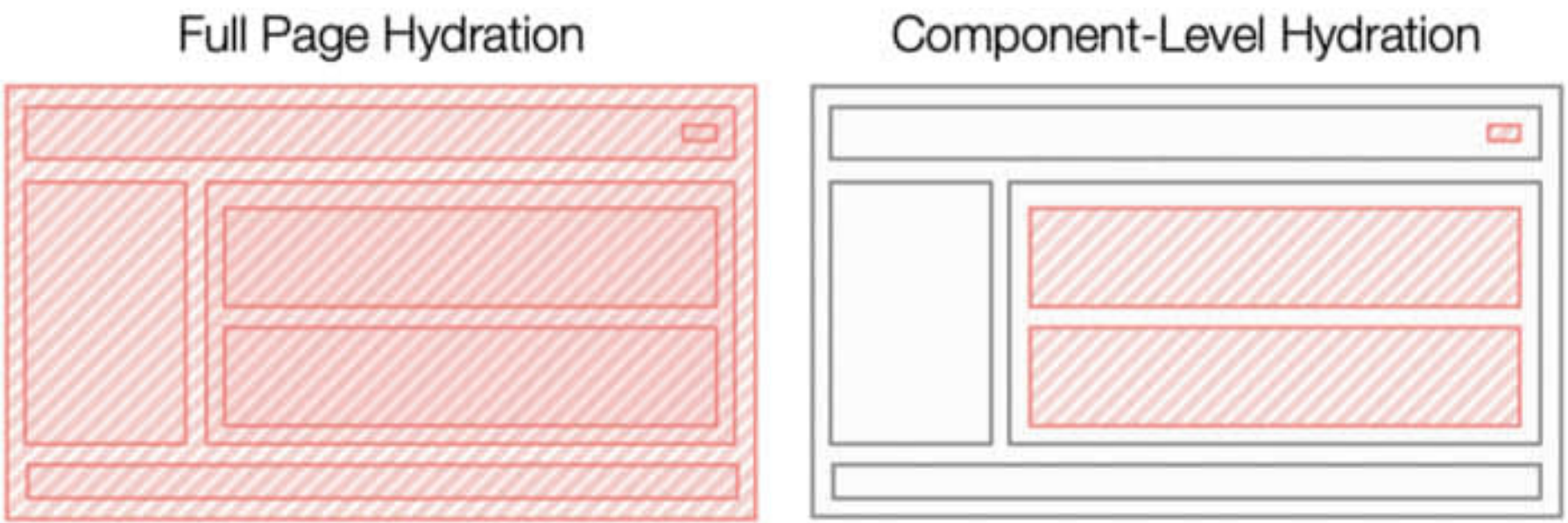
ISLANDS ARCHI-TECTURE

NO, ITS NOT THE DYNAMIC ISLAND

WE HAVE CONTENT ISLANDS



ISLANDS ARCHITECTURE



Islands (Partial Hydration)

https://www.patterns.dev/posts/islands-architecture/

ISLAND ARCHITECTURE WITH

astro

Qwik

FRESH

The next-gen web framework.

Remix

ASTRO 1.0 IS HERE Read the launch post >

Build faster websites.

Pull content from anywhere and serve it fast with Astro's next-gen island architectur

Get Started

> npm create astro

Rebuilt my blog with Astro out of curiosity... holy # @ ! & !

Next.js 138 kB

Astro 7.6 kB JavaScript page load

Source: Theo, CEO @ Ping Labs

astro

Framework reimagined for the edge.

No hydration, auto lazy-loading, edge-optimized, and fun 🎉!

qwik

Miško Hevery (Builder.io/Qwik)
@mhevery

CTO at @builderio, creator of @QwikDev, @angular, @angularjs, co-creator of #karmajs

Saratoga, CA misko.hevery.com Joined May 2008

397 Following **39.4K** Followers

FRESH A DENO FRAMEWORK

Focused on web standards and modern web app UX, you're simply going to build better websites

Remix is a full stack web framework that lets you focus on the user interface and work back through web standards to deliver a fast, slick, and resilient user experience. People are gonna love using your stuff.

