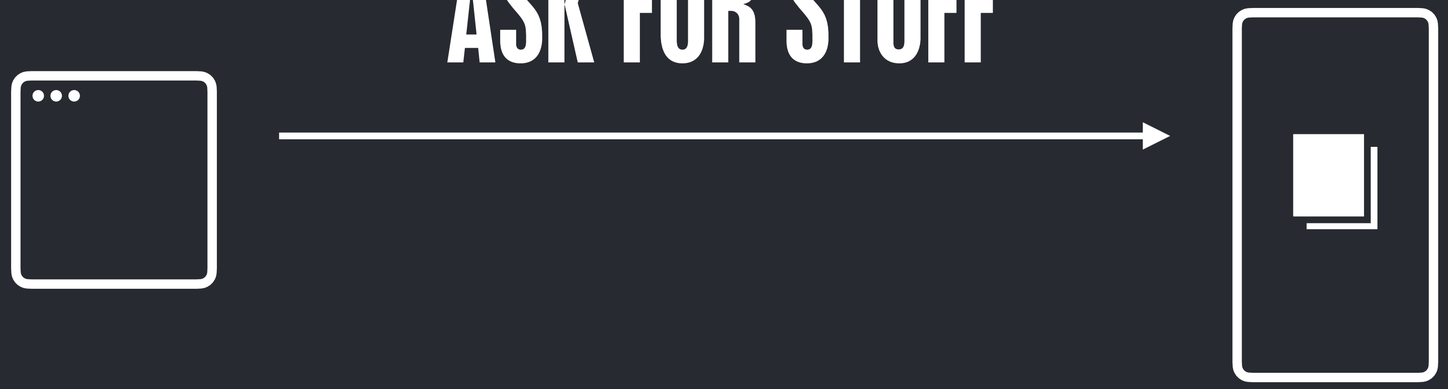
INTRODUCTION TO JAMSTACK

PHIL HAWKSWORTH

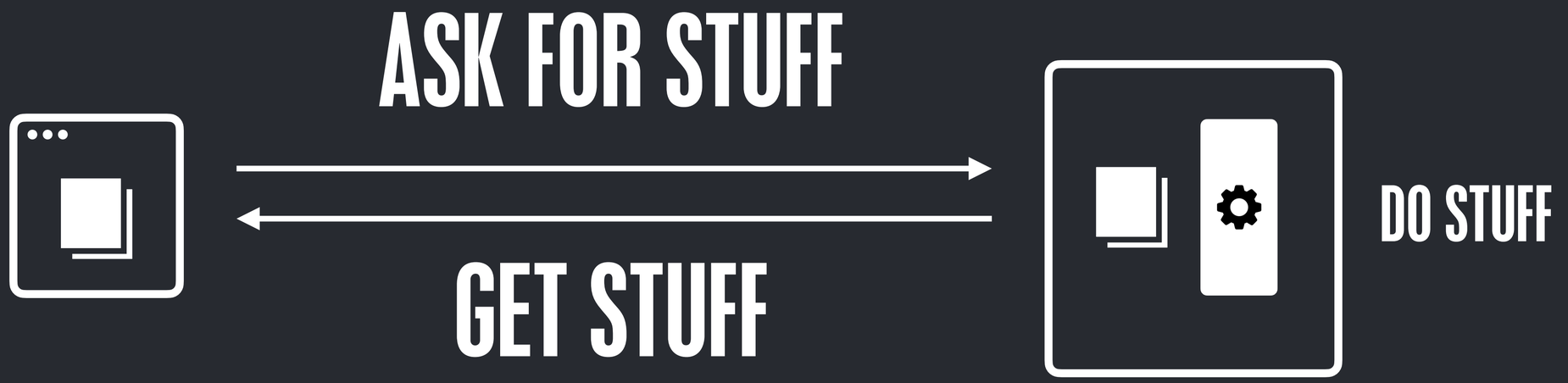
there are many

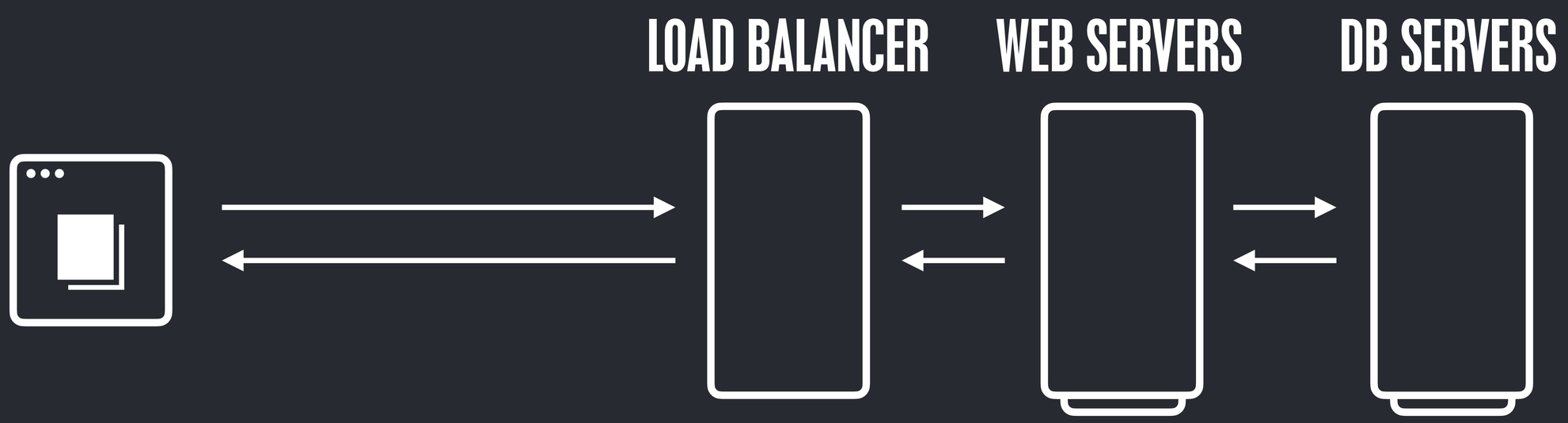
APPROACHES TO DELIVERING WEBSITES

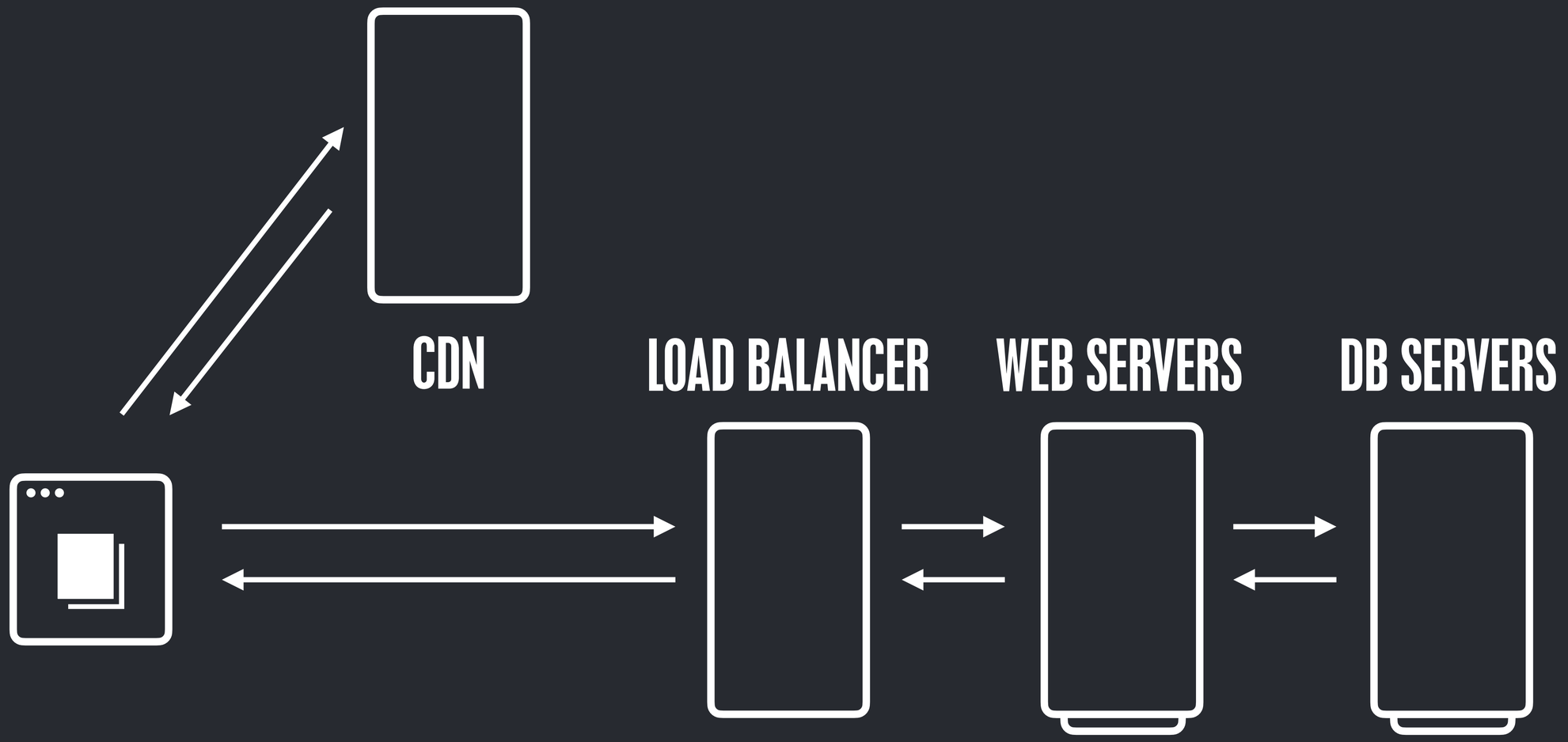
ASK FOR STUFF




ASK FOR STUFF
GET STUFF


ASK FOR STUFF
GET STUFF
DO STUFF


LOAD BALANCER
WEB SERVERS
DB SERVERS


CDN
LOAD BALANCER
WEB SERVERS
DB SERVERS

IT GOT COMPLICATED

but luckily

WE'VE BEEN LEARNING AND BUILDING NEW TOOLS

BROWSERS GOT MORE CAPABLE
PROCESSES MATURED
TOOLING IMPROVED

WHAT IS THE JAMSTACK?

what does jamstack

STAND FOR?

what does jamstack

MEAN?

JAVASCRIPT / API / MARKUP

stack

the layers of technology which deliver your web site or application

what does jamstack

STAND FOR?

what does jamstack

MEAN?

jamstack

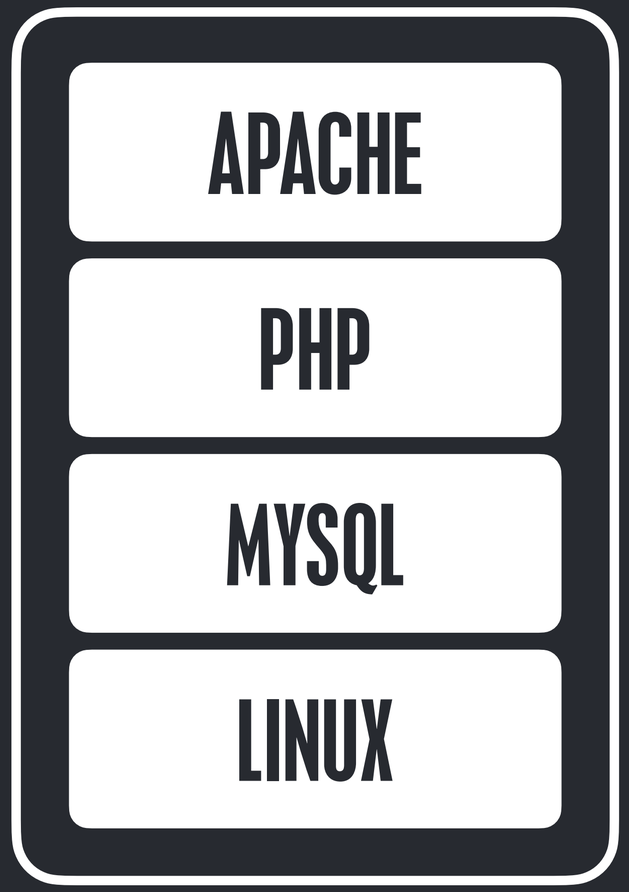
Fast and secure sites and apps delivered by pre-rendering files and serving them directly from a CDN, removing the requirement to manage or run web servers.

