



JAMSTACK

SILLY NAME

SERIOUS BUSINESS

PHIL HAWKSWORTH

**I CARE ABOUT NOT HAVING TO
MAINTAIN CRANKY AOLSERVER,
POSTGRES AND ORACLE INSTALLS**

AARON SWARTZ, 2002



BAKE, DON'T FRY

– *Aaron Swartz*

PRE-RENDERING

rather than

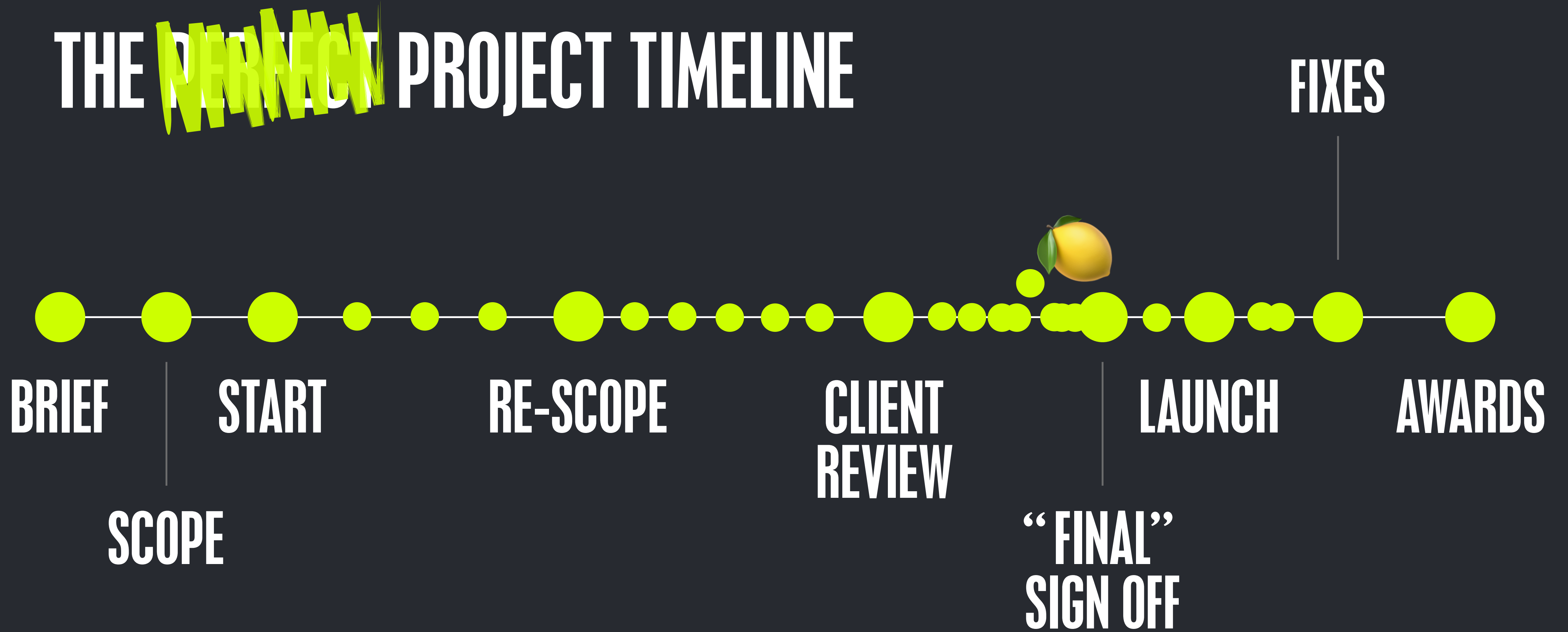
RENDERING ON DEMAND

by
RENDERING
we mean
GENERATING MARKUP

SIMPLIFYING *the* STACK

DEVELOPMENT PROJECTS
are
COMPLEX ENOUGH

THE ~~PERFECT~~ PROJECT TIMELINE



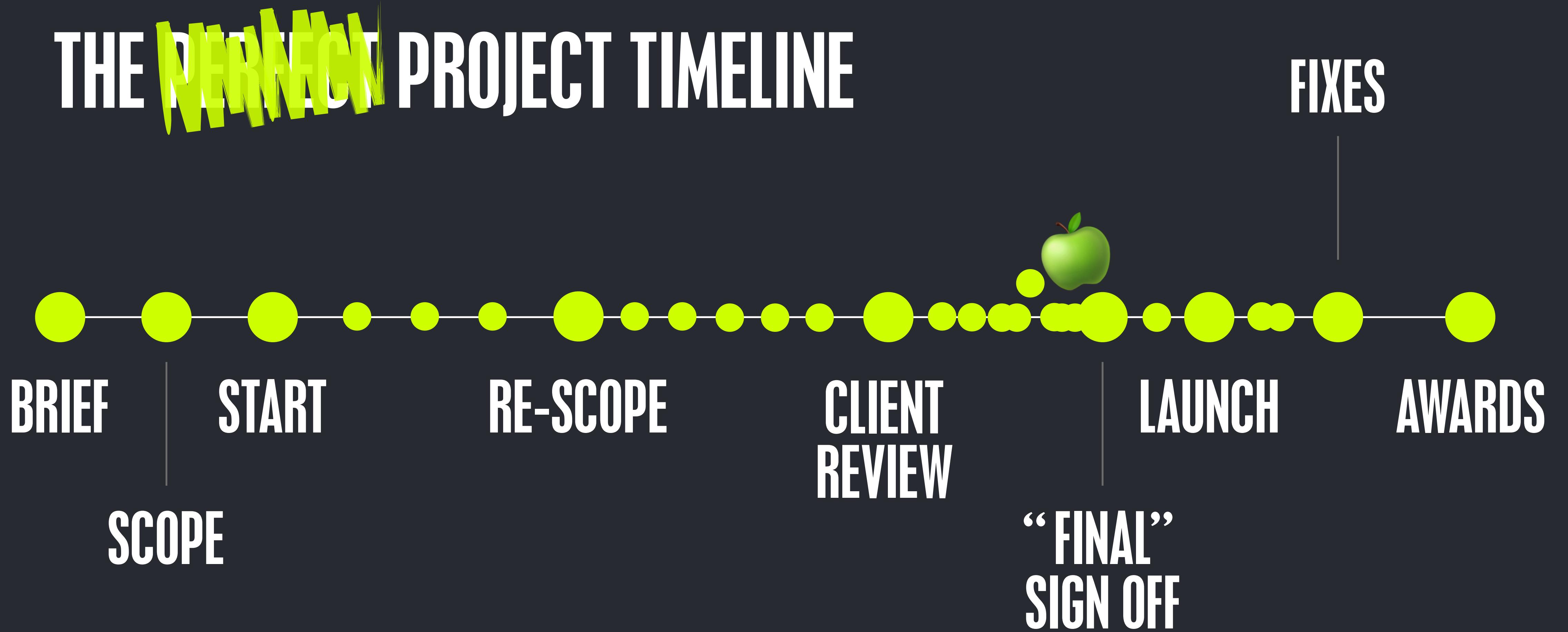
LAUNCH DAY



LAUNCH DAY



THE ~~PERFECT~~ PROJECT TIMELINE



SIMPLIFYING *the* STACK

jamstack

JAVASCRIPT / API / MARKUP

**WHAT DOES
THAT EVEN
MEAN?**

@PHILHAWKSWORTH
DEVELOPER EXPERIENCE,
NETLIFY

DEFINITION / DESCRIPTION
IMPACT / IMPLICATIONS
TOOLS / SERVICES
RESOURCES / FIRST STEPS

SIMPLIFYING *the* STACK

STACKS FOR DAYZ

AN / LAMP / MAMP / XAMP / ROR / WISA / MEAN

WISA / MEAN / LAMP / MAMP / XAMP / ROR /

STACKS FOR DAYZ

/ MEAN / LAMP / MAMP / XAMP / ROR / WISA

MEAN / LAMP / MAMP / XAMP / ROR / WISA /

jamstack

JAVASCRIPT / API / MARKUP

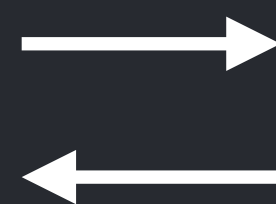
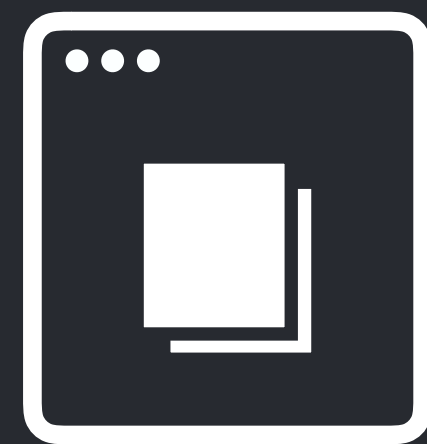
jamstack

A modern architecture —

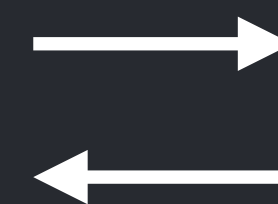
*Create fast and secure sites and dynamic apps
with **J**avaScript, **A**PIs, and pre-rendered
Markup, served without web servers*

