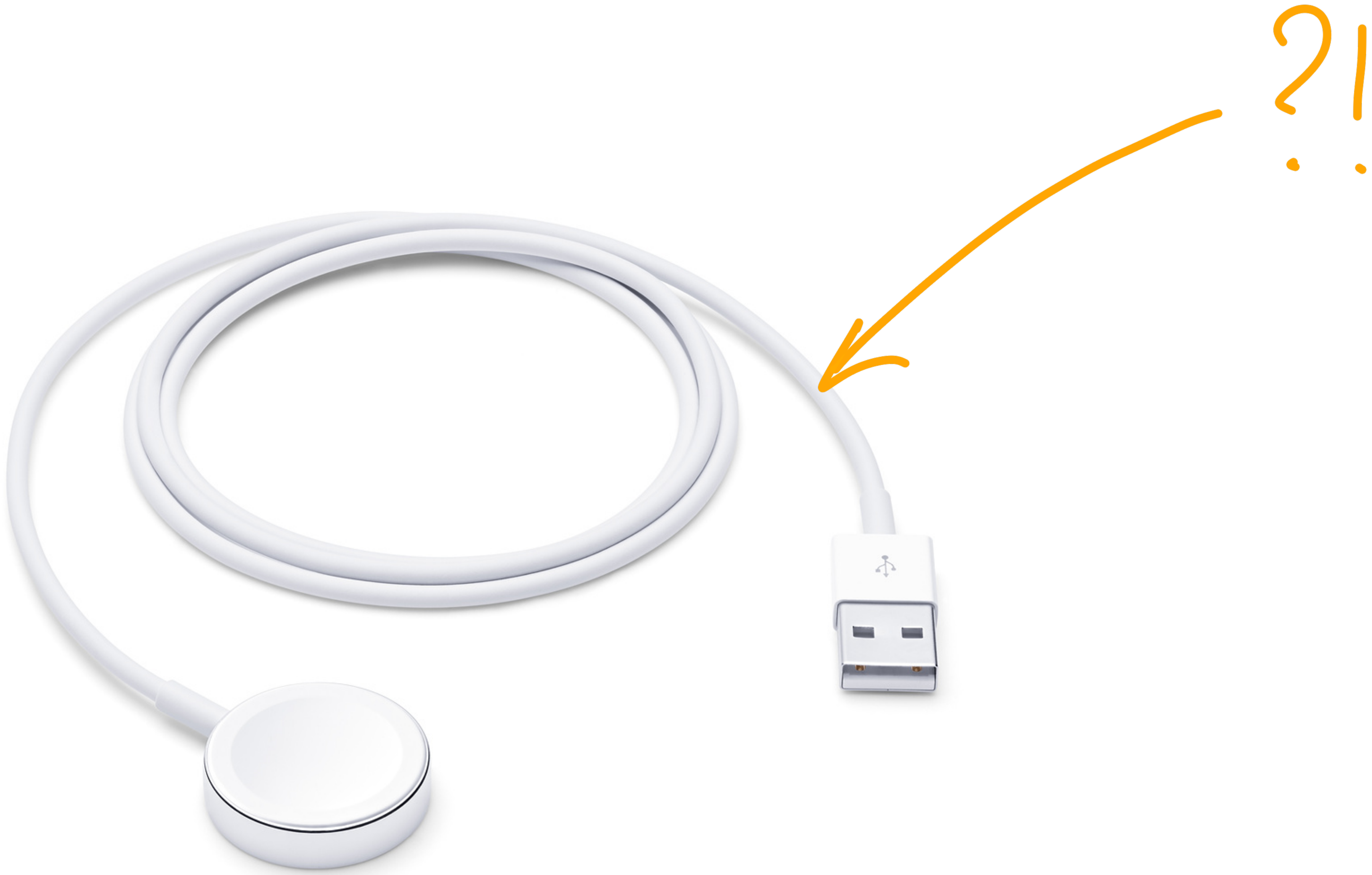
ARE YOU BEING SERVERED?

EXPLORING A SERVERLESS WEB

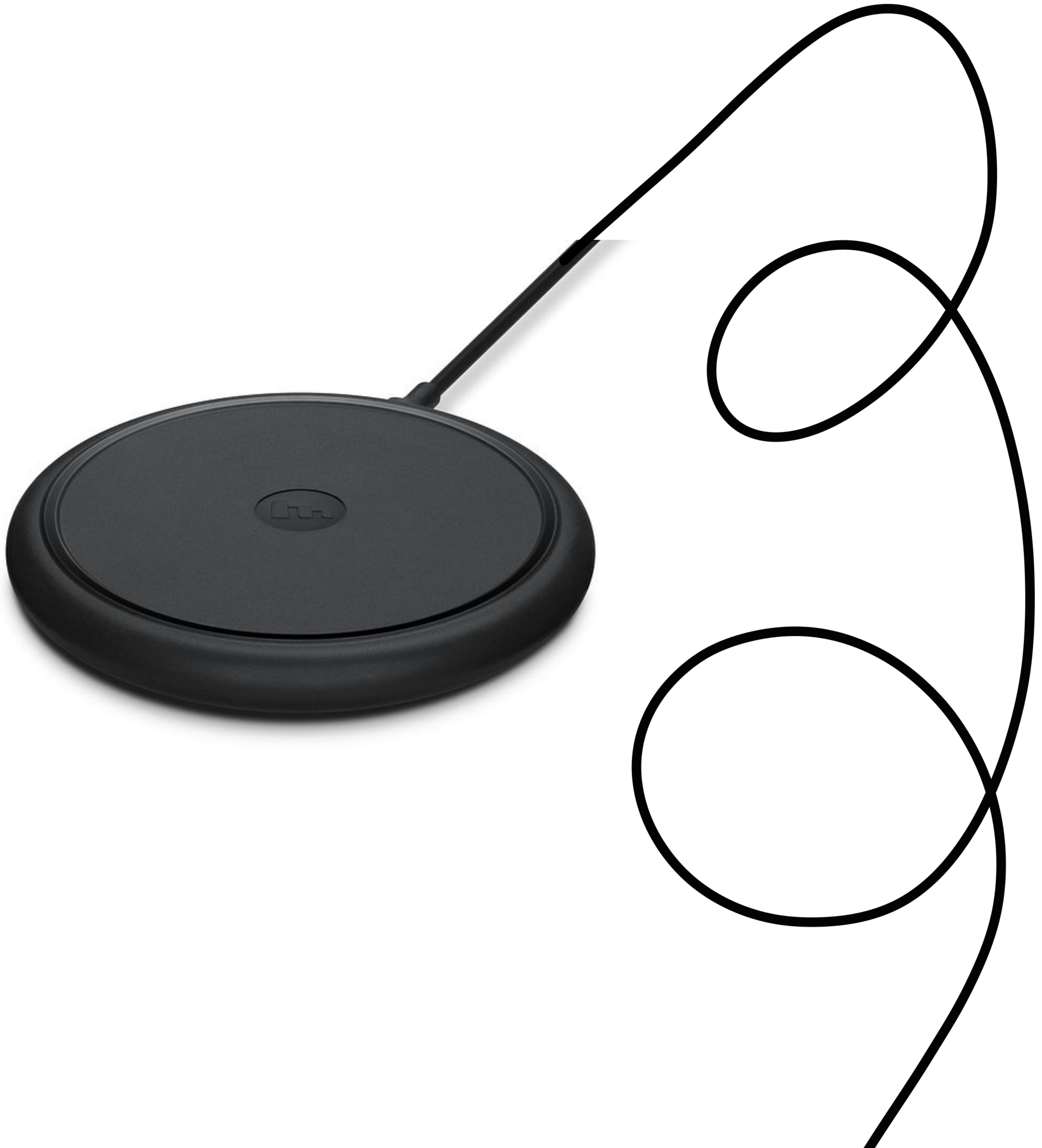
PHIL HAWKSWORTH

5:10
Timer
17:53
Reset
Pause

ANKER



ANKER



WIRELESS

SERVERLESS

serverless ⚡ jamstack

CAN WE REALLY TAKE SERVERS OUT OF THE EQUATION?

FOCUSSING ON THE THINGS YOU CARE ABOUT

liberated

TO FOCUS ON WHAT MATTERS

the problem with

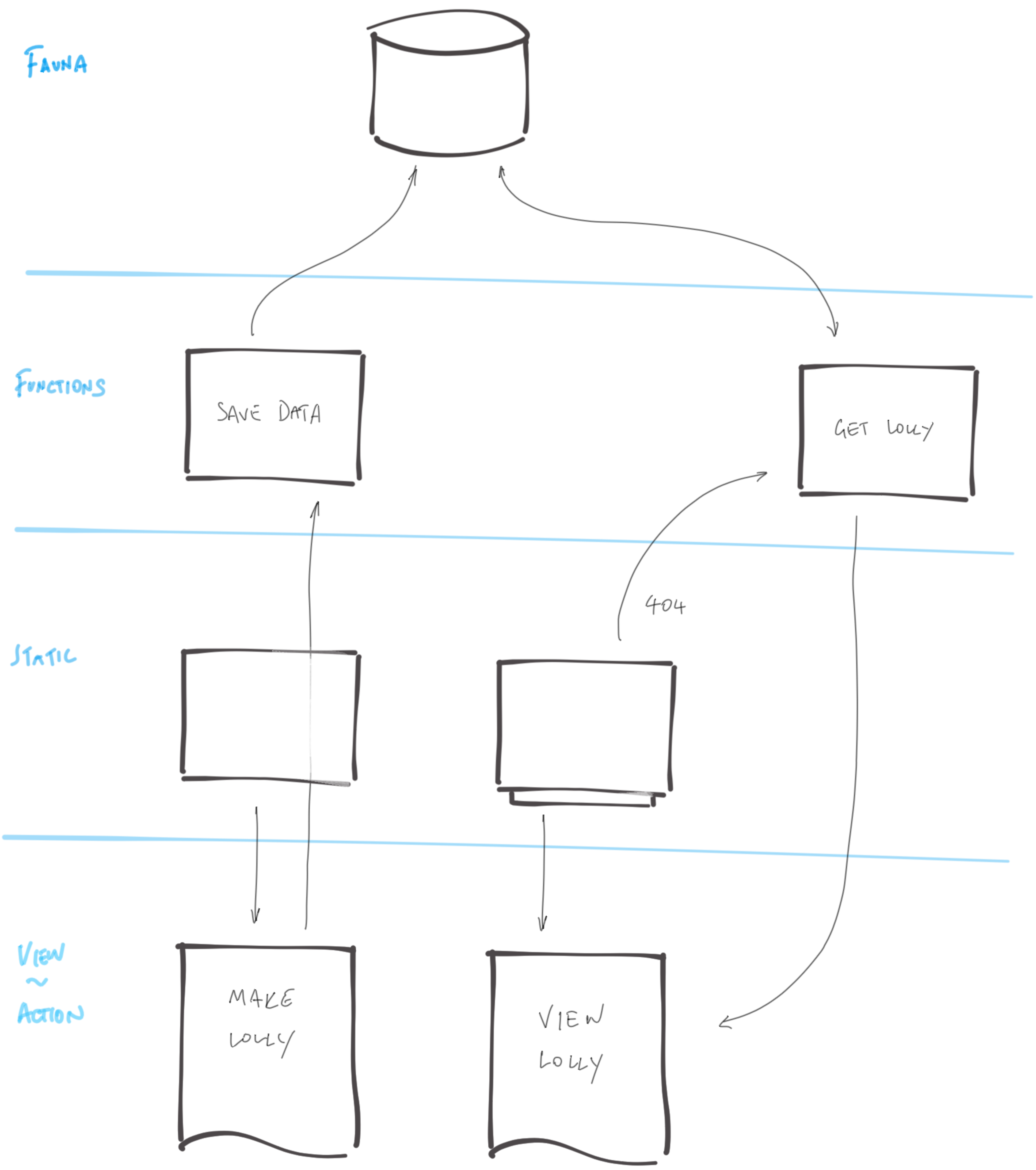
DOING BIG PROJECTS

CONSTRAINTS AND COMPLEXITY AND INFRASTRUCTURE

oh my!

WHERE TO FOCUS OUR EFFORTS?

LINES AND BOXES



@ PHIL HAWKSWORTH

HE / HIM

DEVELOPER EXPERIENCE

NETLIFY

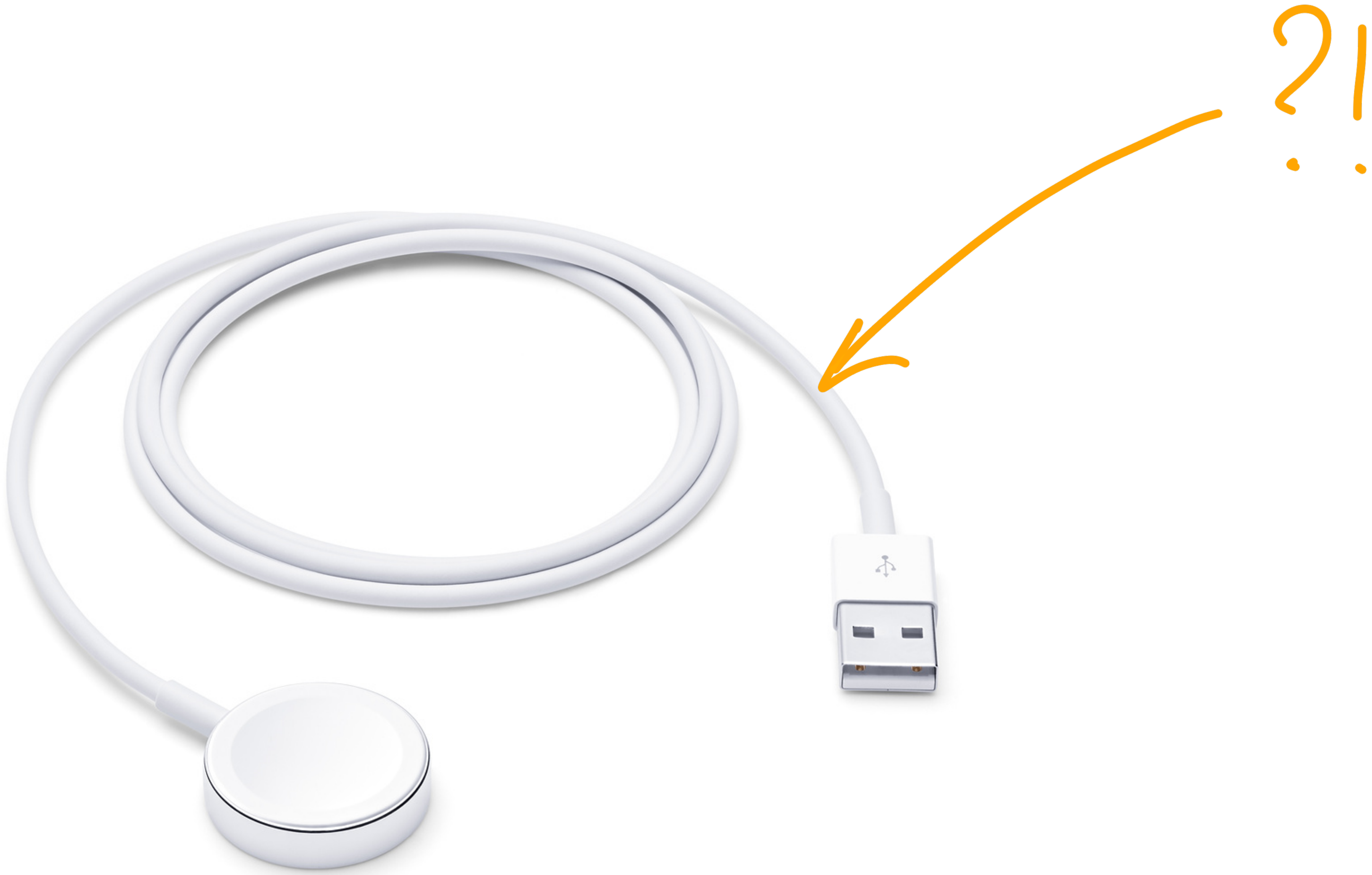
ARE YOU BEING SERVERED?

EXPLORING A SERVERLESS WEB

PHIL HAWKSWORTH

FUNCTIONS AS A SERVICE

SERVING WEBSITES WITHOUT WEBSERVERS



jamstack

JAVASCRIPT / API / MARKUP

STACKS FOR DAYZ

N / LAMP / MAMP / XAMP / ROR / WISA / MEA

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

jamstack

A modern architecture —

Create fast and secure sites and dynamic apps with JavaScript, APIs, and pre-rendered Markup, served without web servers

BAKE, DON’T FRY

– Aaron Swartz

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

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

AARON SWARTZ, 2002

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

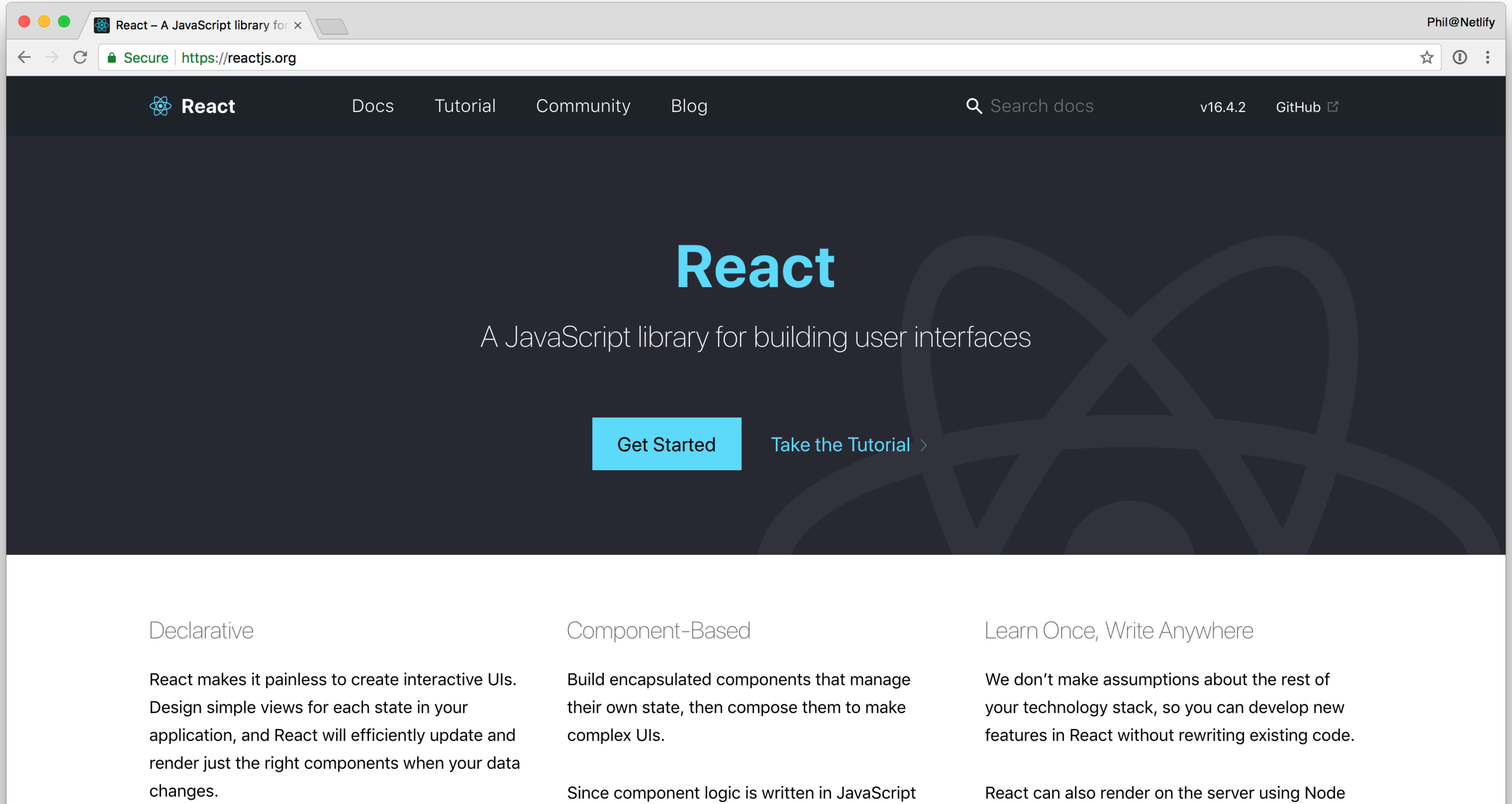
TOOLS

&

ECOSYSTEM

SO… WHAT CAN A STATIC SITE EVEN BE?

REACTJS.ORG



React

A JavaScript library for building user interfaces

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.