STACKS FOR DAYZ

AN / LAMP / MAMP / XAMP / ROR / WISA / MEA

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

LAMPSTACK



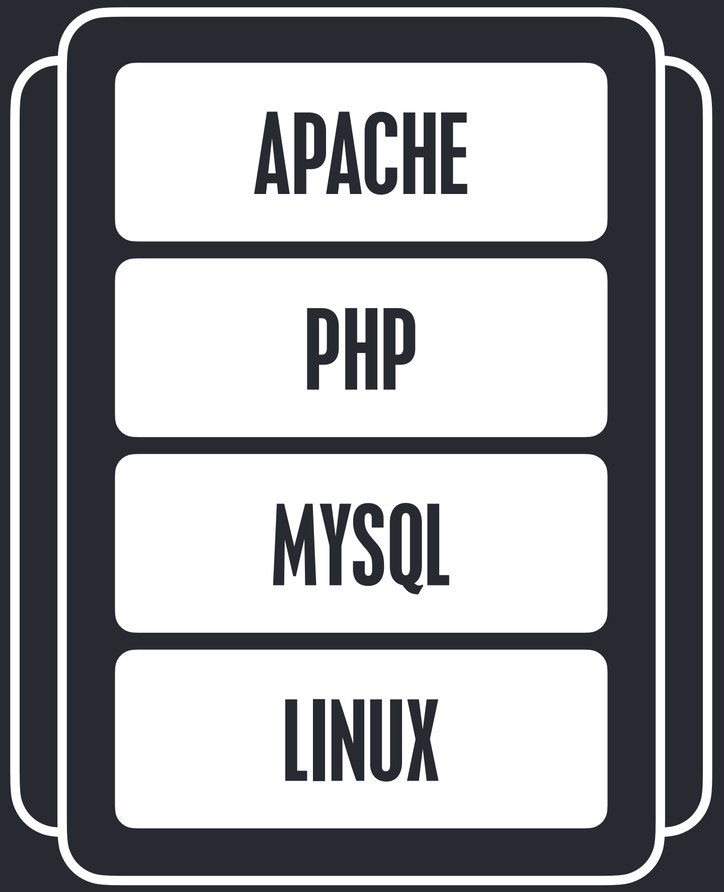
WEB SERVER

HTTP ROUTING AND SERVING

PREPROCESSING

DATA ACCESS

OPERATING SYSTEM



WEB SERVER

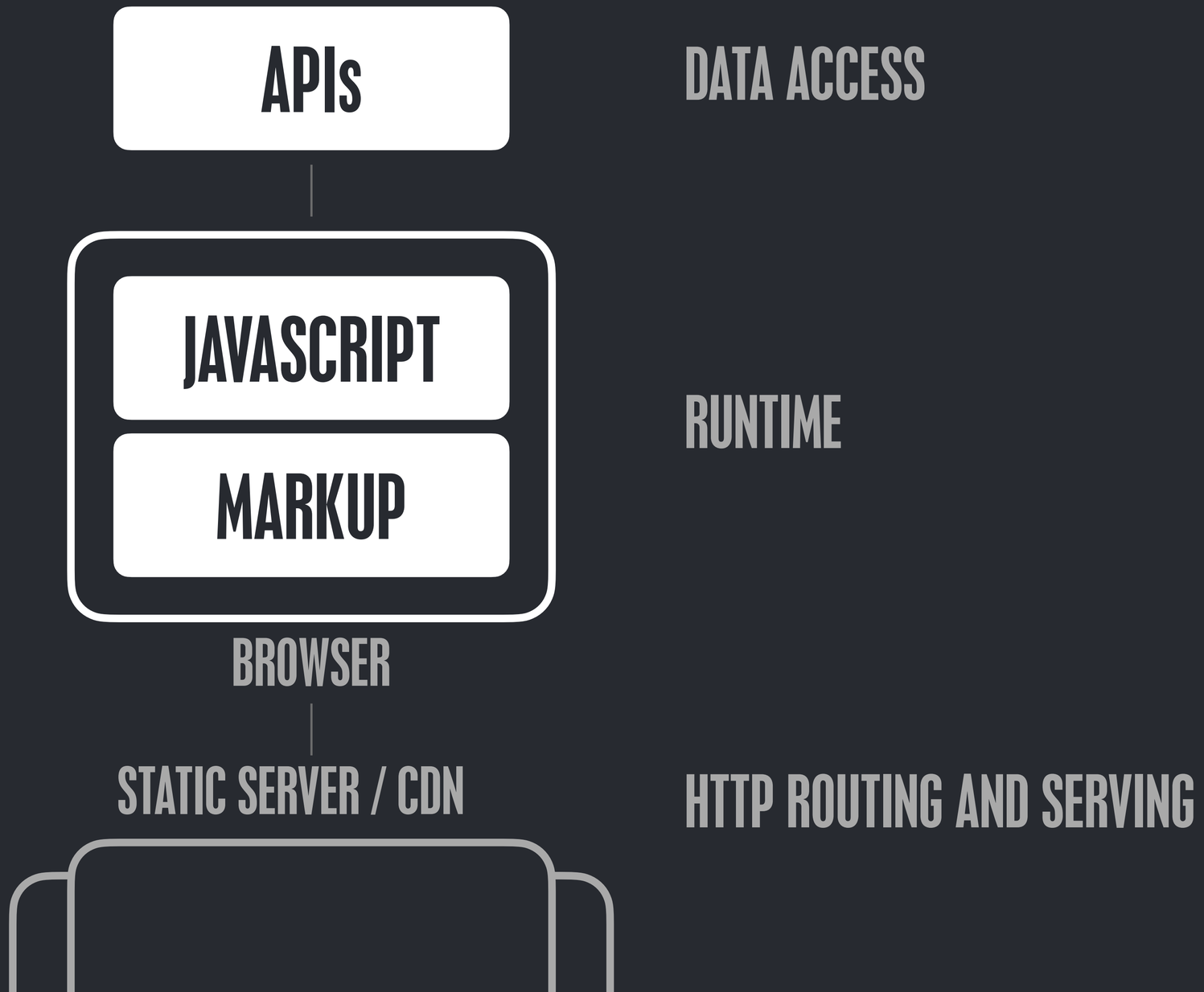
HTTP ROUTING AND SERVING

PREPROCESSING

DATA ACCESS

OPERATING SYSTEM

JAMSTACK


APIs
DATA ACCESS
JAVASCRIPT
MARKUP
RUNTIME
BROWSER
STATIC SERVER / CDN
HTTP ROUTING AND SERVING

jamstack

PRE-RENDERED
LEVERAGE THE BROWSER
WITHOUT A WEBSERVER

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


ASK FOR STUFF
GET STUFF

BAKE, DON'T FRY

– Aaron Swartz

http://www.aaronsw.com/weblog/000404

motives for

PRE-RENDERING

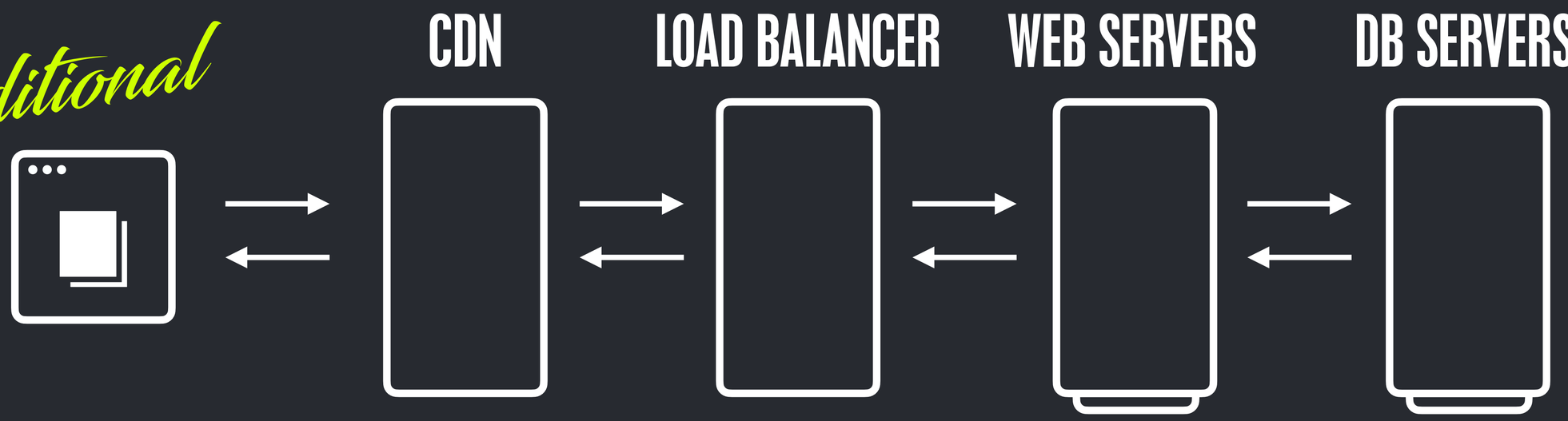
DOING THE WORK NOW,
SO YOUR SERVERS
DON'T HAVE TO LATER

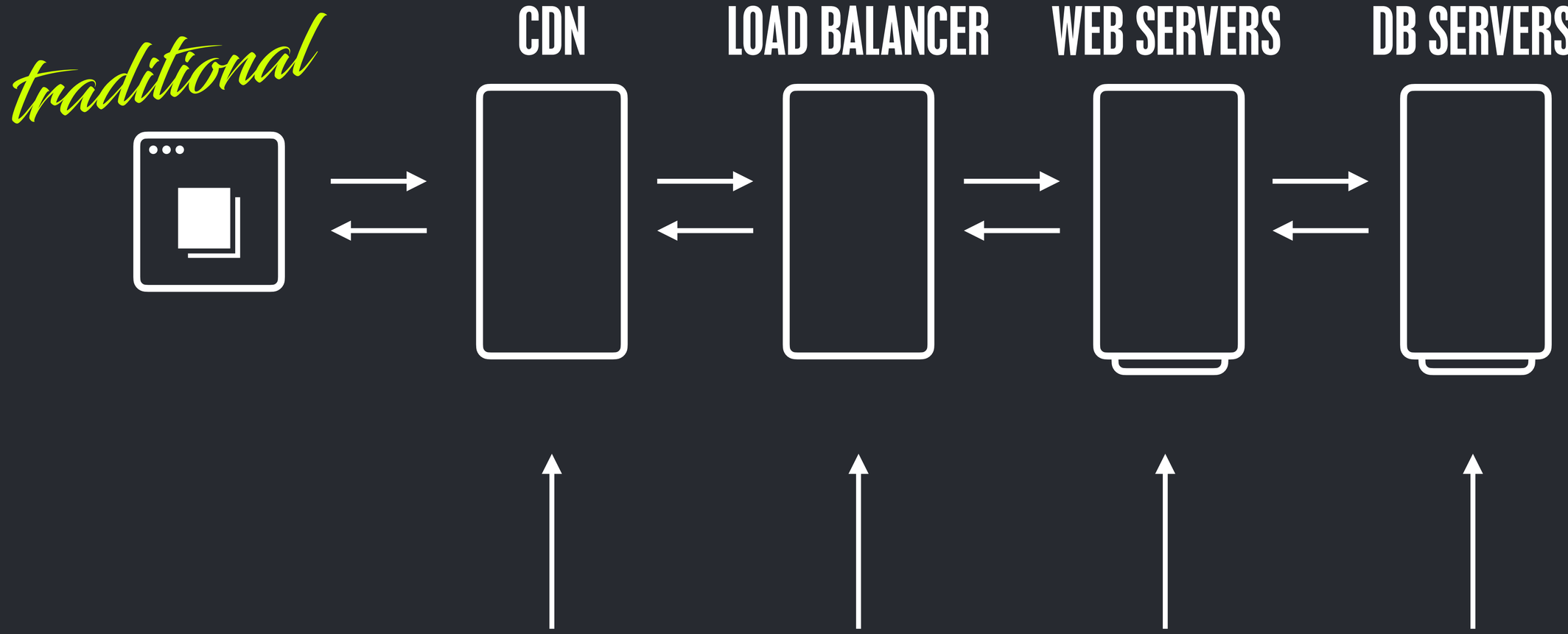
PUT DISTANCE BETWEEN THE COMPLEXITY AND THE USER

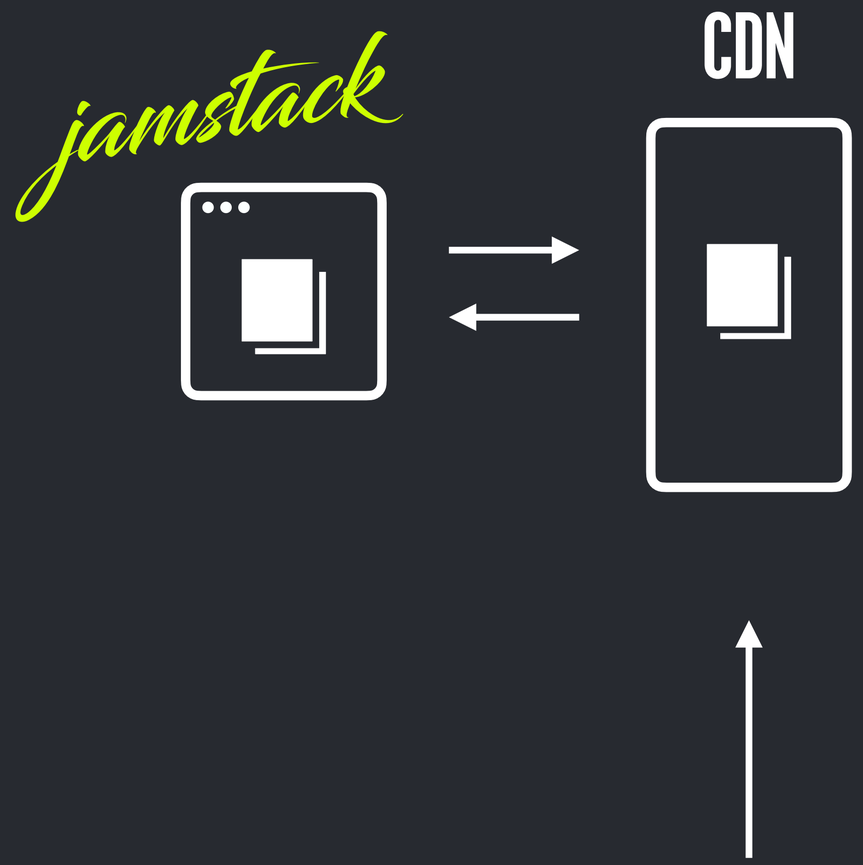
this can

SIMPLIFY DEPLOYMENTS

traditional




traditional
CDN
LOAD BALANCER
WEB SERVERS
DB SERVERS


jamstack
CDN

VERSION CONTROL *For* EVERYTHING

JAMSTACK ADVANTAGES

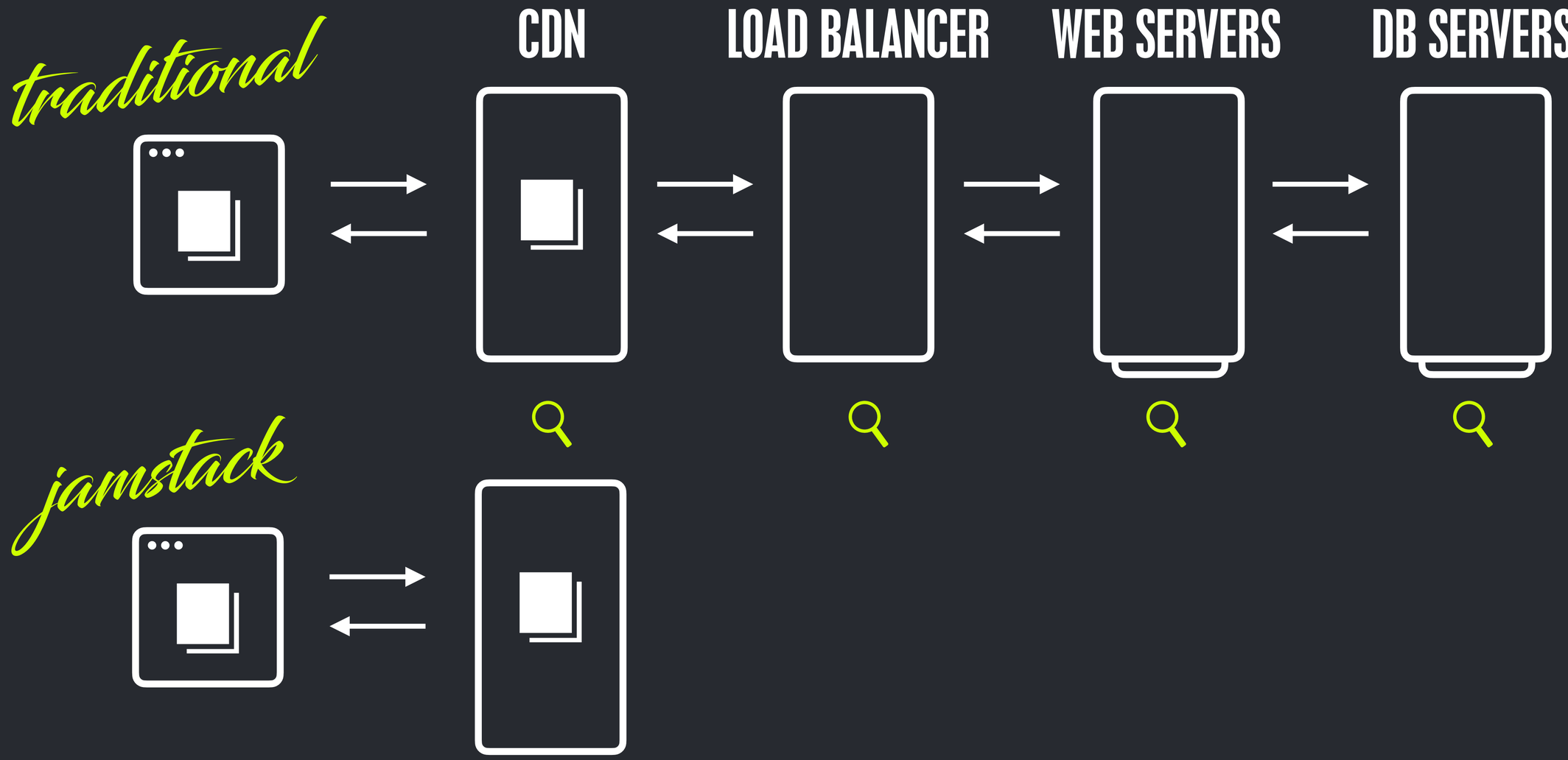
SECURITY

PERFORMANCE

SCALE

SECURITY

A GREATLY REDUCED SURFACE AREA

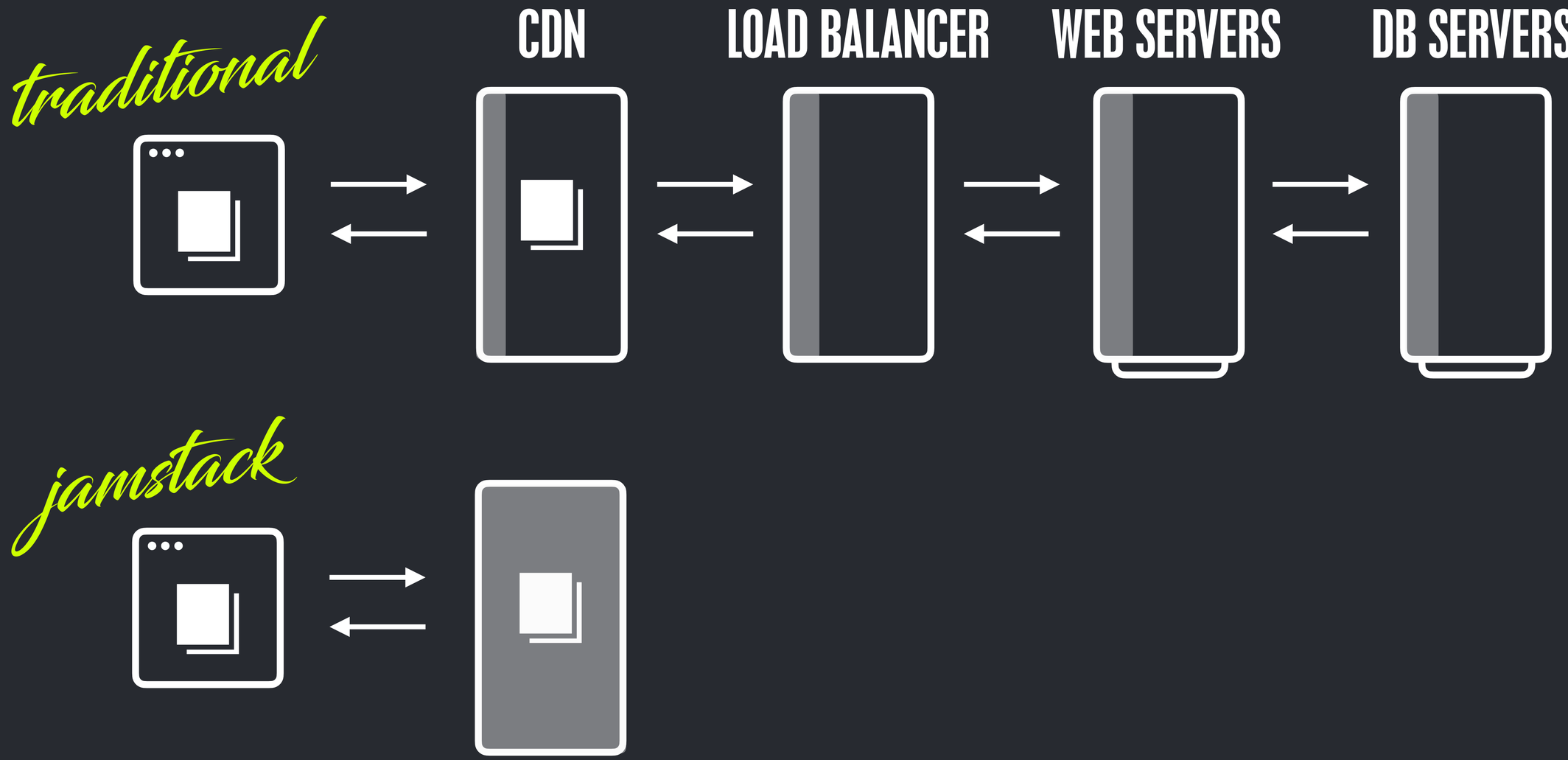

traditional
CDN
LOAD BALANCER
WEB SERVERS
DB SERVERS
jamstack

FAR FEWER MOVING PARTS TO ATTACK

PERFORMANCE

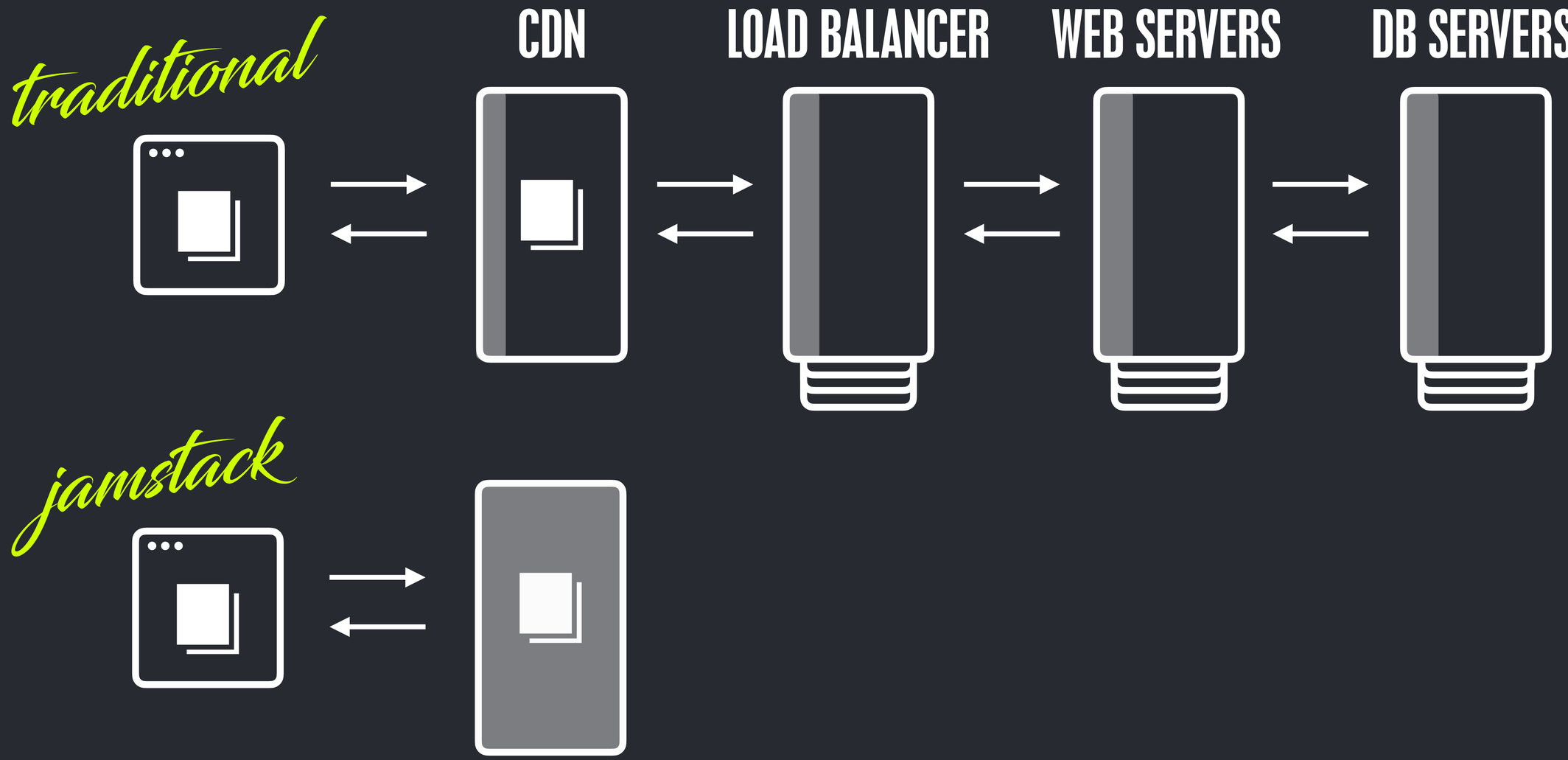
TRADITIONAL STACKS
ADD STATIC LAYERS
IN ORDER TO IMPROVE
PERFORMANCE

CACHING


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

ok, but...


ASK FOR STUFF
GET STUFF

but luckily

WE'VE BEEN LEARNING AND BUILDING NEW TOOLS

enablers

STATIC SITE GENERATORS
TOOLING AN AUTOMATION
BROWSER CAPABILITIES
SERVICES AND THE API ECONOMY

what will we make?

1. SIMPLY A STATIC SITE (32:14)
2. JAVASCRIPT TO RENDER CONTENT (40:40)
3. TEMPLATING AND ABSTRACTION WITH A STATIC SITE GENERATOR (52:21)
4. CONTENT SOURCED FROM AN API AT BUILD TIME (1:24:09)
5. LOCALISED CONTENT RENDERED AT BUILD TIME, ROUTED AT THE CDN (2:02:17
6. CLIENT-SIDE RENDER OF TARGETED CONTENT WITH BROWSER AND CONTENT APIS (2:28:08)
7. BONUS: HOW TO GRADUALLY INTRODUCE THE JAMSTACK TO YOUR EXISTING INFRA (3:19:50)

EXAMPLE