TRADITIONAL *vs* JAMSTACK

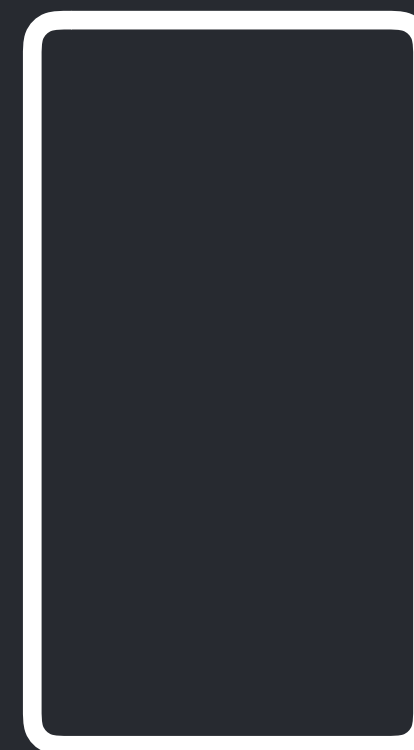
traditional



CDN



LOAD BALANCER



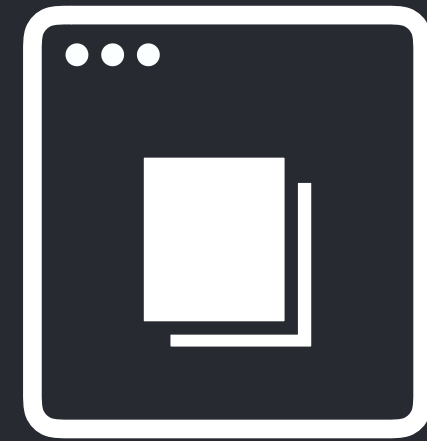
WEB SERVERS



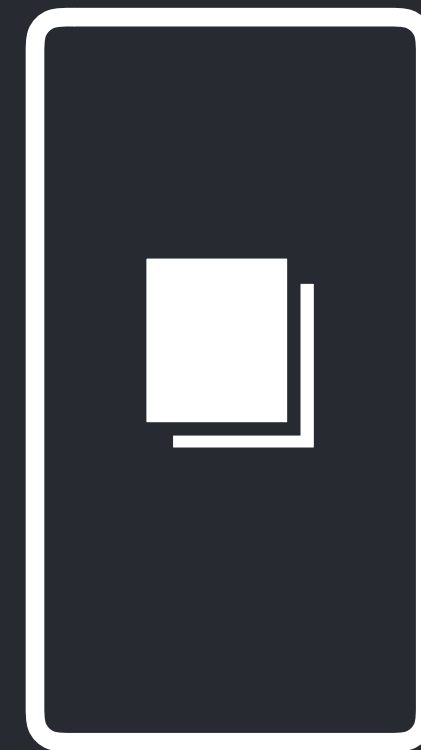
DB SERVERS



traditional



CDN



LOAD BALANCER



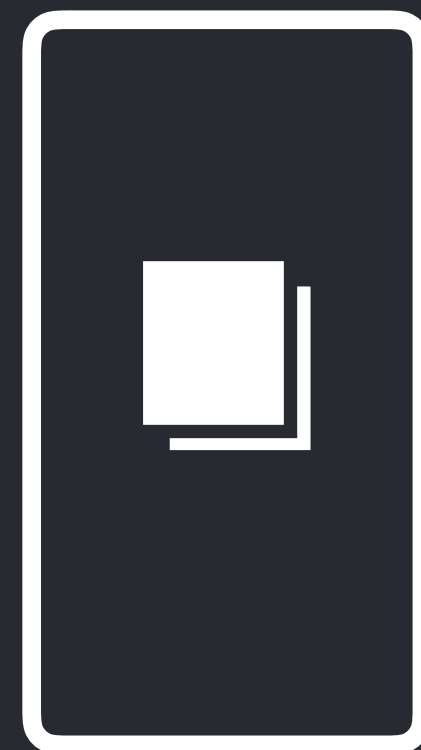
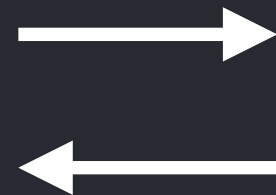
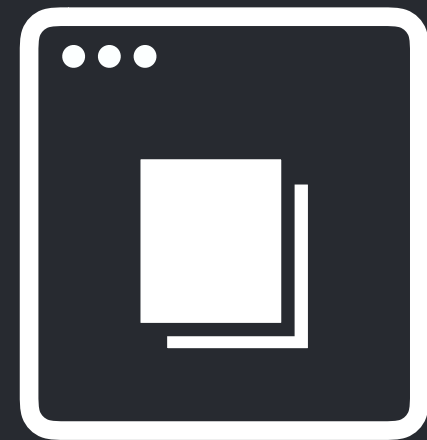
WEB SERVERS



DB SERVERS



jamstack



JAMSTACK

means

**CAPABLE OF BEING SERVED
DIRECTLY FROM A CDN**

JAMSTACK

offers

AN OPPORTUNITY TO REDUCE COMPLEXITY

ENJOYS THE BENEFITS
of
SERVING STATIC ASSETS

**ISN'T THIS JUST A
FANCY NEW NAME FOR
STATIC SITES?**

REASONABLE VOICES

STATIC

STATIC



STATIC

STATIC

/ˈstætɪk/

*lacking in movement,
action, or change,
especially in an undesirable
or uninteresting way.*

STATIC

EXPERIENCE?

or

ARCHITECTURE?

STATIC

as a

VIRTUE



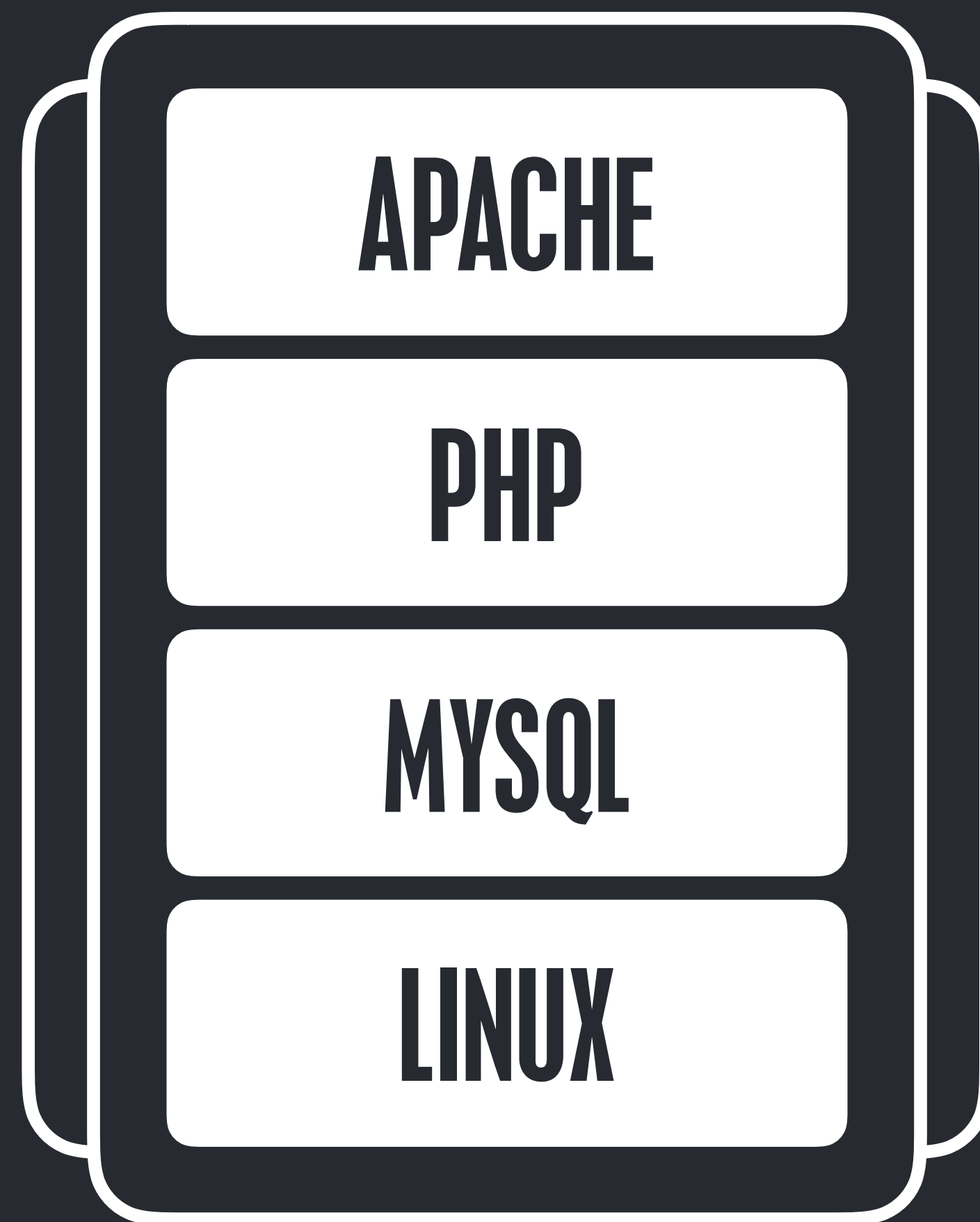
LET'S TALK STACKS

stack

*the layers of technology which
deliver your web site or application*



LAMP STACK



WEB SERVER

HTTP ROUTING AND SERVING

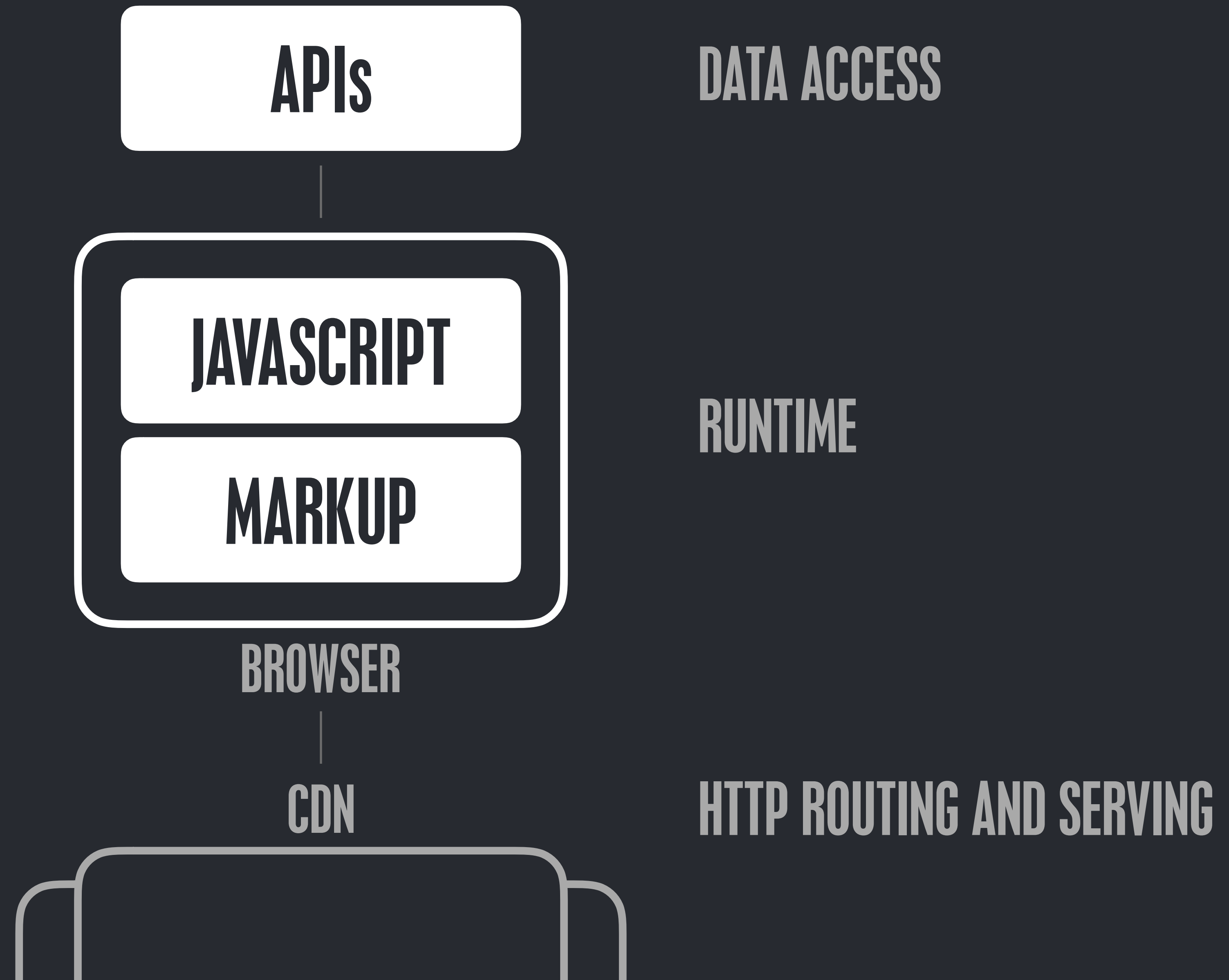
PREPROCESSING

DATA ACCESS

OPERATING SYSTEM



JAM STACK



jamstack

**PRE-RENDERED
SERVED STATICALLY
PROGRESSIVELY ENHANCED**

APACHE

PHP

MYSQL

LINUX

WEB SERVER

WITH JAMSTACK
THE STACK
HAS MOVED
UP A LEVEL
TO THE BROWSER

APIs

JAVASCRIPT

MARKUP

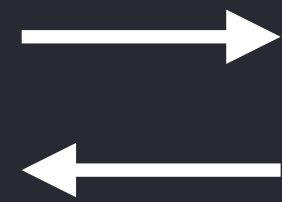
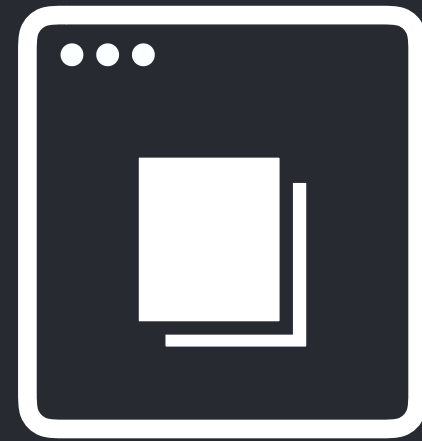
BROWSER

this can
SIMPLIFY
DEPLOYMENTS

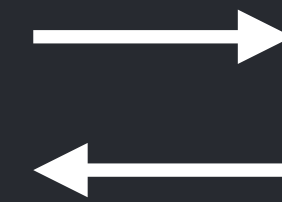
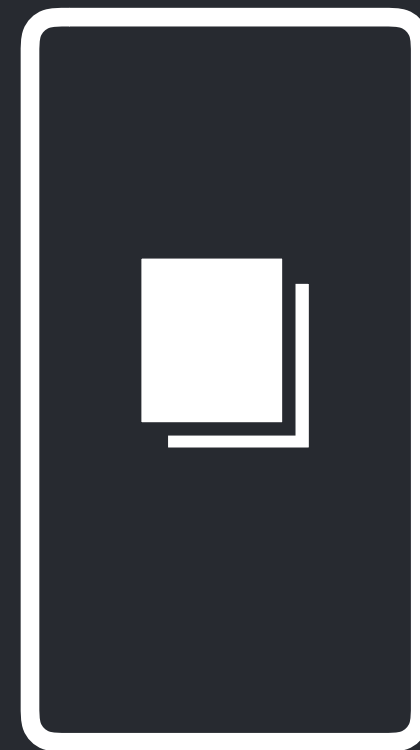
THE ~~PERFECT~~ PROJECT TIMELINE