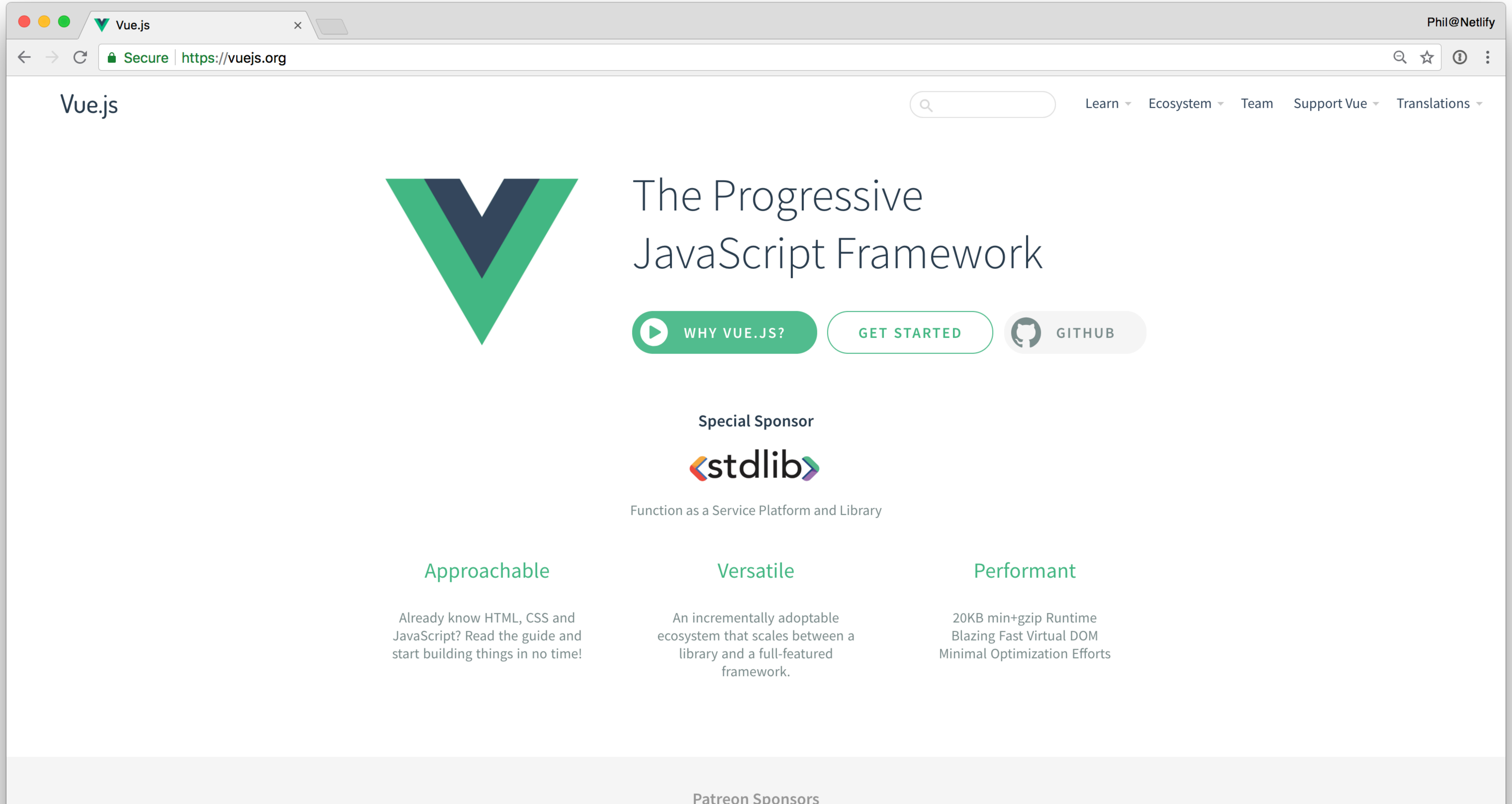
Since component logic is written in JavaScript

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

VUEJS.ORG



The Progressive JavaScript Framework

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

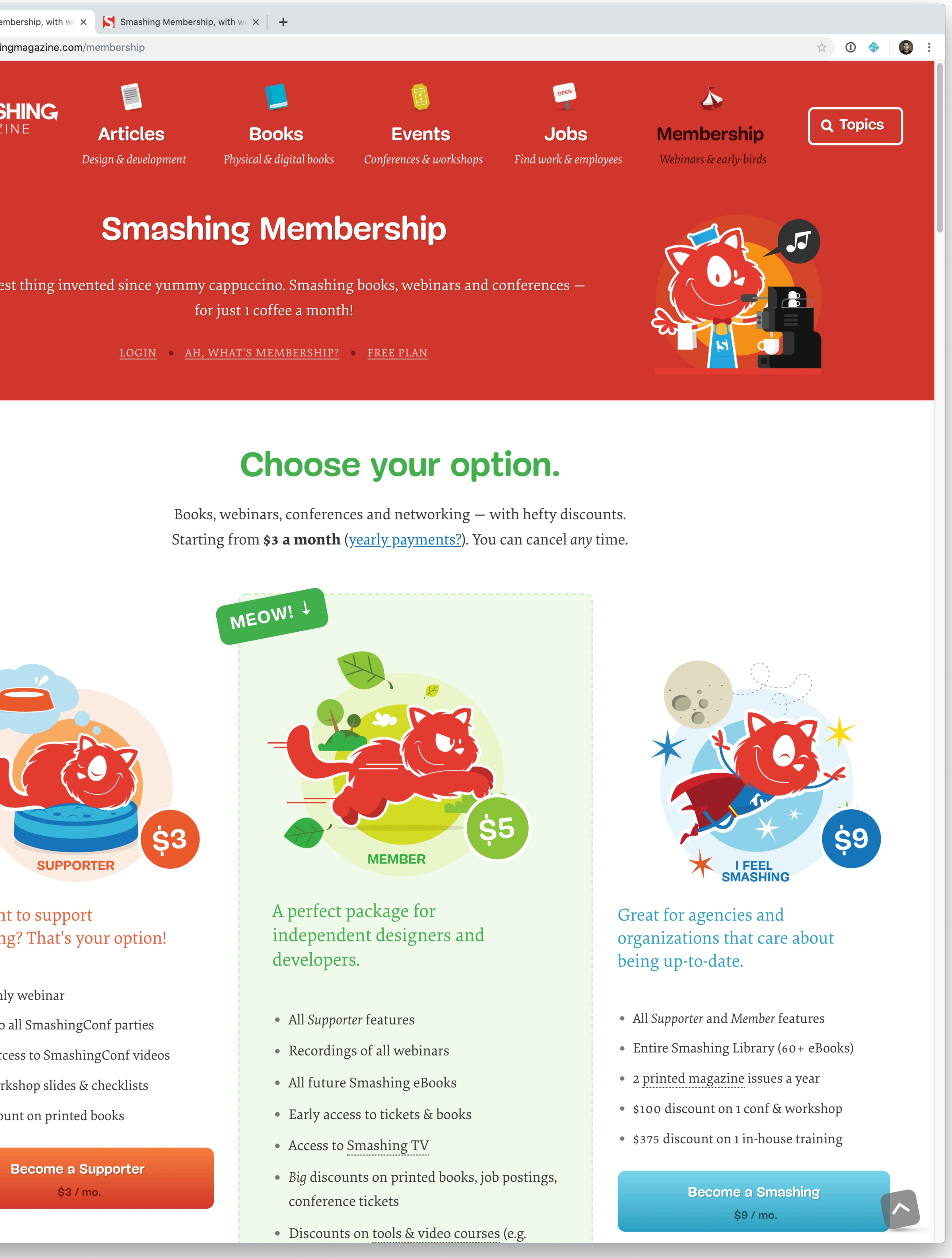
An incrementally adoptable ecosystem that scales between a library and a full-featured framework.

Performant

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

Patreon Sponsors

SMASHINGMAGAZINE.COM



Articles *Design & development* · Books *Physical & digital books* · Events *Conferences & workshops* · Jobs *Find work & employees* · Membership *Webinars & early-birds* · Topics

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- Discounts on tools & video courses (e.g.

Great for agencies and organizations that care about being up-to-date.

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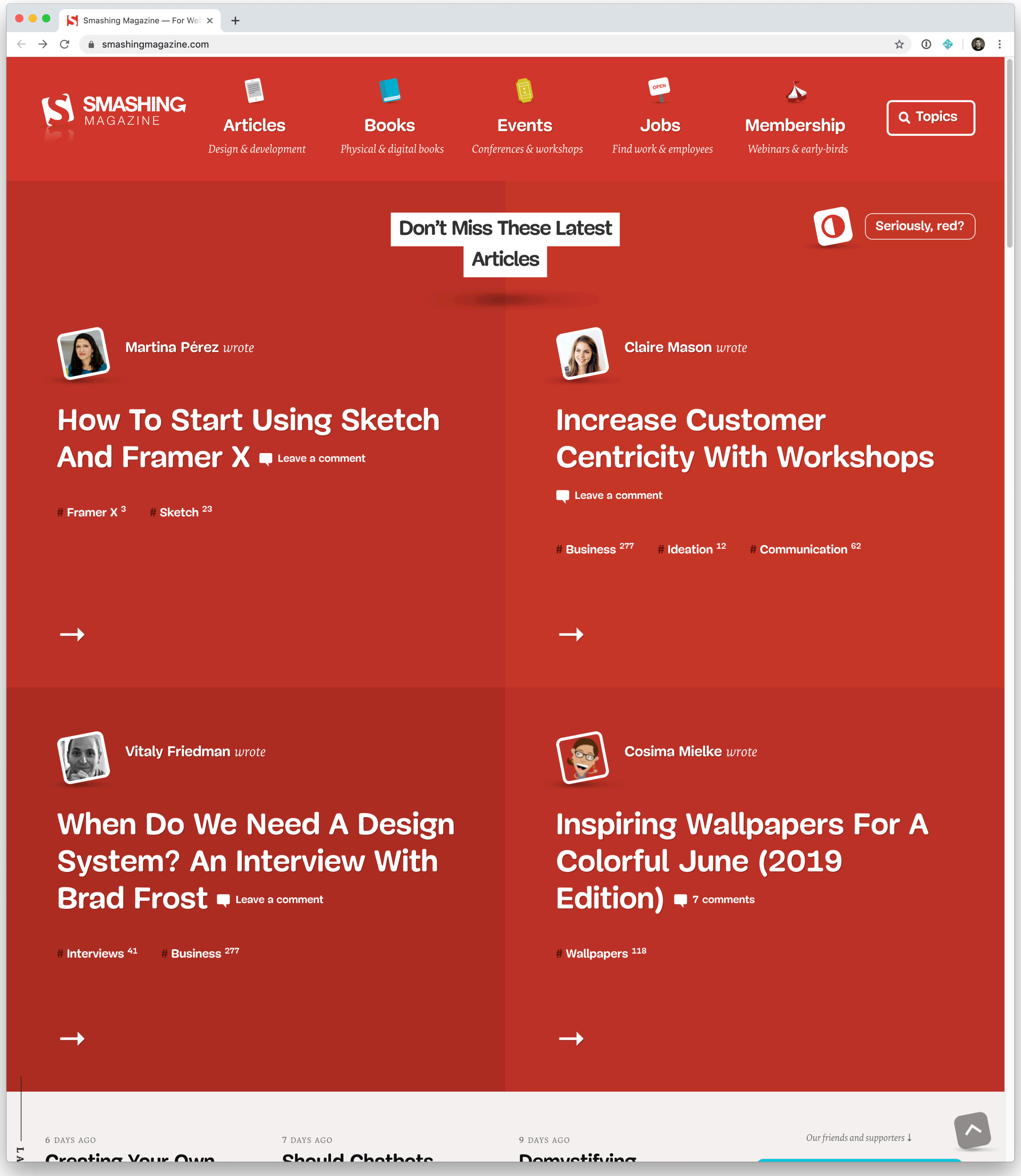


Articles *Design & development* · Books *Physical & digital books* · Events *Conferences & workshops* · Jobs *Find work & employees* · Membership *Webinars & early-birds* · Topics

Don't Miss These Latest Articles

Seriously, red?

Martina Pérez *wrote*

How To Start Using Sketch And Framer X

Leave a comment

Framer X 3 # Sketch 23

→

Claire Mason *wrote*

Increase Customer Centricity With Workshops

Leave a comment

Business 277 # Ideation 12 # Communication 62

→

Vitaly Friedman *wrote*

When Do We Need A Design System? An Interview With Brad Frost

Leave a comment

Interviews 41 # Business 277

→

Cosima Mielke *wrote*

Inspiring Wallpapers For A Colorful June (2019 Edition)

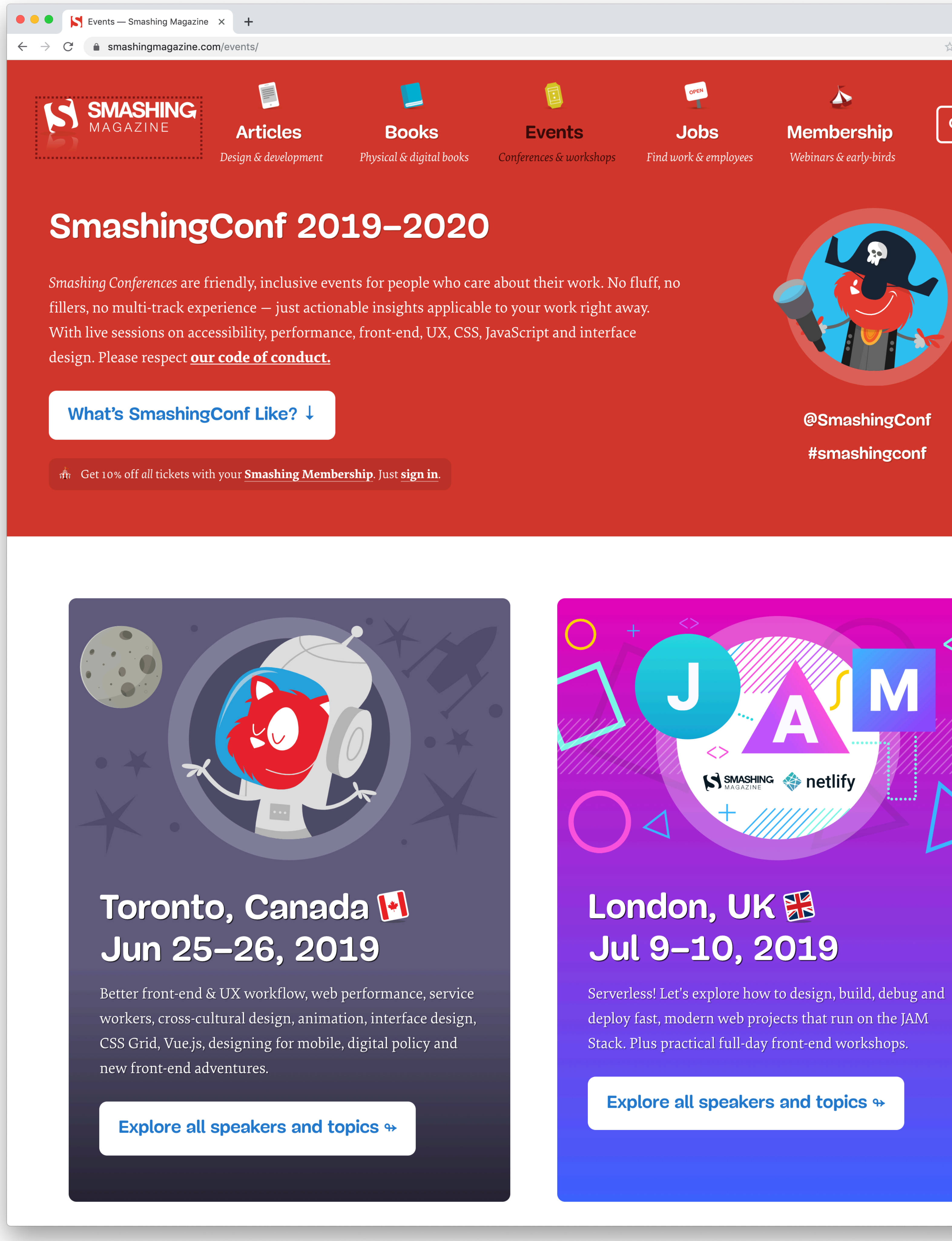
7 comments

Wallpapers 118

→

6 DAYS AGO Creating Your Own · 7 DAYS AGO Should Chatbots · 9 DAYS AGO Demystifying

Our friends and supporters ↓



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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? ↓

@SmashingConf
#smashingconf

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

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.

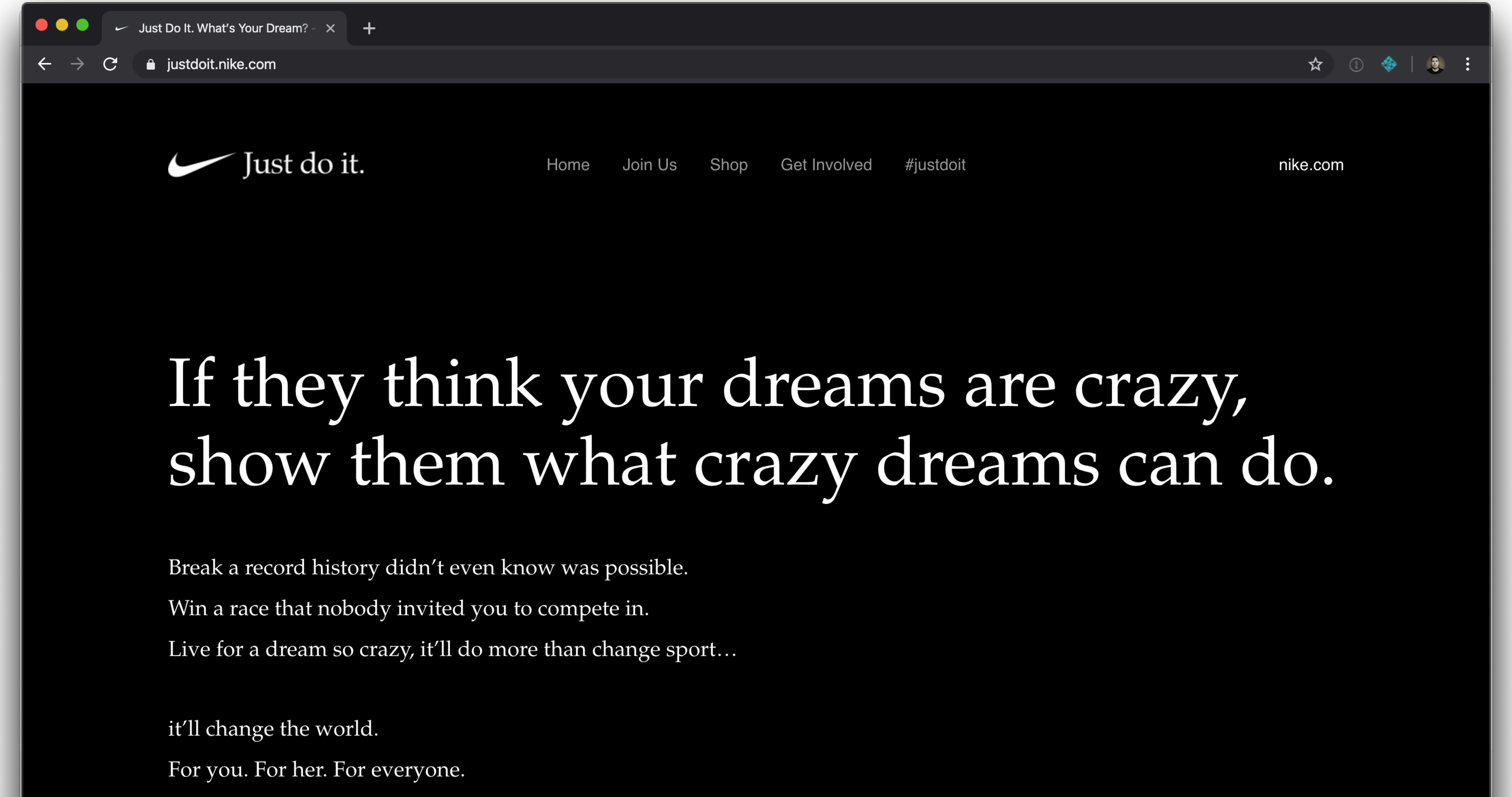
Explore all speakers and topics

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

JUSTDOIT.NIKE.COM



If they think your dreams are crazy, show them what crazy dreams can do.

Break a record history didn't even know was possible.