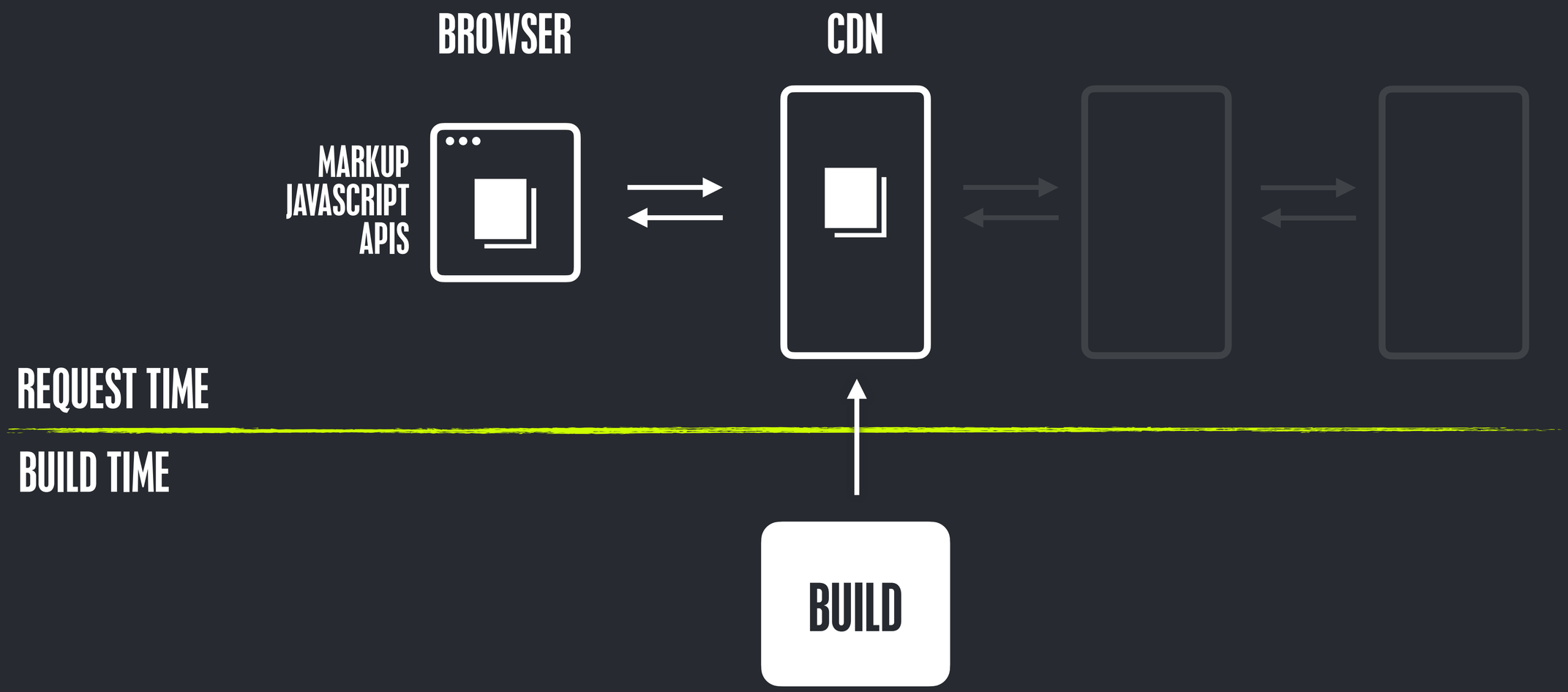
NUMBER 1 - ALL STATIC

FINDTHAT.AT / JAMSTACK / EX1

jamstack

Fast and secure sites and apps delivered by pre-rendering files and serving them directly from a CDN, removing the requirement to manage or run web servers.

JAVASCRIPT / API / MARKUP


BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD

WAS THAT JAMSTACK?

A QUICK SENSE CHECK

JAVASCRIPT / API / MARKUP

jamstack

Fast and secure sites and apps delivered by pre-rendering files and serving them directly from a CDN, removing the requirement to manage or run web servers.

WAS THAT JAMSTACK?

A QUICK SENSE CHECK

yep!

EXAMPLE

NUMBER 2 - ADDING JAVASCRIPT

FINDTHAT.AT / JAMSTACK / EX2

JAVASCRIPT / API / MARKUP

RENDERING

CLIENT-SIDE RENDERING

SERVER-SIDE RENDERING (REQUEST TIME)

SERVER-SIDE RENDERING (BUILD TIME)

CLIENT-SIDE RENDERING

JAVASCRIPT IN THE BROWSER
MANIPULATES THE DOM

SERVER-SIDE RENDERING (REQUEST TIME)

SERVER-SIDE RENDERING (BUILD TIME)

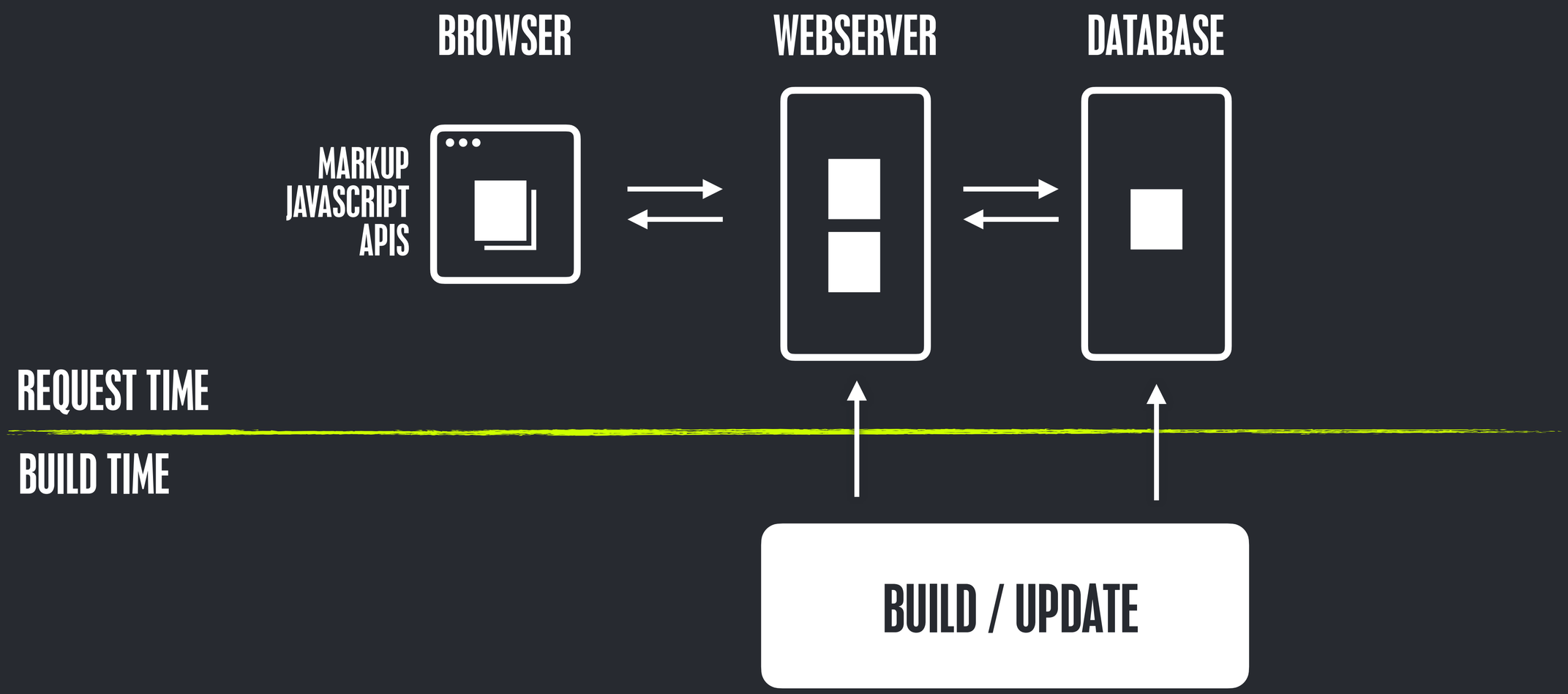
CLIENT-SIDE RENDERING

JAVASCRIPT IN THE BROWSER
MANIPULATES THE DOM

SERVER-SIDE RENDERING (REQUEST TIME)

GENERATE MARKUP ON REQUEST
IN THE SERVER AND TRANSMIT TO
THE CLIENT

SERVER-SIDE RENDERING (BUILD TIME)


BROWSER
WEBSERVER
DATABASE
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD / UPDATE

CLIENT-SIDE RENDERING

JAVASCRIPT IN THE BROWSER
MANIPULATES THE DOM

SERVER-SIDE RENDERING (REQUEST TIME)

GENERATE MARKUP ON REQUEST
IN THE SERVER AND TRANSMIT TO
THE CLIENT

SERVER-SIDE RENDERING (BUILD TIME)

CLIENT-SIDE RENDERING

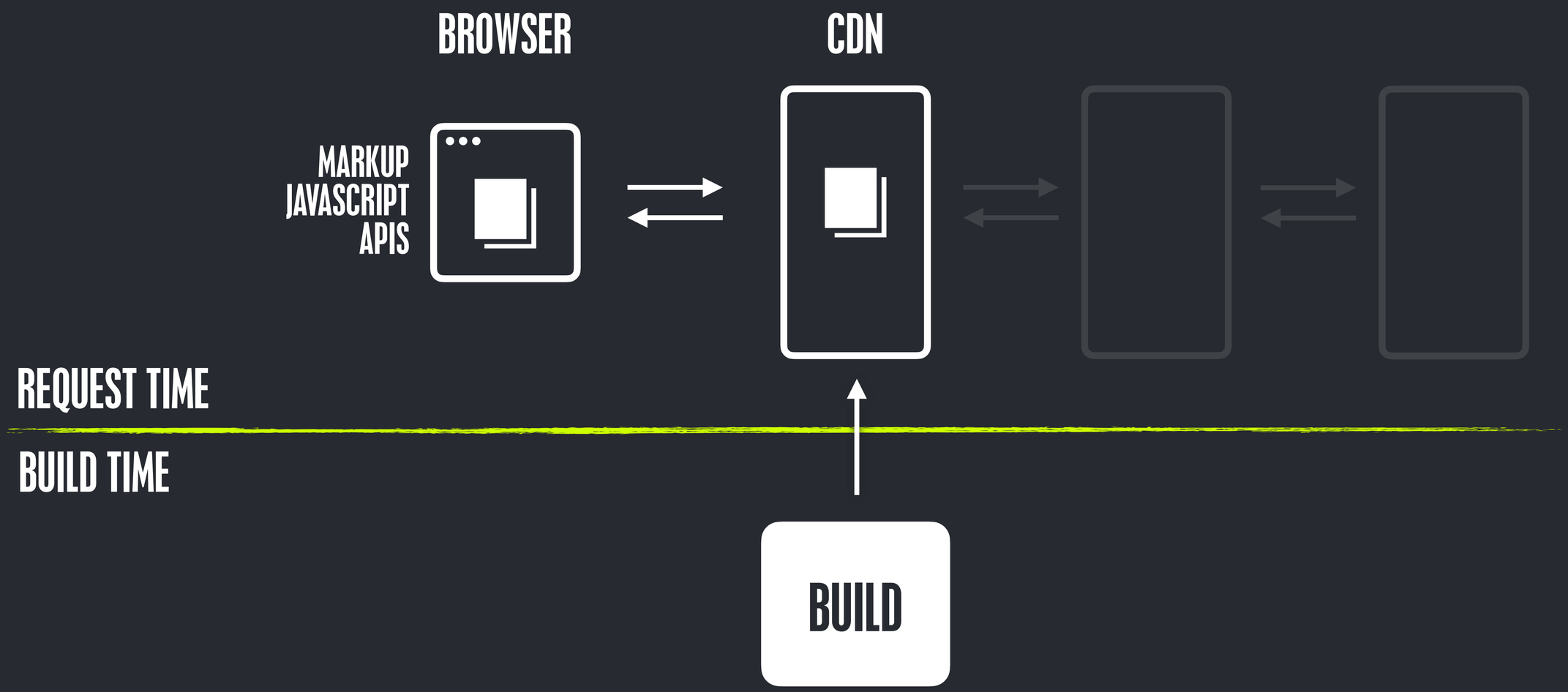
JAVASCRIPT IN THE BROWSER
MANIPULATES THE DOM

SERVER-SIDE RENDERING (REQUEST TIME)

GENERATE MARKUP ON REQUEST
IN THE SERVER AND TRANSMIT TO
THE CLIENT

SERVER-SIDE RENDERING (BUILD TIME)

GENERATE MARKUP AT BUILD TIME SO
THAT IT IS READY TO TRANSMIT TO
THE CLIENT WHEN NEEDED


BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD

CLIENT-SIDE RENDERING

JAVASCRIPT IN THE BROWSER
MANIPULATES THE DOM

SERVER-SIDE RENDERING (REQUEST TIME)

GENERATE MARKUP ON REQUEST IN THE SERVER AND TRANSMIT TO THE CLIENT

SERVER-SIDE RENDERING (BUILD TIME)

GENERATE MARKUP AT BUILD TIME SO THAT IT IS READY TO TRANSMIT TO THE CLIENT WHEN NEEDED

WAS THAT JAMSTACK?