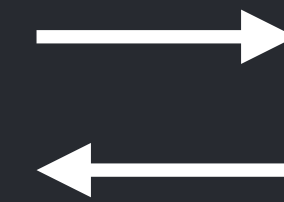
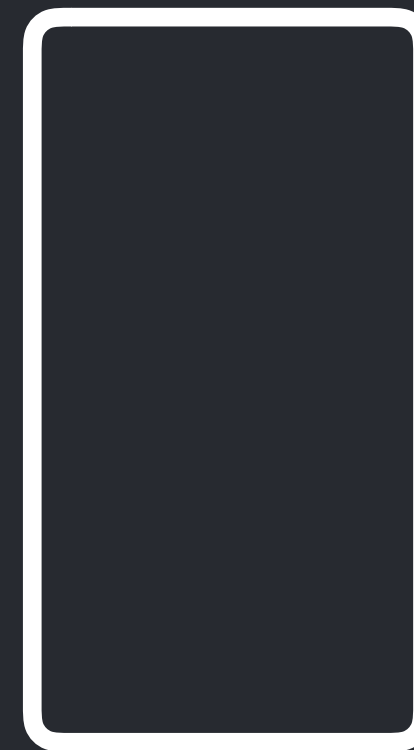
traditional



CDN



LOAD BALANCER



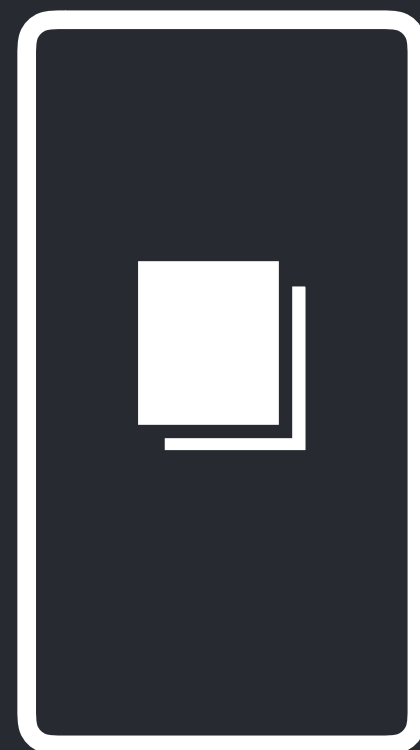
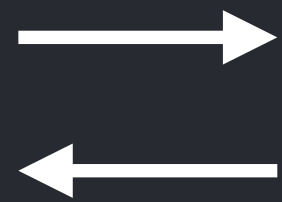
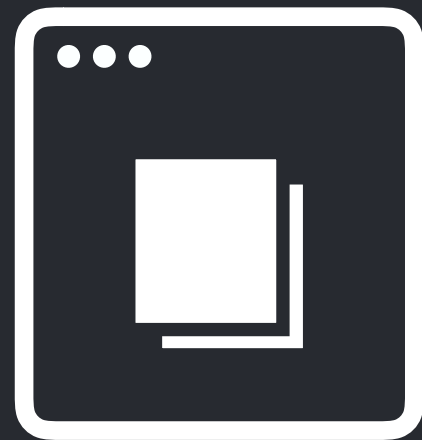
WEB SERVERS



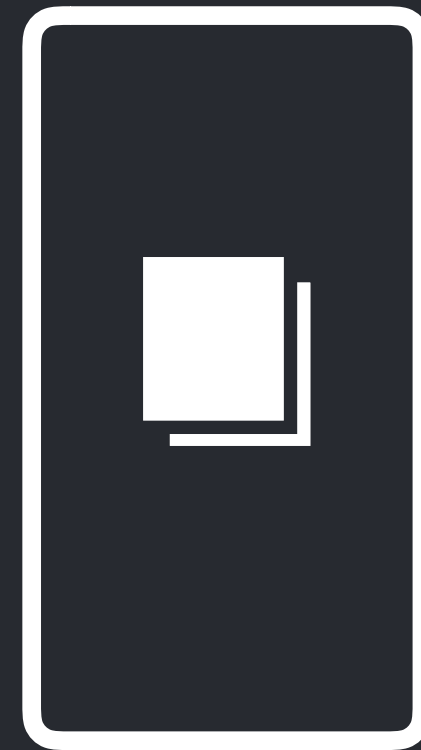
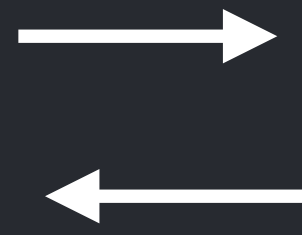
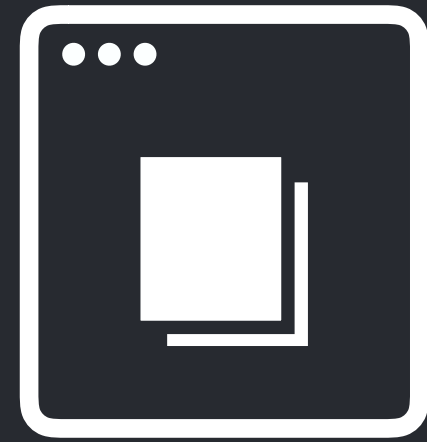
DB SERVERS



jamstack



jamstack



REQUEST TIME

BUILD TIME

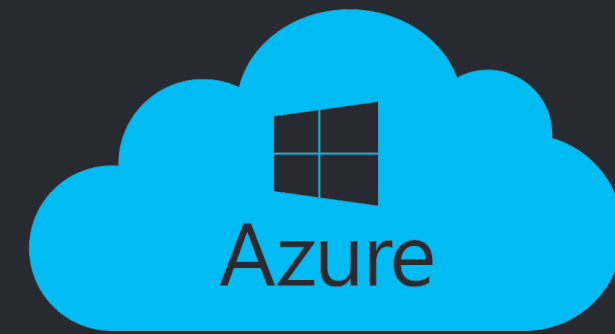
DEPLOYMENT

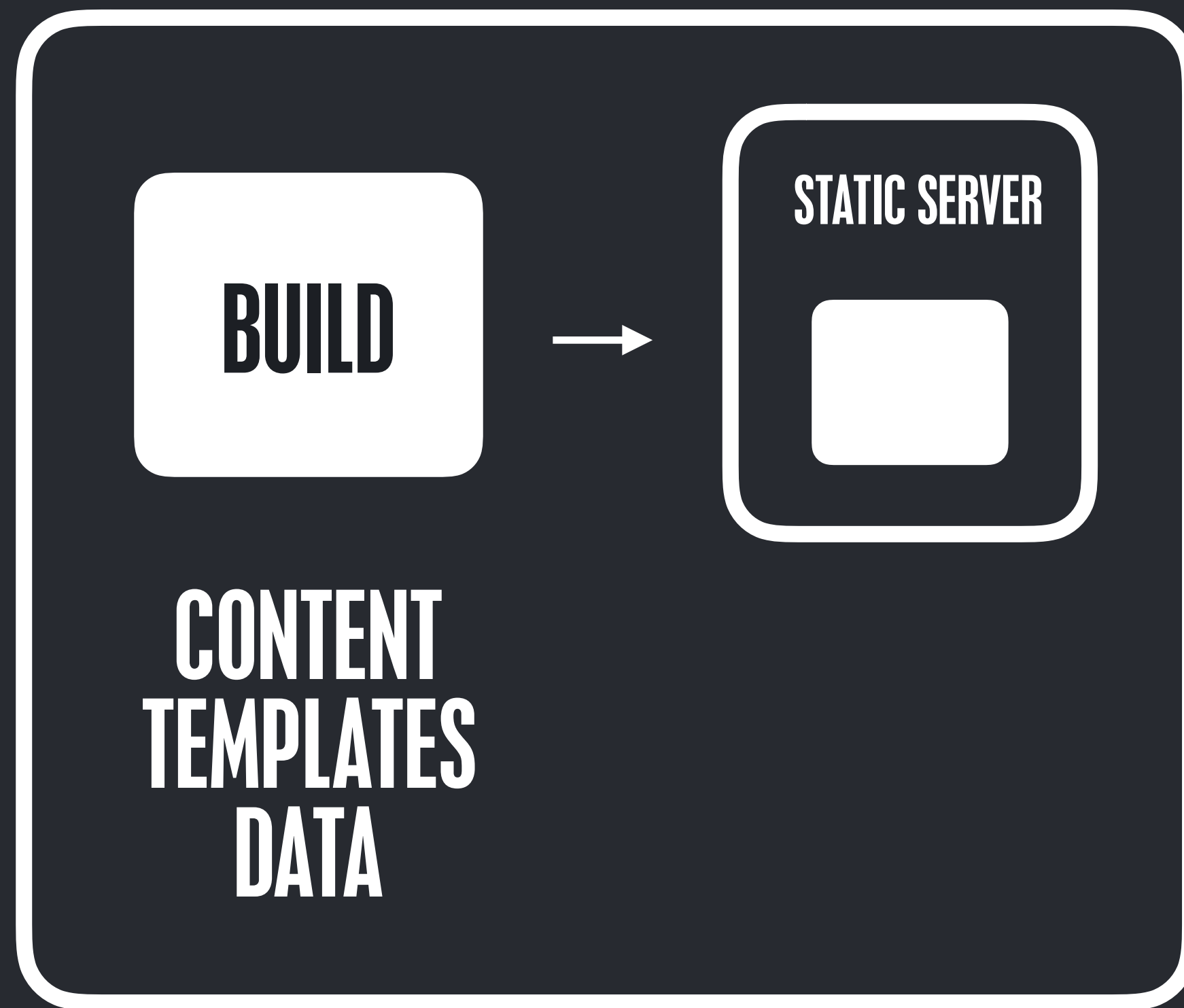


**WE'VE BECOME
VERY GOOD
AT SERVING
STATIC FILES**

GET TO THE ~~CHOPPER~~ CDN





LOCAL**HOSTING**

LET'S ADDRESS A COMMON MISCONCEPTION

jamstack

JAVASCRIPT / API / MARKUP

jamstack

JAVASCRIPT *&* API *&* MARKUP

jamstack

JAVASCRIPT *&* API *&* MARKUP

YOU DON'T HAVE TO USE ALL THREE

is it jamstack?