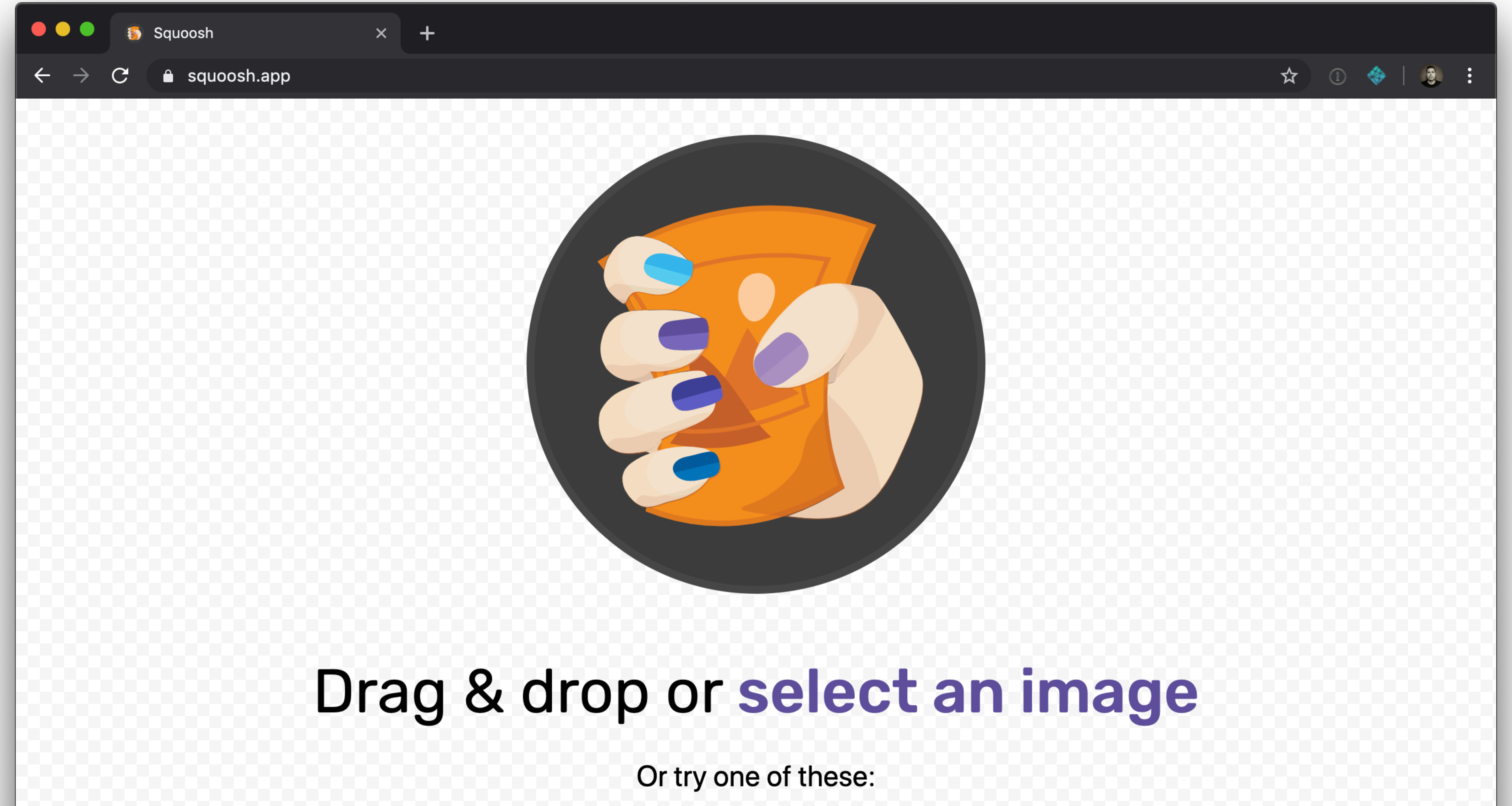
Win a race that nobody invited you to compete in.

Live for a dream so crazy, it'll do more than change sport…

it'll change the world.

For you. For her. For everyone.

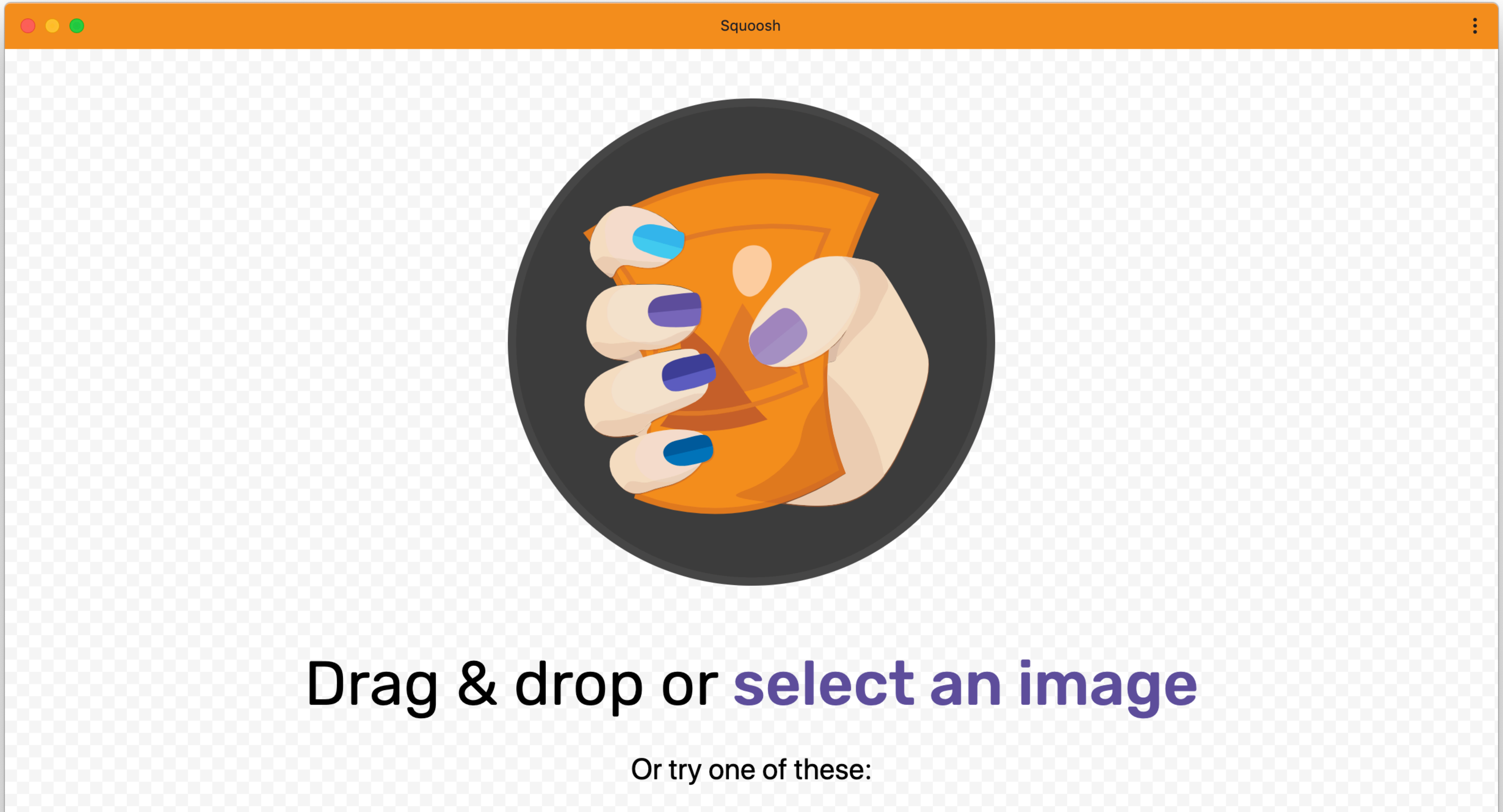
SQUOOSH.APP



Drag & drop or select an image

Or try one of these:

SQUOOSH.APP



Squoosh

Drag & drop or select an image

Or try one of these:

hawksworx.com
hawksworx
blog
speaking
about
search

HAWKSWORX

/hɔːkswəːks/

The blog, playground, and generally a home on the web for Phil Hawksworth, a web nerd, amateur comedian, and cat botherer.

The source code of this site is available on GitHub and is hosted and updated by Netlify automatically after each code commit

Other than where specified, the content on this site is published under a Creative Commons Attribution 3.0 licence.

Subscribe to a feed of blog posts on this site.

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.

Wherever you find me, online or in the real world, please do come and say a friendly hello.

Recently on the blog

August 19th 2019

Power up Gatsby sites with A/B testing on Netlify

#jamstack , #netlify , #gatsby

If you host your Gatsby site with Netlify, you can create A/B or multi-variant tests without the need for client-side UI manipulation or other JavaScript intervention. This post and demo video explain how.

Edit settings

Build hooks

Build hooks give you a unique URL you can use to trigger a build.

Twitter activity trigger:	https://api.netlify.com/build_hooks/58d50555d6865d3a3d5a1f19
Comment approved:	https://api.netlify.com/build_hooks/5a9178c6df99537d12e5d057
Alexa voice command:	https://api.netlify.com/build_hooks/5b75f84e82d3f10467d27f41

Learn more about build hooks in the docs ↗

Build image selection

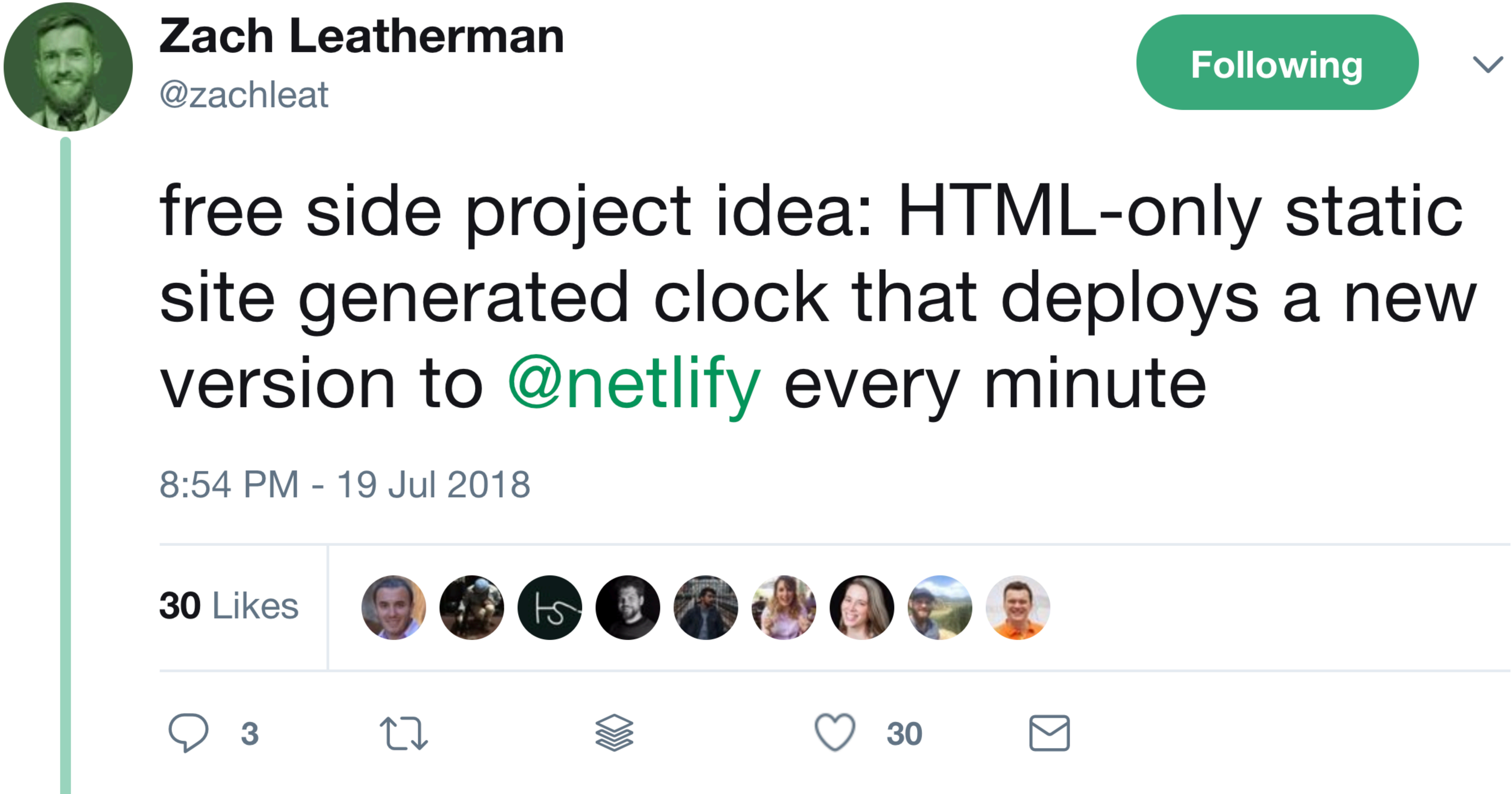
REDUCING DEPLOYMENT FRICTION

INCREASES PERCEIVED DYNAMISM

PHILIP GOT COCKY

SOME PEOPLE ON THE INTERNET NOTICED

😳

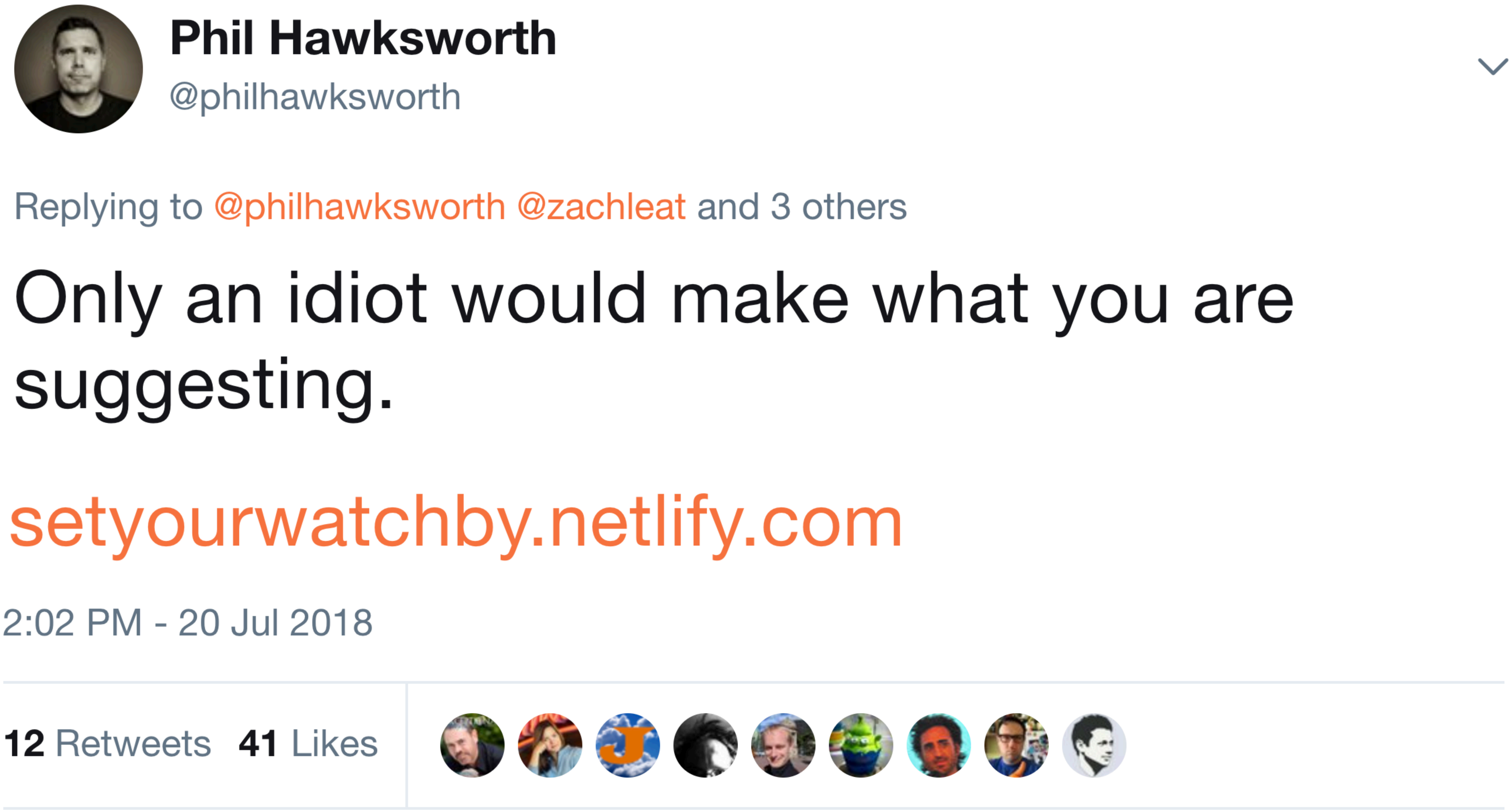


Zach Leatherman
@zachleat

free side project idea: HTML-only static site generated clock that deploys a new version to @netlify every minute

8:54 PM - 19 Jul 2018

30 Likes



Phil Hawksworth
@philhawksworth

Replying to @philhawksworth @zachleat and 3 others

Only an idiot would make what you are suggesting.

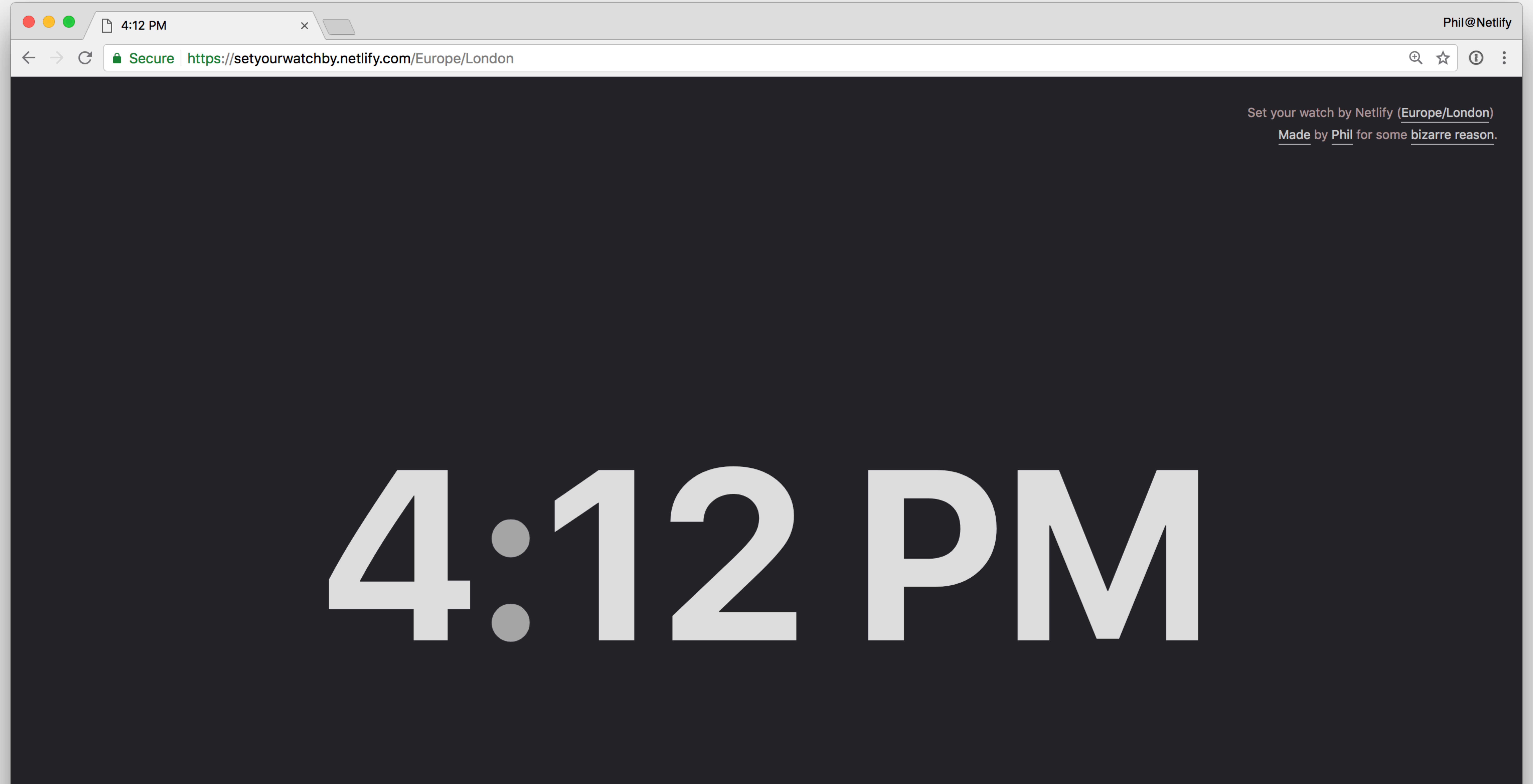
setyourwatchby.netlify.com

2:02 PM - 20 Jul 2018

12 Retweets 41 Likes

FINDTHAT.AT/TIME

https://setyourwatchby.netlify.com

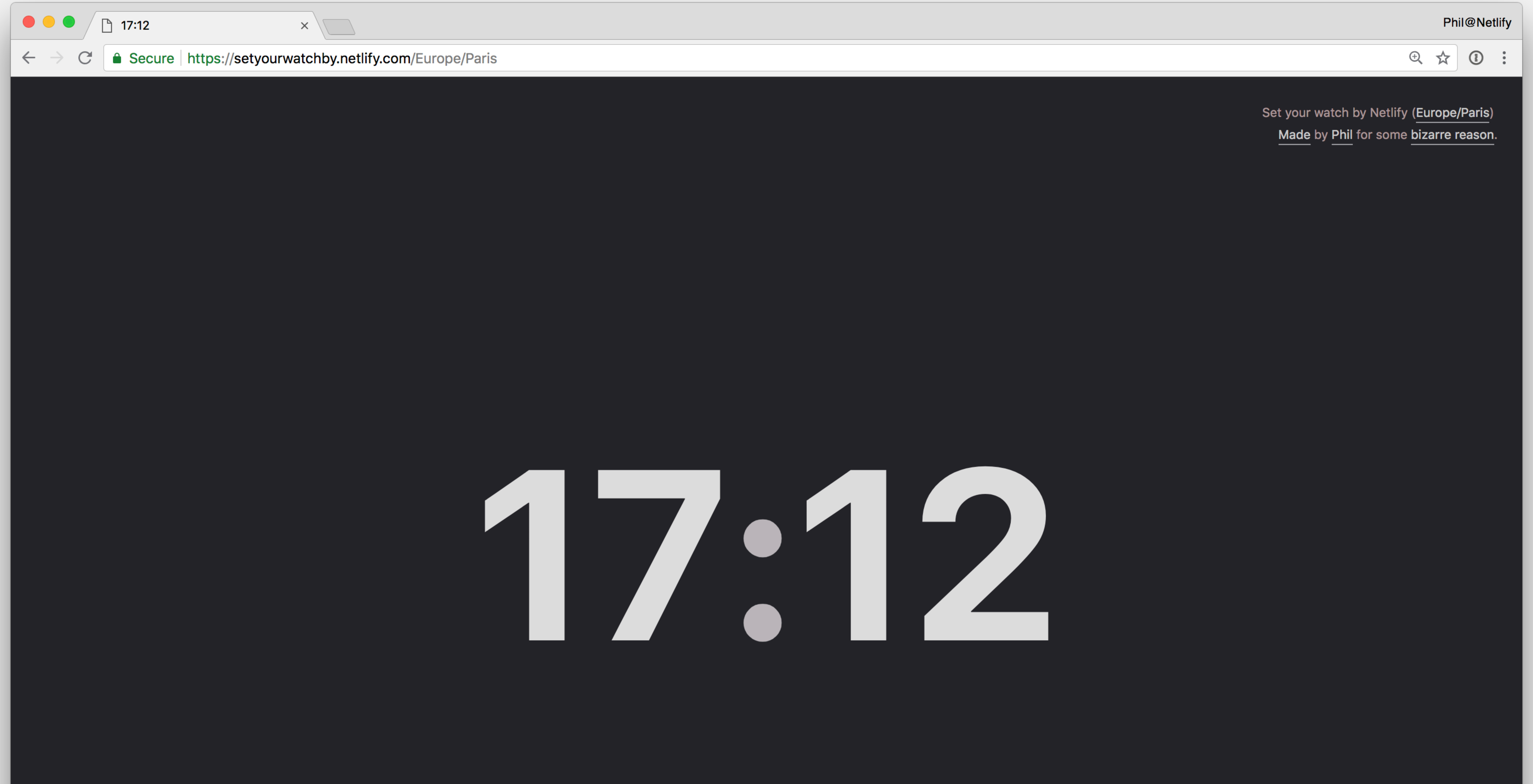


Set your watch by Netlify (Europe/London)
Made by Phil for some bizarre reason.