A QUICK SENSE CHECK

JAVASCRIPT / API / MARKUP

jamstack

Fast and secure sites and apps delivered by pre-rendering files and serving them directly from a CDN, removing the requirement to manage or run web servers.

WAS THAT JAMSTACK?

A QUICK SENSE CHECK

yep!

EXAMPLE

NUMBER 3 - BUILDING WITH AN SSG

FINDTHAT.AT / JAMSTACK / EX3

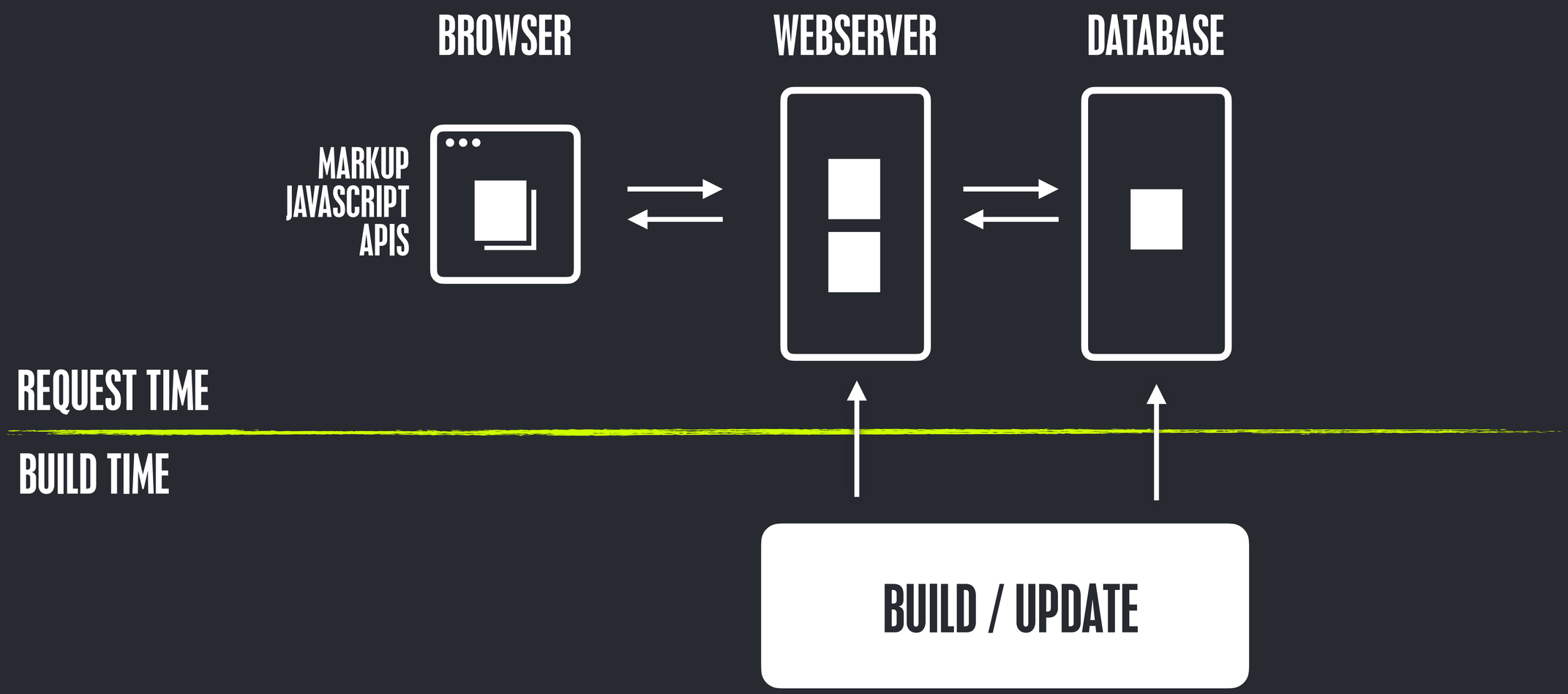
PREREQUISITES

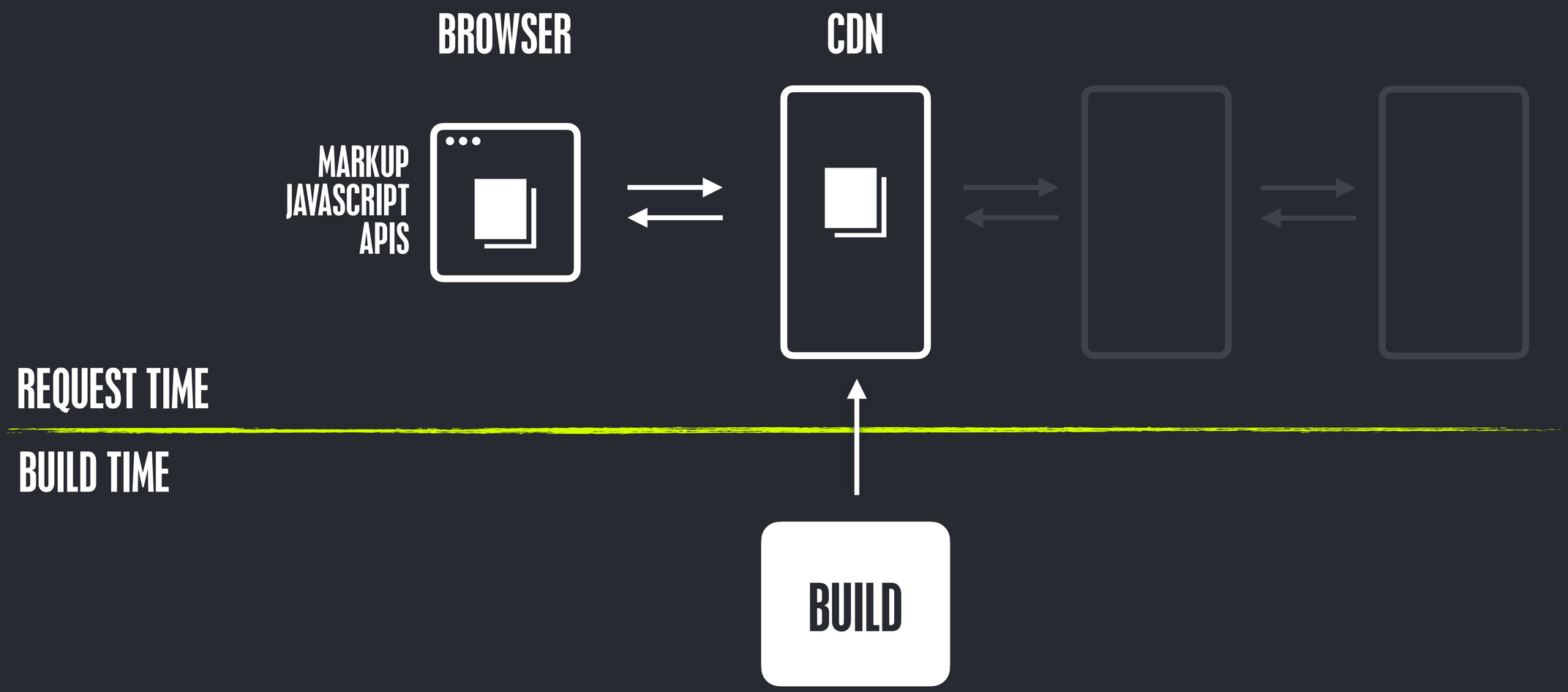
GIT INSTALLED (FREE)
GIT-SCM.COM

GITHUB ACCOUNT (FREE)
GITHUB.COM

NODEJS INSTALLED (FREE)
NODEJS.ORG

NETLIFY ACCOUNT (FREE)
NETLIFY.COM


BROWSER
WEBSERVER
DATABASE
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD / UPDATE


BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD

CLIENT-SIDE RENDERING

JAVASCRIPT IN THE BROWSER
MANIPULATES THE DOM

SERVER-SIDE RENDERING (REQUEST TIME)

GENERATE MARKUP ON REQUEST IN THE SERVER AND TRANSMIT TO THE CLIENT

SERVER-SIDE RENDERING (BUILD TIME)

GENERATE MARKUP AT BUILD TIME SO THAT IT IS READY TO TRANSMIT TO THE CLIENT WHEN NEEDED

BUILD AUTOMATION

using a

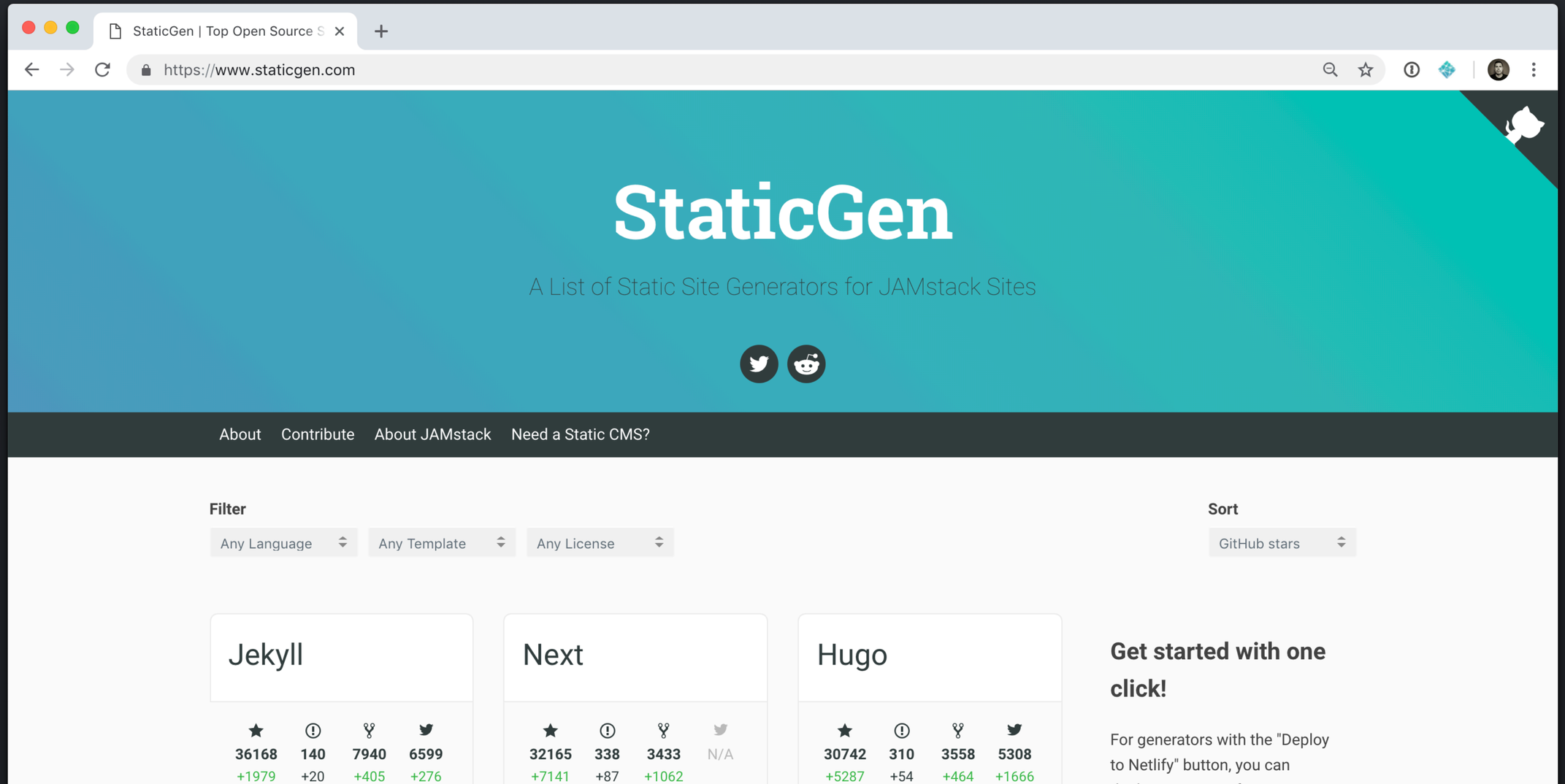
STATIC SITE GENERATOR

HOW TO CHOOSE?

the right

SSG

STATICGEN.COM



LANGUAGE
WORKFLOW
PERFORMANCE
ARCHITECTURE
OUTPUT CONTROL
ADOPTION

OUR SSG FOR TODAY

ELEVENTY

WHY ELEVENTY?

LOGICAL ARCHITECTURE
FLEXIBLE TEMPLATING
NOTHING YOU DON'T ASK FOR
JAVASCRIPT ALL THE WAY DOWN

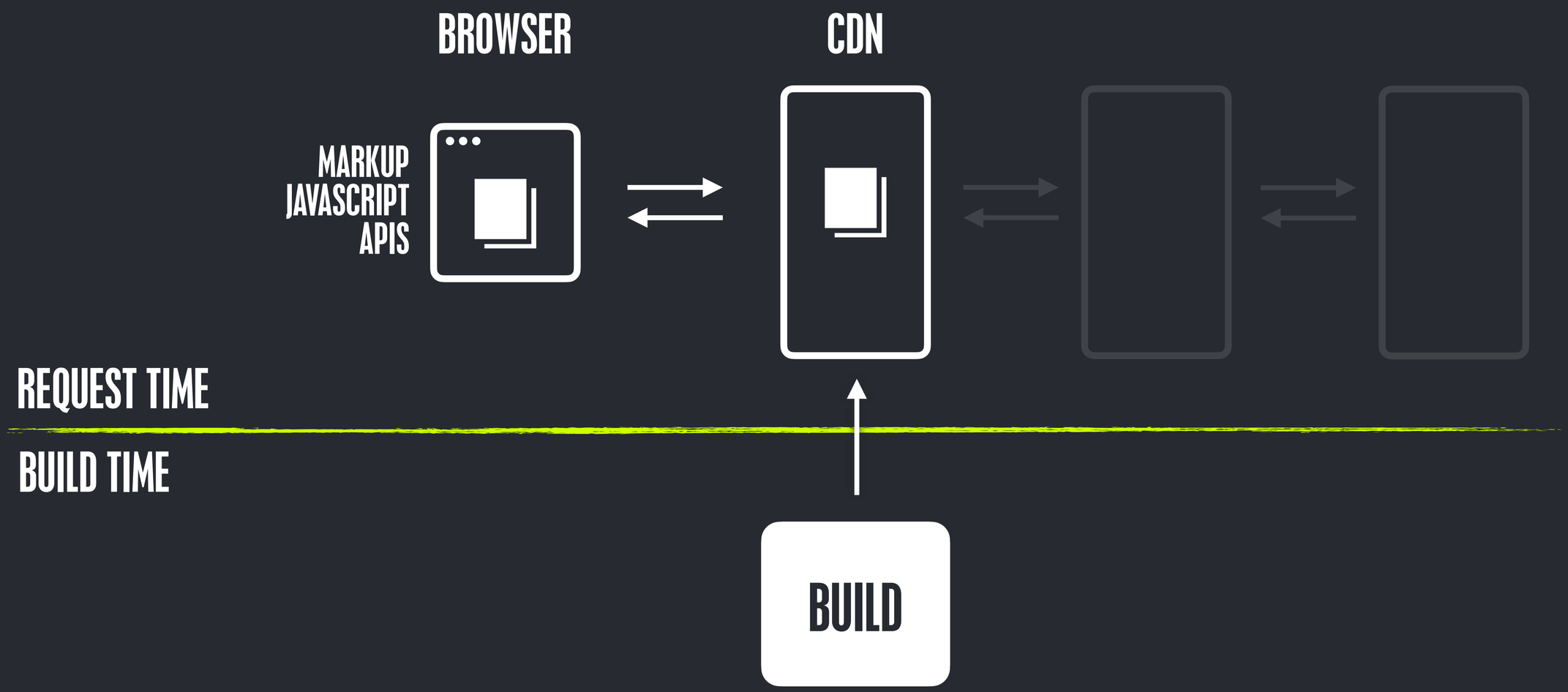
WAS THAT JAMSTACK?

A QUICK SENSE CHECK

JAVASCRIPT / API / MARKUP

jamstack

Fast and secure sites and apps delivered by pre-rendering files and serving them directly from a CDN, removing the requirement to manage or run web servers.


BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD

WAS THAT JAMSTACK?