JEKYLL
YAML
NO JS
NO APIs
GITHUB PAGES

yes

GATSBY
MARKDOWN
GRAPHQL APIs
JS HYDRATION
AMAZON S3

yes

HUGO
MARKDOWN
JS INTERACTIONS
NO APIs
GOOGLE CLOUD

yes

NUXT
JSON
JS INTERACTIONS
COMMERCE APIs
NETLIFY

yes

HAND-MADE PWA
WEBPACK
JWT
BROWSER APIs
AZURE

yes

ORIGIN SERVER

JAMSTACK

means

**CAPABLE OF BEING SERVED
DIRECTLY FROM A CDN**

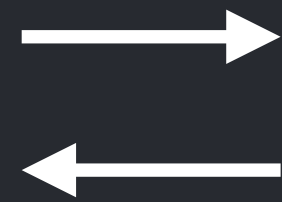
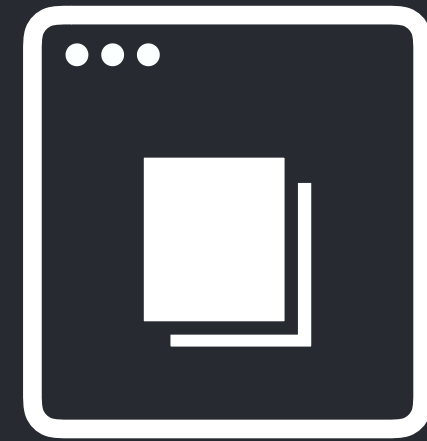
IMPACTS AND IMPLICATIONS



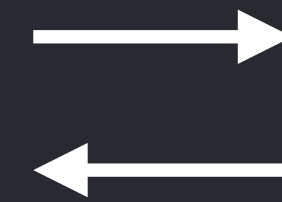
SECURITY

**A GREATLY REDUCED
SURFACE AREA**

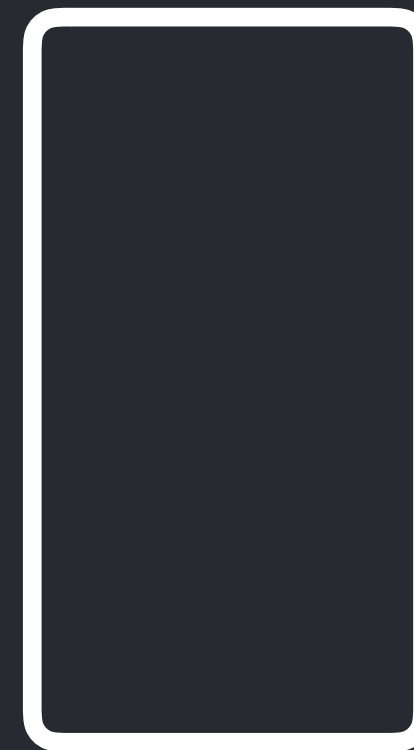
traditional



CDN



LOAD BALANCER



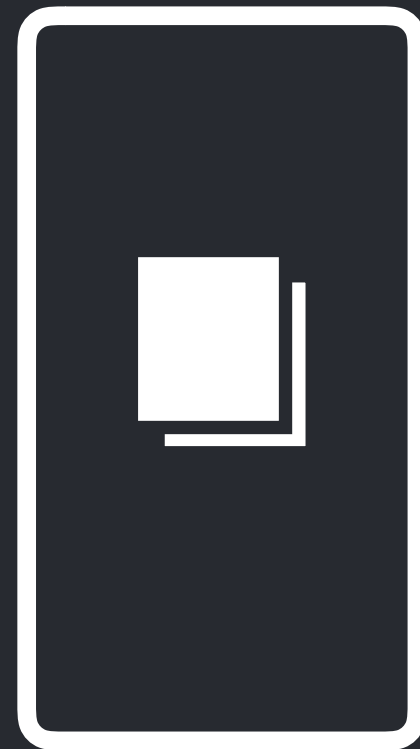
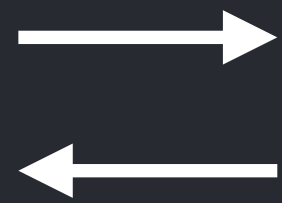
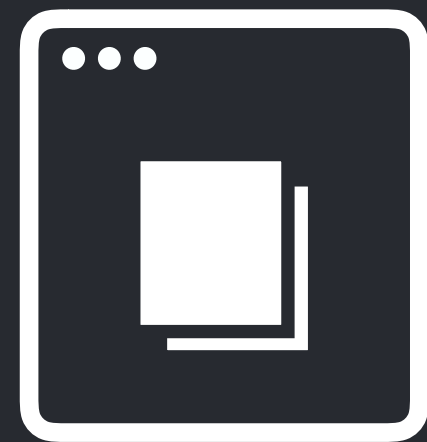
WEB SERVERS



DB SERVERS



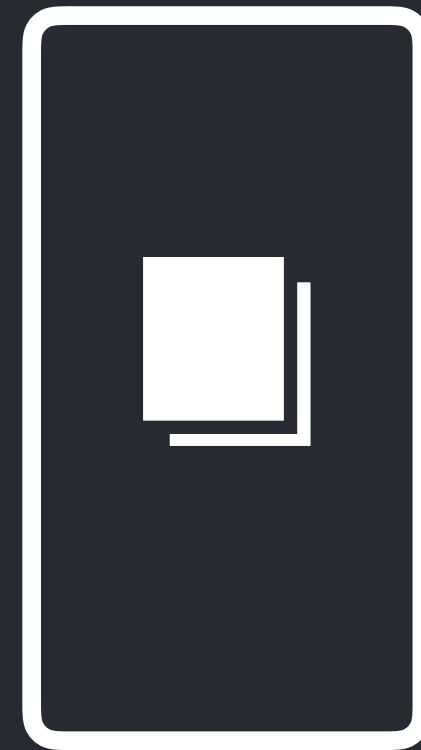
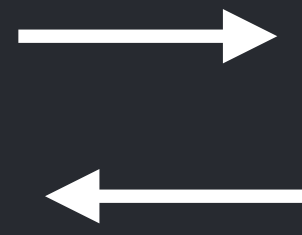
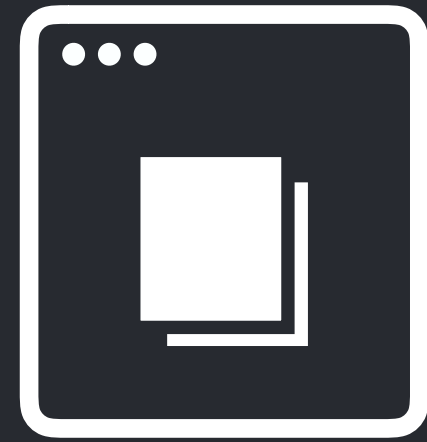
jamstack



FAR FEWER MOVING PARTS TO ATTACK

YOUR-DOMAIN.COM/WP-ADMIN

jamstack



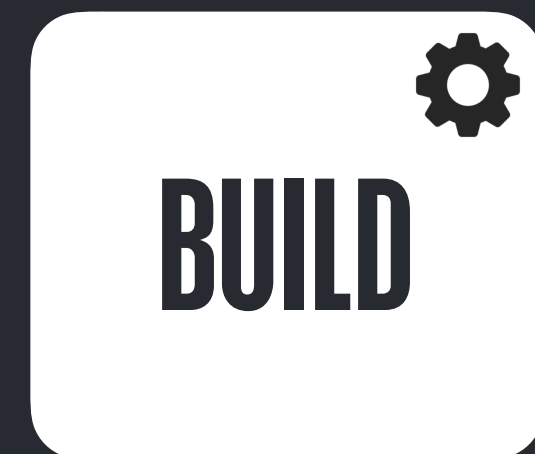
REQUEST TIME

BUILD TIME

NO MOVING PARTS

MOVING PARTS

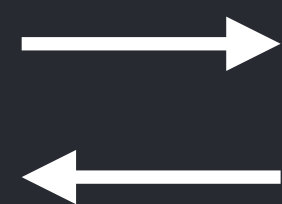
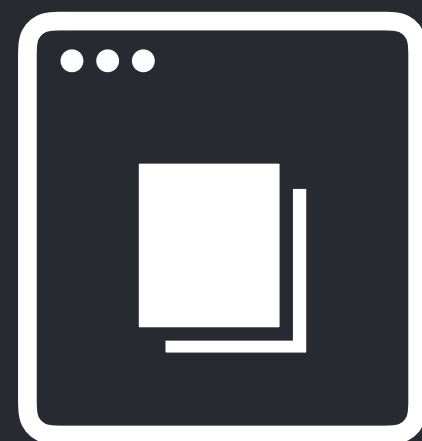
DEPLOYMENT



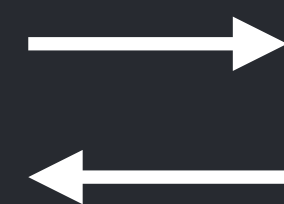
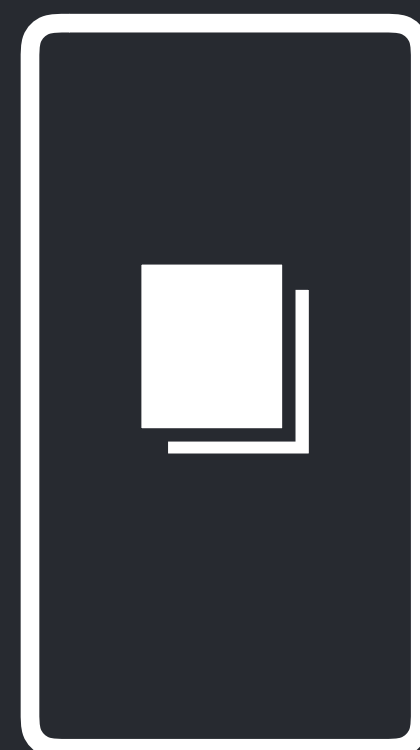


PERFORMANCE

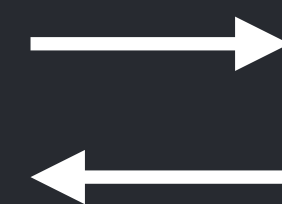
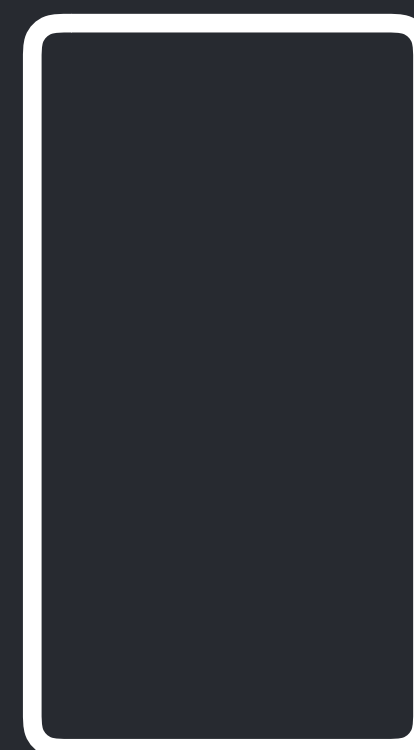
traditional