REMIX

Remix

EDGE
EDGE
EDGE
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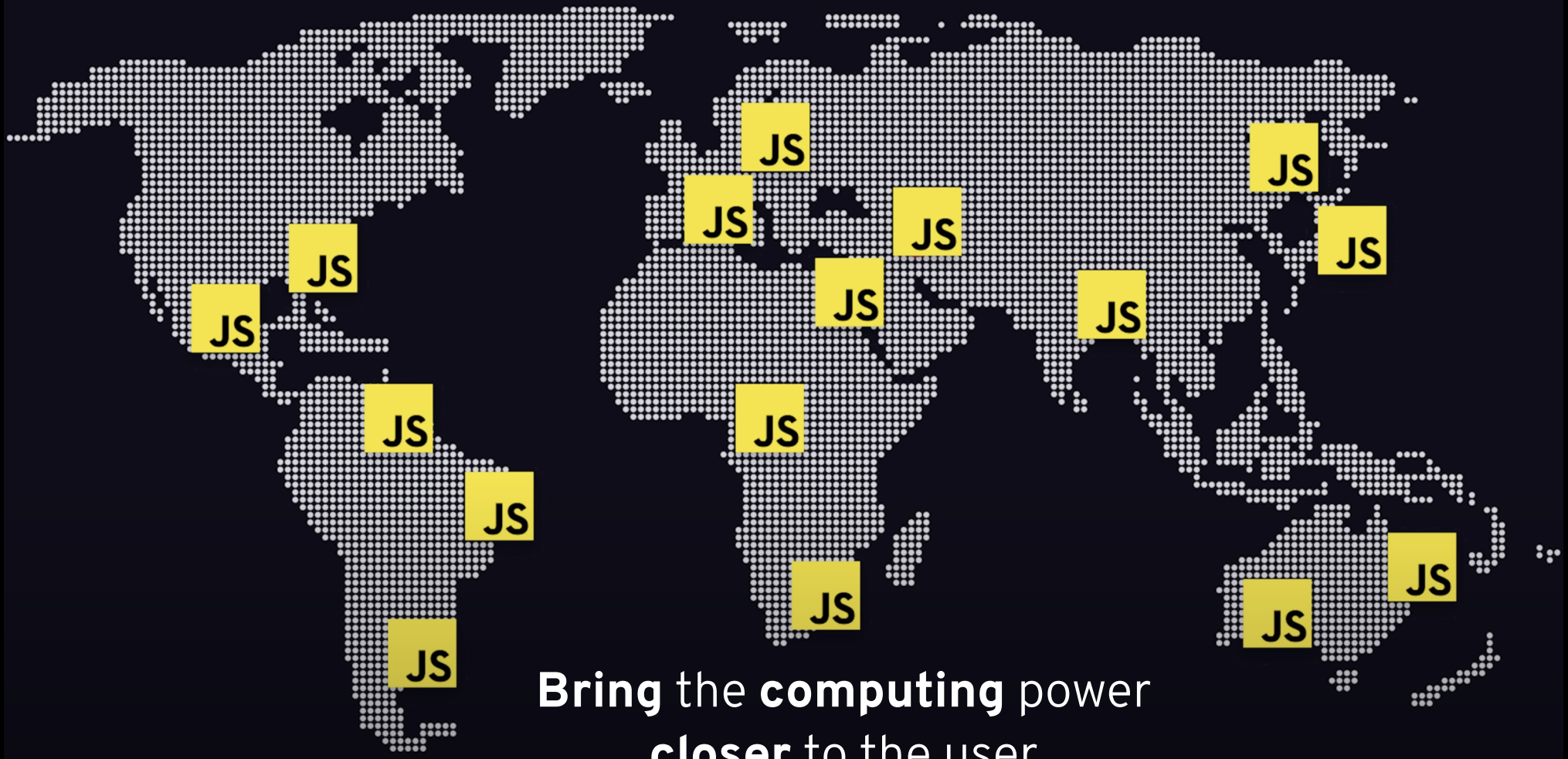
EDGE
EDGE
EDGE
EDGE
EDGE
EDGE
EDGE
EDGE