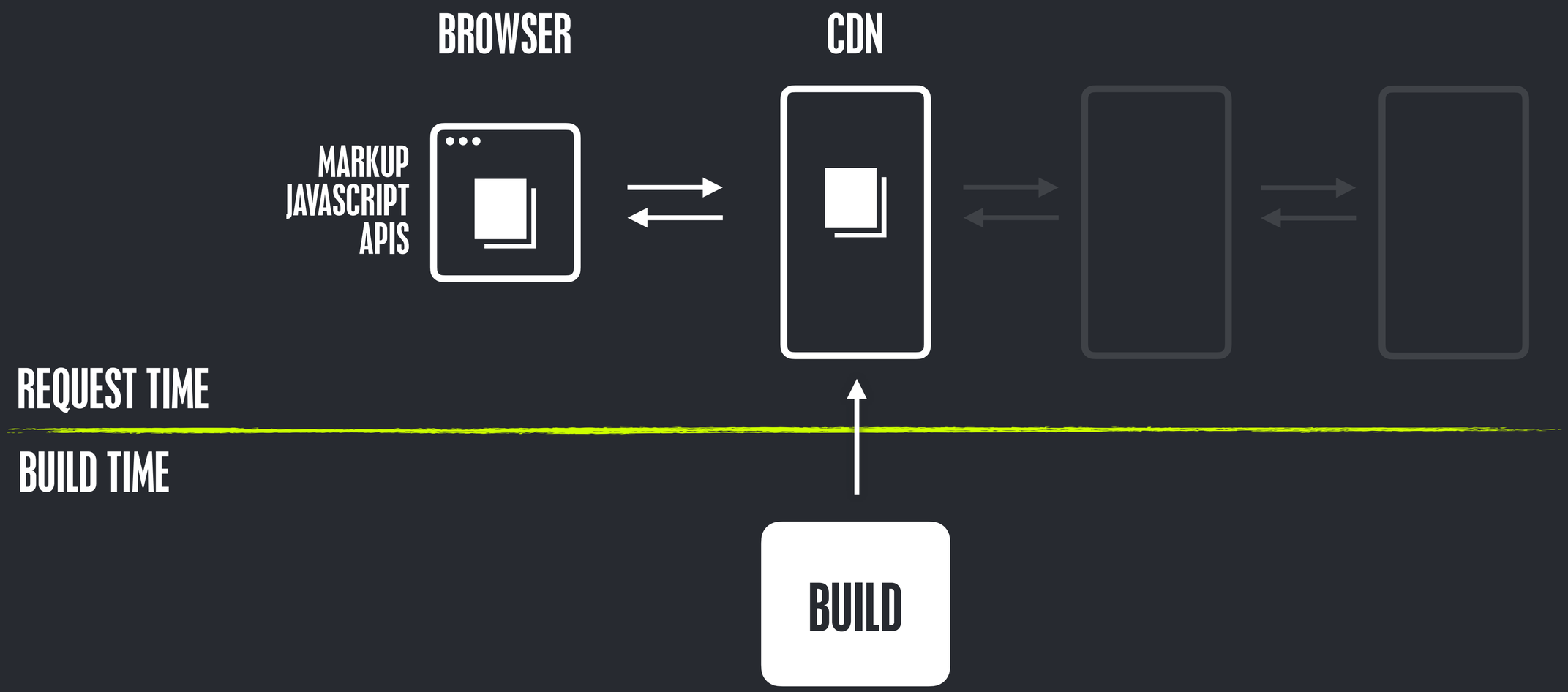
A QUICK SENSE CHECK

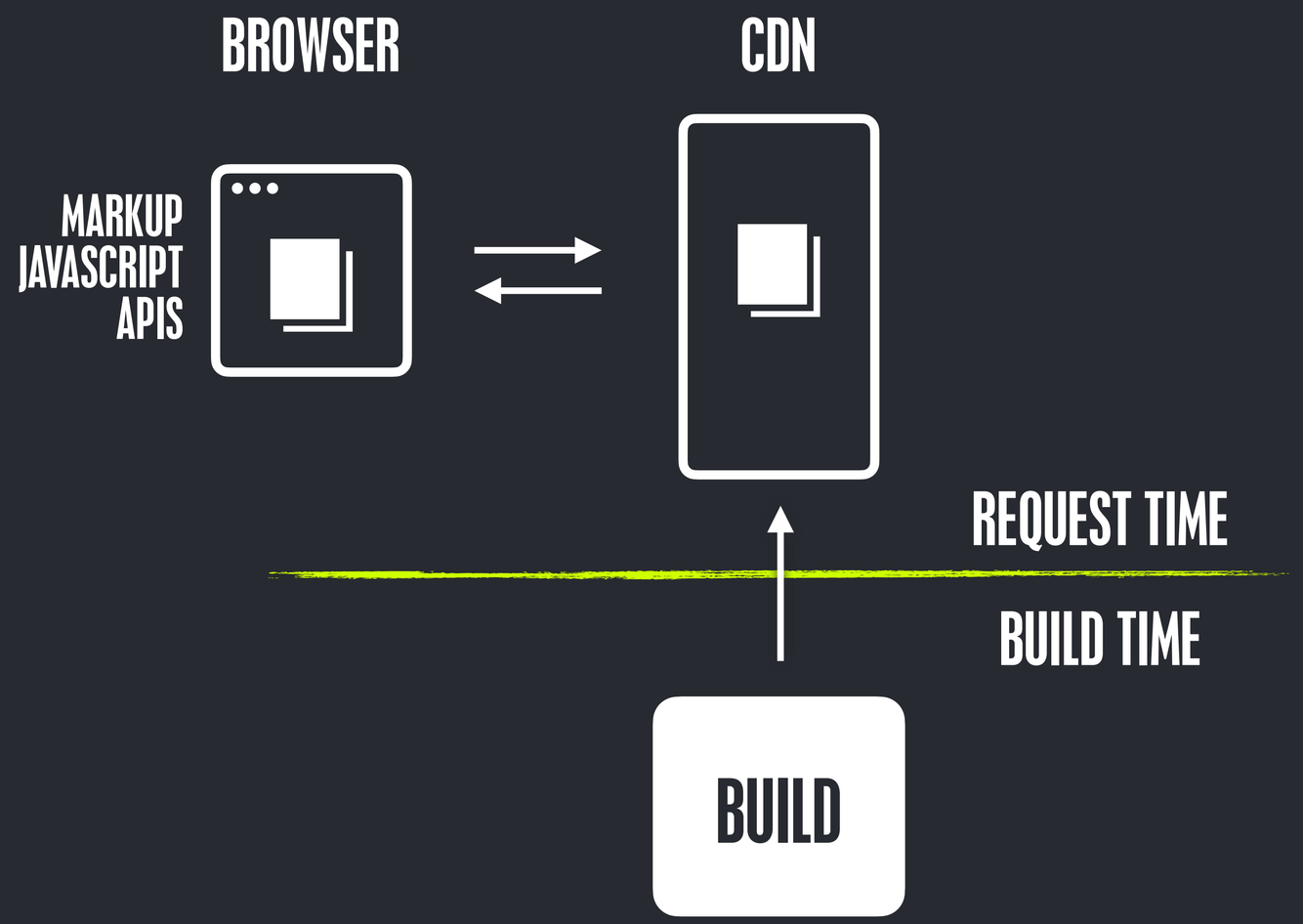
yep!

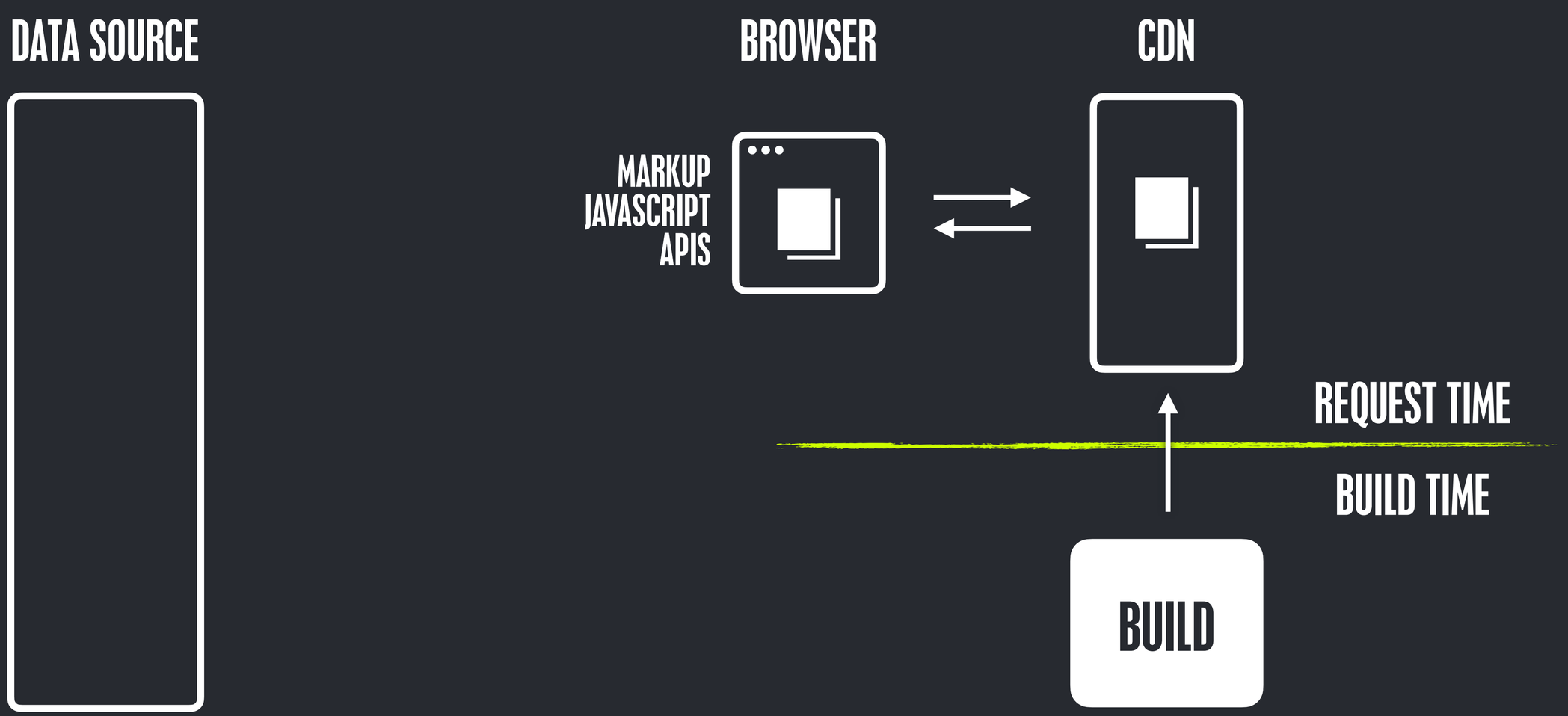
EXAMPLE

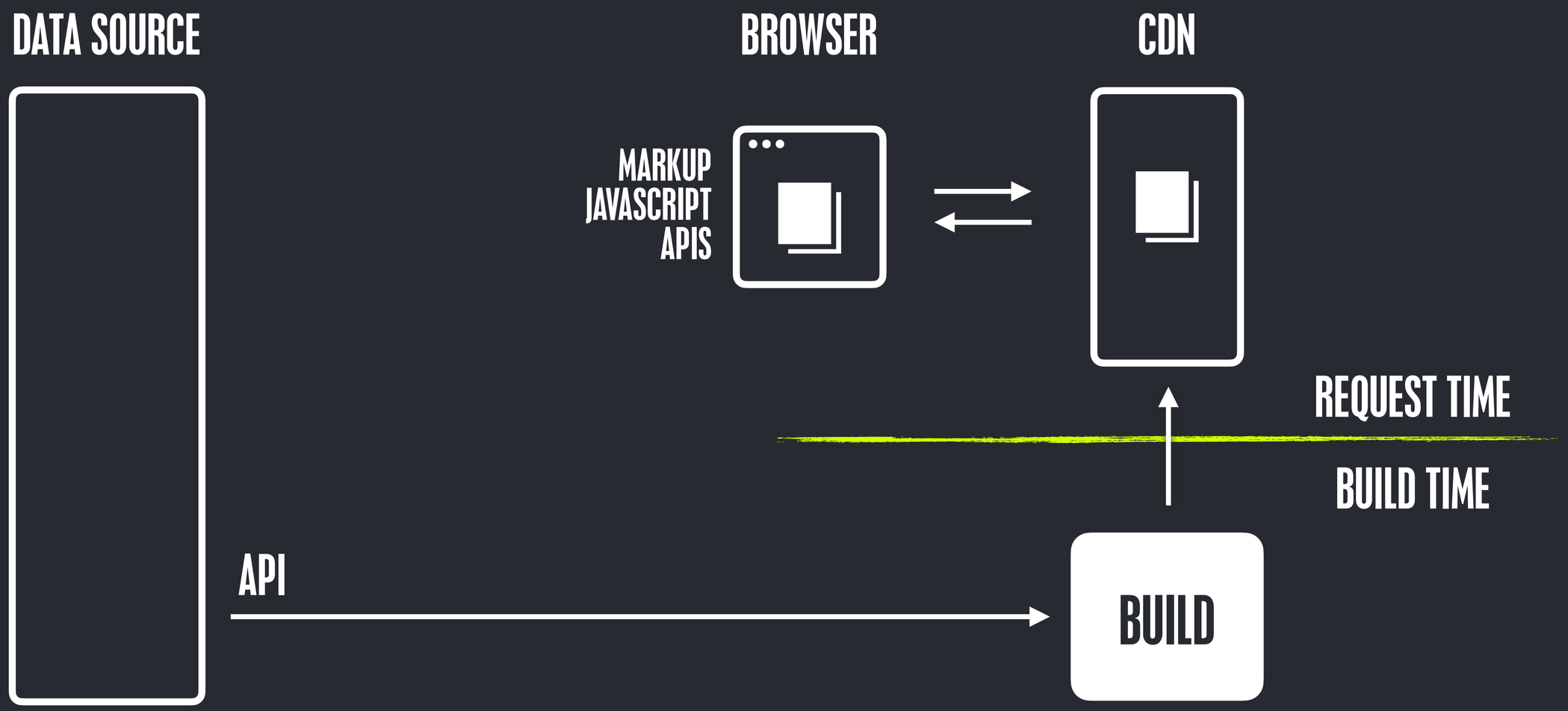
NUMBER 4 - BUILDING WITH DATA FROM AN API