CDN



LOAD BALANCER



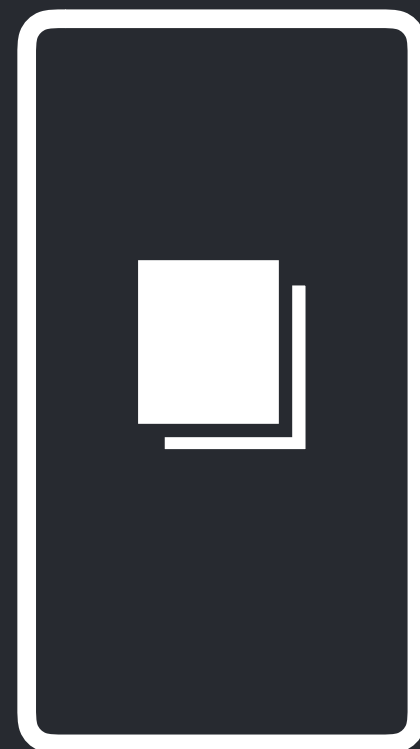
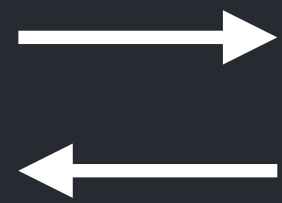
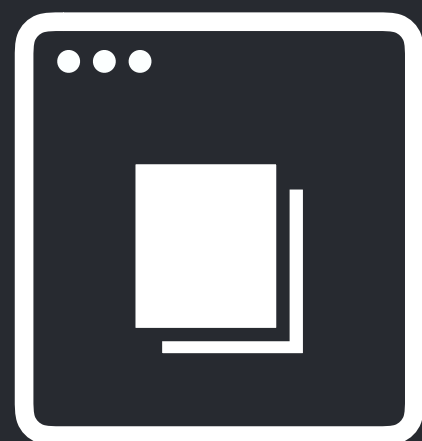
WEB SERVERS



DB SERVERS



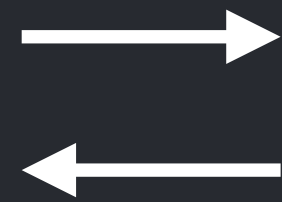
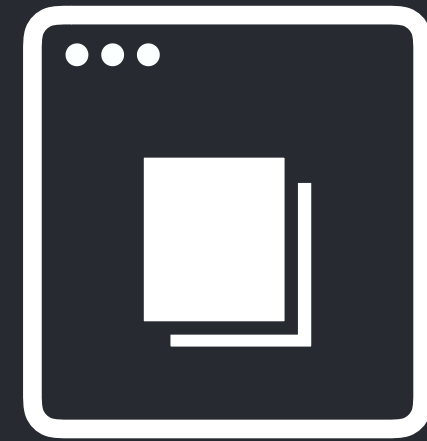
jamstack



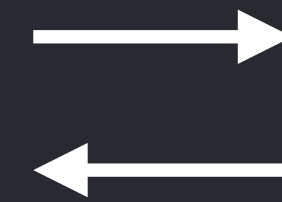
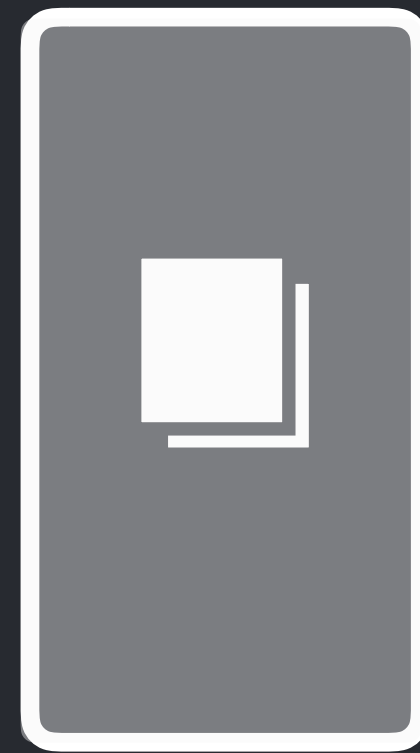
**TRADITIONAL STACKS
ADD STATIC LAYERS
IN ORDER TO IMPROVE
PERFORMANCE**

CACHING GALORE

traditional



CDN



LOAD BALANCER



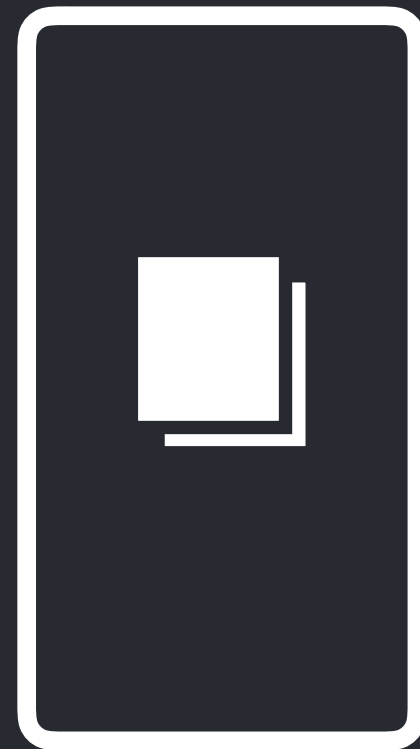
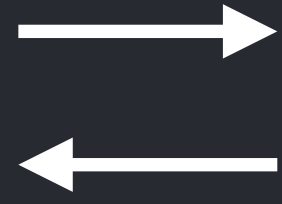
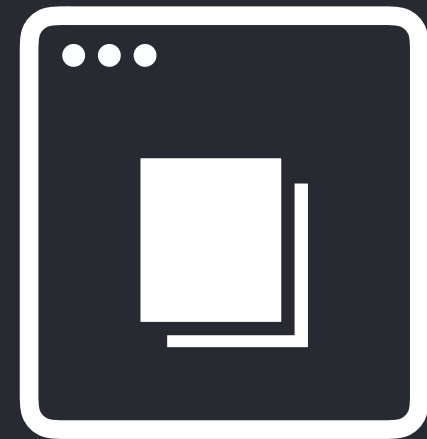
WEB SERVERS



DB SERVERS



jamstack

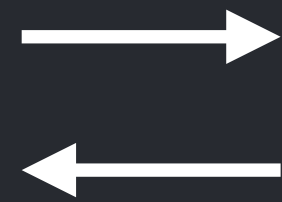
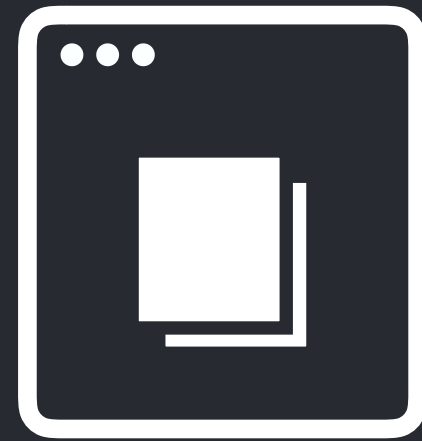




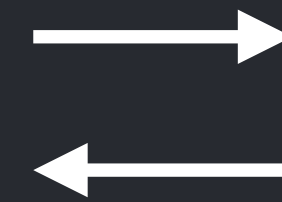
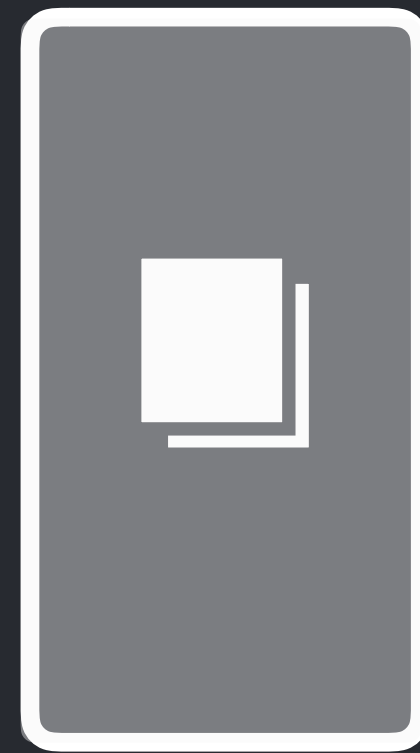
SCALE

**TRADITIONAL STACKS
ADD INFRASTRUCTURE
IN ORDER TO SCALE**

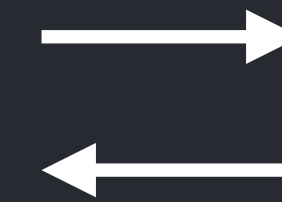
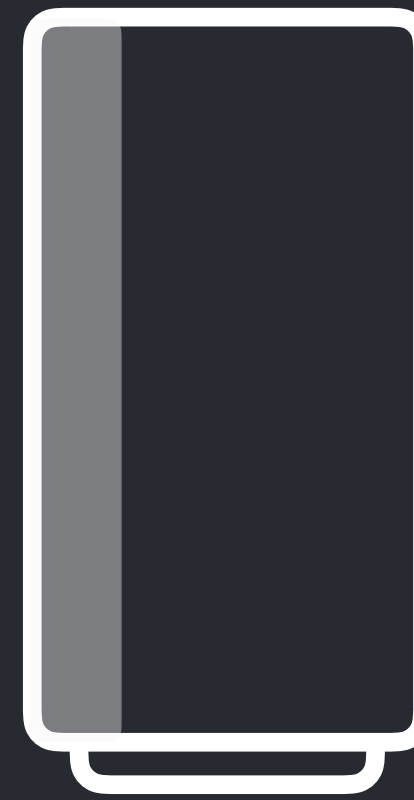
traditional



CDN



LOAD BALANCER



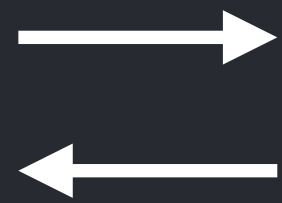
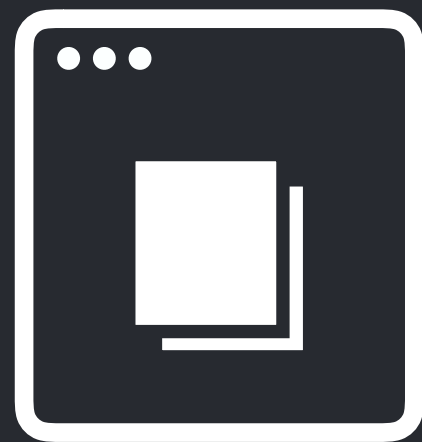
WEB SERVERS



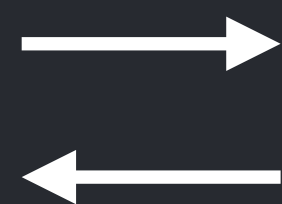
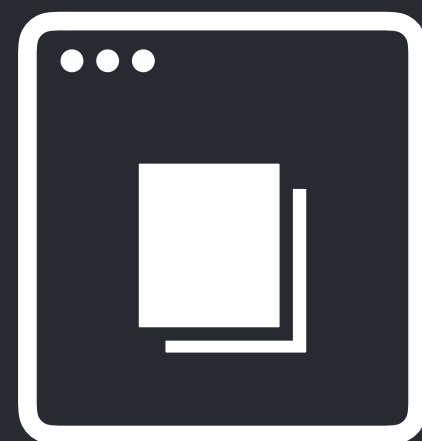
DB SERVERS



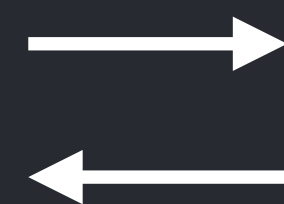
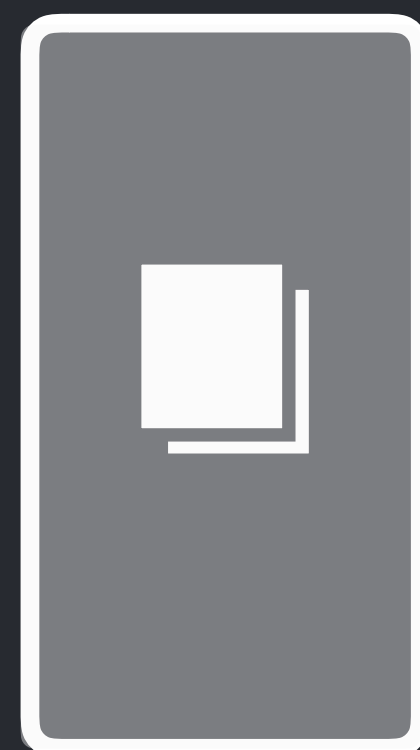
jamstack