4:12 PM

FINDTHAT.AT/TIME

https://setyourwatchby.netlify.com

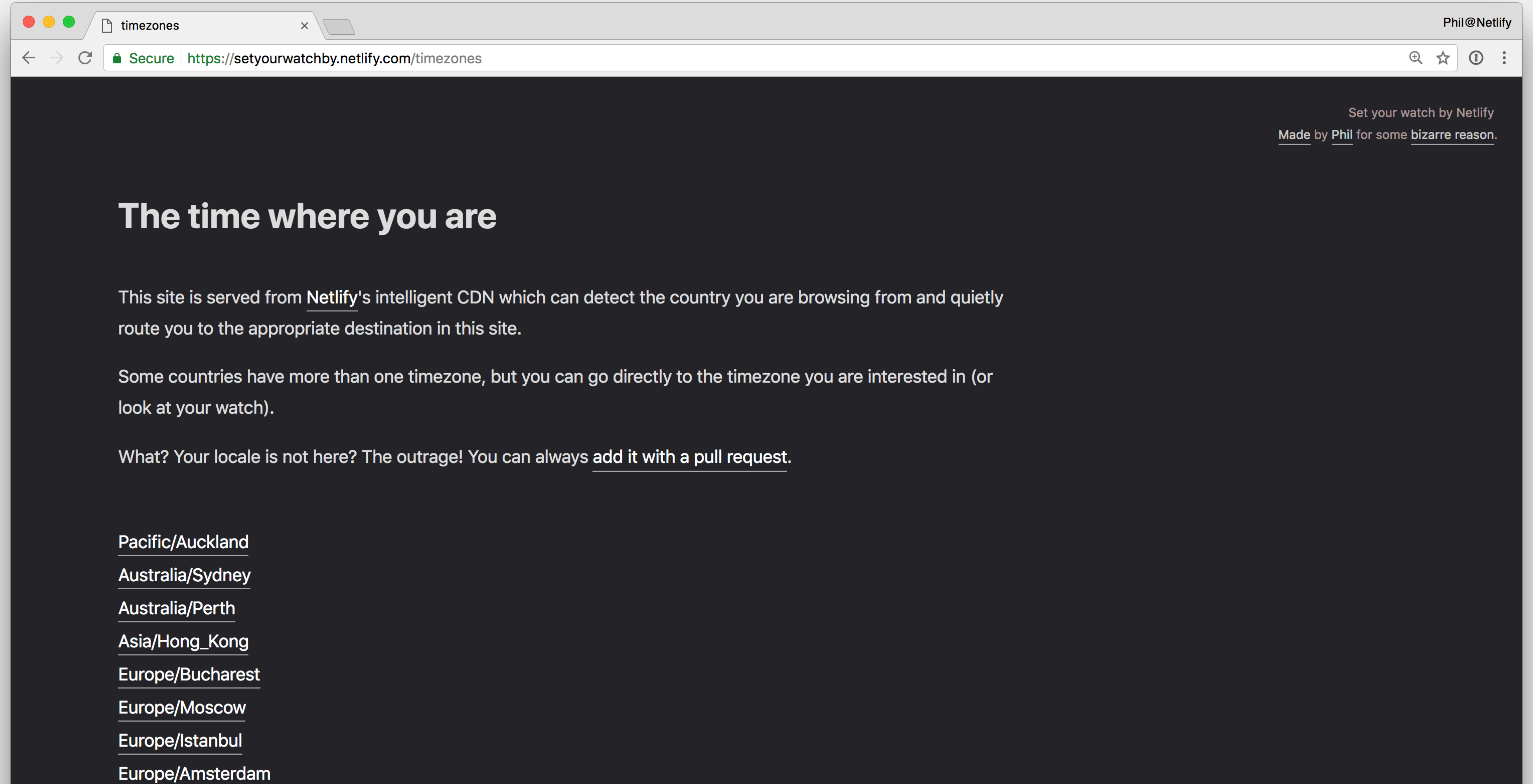


Set your watch by Netlify (Europe/Paris)
Made by Phil for some bizarre reason.

17:12

FINDTHAT.AT/TIME

https://setyourwatchby.netlify.com



Set your watch by Netlify
Made by Phil for some bizarre reason.

The time where you are

This site is served from Netlify's intelligent CDN which can detect the country you are browsing from and quietly route you to the appropriate destination in this site.

Some countries have more than one timezone, but you can go directly to the timezone you are interested in (or look at your watch).

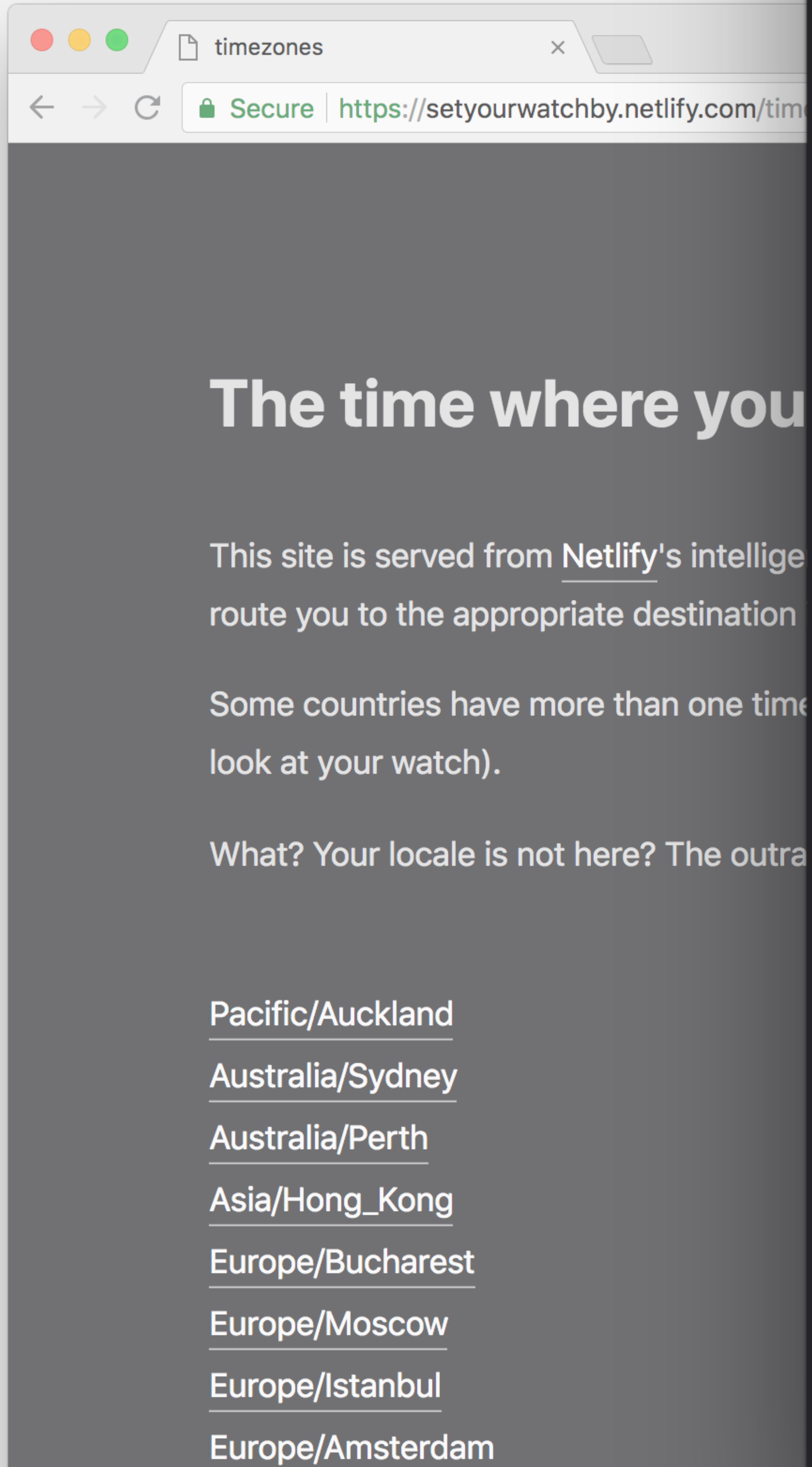
What? Your locale is not here? The outrage! You can always add it with a pull request.

- Pacific/Auckland
- Australia/Sydney
- Australia/Perth
- Asia/Hong_Kong
- Europe/Bucharest
- Europe/Moscow
- Europe/Istanbul
- Europe/Amsterdam

netlify | Are you being servered?

FINDTHAT.AT/TI

https://setyourwatchby.netlify.c



timezones

Secure https://setyourwatchby.netlify.com/tim

The time where you

This site is served from Netlify's intellige
route you to the appropriate destination

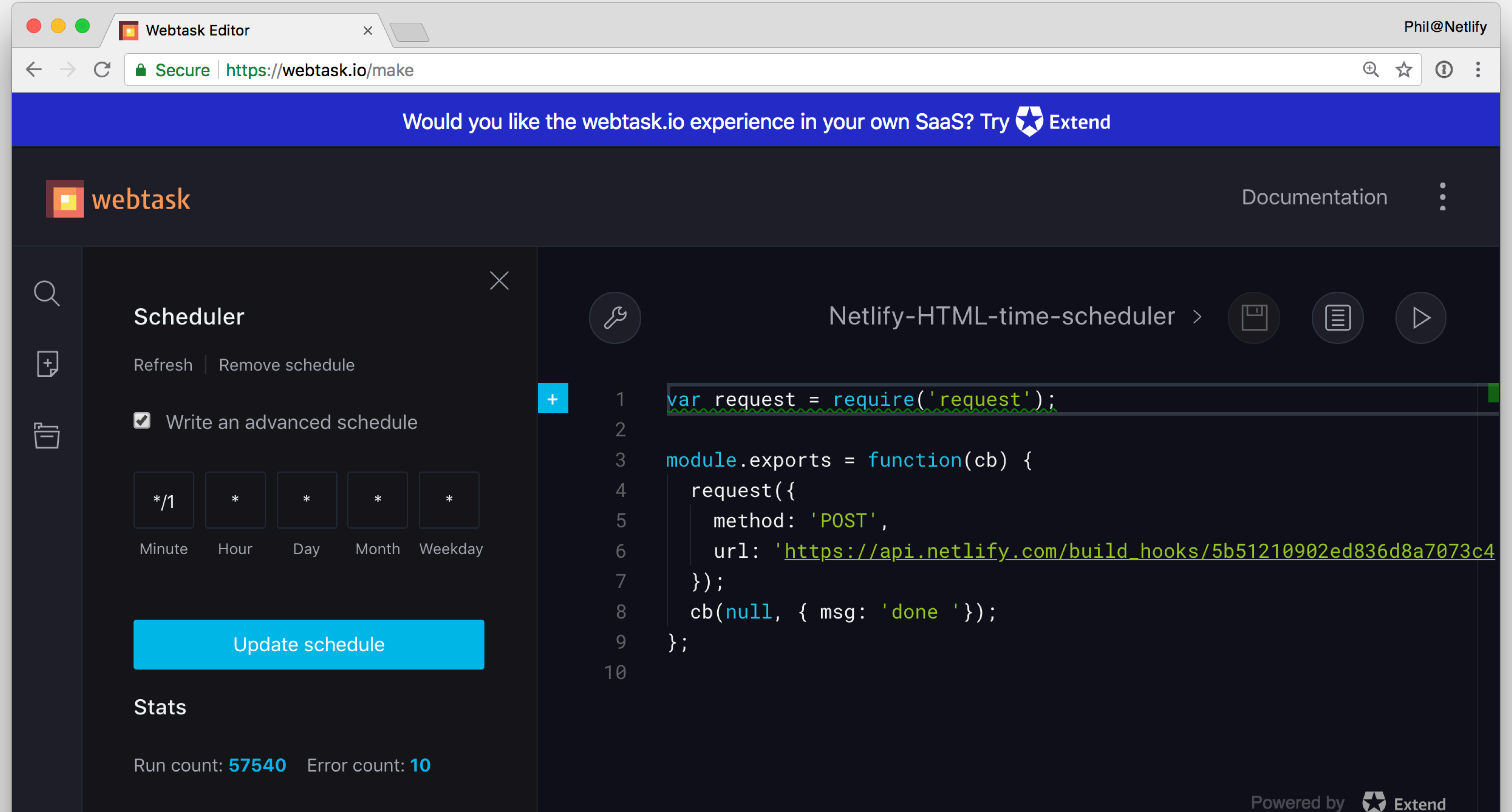
Some countries have more than one tim
look at your watch).

What? Your locale is not here? The outra

- Pacific/Auckland
- Australia/Sydney
- Australia/Perth
- Asia/Hong_Kong
- Europe/Bucharest
- Europe/Moscow
- Europe/Istanbul
- Europe/Amsterdam

- Pacific/Auckland
- Australia/Sydney
- Australia/Perth
- Asia/Hong_Kong
- Europe/Bucharest
- Europe/Moscow
- Europe/Istanbul
- Europe/Amsterdam
- Europe/Paris
- Europe/London
- America/New_York
- America/Chicago
- America/Denver
- America/Los_Angeles

WEBTASK.IO


Webtask Editor
Phil@Netlify
Secure
https://webtask.io/make
Would you like the webtask.io experience in your own SaaS? Try Extend
webtask
Documentation
Netlify-HTML-time-scheduler
Powered by Extend

Scheduler

Refresh | Remove schedule

☑ Write an advanced schedule

*/1	*	*	*	*
Minute	Hour	Day	Month	Weekday

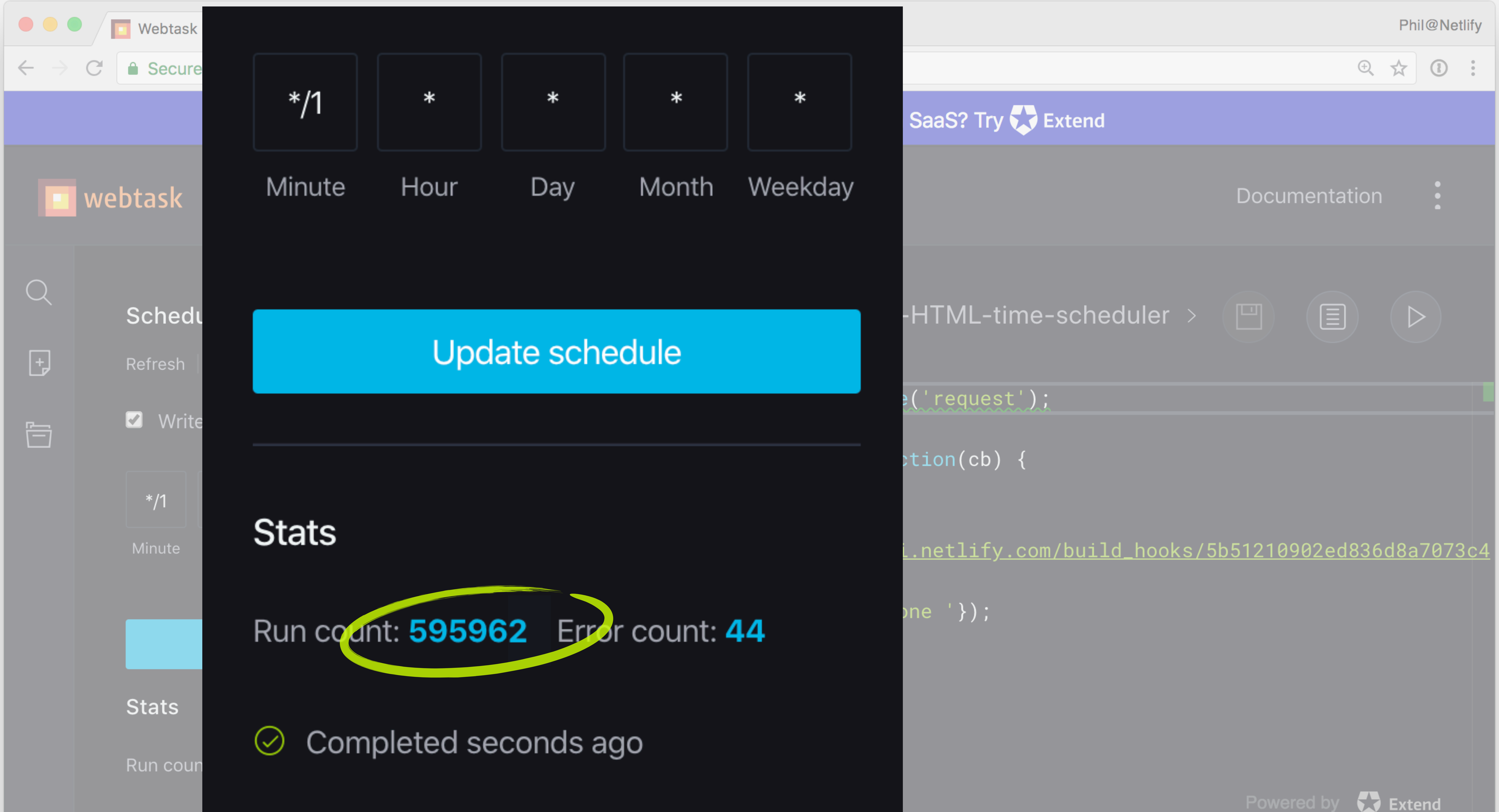
Update schedule

Stats

Run count: 57540 Error count: 10

```
var request = require('request');

module.exports = function(cb) {
  request({
    method: 'POST',
    url: 'https://api.netlify.com/build_hooks/5b51210902ed836d8a7073c4
  });
  cb(null, { msg: 'done '});
};
```

WEBTASK.IO



```
e('request');

ction(cb) {

i.netlify.com/build_hooks/5b51210902ed836d8a7073c4

one '});
```

*/1	*	*	*	*
Minute	Hour	Day	Month	Weekday

Update schedule

Stats

Run count: 595962 Error count: 44

✓ Completed seconds ago

(DON'T DO THIS)

illustrating a point…

VERY LOW DEPLOYMENT FRICTION

illustrating a point...