FINDTHAT.AT / JAMSTACK / EX4

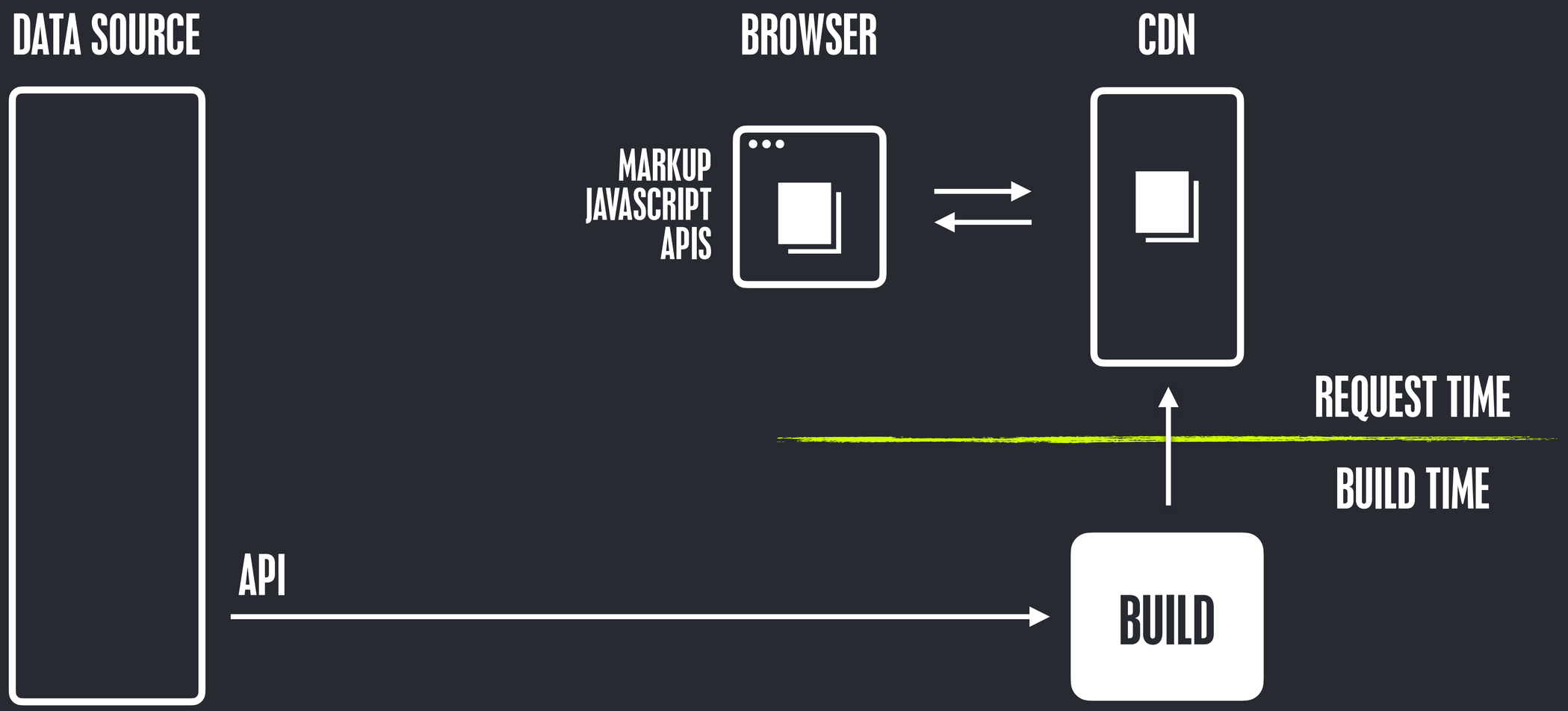

BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD


BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD


DATA SOURCE
BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD

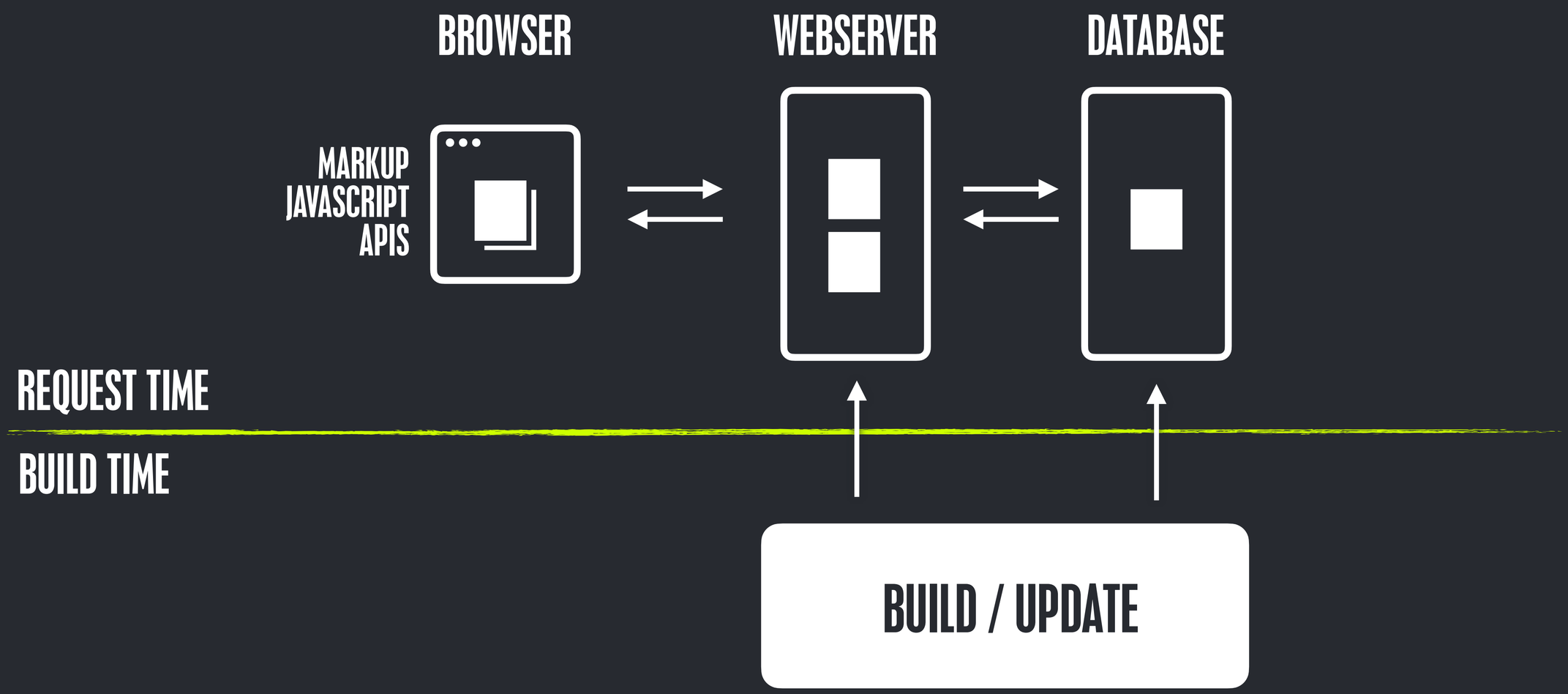

DATA SOURCE
BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
API
BUILD

1. USE DATA IN OUR SSG
2. REQUEST DATA FROM AND API
3. GET DATA IN DEV AND IN OUR DEPLOYMENTS


DATA SOURCE
BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
API
BUILD

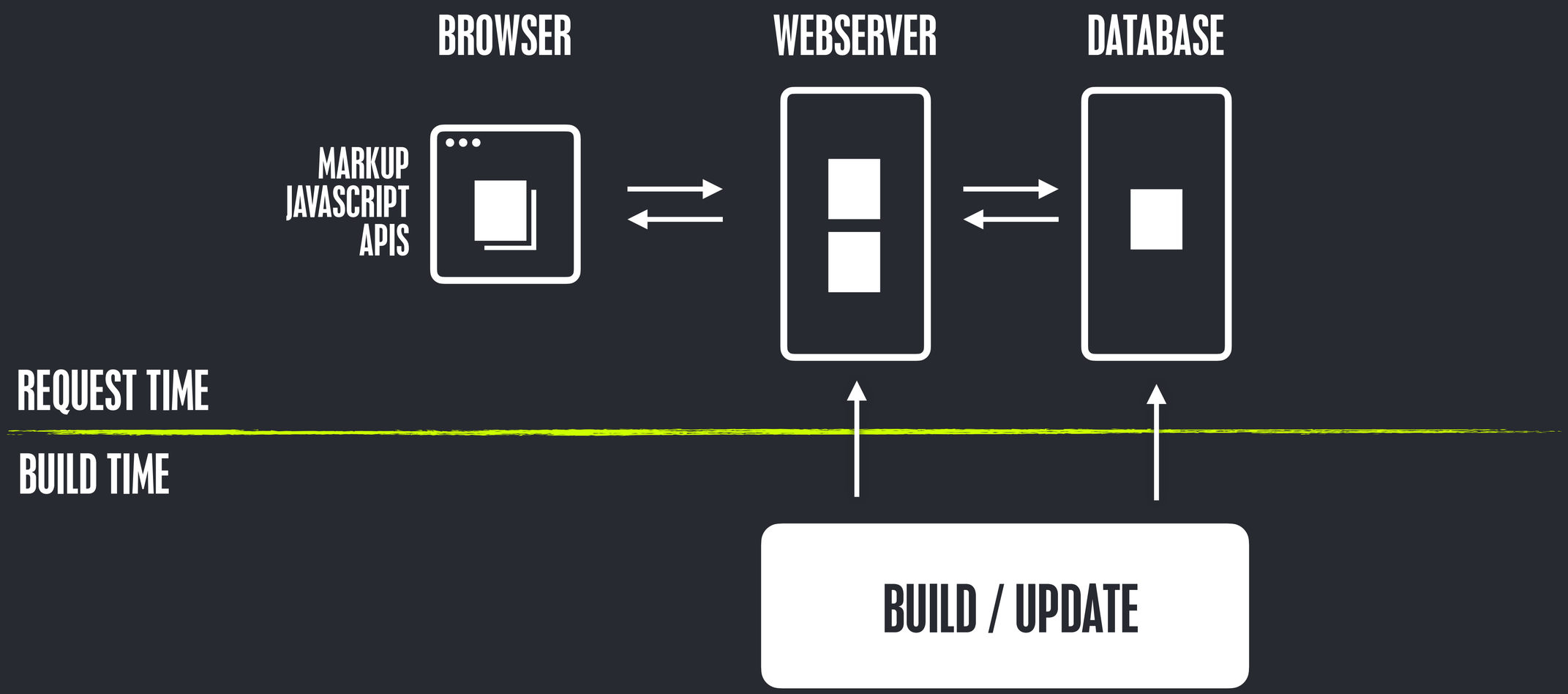
JAVASCRIPT / API / MARKUP

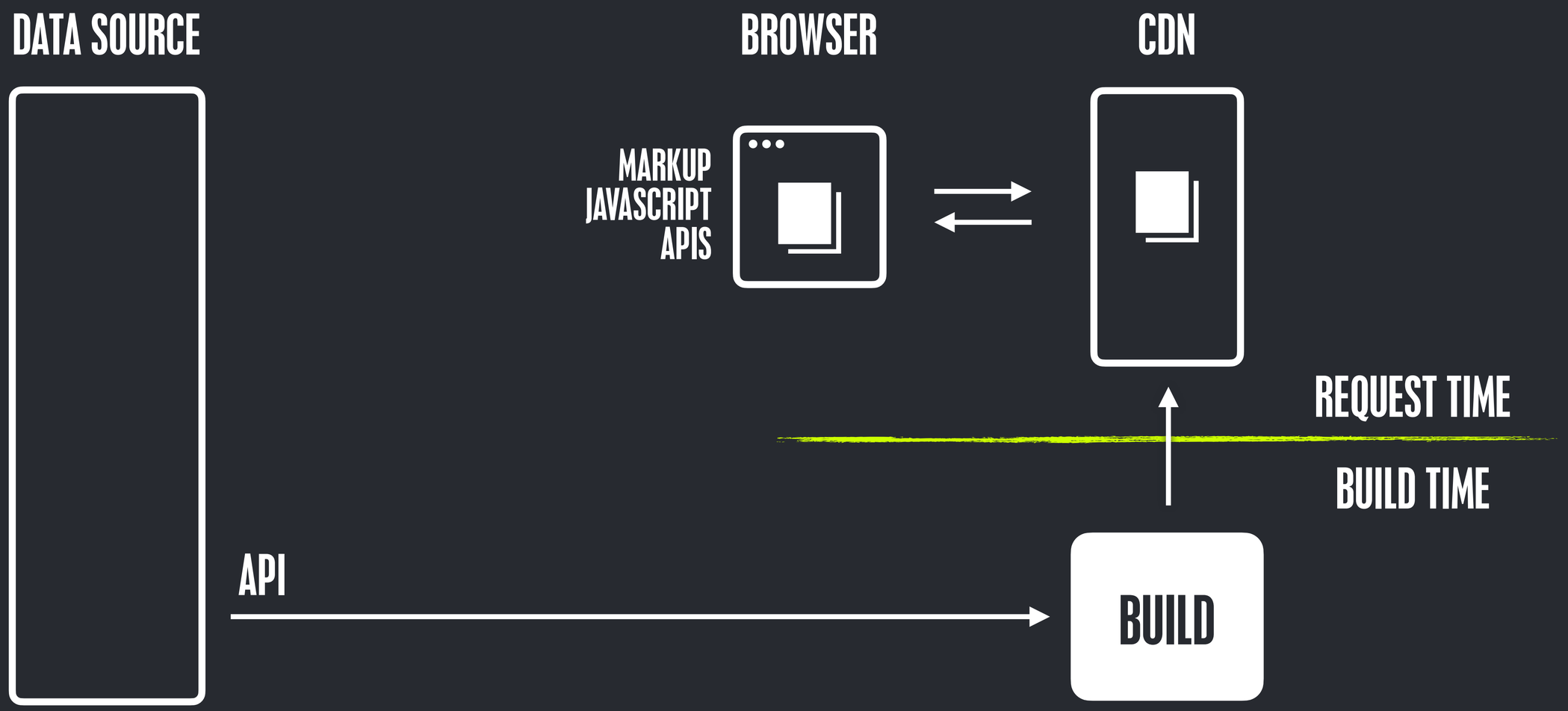
PERSONALIZATION


BROWSER
WEBSERVER
DATABASE
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD / UPDATE

static site generators

APPLY STRUCTURED DATA
TO TEMPLATES
IN ORDER TO CREATE
VIEWS AND ASSETS


BROWSER
WEBSERVER
DATABASE
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD / UPDATE