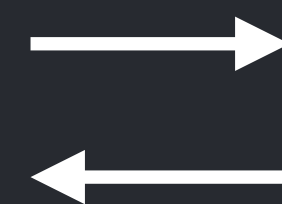
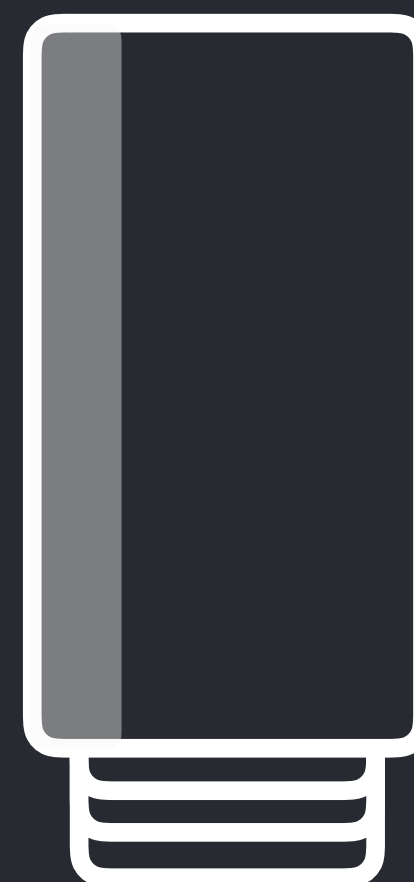
traditional



CDN



LOAD BALANCER



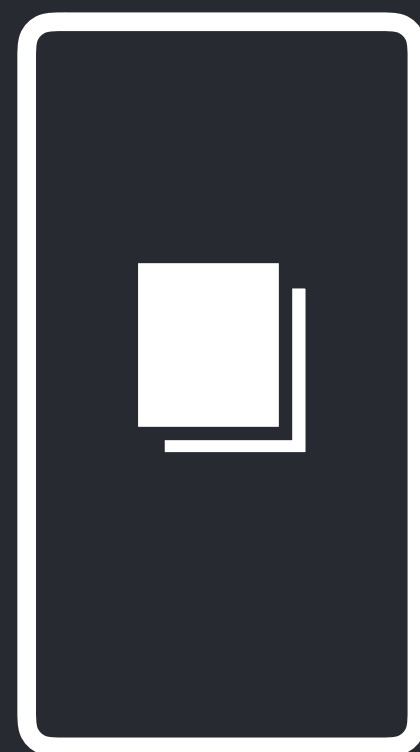
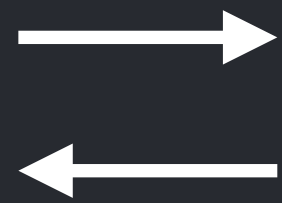
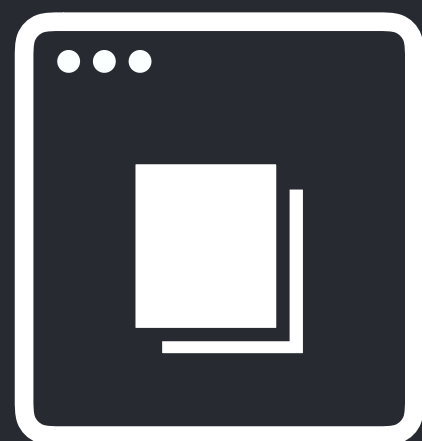
WEB SERVERS



DB SERVERS



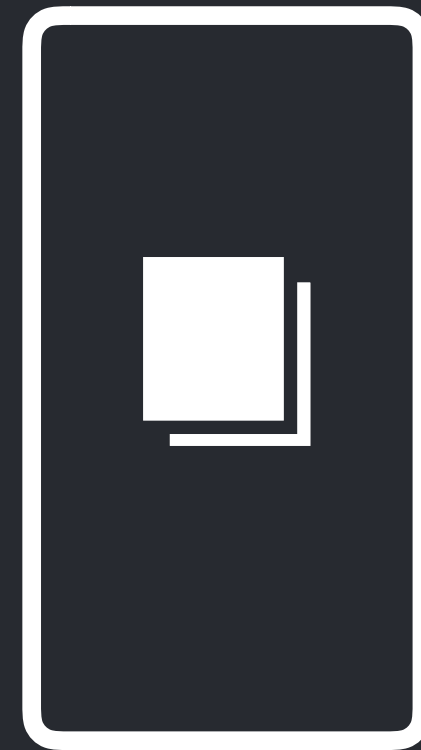
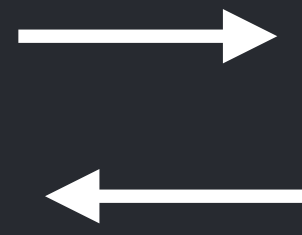
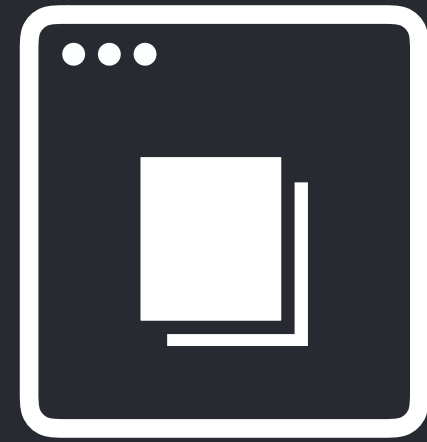
jamstack





DEVELOPER EXPERIENCE

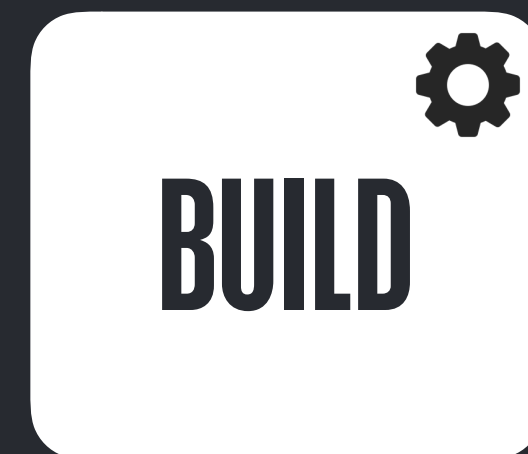
jamstack



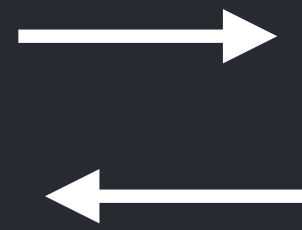
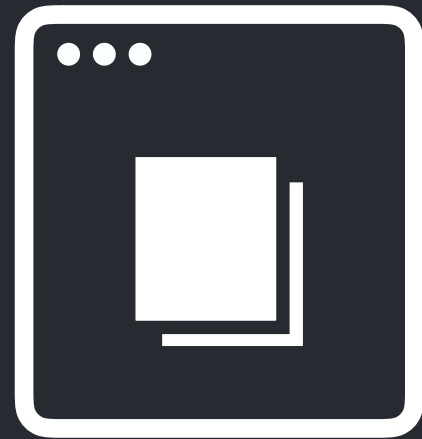
REQUEST TIME