CDN == Edge



Bring the **computing** power
closer to the user

EDGE COMPUTING

Powered by **JS** (mini) runtimes & **Wasm**

EDGE COMPUTING

Embraced by

SVELTEKIT

astro

Qwik

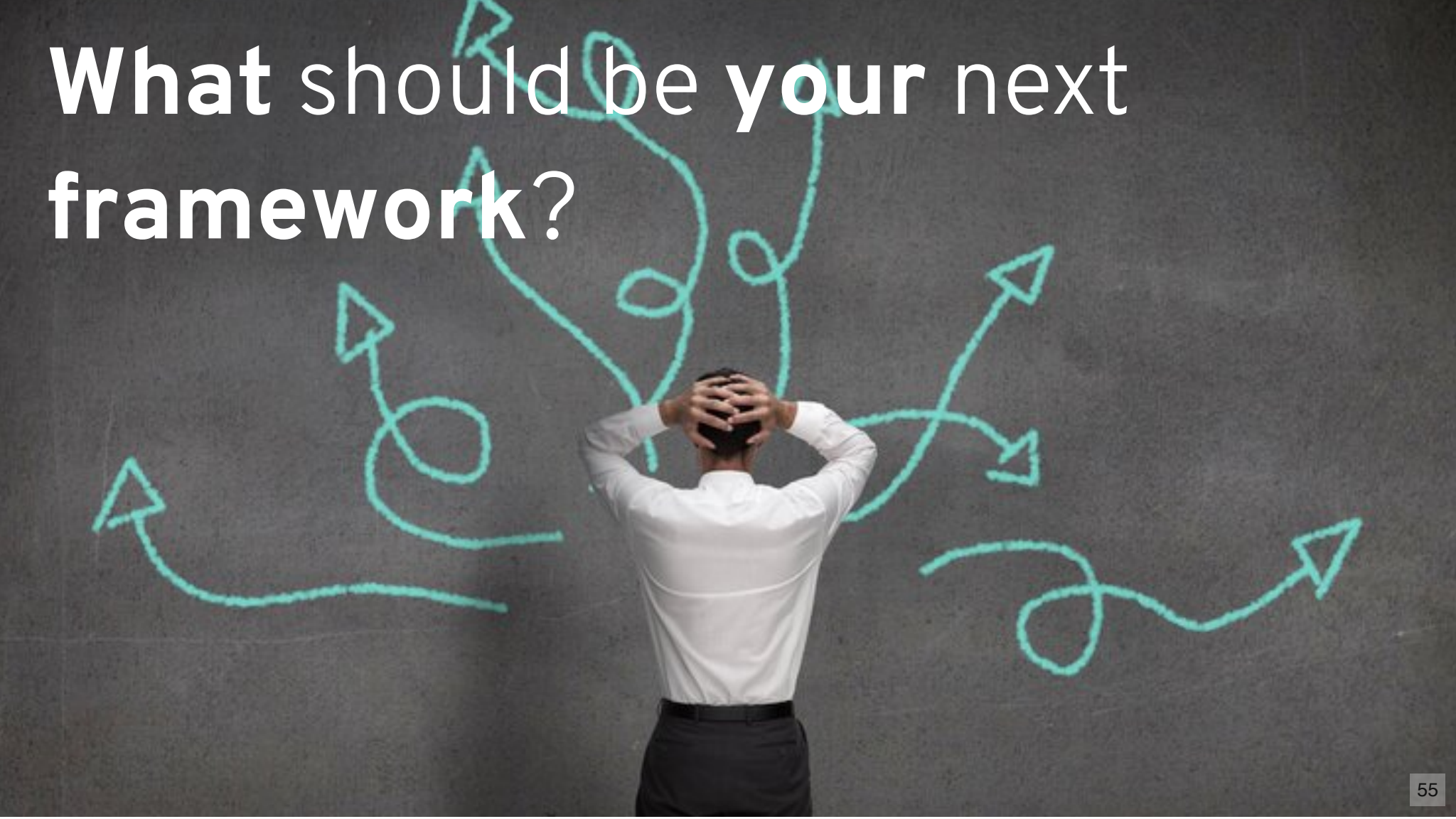
FRESH
The next-gen web framework.