DATA SOURCE
BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
API
BUILD

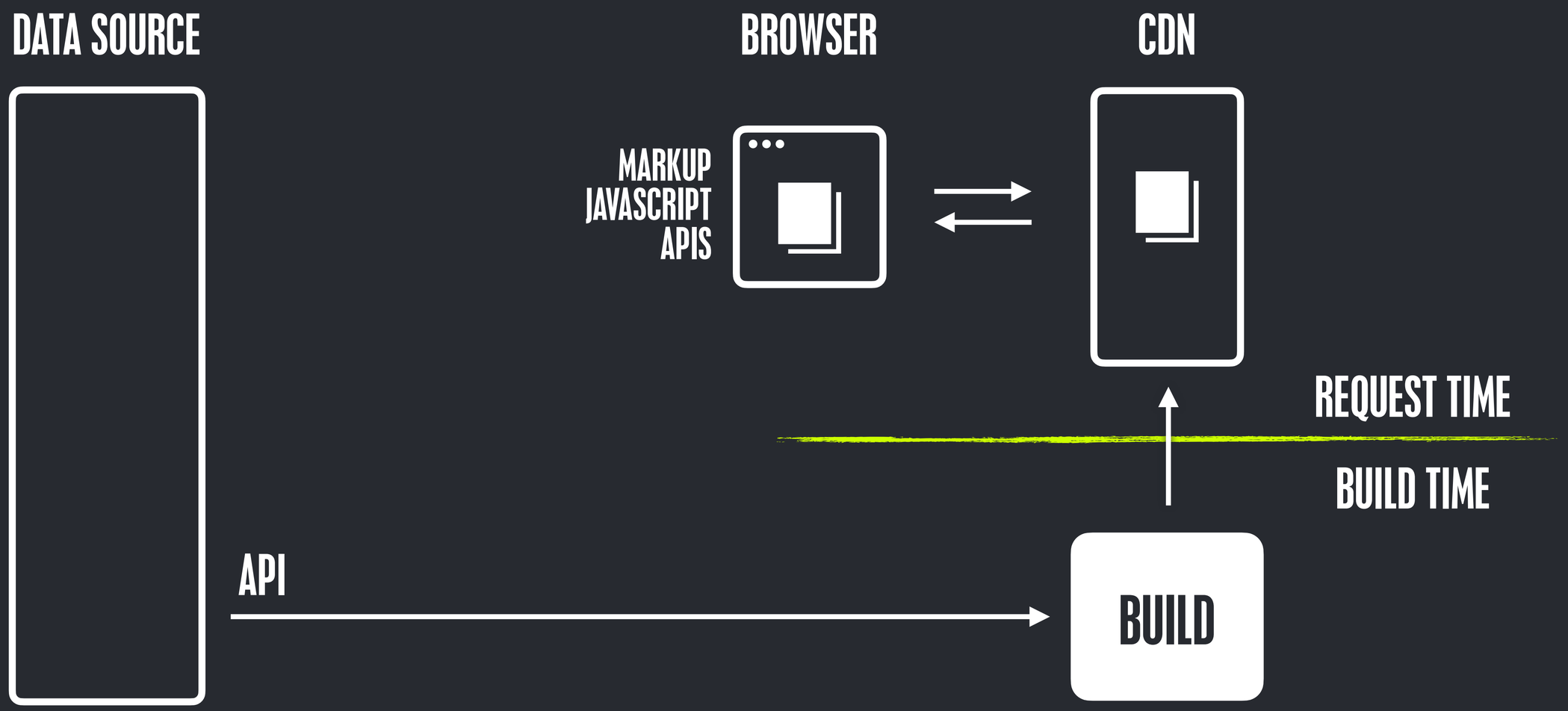
UNIVERSAL

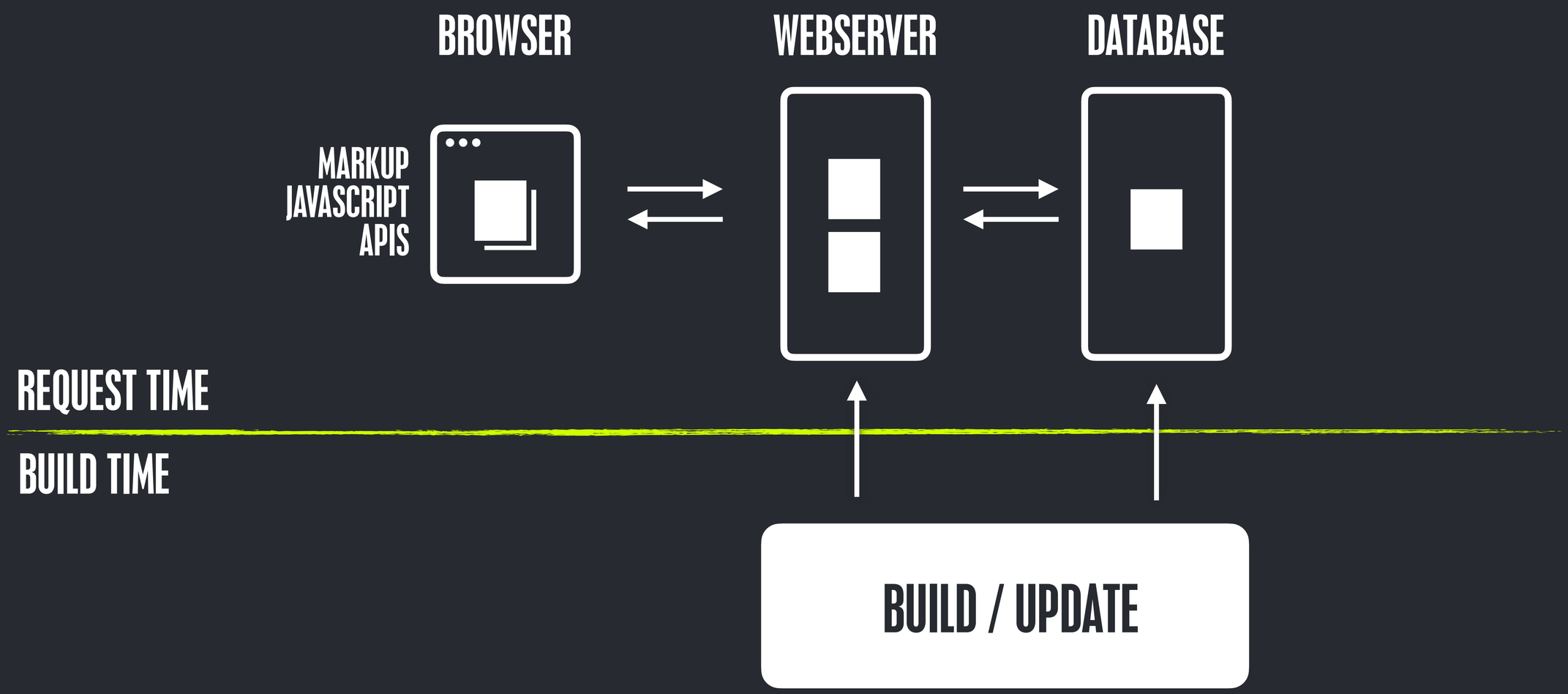
PERSONALIZED

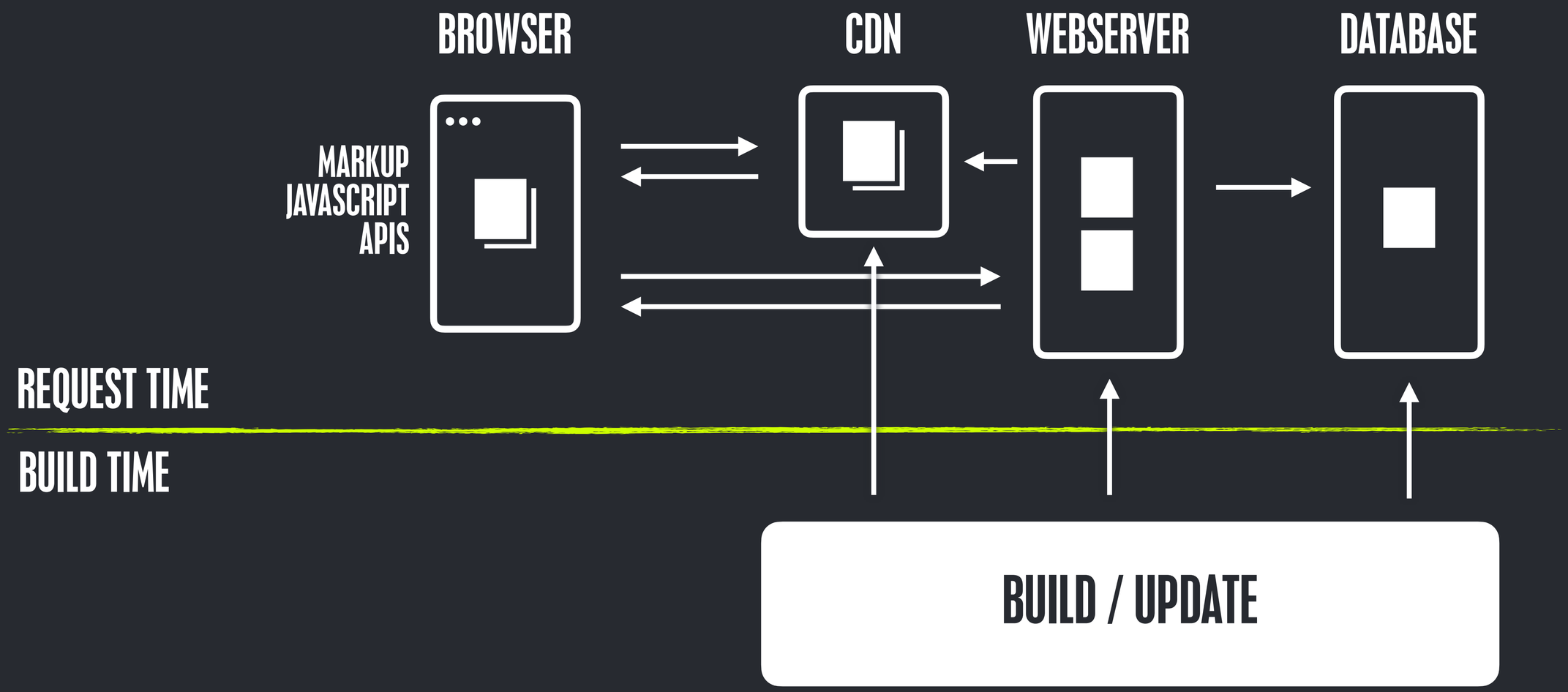

UNIVERSAL
LOCALIZED
TARGETED
PERSONALIZED

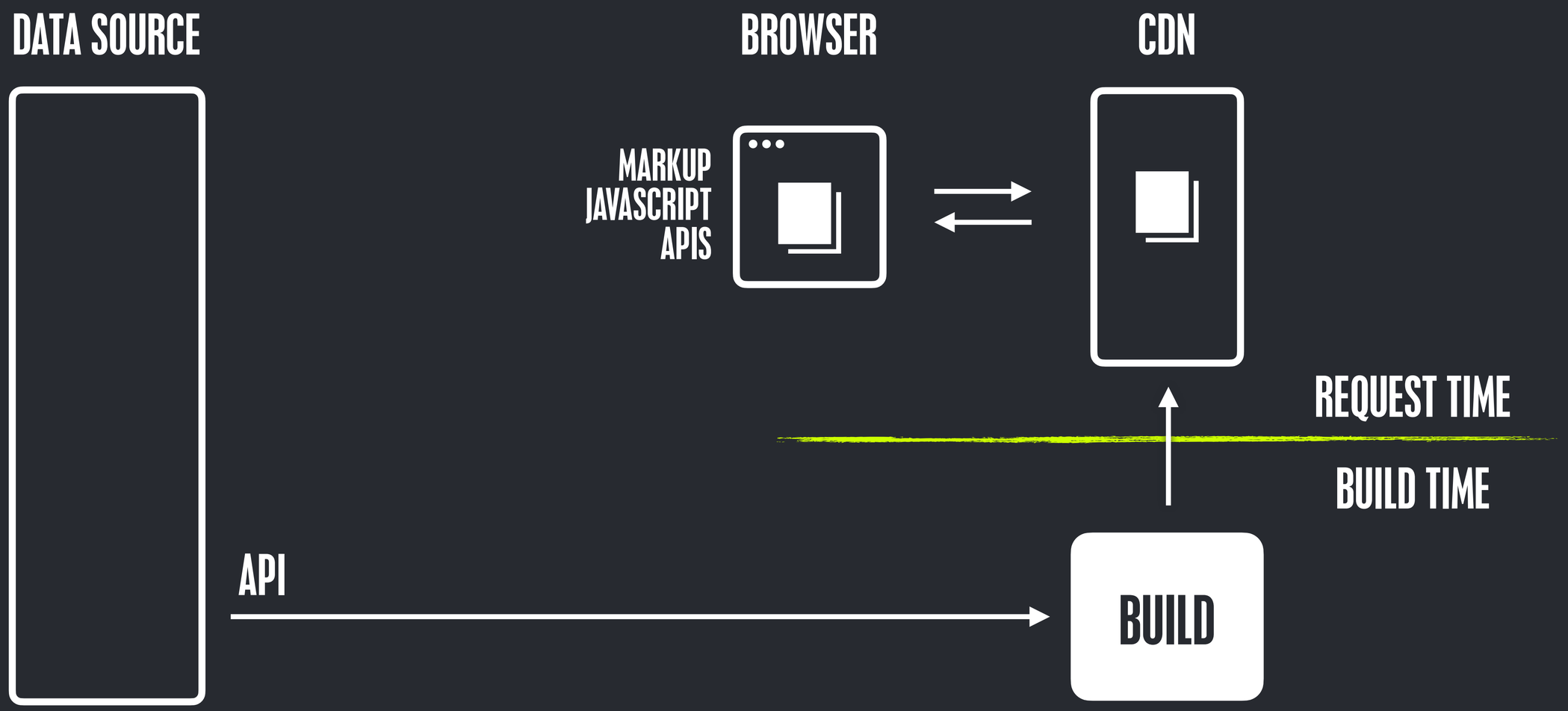
enablers

AUTOMATION
TOOLS & SERVICES
THE API ECONOMY


DATA SOURCE
BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
API
BUILD


BROWSER
WEBSERVER
DATABASE
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD / UPDATE


BROWSER
CDN
WEBSERVER
DATABASE
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
BUILD / UPDATE


DATA SOURCE
BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
API
BUILD

EXAMPLE

NUMBER 5 - GENERATING LOCALIZED CONTENT

FINDTHAT.AT / JAMSTACK / EX5

1. GENERATE VIEWS FOR MANY LOCALES
2. ROUTE TRAFFIC AT THE CDN
3. GENERATE OUR CDN CONFIG


UNIVERSAL
LOCALIZED
TARGETED
PERSONALIZED

WAS THAT JAMSTACK?

A QUICK SENSE CHECK

JAVASCRIPT / API / MARKUP

jamstack

Fast and secure sites and apps delivered by pre-rendering files and serving them directly from a CDN, removing the requirement to manage or run web servers.

WAS THAT JAMSTACK?

A QUICK SENSE CHECK

yep!

CLIENT-SIDE RENDERING

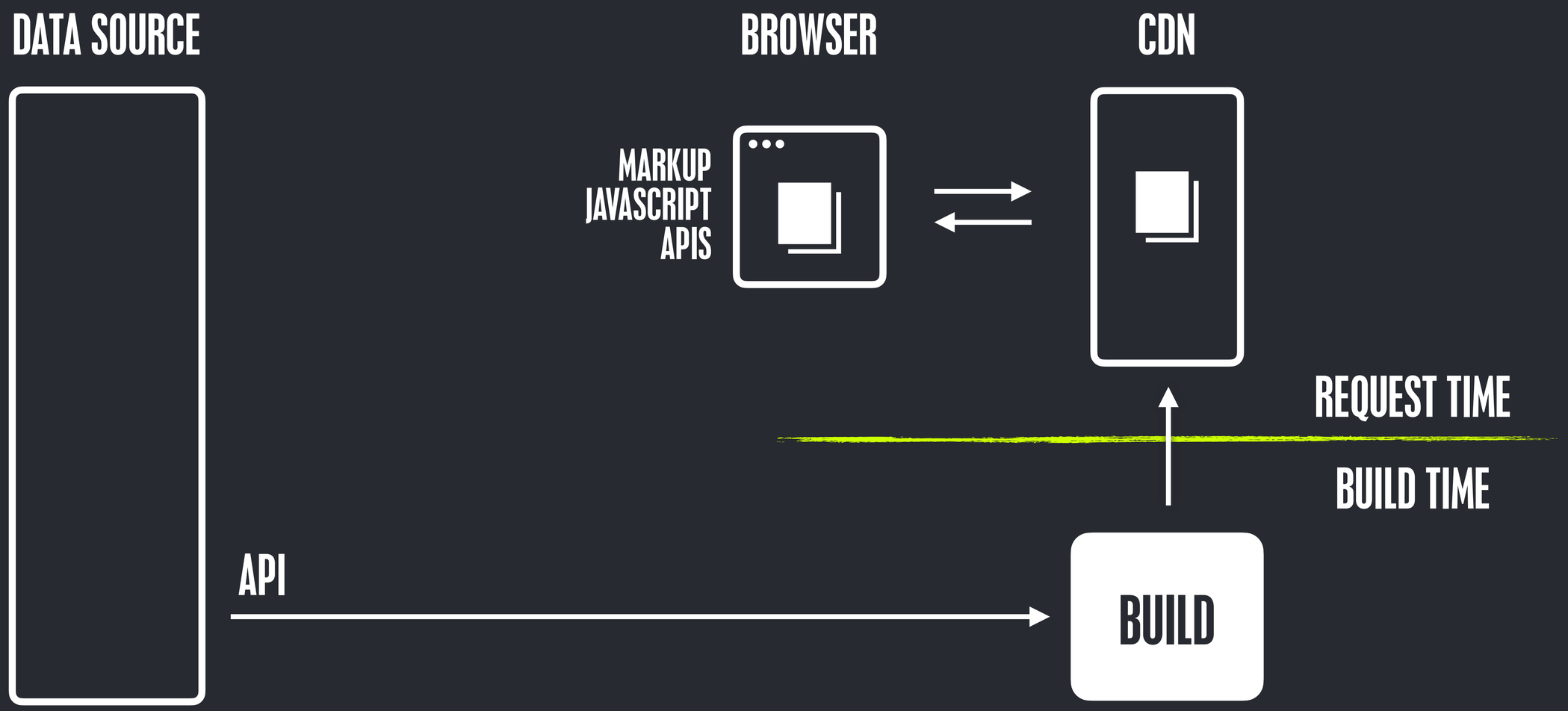
JAVASCRIPT IN THE BROWSER
MANIPULATES THE DOM

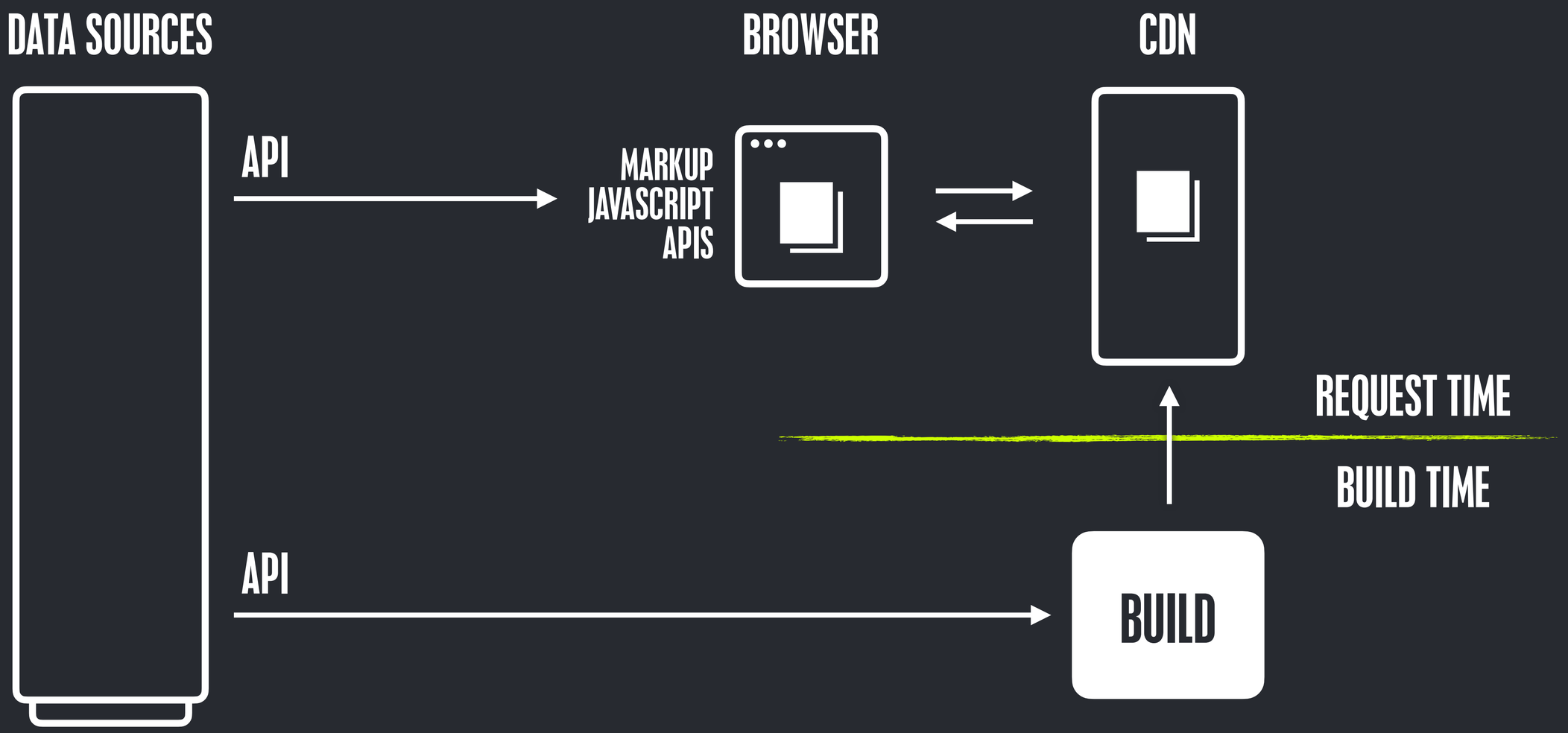
SERVER-SIDE RENDERING (REQUEST TIME)

GENERATE MARKUP ON REQUEST
IN THE SERVER AND TRANSMIT TO
THE CLIENT

SERVER-SIDE RENDERING (BUILD TIME)

GENERATE MARKUP AT BUILD TIME SO
THAT IT IS READY TO TRANSMIT TO
THE CLIENT WHEN NEEDED


DATA SOURCE
BROWSER
CDN
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
API
BUILD


DATA SOURCES
BROWSER
CDN
API
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
API
BUILD