EVENTS AND AUTOMATION

a quick look at

TWO PRINCIPLES

PRE-RENDERING

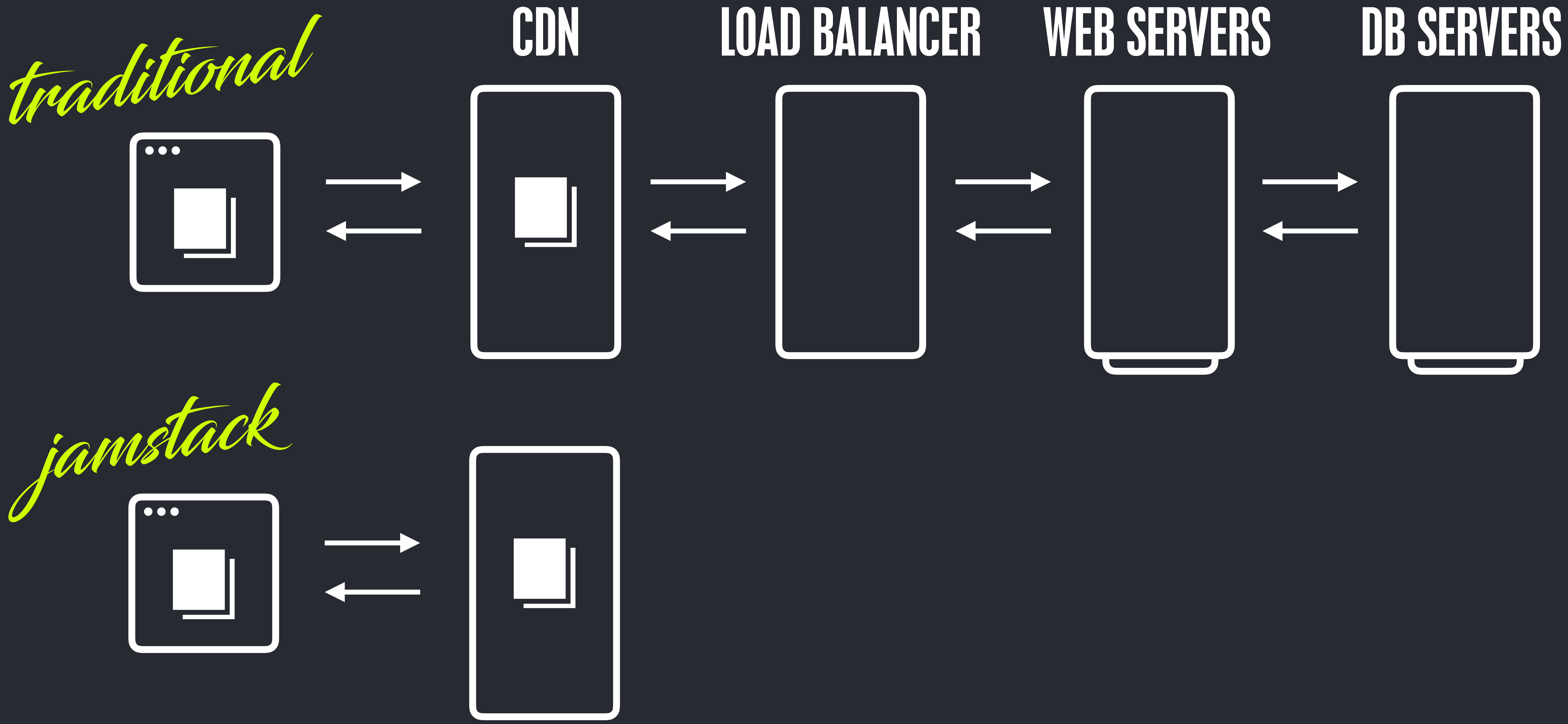
PRE-RENDERING

SERVERLESS RENDERING

motives for
PRE-RENDERING

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

PUT DISTANCE BETWEEN THE COMPLEXITY AND THE USER


traditional
CDN
LOAD BALANCER
WEB SERVERS
DB SERVERS
jamstack

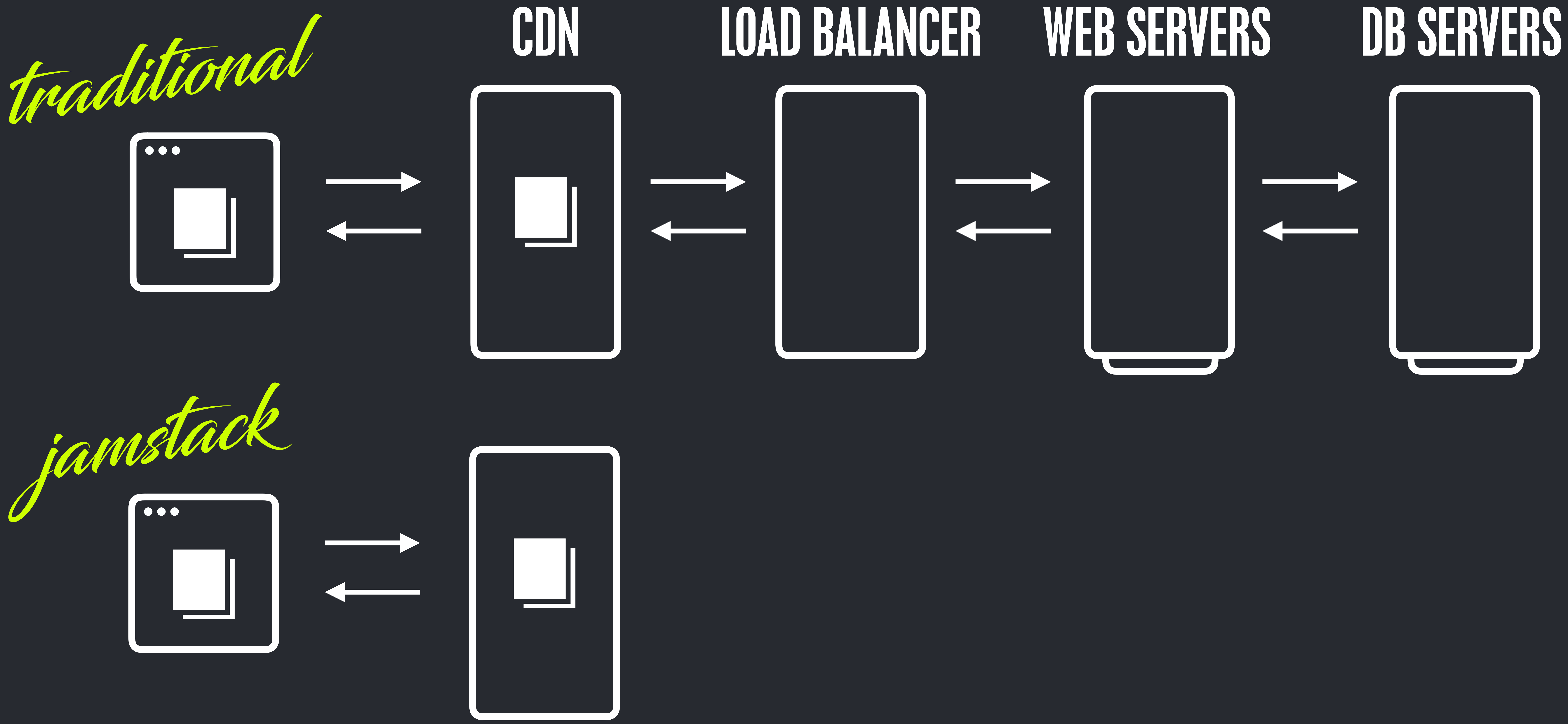
JAMSTACK ADVANTAGES

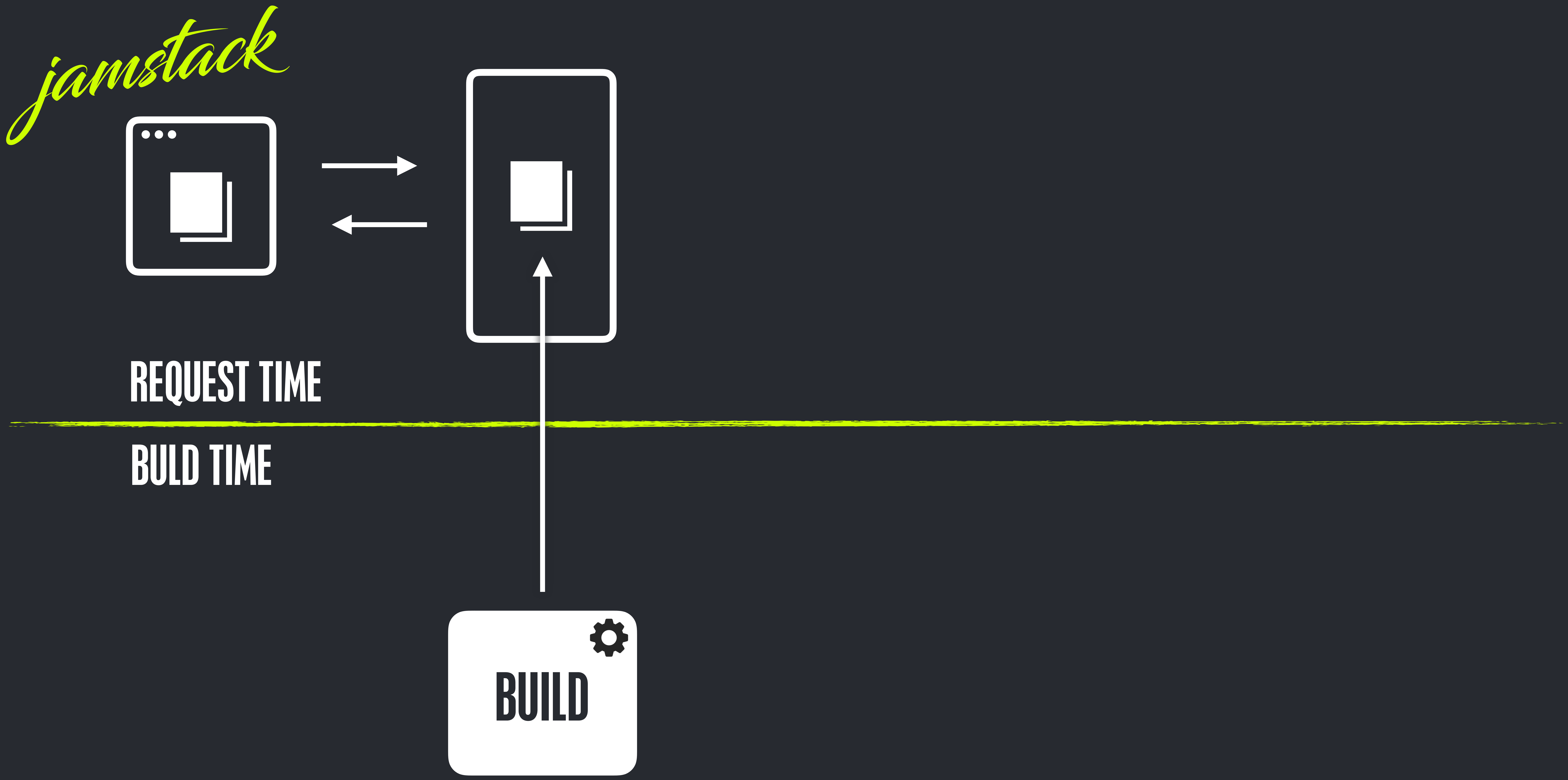
SECURITY

PERFORMANCE

SCALE

DECOUPLING


traditional
CDN
LOAD BALANCER
WEB SERVERS
DB SERVERS
jamstack


jamstack
REQUEST TIME
BULD TIME
BUILD

GET TO THE ~~CHOPPER~~ CDN

PRE-RENDERING

SERVERLESS RENDERING

SERVERLESS RENDERING

jamstack

A modern architecture —

Create fast and secure sites and dynamic apps with JavaScript, APIs, and pre-rendered Markup, served without web servers

I ABSOLUTELY POSITIVELY NEED A LITTLE LOGIC ON A SERVER

SOME OF US, SOMETIMES

SERVERLESS TO THE RESCUE

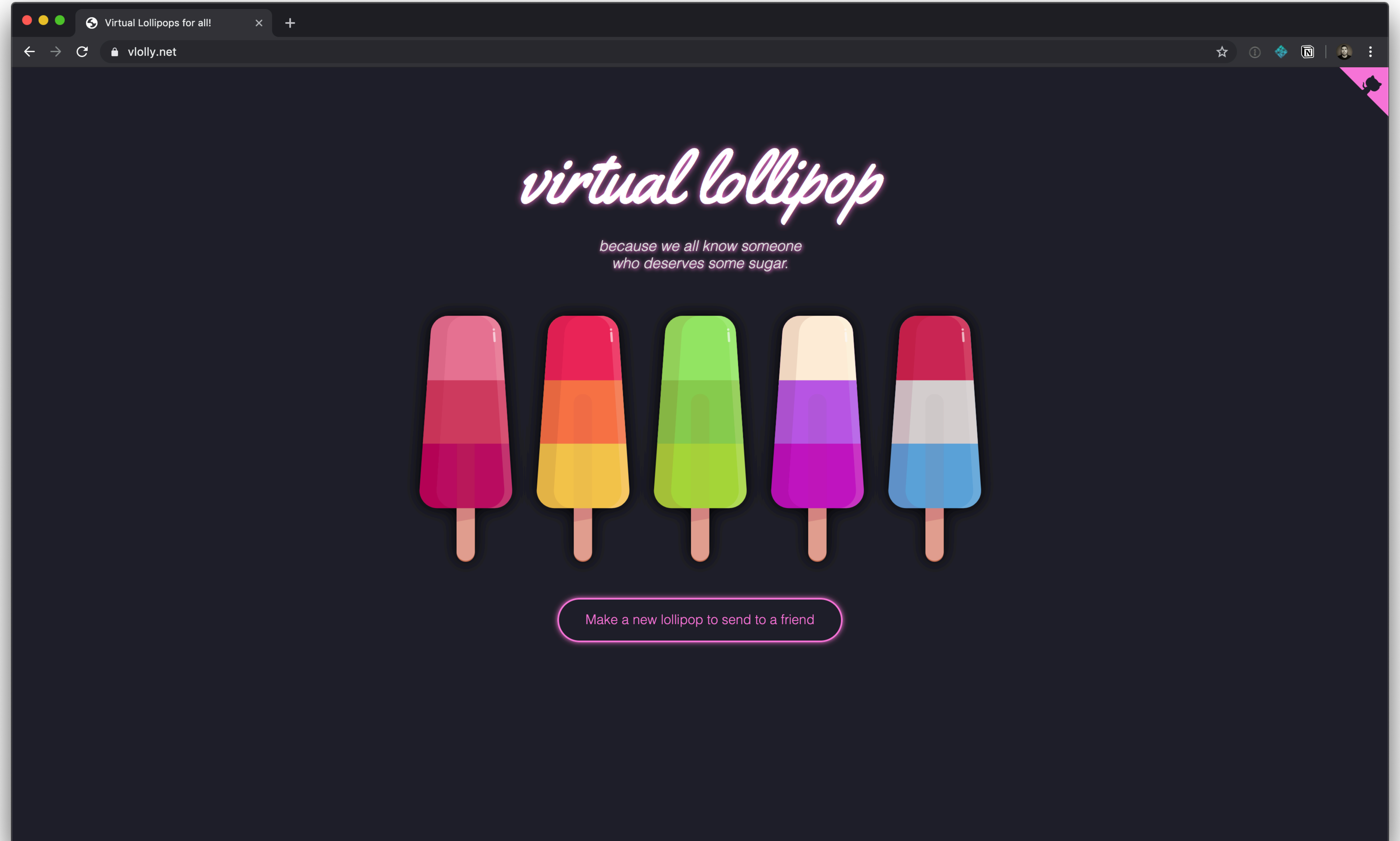
AUGMENTATION

ENHANCEMENT

STATIC FIRST

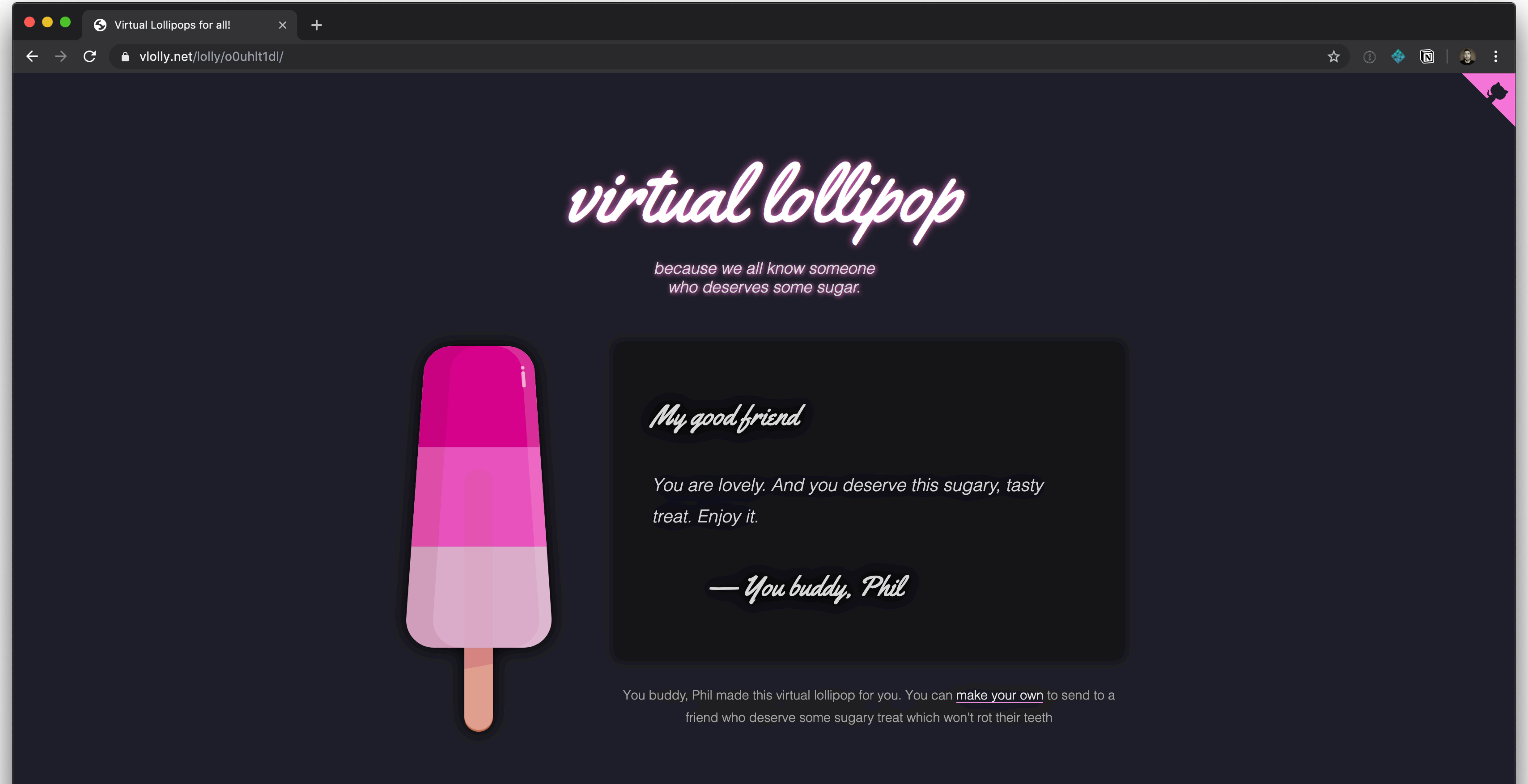
MARKUS SCHORK, UNILEVER

AN EXAMPLE


Virtual Lollipops for all!
vlolly.net
virtual lollipop
because we all know someone
who deserves some sugar.
Make a new lollipop to send to a friend

USER GENERATED CONTENT

VLOLLY.NET/LOLLY/3hmtt2r3b



virtual lollipop

because we all know someone
who deserves some sugar.

My good friend

You are lovely. And you deserve this sugary, tasty treat. Enjoy it.