BUILD TIME

DEPLOYMENT



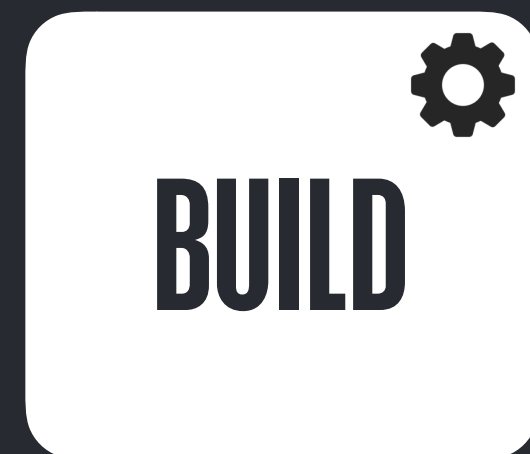
jamstack



REQUEST TIME

BUILD TIME

DEPLOYMENT



A WELL DEFINED
PROBLEM SPACE
WITH FREEDOM TO
MAKE CHOICES

FREEDOM *and* CHOICE

FREEDOM
FROM THE TECHNICAL CONSTRAINTS
OF EXOTIC PLATFORMS

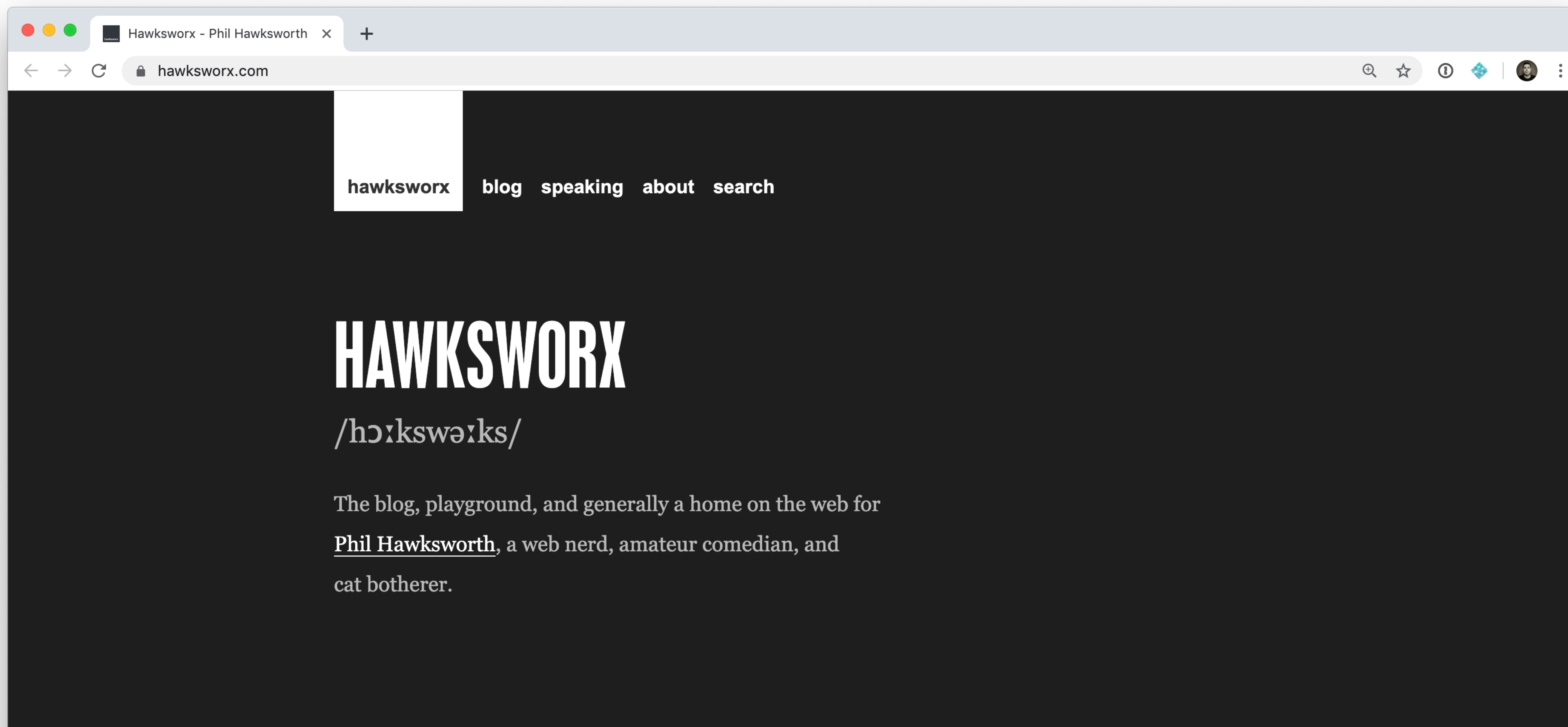
and

CHOICE
OF TOOLS AND APPROACHES WHICH
BEST FIT THE TEAM AND THE PROJECT

CONFIDENCE

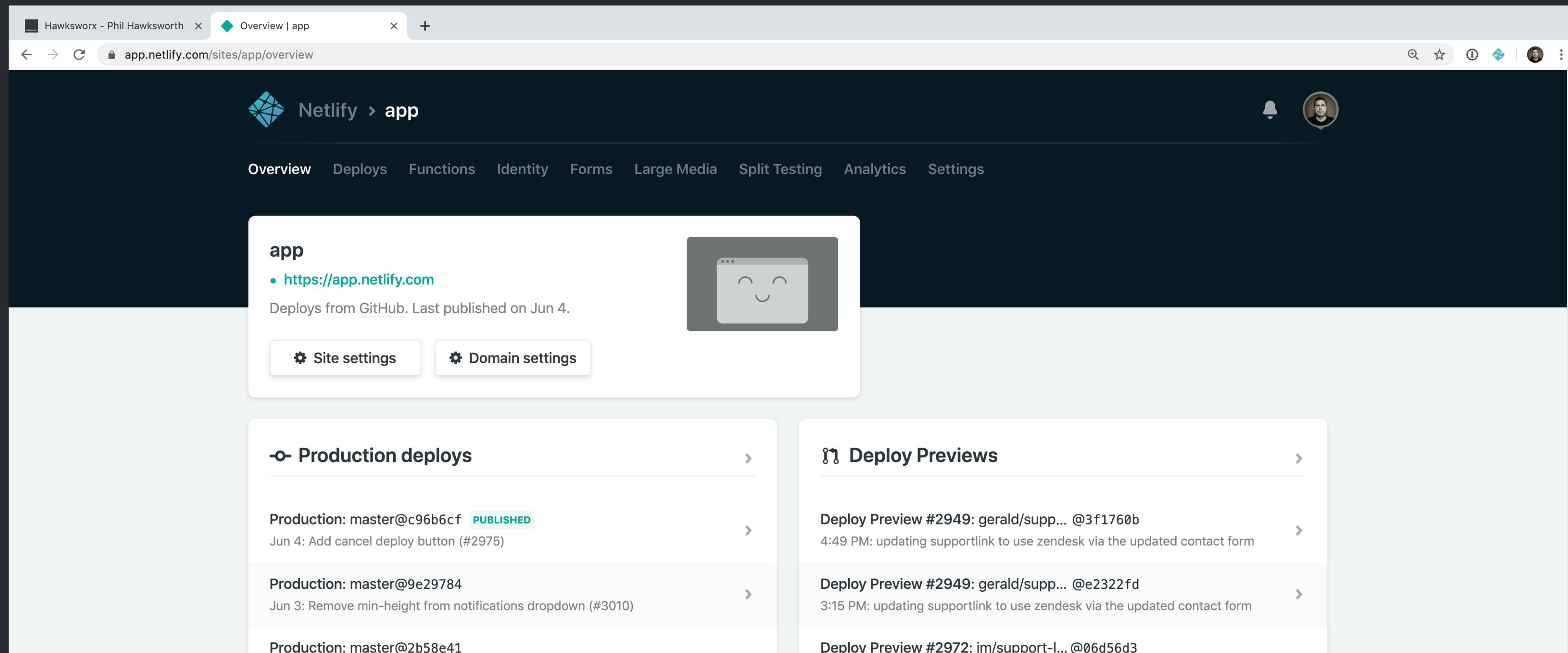
in your deployments

A **JAMSTACK** SITE CAN
MORE EASILY HAVE
IMMUTABLE,
ATOMIC DEPLOYS



You can usually find me on [Twitter](#). And you can sometimes find me at web development [conferences](#), where I might be talking about development techniques. I blog here less frequently than I'd like, but manage it a little more often on the [Netlify blog](#).

AN EXAMPLE OF A DYNAMIC WEB APP?



The screenshot shows the Netlify dashboard for an application named "app". The browser address bar shows the URL `app.netlify.com/sites/app/overview`. The dashboard includes a navigation menu with options like Overview, Deploys, Functions, Identity, Forms, Large Media, Split Testing, Analytics, and Settings. A central card for the "app" shows its URL `https://app.netlify.com` and a note that it was last published on Jun 4. Below this are buttons for "Site settings" and "Domain settings". The "Production deploys" section lists three deploys, with the most recent one published on Jun 4. The "Deploy Previews" section shows two preview deploys, both from the same user, with timestamps and descriptions of the updates.

Netlify > app

Overview Deploys Functions Identity Forms Large Media Split Testing Analytics Settings

app
• <https://app.netlify.com>
Deploys from GitHub. Last published on Jun 4.

Site settings Domain settings

Production deploys

- Production: master@c96b6cf **PUBLISHED**
Jun 4: Add cancel deploy button (#2975)
- Production: master@9e29784
Jun 3: Remove min-height from notifications dropdown (#3010)
- Production: master@2b58e41

Deploy Previews

- Deploy Preview #2949: gerald/supp... @3f1760b
4:49 PM: updating supportlink to use zendesk via the updated contact form
- Deploy Preview #2949: gerald/supp... @e2322fd
3:15 PM: updating supportlink to use zendesk via the updated contact form
- Deploy Preview #2972: im/support-l... @06d56d3



WHAT JUST HAPPENED?!



APIs AND SERVICES



BOUGHT SERVICES

CMS

**CONTENTFUL
SANITY
GRAPHCMS**

ASSETS

CLOUDINARY

COMMERCE

**STRIPE
SNIPCART**

IDENTITY

**AUTH0
OAUTH**



CMS**CONTENTFUL
SANITY
GRAPHCMS****ASSETS****CLOUDINARY****COMMERCE****STRIPE
SNIPCART****IDENTITY****AUTHO
OAUTH**



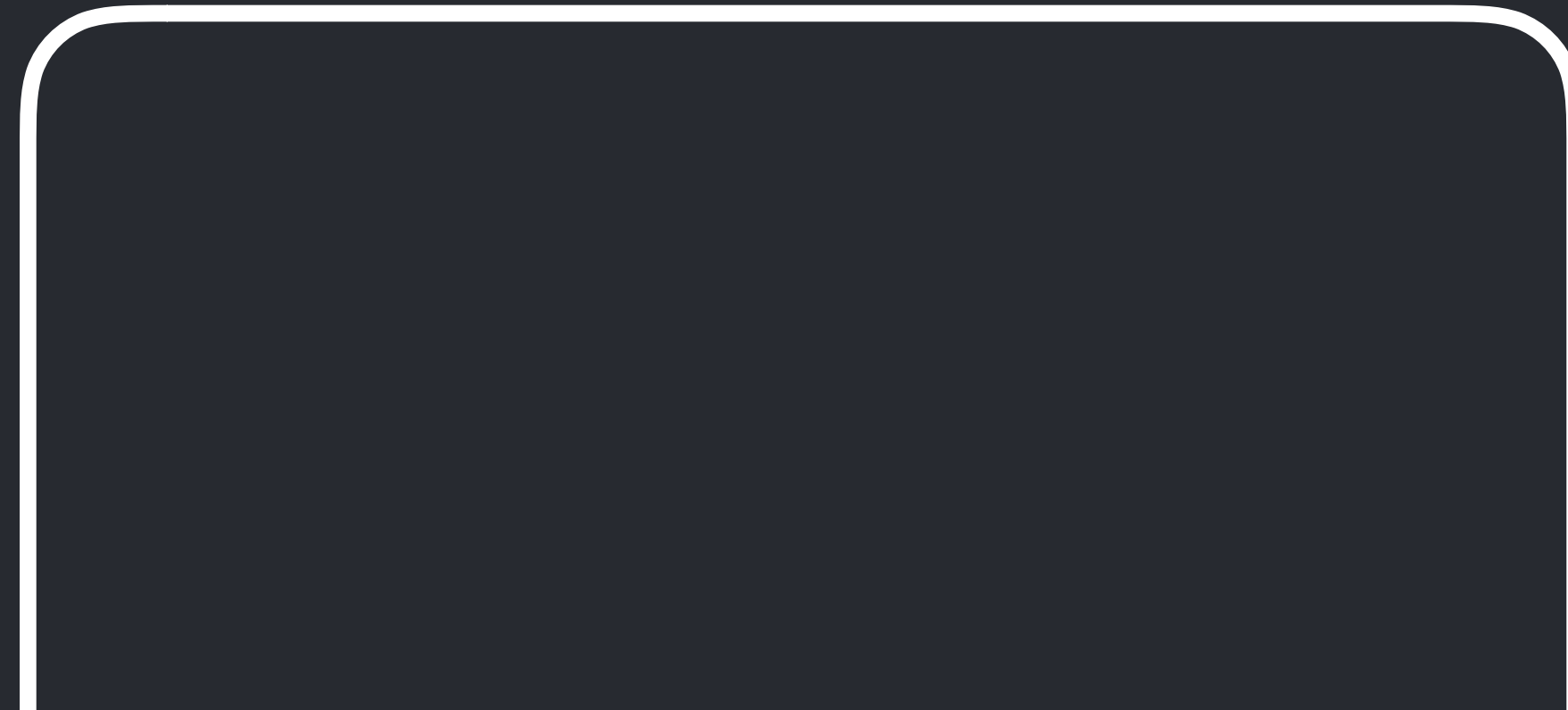
BUILT SERVICES

CMS

DAMS

COMMERCE

IDENTITY





**I ABSOLUTELY POSITIVELY
NEED A LITTLE LOGIC
ON A SERVER**

MANY OF US, SOMETIMES

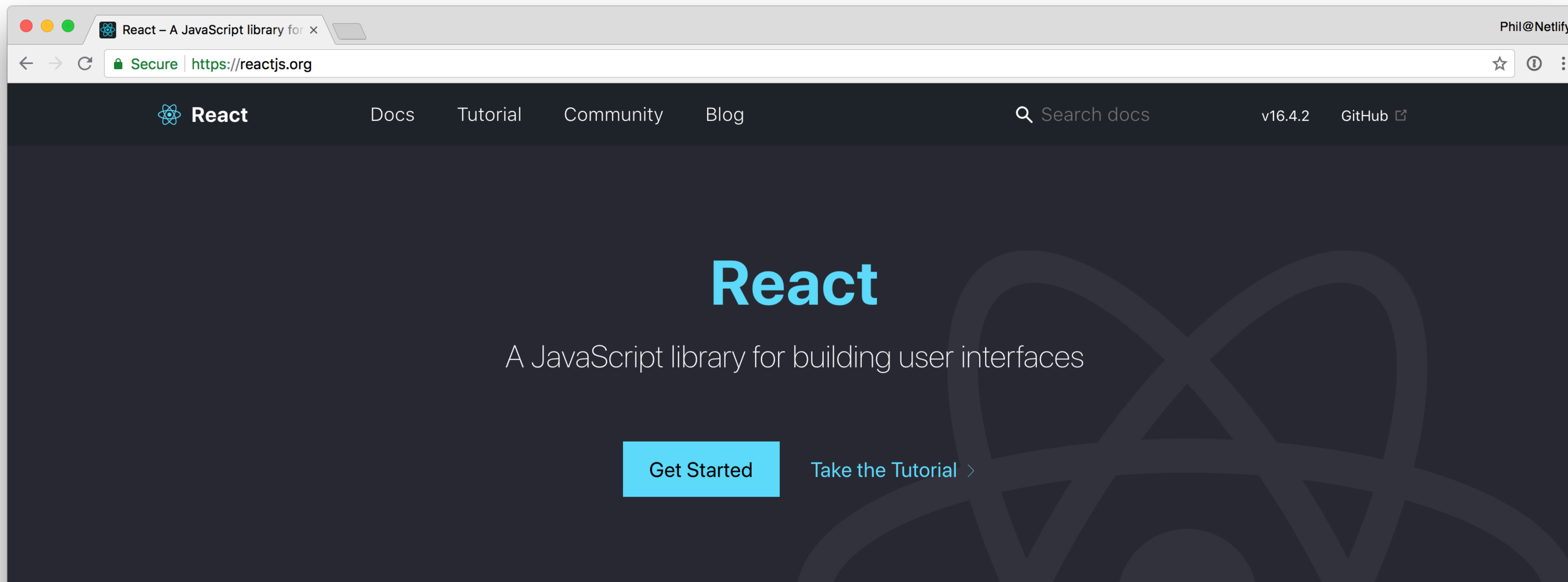


SERVERLESS TO THE RESCUE

FUNCTIONS AS A SERVICE

EXAMPLES AND RESULTS

REACTJS.ORG



Declarative

React makes it painless to create interactive UIs. Design simple views for each state in your application, and React will efficiently update and render just the right components when your data changes.