1. CLIENT-SIDE RENDERING
2. CLIENT-SIDE API CALLS
3. BROWSER APIS
4. SERVERLESS APIS

...USING PROGRESSIVE ENHANCEMENT

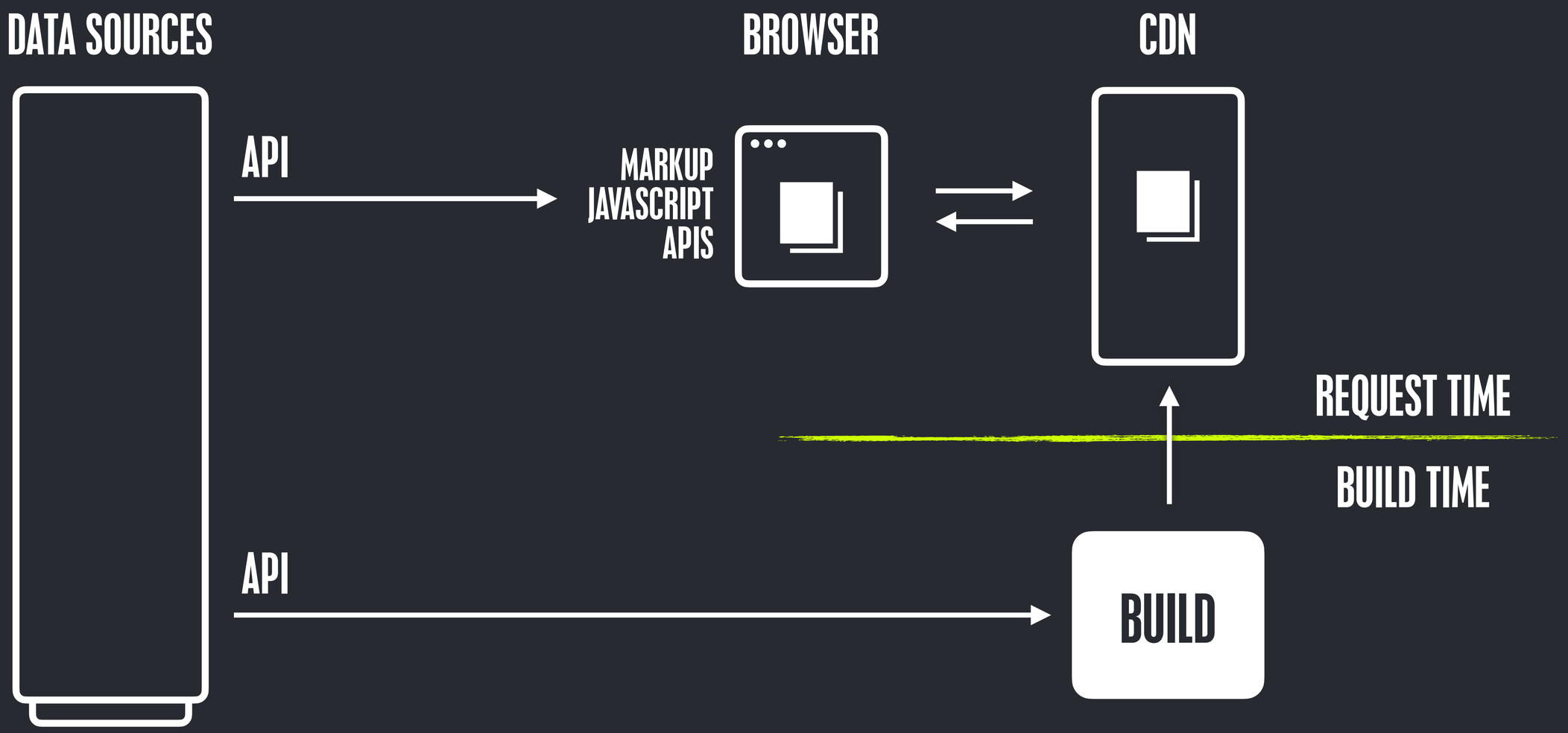
PROGRESSIVE ENHANCEMENT

1. DECIDE ON WHAT IS CRITICAL TO THE EXPERIENCE
2. DELIVER AS MUCH AS POSSIBLE USING A LITTLE AS POSSIBLE
3. DETECT SUPPORTED FEATURES AND ENHANCE WHERE POSSIBLE

EXAMPLE

NUMBER 6 - CLIENT-SIDE API CALLS

FINDTHAT.AT / JAMSTACK / EX6


DATA SOURCES
BROWSER
CDN
API
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
API
BUILD

CLIENT-SIDE RENDERING

JAVASCRIPT IN THE BROWSER
MANIPULATES THE DOM

SERVER-SIDE RENDERING (REQUEST TIME)

GENERATE MARKUP ON REQUEST
IN THE SERVER AND TRANSMIT TO
THE CLIENT

SERVER-SIDE RENDERING (BUILD TIME)

GENERATE MARKUP AT BUILD TIME SO
THAT IT IS READY TO TRANSMIT TO
THE CLIENT WHEN NEEDED

jamstack

Fast and secure sites and apps delivered by pre-rendering files and serving them directly from a CDN, removing the requirement to manage or run web servers.

WAS THAT JAMSTACK?

A QUICK SENSE CHECK

yep!

TIME *for a* RECAP

what did we make?

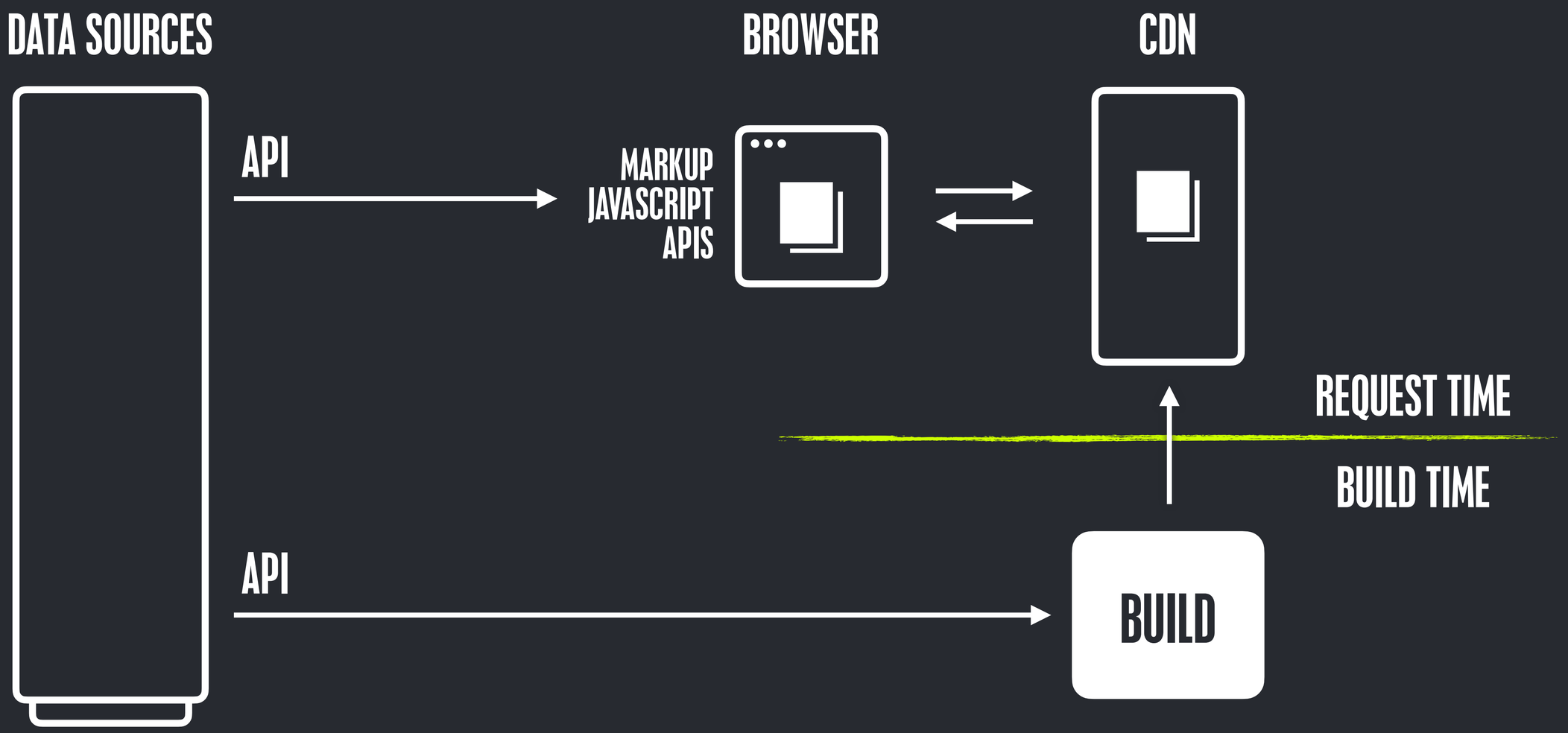
1. SIMPLY A STATIC SITE
2. JAVASCRIPT TO RENDER CONTENT
3. TEMPLATING AND ABSTRACTION WITH A STATIC SITE GENERATOR
4. CONTENT SOURCED FROM AN API AT BUILD TIME
5. LOCALISED CONTENT RENDERED AT BUILD TIME, ROUTED AT THE CDN
6. CLIENT-SIDE RENDER OF TARGETED CONTENT WITH BROWSER AND CONTENT APIS

JAVASCRIPT / API / MARKUP

jamstack

Fast and secure sites and apps delivered by pre-rendering files and serving them directly from a CDN, removing the requirement to manage or run web servers.

EASIER TO REASON ABOUT


DATA SOURCES
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API
BUILD

enablers

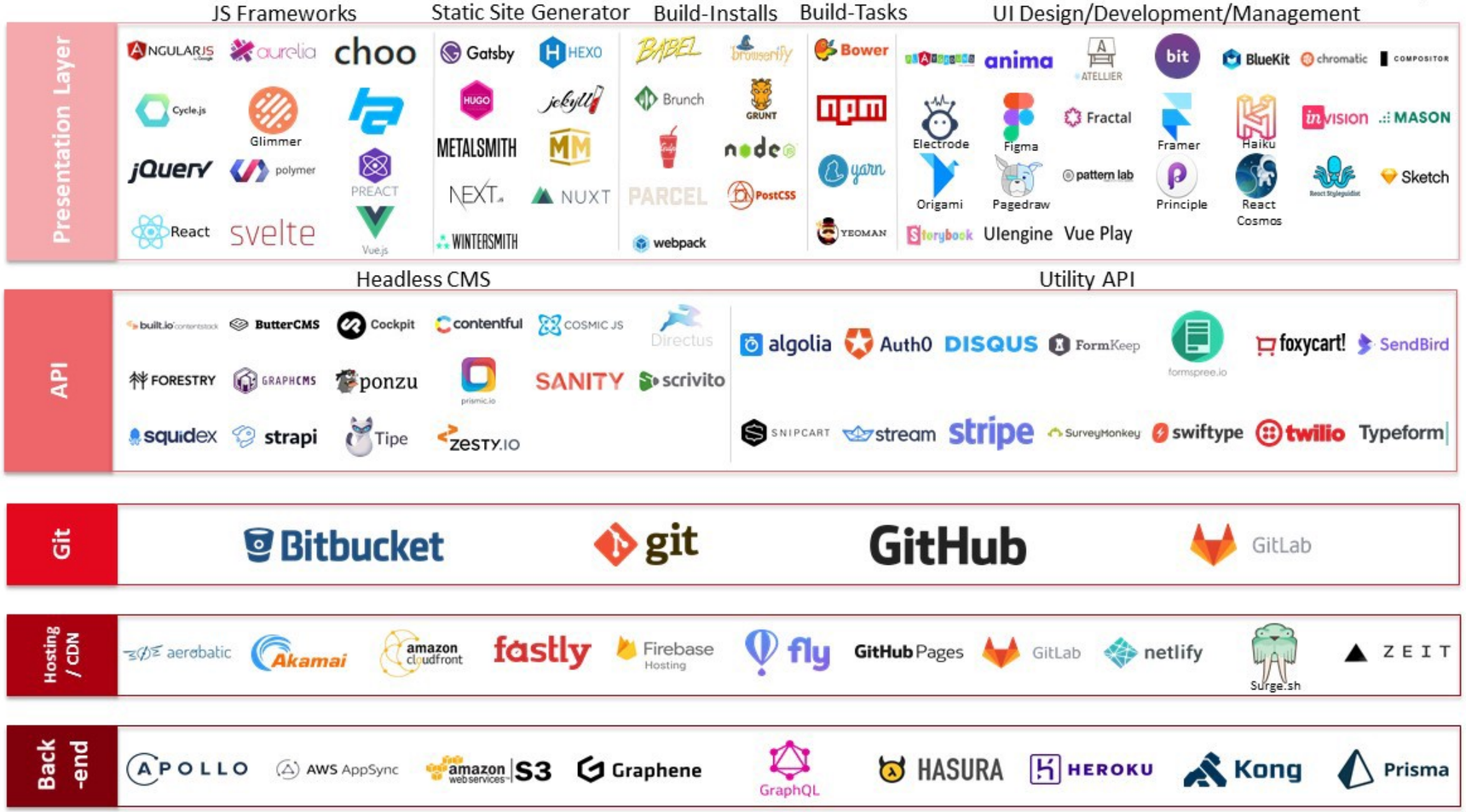
AUTOMATION
TOOLS & SERVICES
THE API ECONOMY

THE GROWING ECOSYSTEM OF TOOLS AND SERVICES MOVES US BEYOND STATIC

JAMstack Ecosystem

Redpoint

Astasia Myers



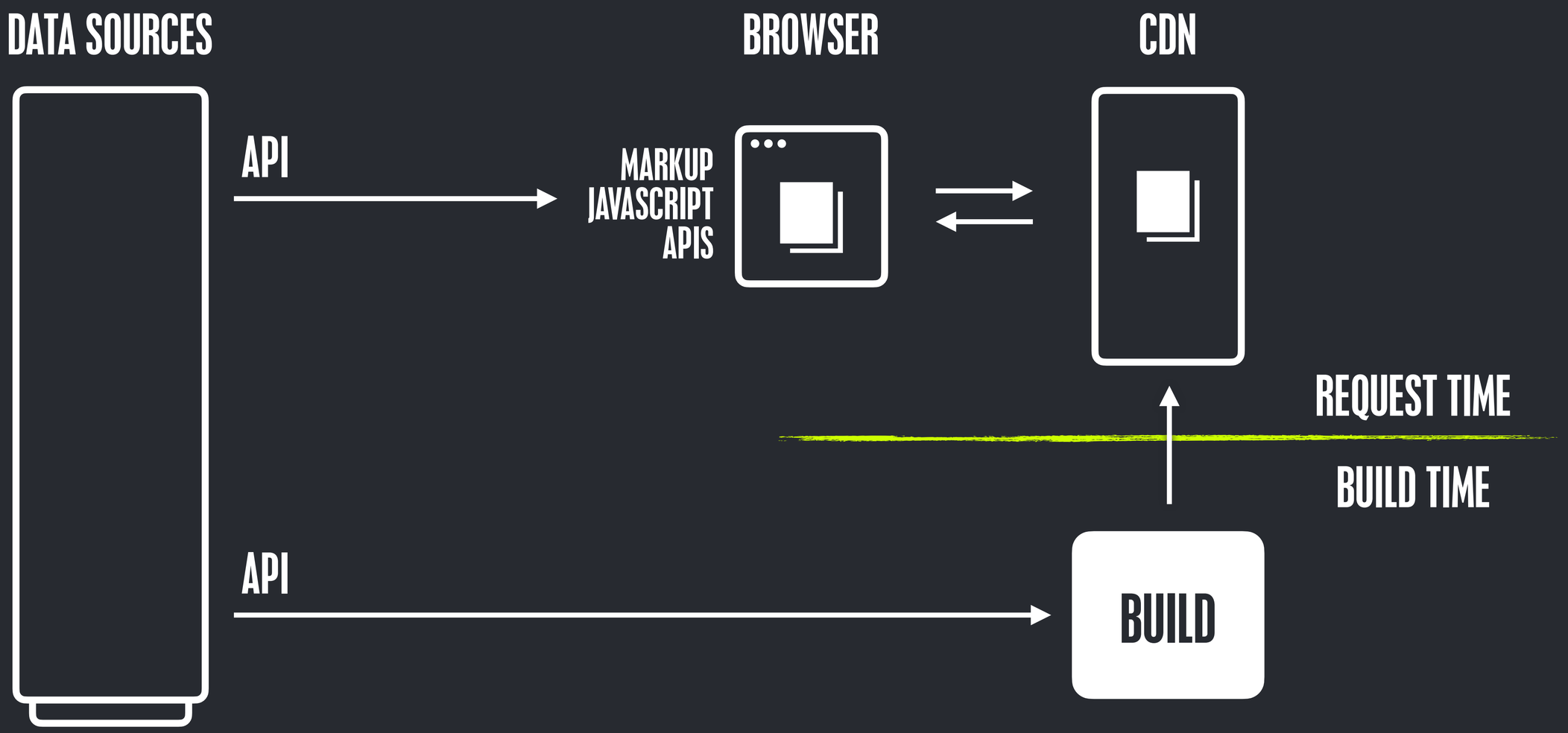
https://medium.com/memory-leak/the-jamstack-its-pretty-sweet-e0834e4e6bb7

but...

HOW DO WE GET THERE?

https://unsplash.com/photos/0_UvKStn3iQ

https://unsplash.com/photos/wKlqqfNTLsI


DATA SOURCES
BROWSER
CDN
API
MARKUP
JAVASCRIPT
APIS
REQUEST TIME
BUILD TIME
API
BUILD

RESOURCES

FINDTHAT.AT / JAMSTACK / EX1
FINDTHAT.AT / JAMSTACK / EX2
FINDTHAT.AT / JAMSTACK / EX3
FINDTHAT.AT / JAMSTACK / EX4
FINDTHAT.AT / JAMSTACK / EX5
FINDTHAT.AT / JAMSTACK / EX6

FINDTHAT.AT / JAMSTACK / FCC

FINDTHAT.AT / JAMSTACK / BOOK
FINDTHAT.AT / JAMSTACK / SLACK

FINDTHAT.AT / JAMSTACK / FCC

THANKS

@PHILHAWKSWORTH