— You buddy, Phil

You buddy, Phil made this virtual lollipop for you. You can make your own to send to a friend who deserve some sugary treat which won't rot their teeth

requirements & tools

PRE-GENERATED PAGES WITH REAL URLS

(EVEN FOR THE USER GENERATED CONTENT)

DATA STORED IN A DATABASE

(BUT DON'T MAKE ME A DBA)

INSTANT ACCESS TO NEW CONTENT

(WITHOUT WAITING FOR A REBUILD)

PRE-GENERATED PAGES WITH REAL URLS

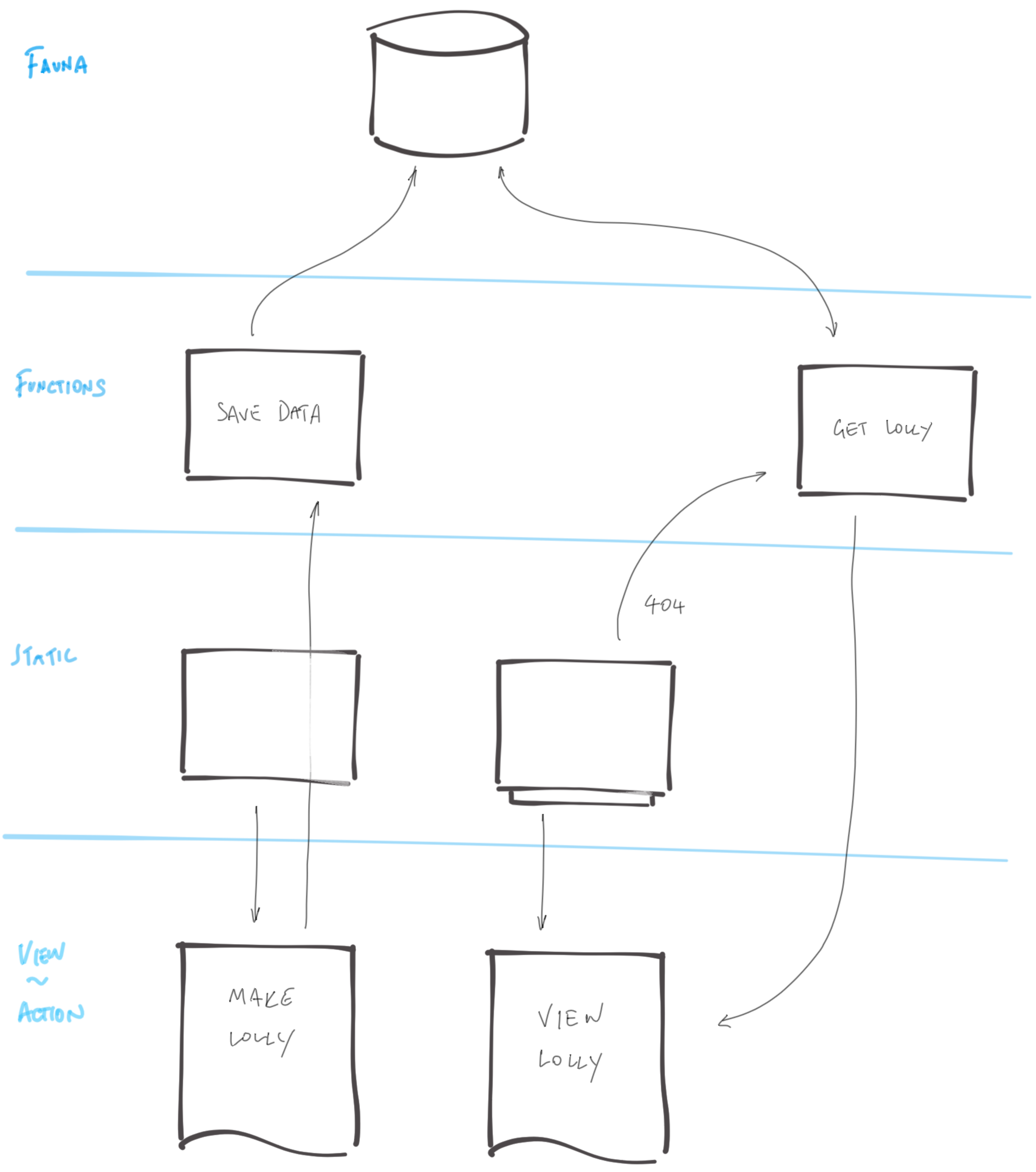
ELEVENTY

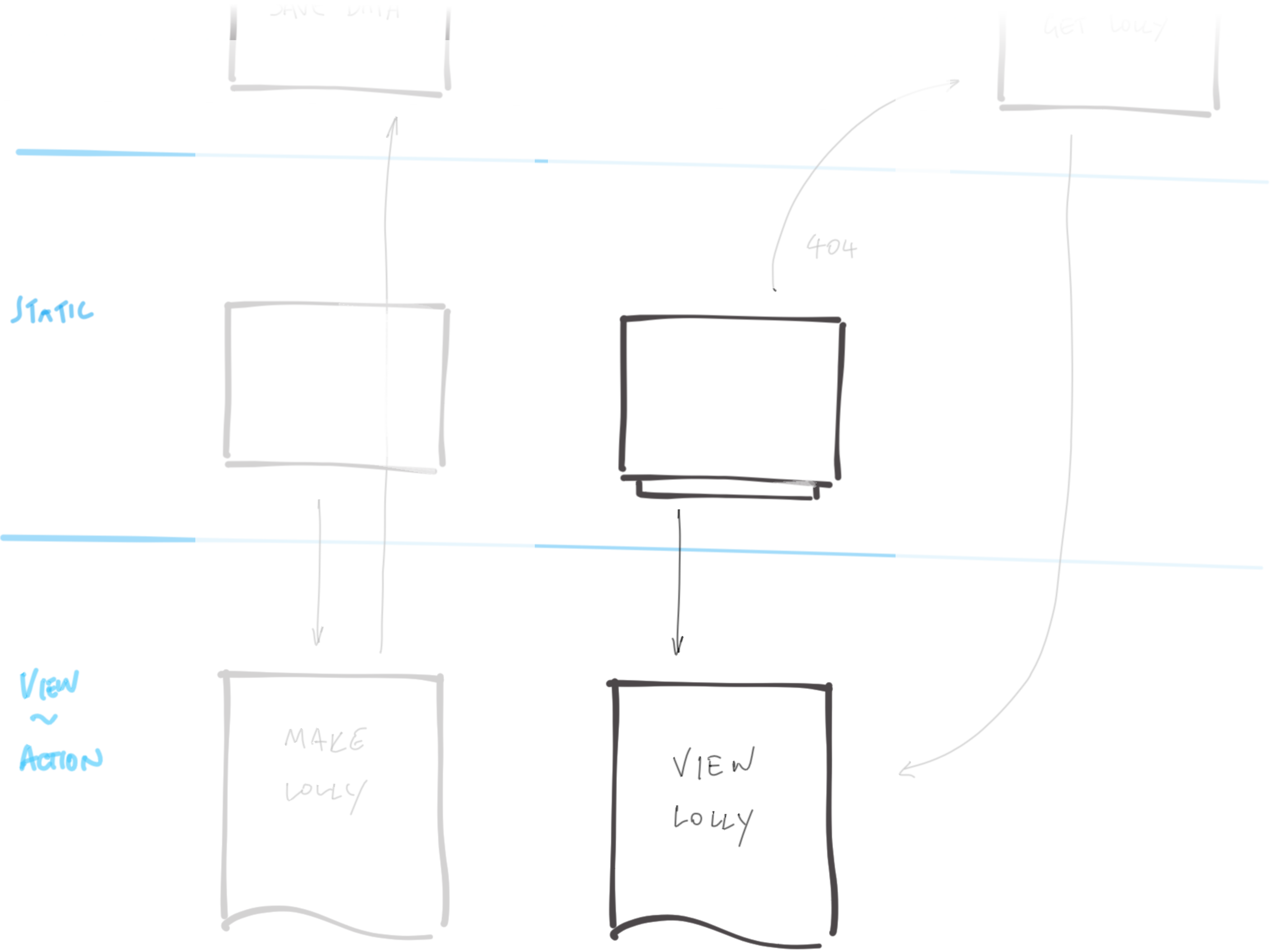
DATA STORED IN A DATABASE

FAUNADB

INSTANT ACCESS TO NEW CONTENT

NETLIFY FUNCTIONS


FAUNA
FUNCTIONS
SAVE DATA
GET LOLLY
STATIC
404
VIEW ~ ACTION
MAKE LOLLY
VIEW LOLLY


SAVE DATA
GET LOLLY
404
STATIC
VIEW
~
ACTION
MAKE LOLLY
VIEW LOLLY

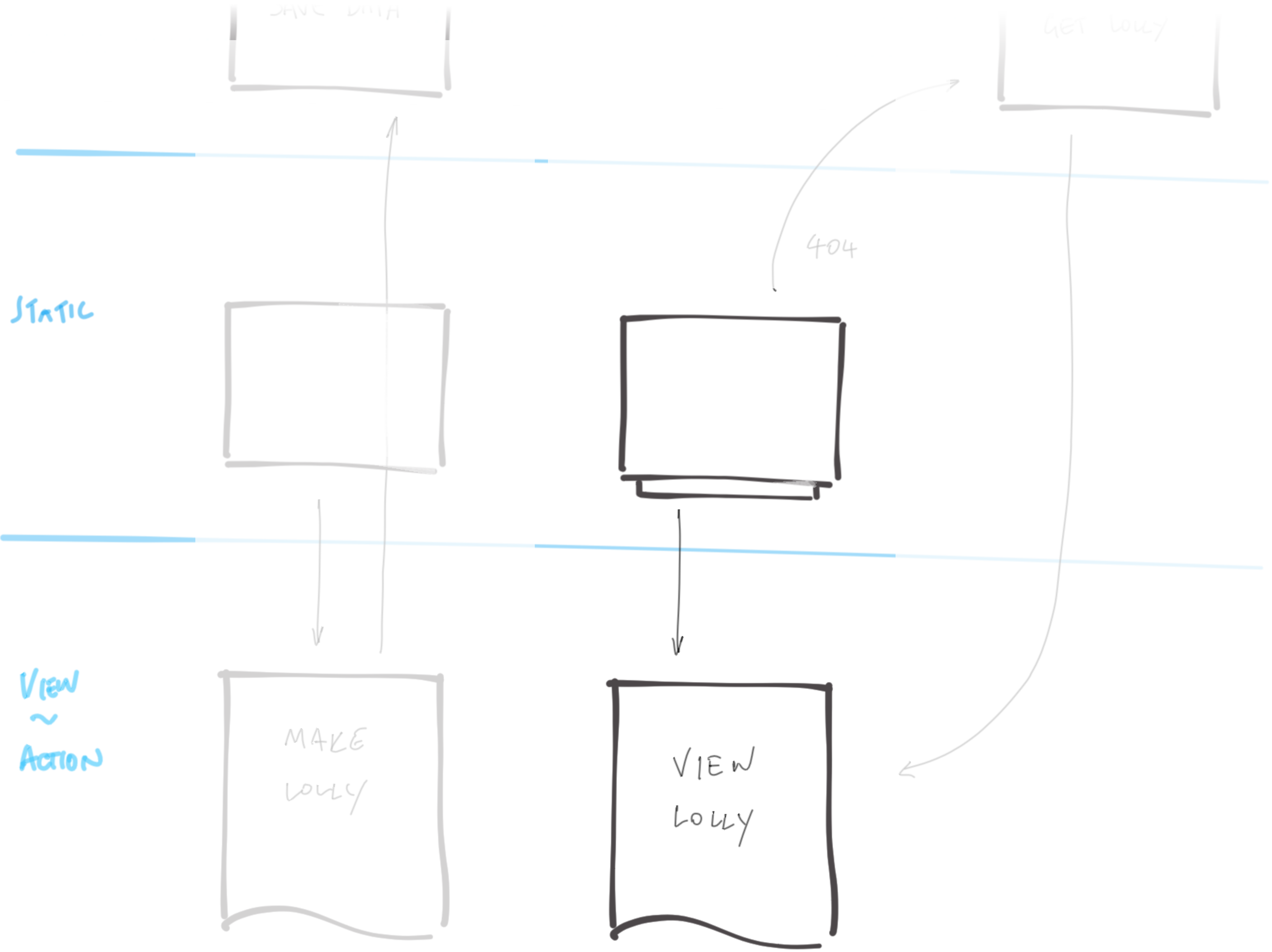
```
const faunadb = require('faunadb');
const q = faunadb.query;
const client = new faunadb.Client({
  secret: process.env.FAUNADB_SERVER_SECRET
});

module.exports = () => {
  return new Promise((resolve, reject) => {
    client.query(
      q.Paginate(q.Match(q.Ref("indexes/all_lollies")))
    ).then((response) => {
      const lollies = response.data;
      const getAllDataQuery = lollies.map((ref) => {
        return q.Get(ref);
      });
      return client.query(getAllDataQuery).then((ret) => {
        resolve(ret);
      });
    }).catch((error) => {
      reject(error);
    });
  })
}
```

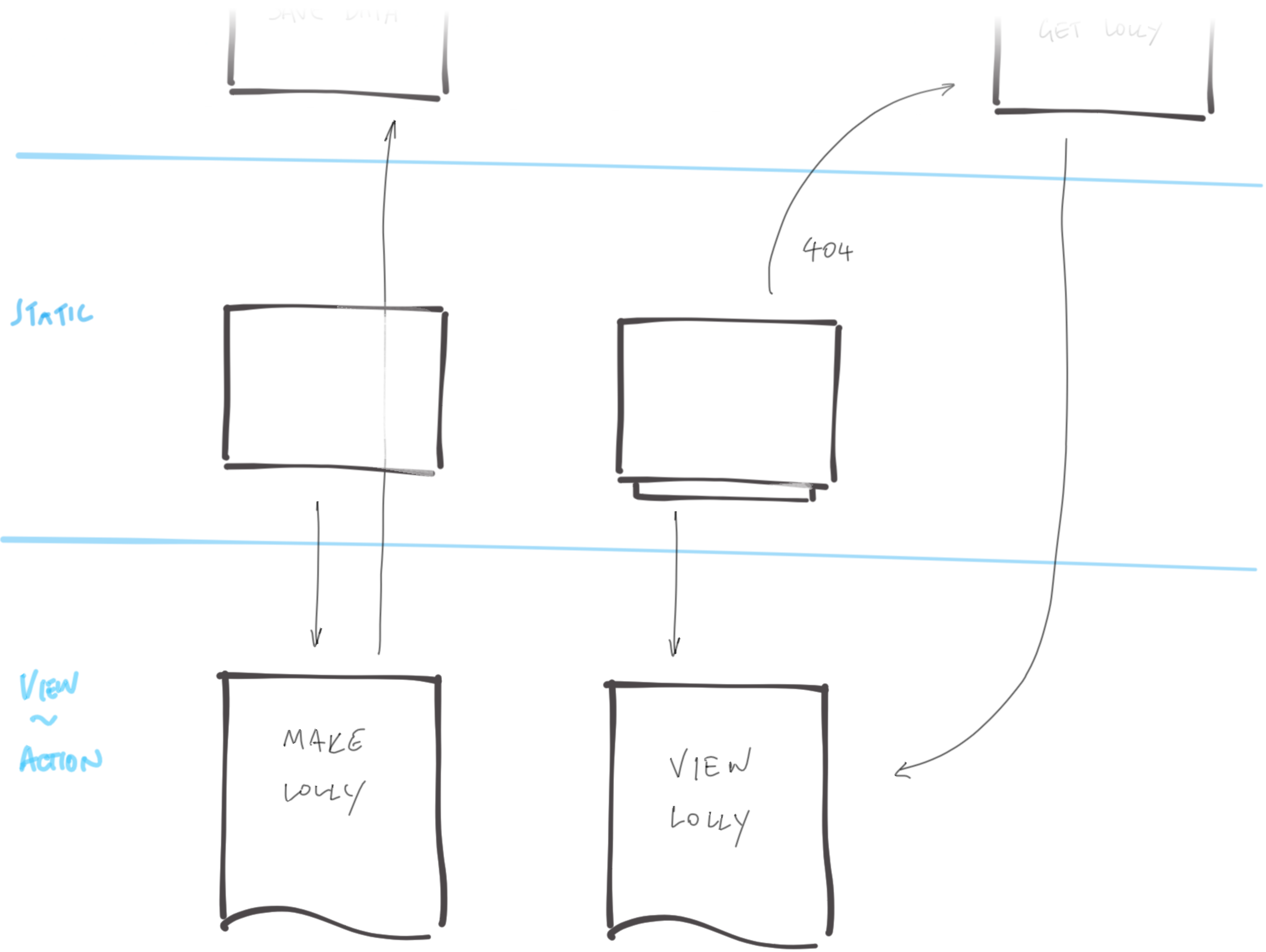
AUTHENTICATE WITH THE DB

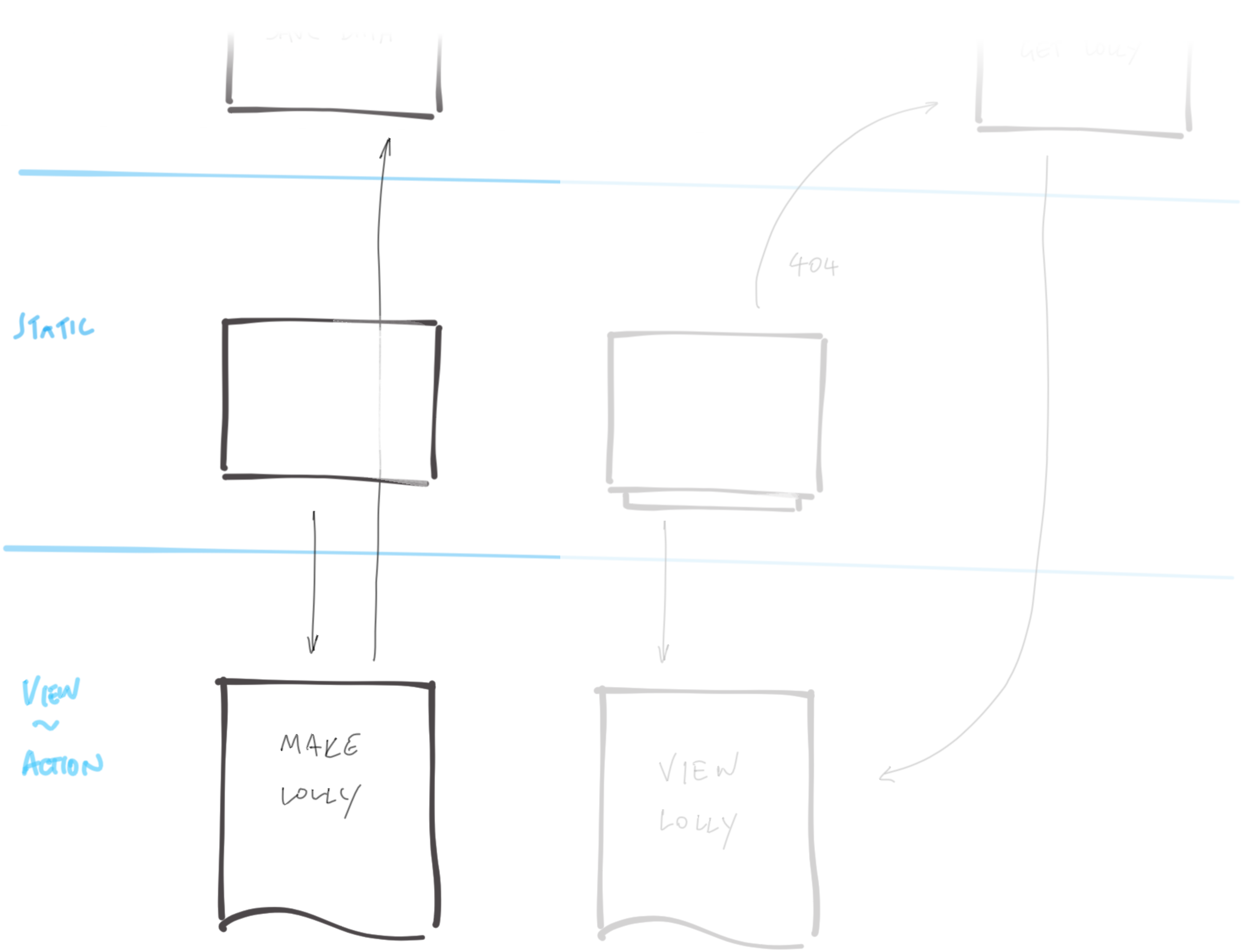
QUERY FOR ALL THE LOLLIES… AND THEIR DATA