NEXT.JS

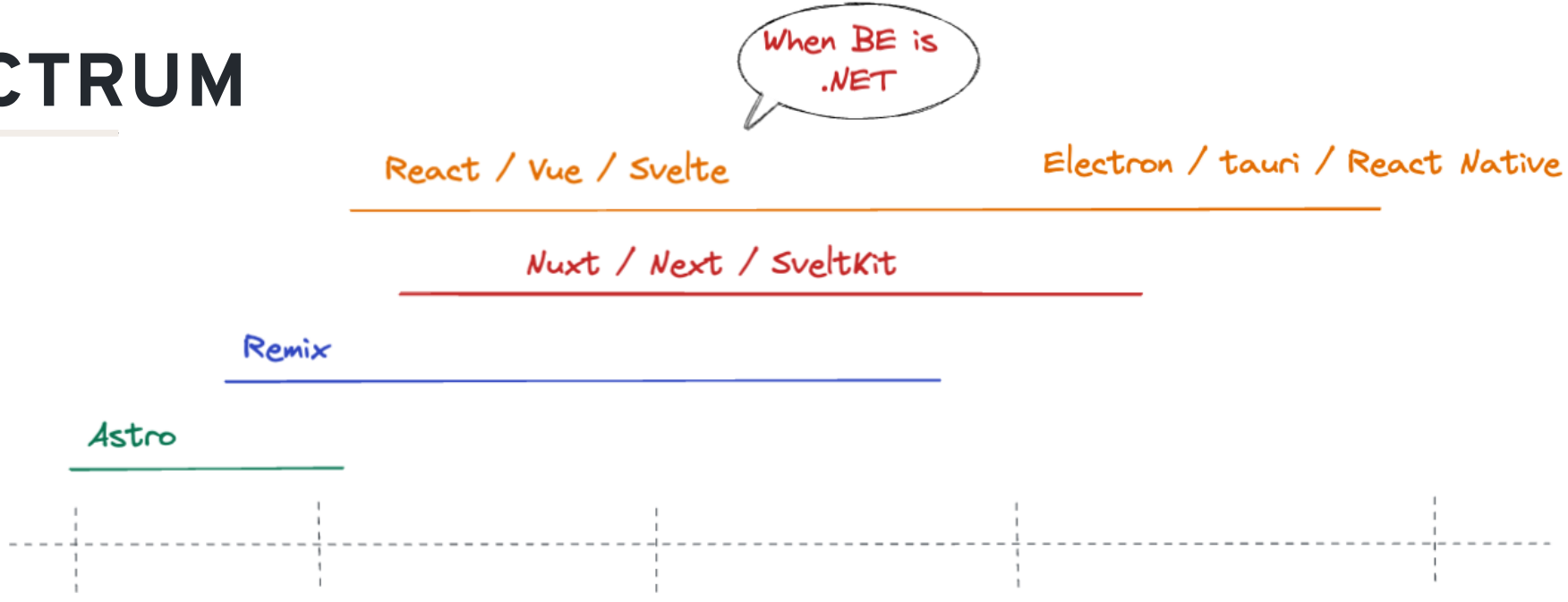
Nuxt3

Remix

What should be **your** next **framework**?



SOFTWARE SPECTRUM



Type:	Static Site	Mostly Static w/ updates	Mostly Static but Often updated	Dynamic web app	Dynamic App w/ native reqs
Example:	Landing Page	Corporate Site / Portals	ECommerce	Business Application	Video Editing