Component-Based

Build encapsulated components that manage their own state, then compose them to make complex UIs.

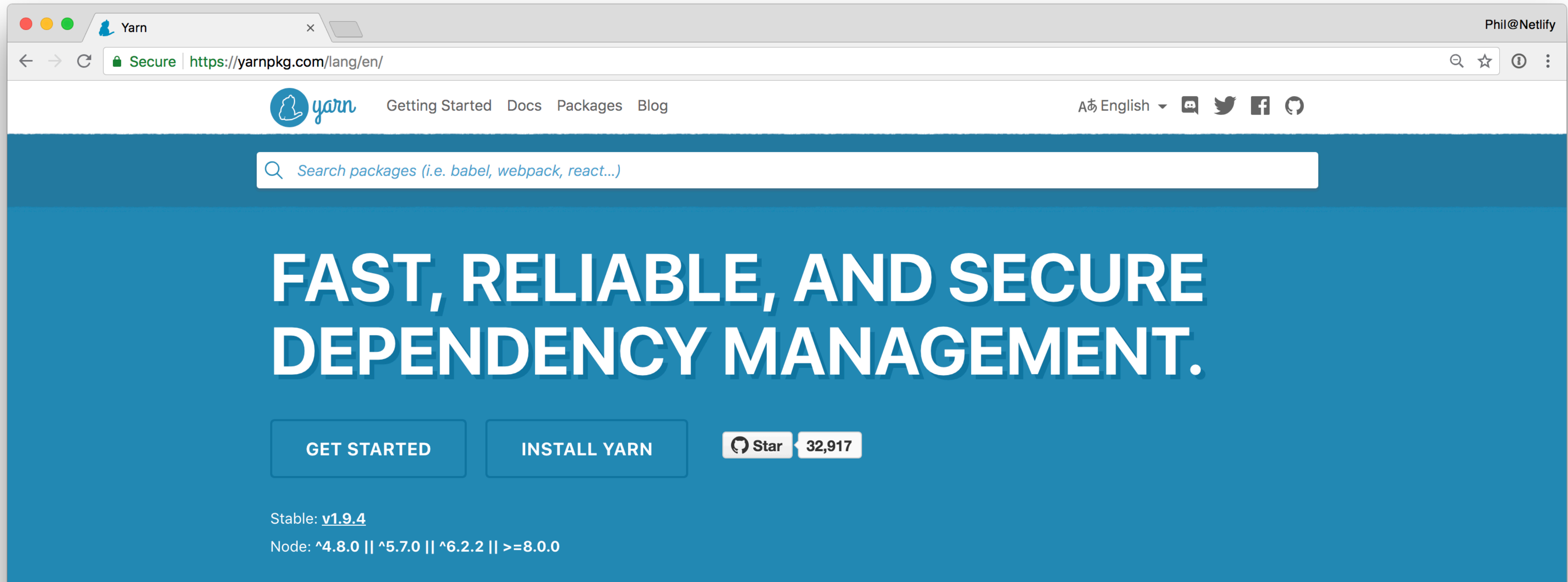
Since component logic is written in JavaScript

Learn Once, Write Anywhere

We don't make assumptions about the rest of your technology stack, so you can develop new features in React without rewriting existing code.

React can also render on the server using Node

YARNPKG.COM



The screenshot shows a web browser window with the URL `https://yarnpkg.com/lang/en/`. The page features a blue header with the Yarn logo, navigation links for 'Getting Started', 'Docs', 'Packages', and 'Blog', and social media icons for English, GitHub, Twitter, Facebook, and YouTube. Below the header is a search bar with the placeholder text 'Search packages (i.e. babel, webpack, react...)'. The main content area has a large blue background with the text 'FAST, RELIABLE, AND SECURE DEPENDENCY MANAGEMENT.' in white. Below this text are three buttons: 'GET STARTED', 'INSTALL YARN', and a GitHub Star button showing '32,917' stars. At the bottom of the blue section, the text 'Stable: v1.9.4' and 'Node: ^4.8.0 || ^5.7.0 || ^6.2.2 || >=8.0.0' is displayed.

FAST, RELIABLE, AND SECURE DEPENDENCY MANAGEMENT.

[GET STARTED](#)[INSTALL YARN](#)[Star](#) 32,917Stable: [v1.9.4](#)Node: [^4.8.0](#) || [^5.7.0](#) || [^6.2.2](#) || [>=8.0.0](#)

Ultra Fast.

Yarn caches every package it downloads so it never needs to download it again. It also parallelizes operations to maximize resource utilization so install times are faster than ever.



VUEJS.ORG

The screenshot shows a browser window with the URL <https://vuejs.org>. The page features the Vue.js logo, a navigation menu with links for Learn, Ecosystem, Team, Support Vue, and Translations, and a main heading: "The Progressive JavaScript Framework". Below the heading are three buttons: "WHY VUE.JS?", "GET STARTED", and "GITHUB". A "Special Sponsor" section highlights "stdlib" as a "Function as a Service Platform and Library". Three key features are listed: "Approachable" (for those familiar with HTML, CSS, and JavaScript), "Versatile" (an incrementally adoptable ecosystem), and "Performant" (20KB min+gzip Runtime, Blazing Fast Virtual DOM, Minimal Optimization Efforts). The footer mentions "Patreon Sponsors".

Vue.js

Learn ▾ Ecosystem ▾ Team Support Vue ▾ Translations ▾



The Progressive JavaScript Framework

[WHY VUE.JS?](#)

[GET STARTED](#)

[GITHUB](#)

Special Sponsor



Function as a Service Platform and Library

Approachable

Already know HTML, CSS and JavaScript? Read the guide and start building things in no time!

Versatile

An incrementally adoptable ecosystem that scales between a library and a full-featured framework.

Performant

20KB min+gzip Runtime
Blazing Fast Virtual DOM
Minimal Optimization Efforts

Patreon Sponsors

DOCS.CITRIX.COM

The screenshot shows a web browser window with the following elements:

- Browser Tab:** Citrix Product Documentation
- Address Bar:** docs.citrix.com
- Page Header:** CITRIX® Product Documentation
- Search:** Search [input field]
- Language:** English [dropdown]
- Main Banner:** Citrix Product Documentation
The Citrix Product Documentation site is the home of Citrix documentation for IT administrators and developers.
- Product Categories:**
 - Digital Workspace:**
 - Citrix Cloud
 - Citrix Virtual Apps and Desktops
 - Citrix Content Collaboration
 - Citrix Endpoint Management
 - Citrix Workspace platform
 - Citrix Workspace app
 - Citrix Hypervisor
 - ShareFile
 - Networking:**
 - Citrix ADC
 - Citrix Application Delivery Management
 - Citrix Gateway
 - Citrix Intelligent Traffic Management
 - Citrix SD-WAN
 - Citrix Secure Web Gateway
 - Citrix Web App Firewall
 - Analytics:**
 - Citrix Analytics

**TURNAROUND TIME FOR UPDATES
WENT FROM WEEKS TO MINUTES**

BETH POLLOCK, CITRIX

**WE ESTIMATE OUR
ANNUAL COST SAVINGS TO
RUN THE SITE PROPERLY IS 65%**

BETH POLLOCK, CITRIX

SMASHINGMAGAZINE.COM

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Access to SmashingConf videos
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 - \$375 discount on 1 in-house training

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Smashing Magazine

Articles Books Events Jobs Membership

Don't Miss These Latest Articles

Seriously, red?

- How To Start Using Sketch And Framer X** by Martina Pérez wrote
Framer X³ # Sketch²³
- Increase Customer Centricity With Workshops** by Claire Mason wrote
Business²⁷⁷ # Ideation¹² # Communication⁶²
- When Do We Need A Design System? An Interview With Brad Frost** by Vitaly Friedman wrote
Interviews⁴¹ # Business²⁷⁷
- Inspiring Wallpapers For A Colorful June (2019 Edition)** by Cosima Mielke wrote
Wallpapers¹¹⁸

6 DAYS AGO 7 DAYS AGO 9 DAYS AGO

Smashing Magazine

SmashingConf 2019–2020

Smashing Conferences are friendly, inclusive events for people who care about their work. No fluff, no fillers, no multi-track experience – just actionable insights applicable to your work right away. With live sessions on accessibility, performance, front-end, UX, CSS, JavaScript and interface design. Please respect our **code of conduct**.

What's SmashingConf Like? ↓

Get 10% off all tickets with your Smashing Membership. Just sign in.

@SmashingConf #smashingconf

- Toronto, Canada** Jun 25–26, 2019
Better front-end & UX workflow, web performance, service workers, cross-cultural design, animation, interface design, CSS Grid, Vue.js, designing for mobile, digital policy and new front-end adventures.
Explore all speakers and topics →
- London, UK** Jul 9–10, 2019
Serverless! Let's explore how to design, build, debug and deploy fast, modern web projects that run on the JAM Stack. Plus practical full-day front-end workshops.
Explore all speakers and topics →

PLATFORMS

from

5

to

1

**WE HAD SOME CACHING ISSUES...
WITH PROBABLY EVERY SINGLE
WORDPRESS CACHING PLUGIN
OUT THERE**

VITALY FRIEDMAN

SMASHINGMAGAZINE.COM TIME TO FIRST LOAD

from

to

800MS

80MS



P R O X X

Difficulty
Hard

Width
24

Height
24

Black holes
99

START



PROXX.APP PAYLOAD TO INTERACTIVE

25KB

PROXX.APP
TIME TO INTERACTIVE
under
5 SECONDS

VARIETY

WHAT IS THE JAMSTACK?

THE QUESTION WE STARTED WITH

*jamstack
sites are*

RENDERED IN ADVANCE

NOT DEPENDENT ON AN ORIGIN

PROGRESSIVELY ENHANCED

IN THE BROWSER WITH JAVASCRIPT

jamstack

A modern architecture —

*Create fast and secure sites and dynamic apps
with **J**avaScript, **A**PIs, and pre-rendered
Markup, served without web servers*

STATIC SITE GENERATORS

staticgen.com

NETLIFY

www.netlify.com

VARIOUS RELATED RESOURCES FROM CHRIS COYIER

<https://serverless.css-tricks.com/>

CITRIX PRESENTATION FROM JAMSTACKCONF NYC

youtube.com/watch?v=kvS5h5domf0

JAMSTACK CONFERENCE

jamstackconf.com

HEADLESS / DECOUPLED CMS

headlesscms.org

ABOUT THE JAMSTACK / COMMUNITY

jamstack.org

THE NEW DYNAMIC

www.thenewdynamic.org/

THANKS

@PHILHAWKSWORTH