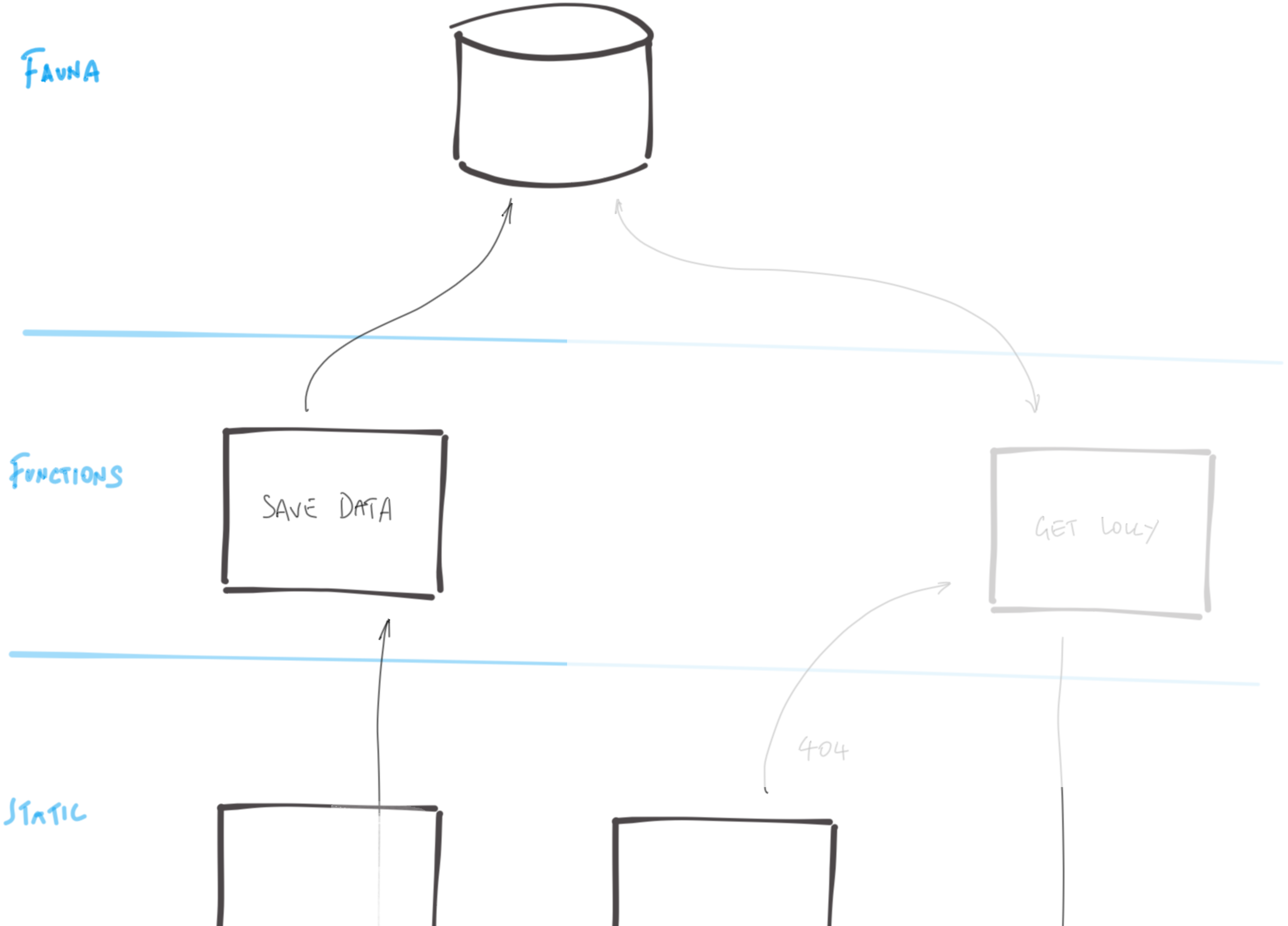
RESOLVE THE PROMISE OF LOLLIES

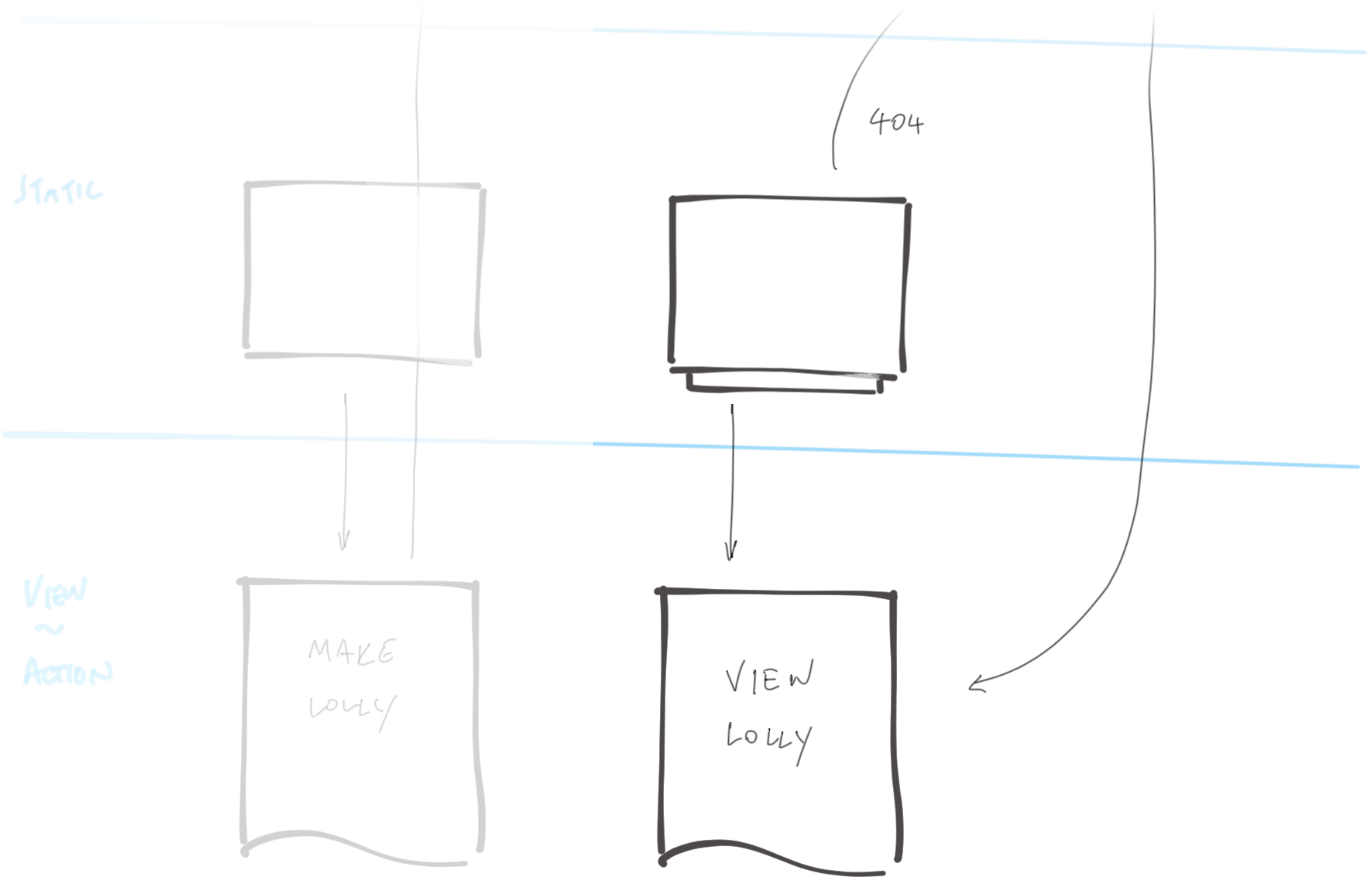
CATCH ANY ERRORS


SAVE DATA
GET LOLLY
404
STATIC
VIEW
~
ACTION
MAKE LOLLY
VIEW LOLLY


SAVE DATA
GET LOLLY
404
STATIC
VIEW
~
ACTION
MAKE LOLLY
VIEW LOLLY

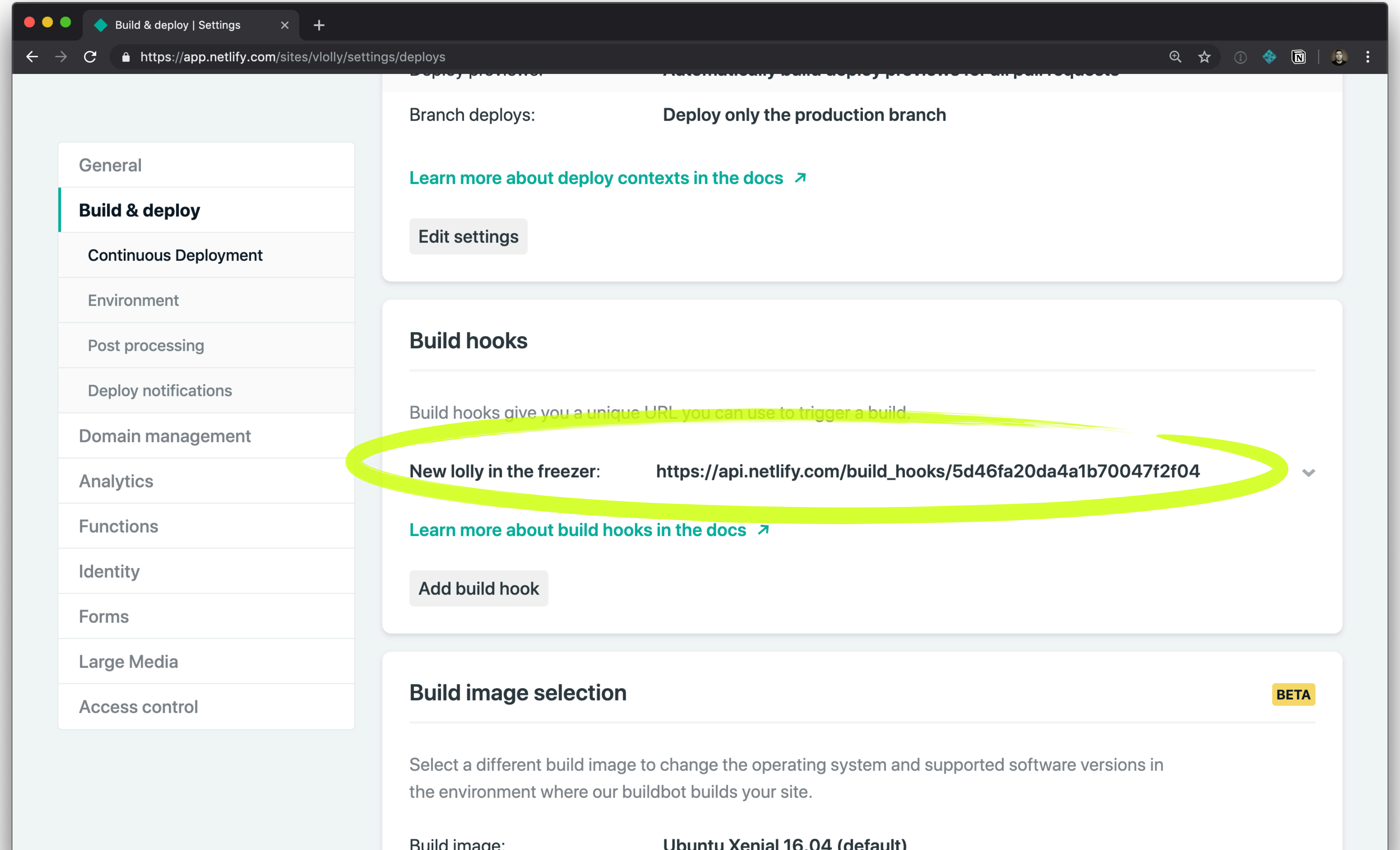

SAVE DATA
GET LOLLY
404
STATIC
VIEW
~
ACTION
MAKE LOLLY
VIEW LOLLY


FAUNA
FUNCTIONS
SAVE DATA
GET LOLLY
404
STATIC


STATIC
404
VIEW
~
ACTION
MAKE
LOLLY
VIEW
LOLLY

404

TRIGGERS AND AUTOMATION



Deploy previews: Automatically build deploy previews for all pull requests

Branch deploys: **Deploy only the production branch**

Learn more about deploy contexts in the docs ↗

Edit settings

Build hooks

Build hooks give you a unique URL you can use to trigger a build.

New lolly in the freezer: **https://api.netlify.com/build_hooks/5d46fa20da4a1b70047f2f04**

Learn more about build hooks in the docs ↗

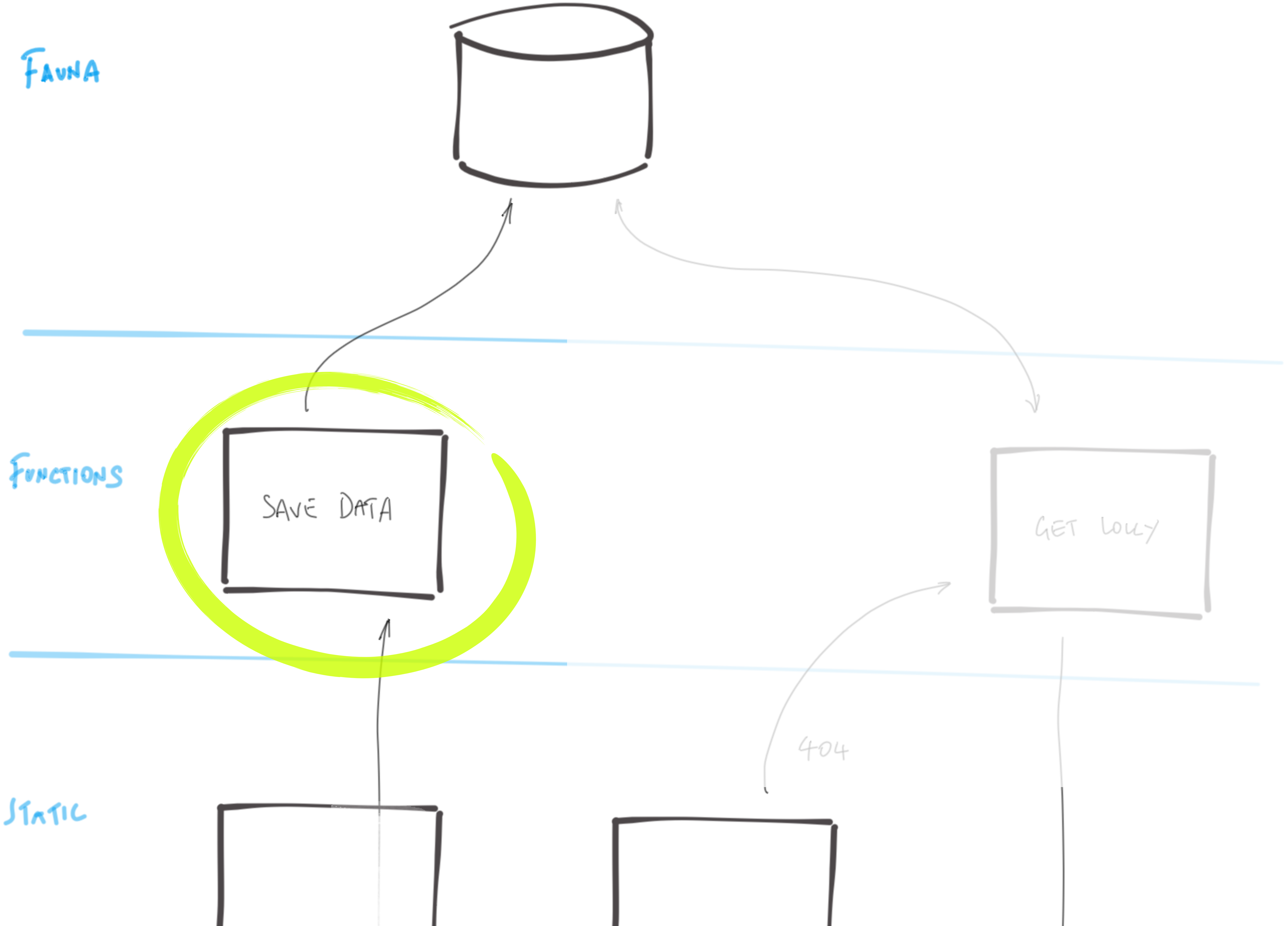
Add build hook

Build image selection

BETA

Select a different build image to change the operating system and supported software versions in the environment where our buildbot builds your site.

Build image: **Ubuntu Xenial 16.04 (default)**


FAUNA
FUNCTIONS
SAVE DATA
GET LOLLY
404
STATIC

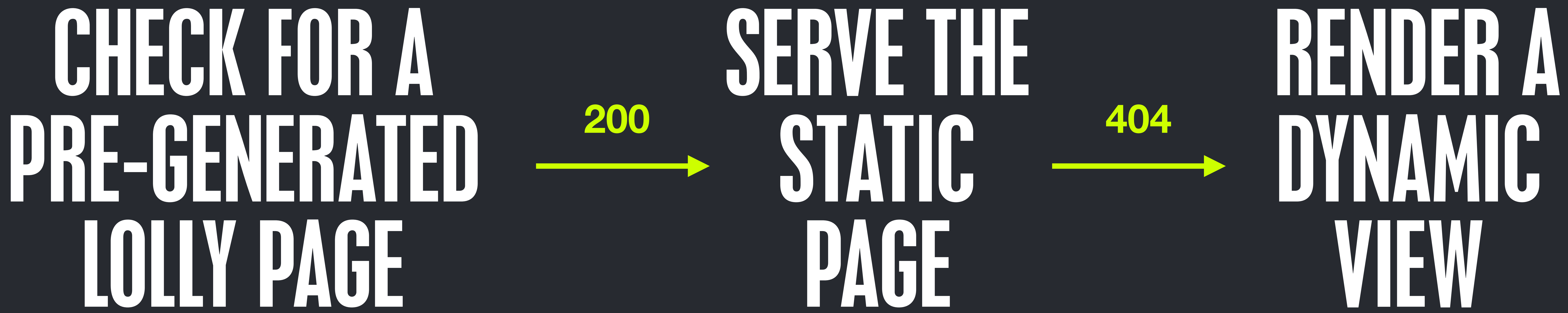
```
const faunadb = require('faunadb');
const shortid = require('shortid');
const querystring = require('querystring');
const axios = require('axios');
const q = faunadb.query
const client = new faunadb.Client({
  secret: process.env.FAUNADB_SERVER_SECRET
})
exports.handler = (event, context, callback) => {
  const data = querystring.parse(event.body);
  const uniquePath = shortid.generate();
  data.lollyPath = uniquePath;
  const lolly = {
    data: data
  };
  client.query(q.Create(q.Ref('classes/lollies'), lolly))
    .then((response) => {
      axios.post('https://api.netlify.com/build_hooks/5d46fa20da4a1b70047f2f04')
      .then(function (response) {
        console.log(response);
      })
      .catch(function (error) {
        console.log(error);
      });
      return callback(null, {
        body: JSON.stringify(response),
        statusCode: 302,
        headers: {
           Location: `/lolly/${uniquePath}`,
        }
      });
    }).catch((error) => {
      return callback(null, {
        statusCode: 400,
        body: JSON.stringify(error)
      });
    });
}
```

AUTHENTICATE
WITH THE DB

POST THE DATA

REBUILD

SEND THE USER
TO CHECK THE
FREEZER
FOR A LOLLY



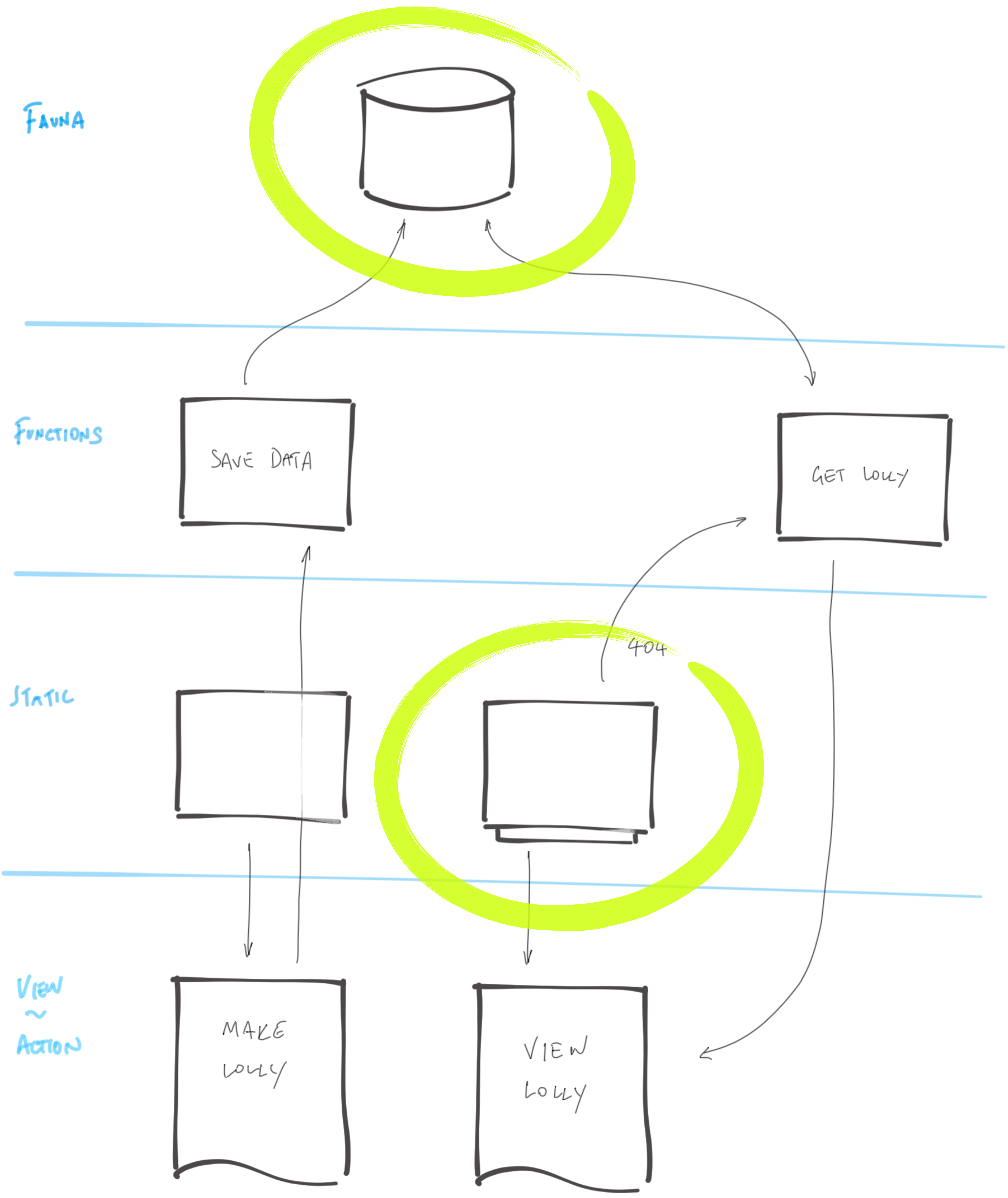
CHECK FOR A PRE-GENERATED LOLLY PAGE

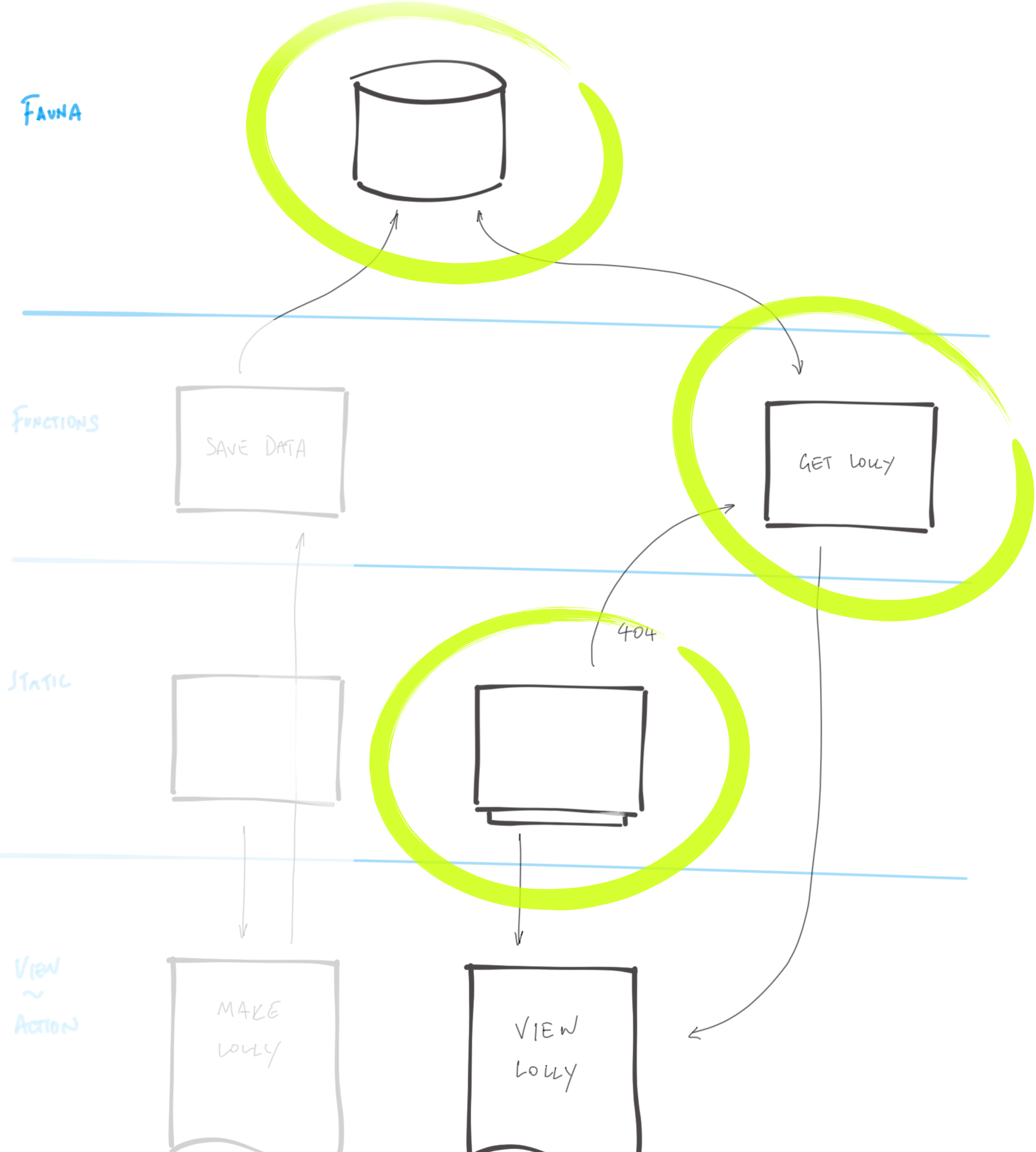
200

SERVE THE STATIC PAGE

404

RENDER A DYNAMIC VIEW


FAUNA
FUNCTIONS
SAVE DATA
GET LOLLY
STATIC
404
VIEW ~ ACTION
MAKE LOLLY
VIEW LOLLY


FAUNA
FUNCTIONS
SAVE DATA
GET LOLLY
STATIC
404
VIEW ~ ACTION
MAKE LOLLY
VIEW LOLLY

```
const faunadb = require('faunadb');
const pageTemplate = require('./lollyTemplate.js');

const q = faunadb.query;
const client = new faunadb.Client({
  secret: process.env.FAUNADB_SERVER_SECRET
});

exports.handler = (event, context, callback) => {
  const path = event.queryStringParameters.id.replace("/", "");
  client.query(
    q.Get(q.Match(q.Index("lolly_by_path"), path))
  ).then((response) => {
    return callback(null, {
      statusCode: 200,
      body: pageTemplate(response.data)
    });
  }).catch((error) => {
    return callback(null, {
      body: JSON.stringify(error),
      statusCode: 301,
      headers: {
        Location: `/melted/index.html`,
      }
    });
  });
}
```

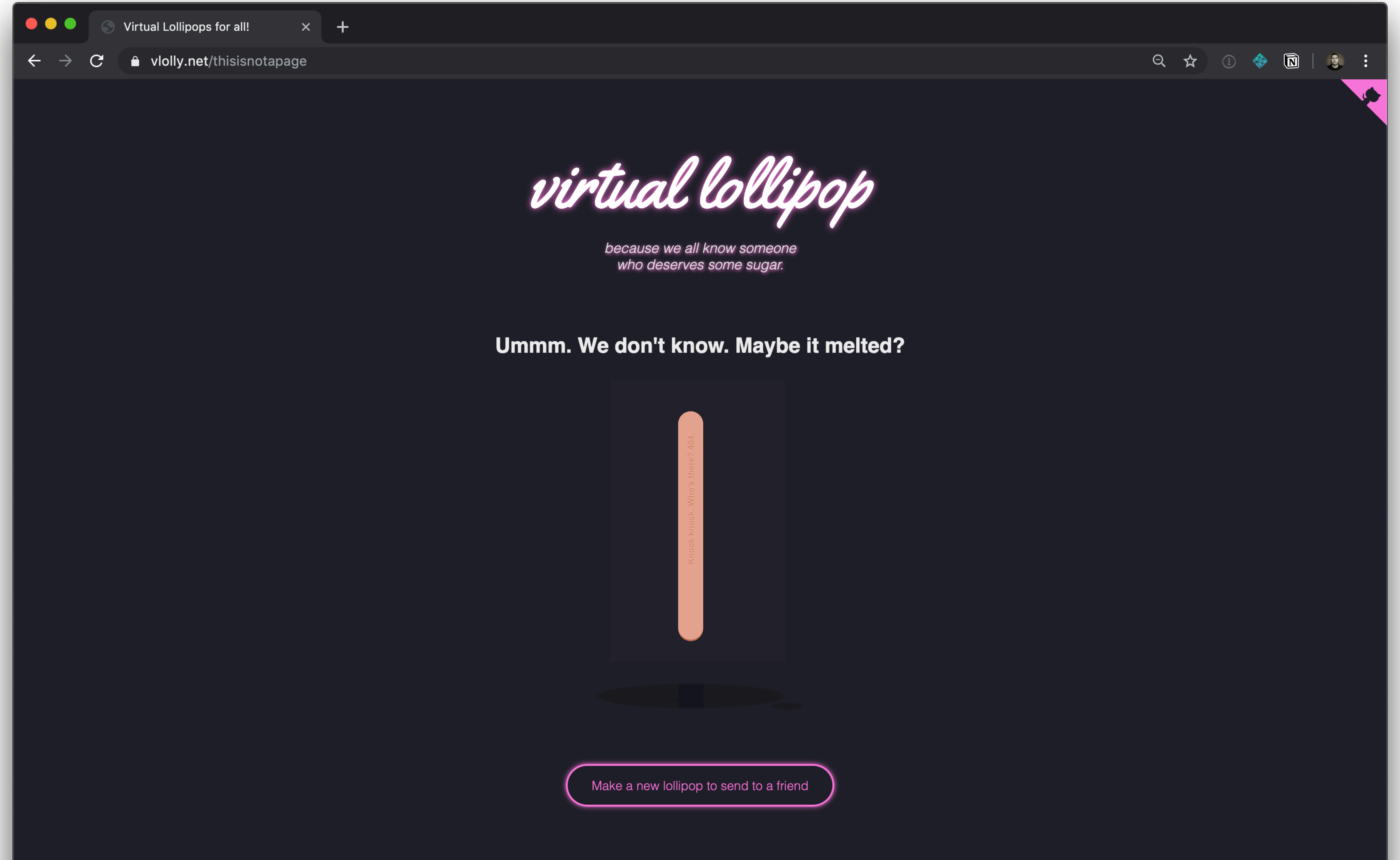
GET PAGE AS A
JAVASCRIPT
TEMPLATE LITERAL

AUTHENTICATE
WITH THE DB

GET THE
LOLLY DATA

SERVE LOLLY VIEW

NO LOLLY. BREAK
THE BAD NEWS



Virtual Lollipops for all!
vlolly.net/thisisnotapage

virtual lollipop

because we all know someone who deserves some sugar.

Ummm. We don't know. Maybe it melted?

Knock knock. Who's there? 404.

Make a new lollipop to send to a friend

Knock knock. Who's there? 404.

Sites | Netlify demo team
app.netlify.com/teams/netlify-demo-team/sites
virtual lollipop
Jamstack Comments Engine
HAWKSWORX
LinkyLinky

Netlify demo team

Sites Builds Domains Members Audit log Team settings

Search site

New site from Git

vlolly.net
Deploys from GitHub
Owned by Netlify demo team
Last published at 10:50 AM (24 minutes ago)

jamstack-comments
Deploys from GitHub
Owned by Netlify demo team
Last published at 10:38 AM (36 minutes ago)

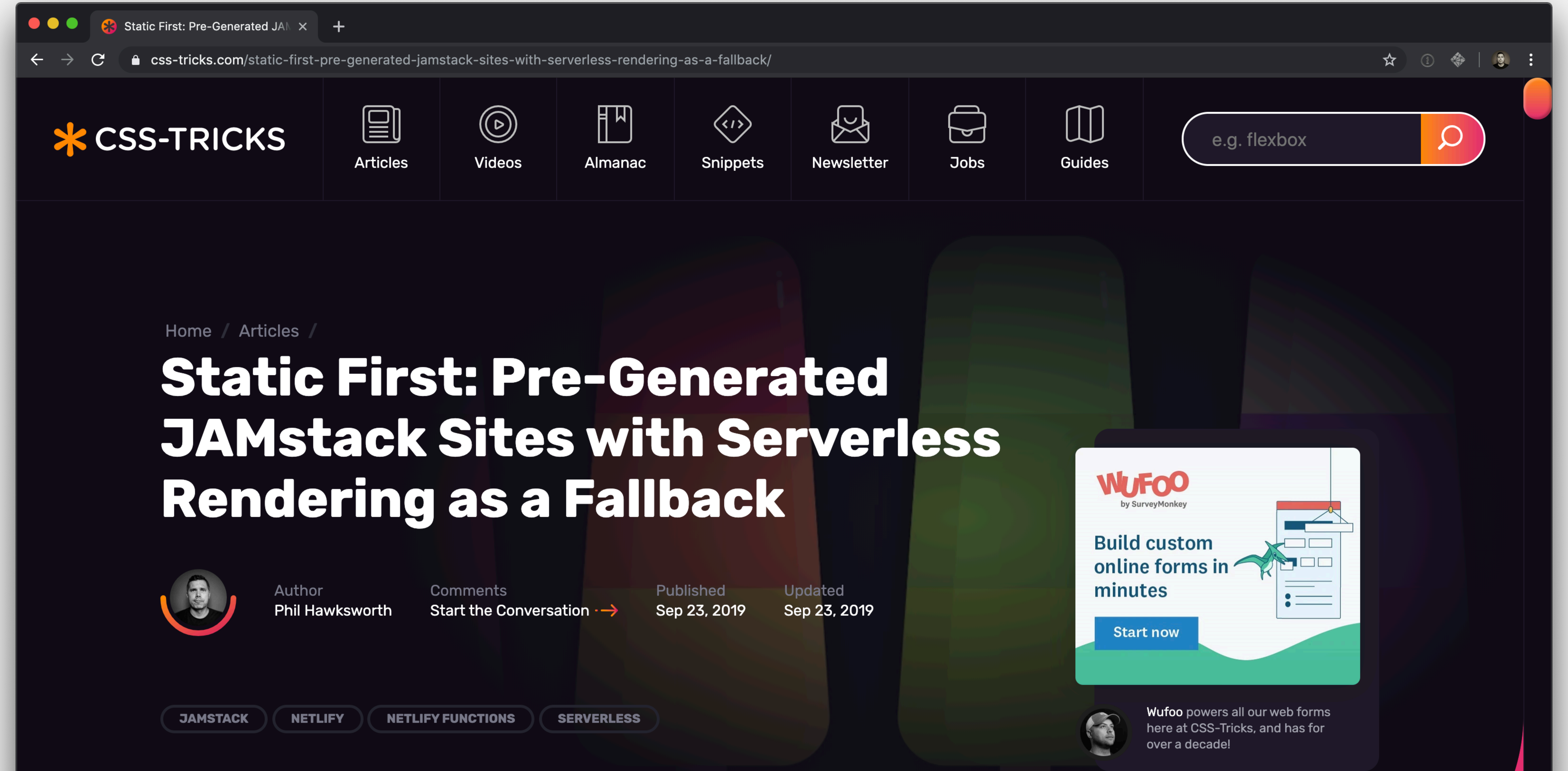
www.hawksworx.com
Deploys from GitHub
Owned by Netlify demo team
Last published at 10:36 AM (38 minutes ago)

linkylinky
Deploys from GitHub
Owned by Netlify demo team
Last published at 9:27 AM (2 hours ago)

relaxed-ride-f05b6d
Owned by Netlify demo team

FINDTHAT.AT/LOLLYTRICKS

https://css-tricks.com/static-first-pre-generated-jamstack-sites-with-serverless-rendering-as-a-fallback/


Static First: Pre-Generated JAM
css-tricks.com/static-first-pre-generated-jamstack-sites-with-serverless-rendering-as-a-fallback/
CSS-TRICKS
Articles
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Almanac
Snippets
Newsletter
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e.g. flexbox
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Static First: Pre-Generated JAMstack Sites with Serverless Rendering as a Fallback

Author
Phil Hawksworth

Comments
Start the Conversation →

Published
Sep 23, 2019

Updated
Sep 23, 2019

WUFOO by SurveyMonkey
Build custom online forms in minutes
Start now
Wufoo powers all our web forms here at CSS-Tricks, and has for over a decade!

WHY SAY JAMSTACK, AND NOT STATIC?

TOOLS & ECOSYSTEM

PRE-RENDERING

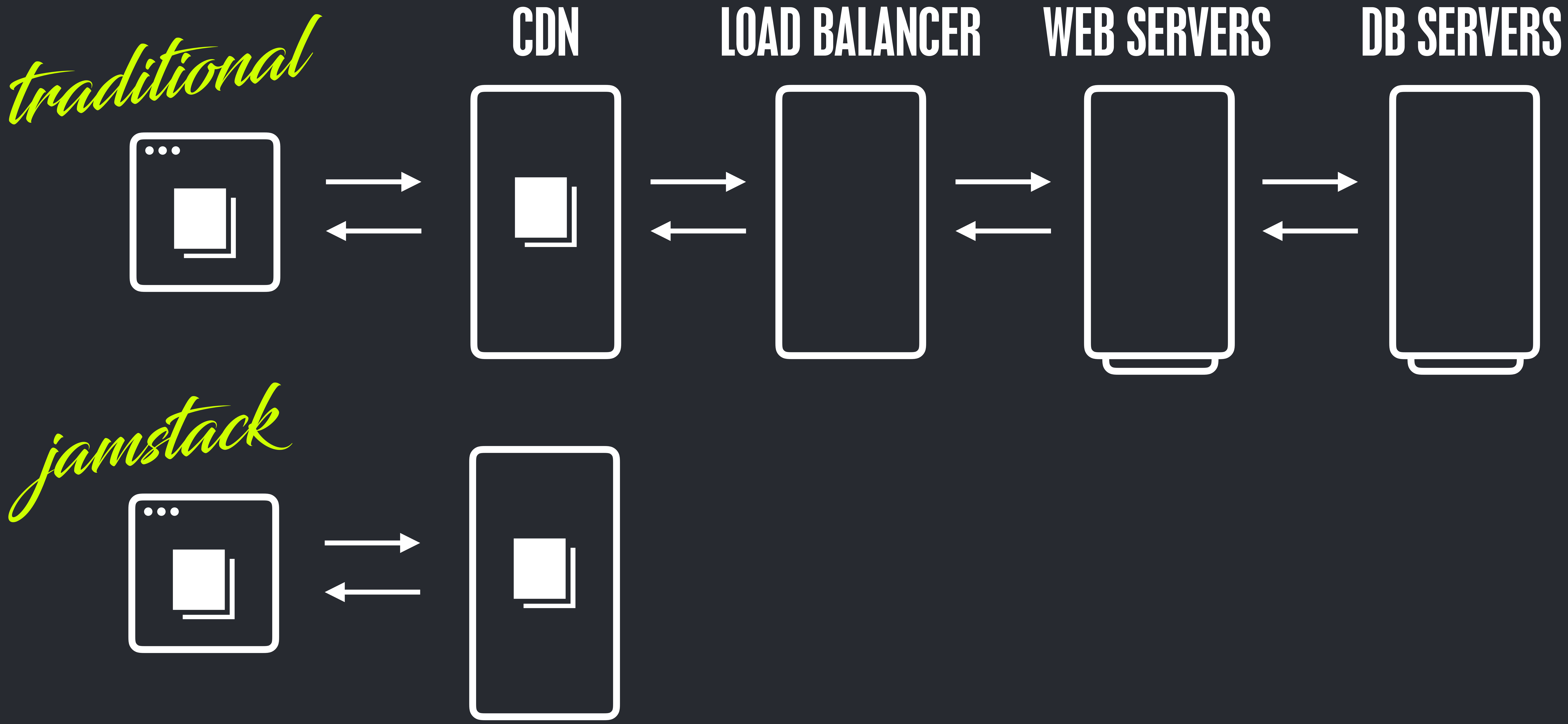
SERVERLESS RENDERING

A SHIFT

from

SEEKING TO OPTIMIZE BY ADDING STATIC LAYERS *to*

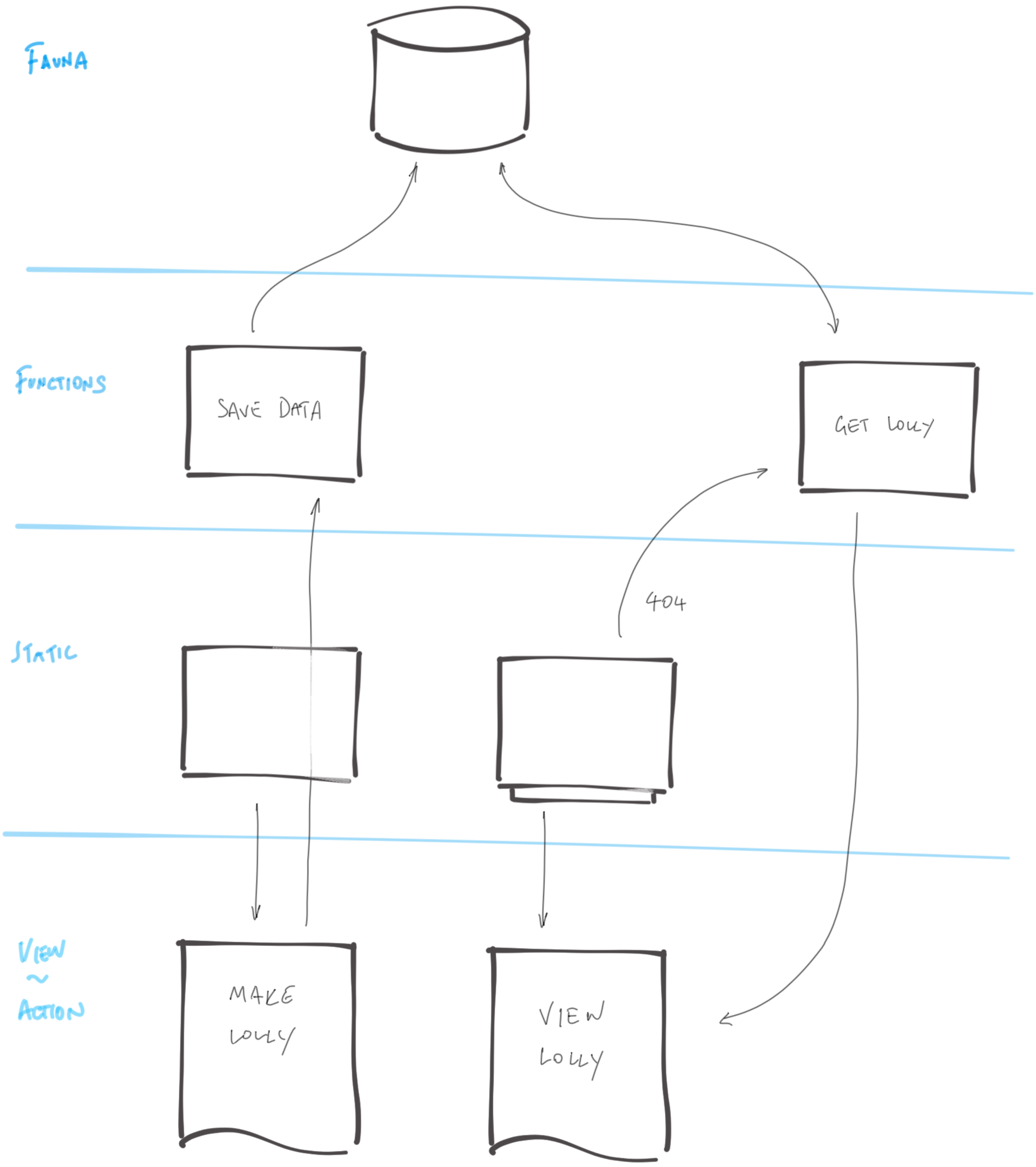
STATIC FIRST
ENHANCING IF REQUIRED


traditional
CDN
LOAD BALANCER
WEB SERVERS
DB SERVERS
jamstack

SIMPLIFYING IS NOT DUMBING DOWN

SIMPLIFYING
IS NOT DUMBING DOWN
IT LETS US FOCUS
ON WHAT REALLY IS
IMPORTANT

EASIER TO REASON ABOUT



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

BUILDING A URL SHORTENER WITH NETLIFY REDIRECTS
findthat.at

SO I GUESS WE'RE FULL STACK NOW?

https://www.youtube.com/watch?v=lFOfQsi5ye0

MODERN WEB DEVELOPMENT ON THE JAMSTACK

netlify.com/oreilly-jamstack/

JAMSTACK WHITEPAPER

findthat.at/jamstack-whitepaper

JAMSTACK COMMENTS EXAMPLE

jamstack-comments.netlify.com

FINDTHAT.AT / SERVERED

THANKS

@PHILHAWKSWORTH