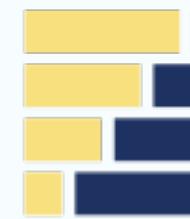


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# Demystifying Deployment as a Service

Understand the magic that powers modern web hosting platforms.



Brian Morrison II

# Demystifying Deployment as a Service

## Agenda

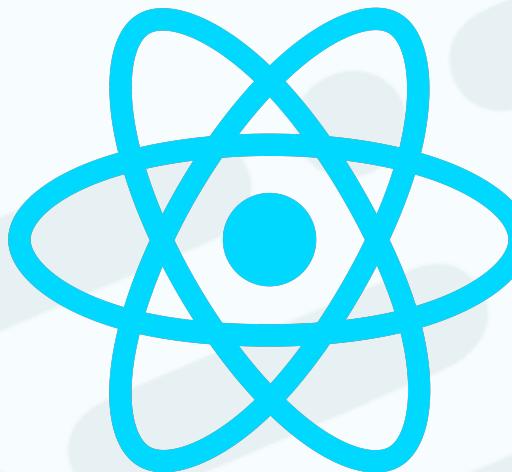
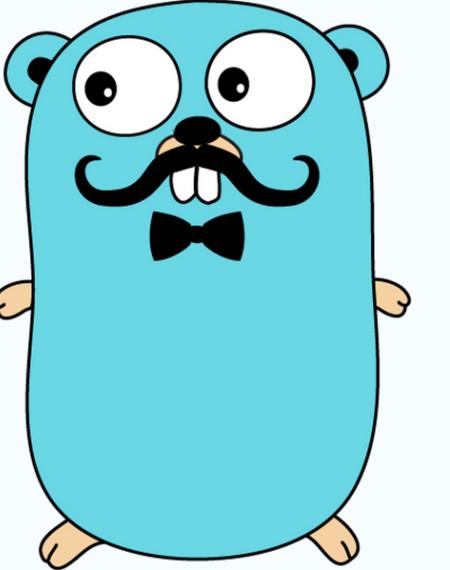
- Explore how Netlify deploys code
- Deconstruct the process and tools used
- Demo
- Getting started on your own
- Wrap up and Q&A

# Brian Morrison II



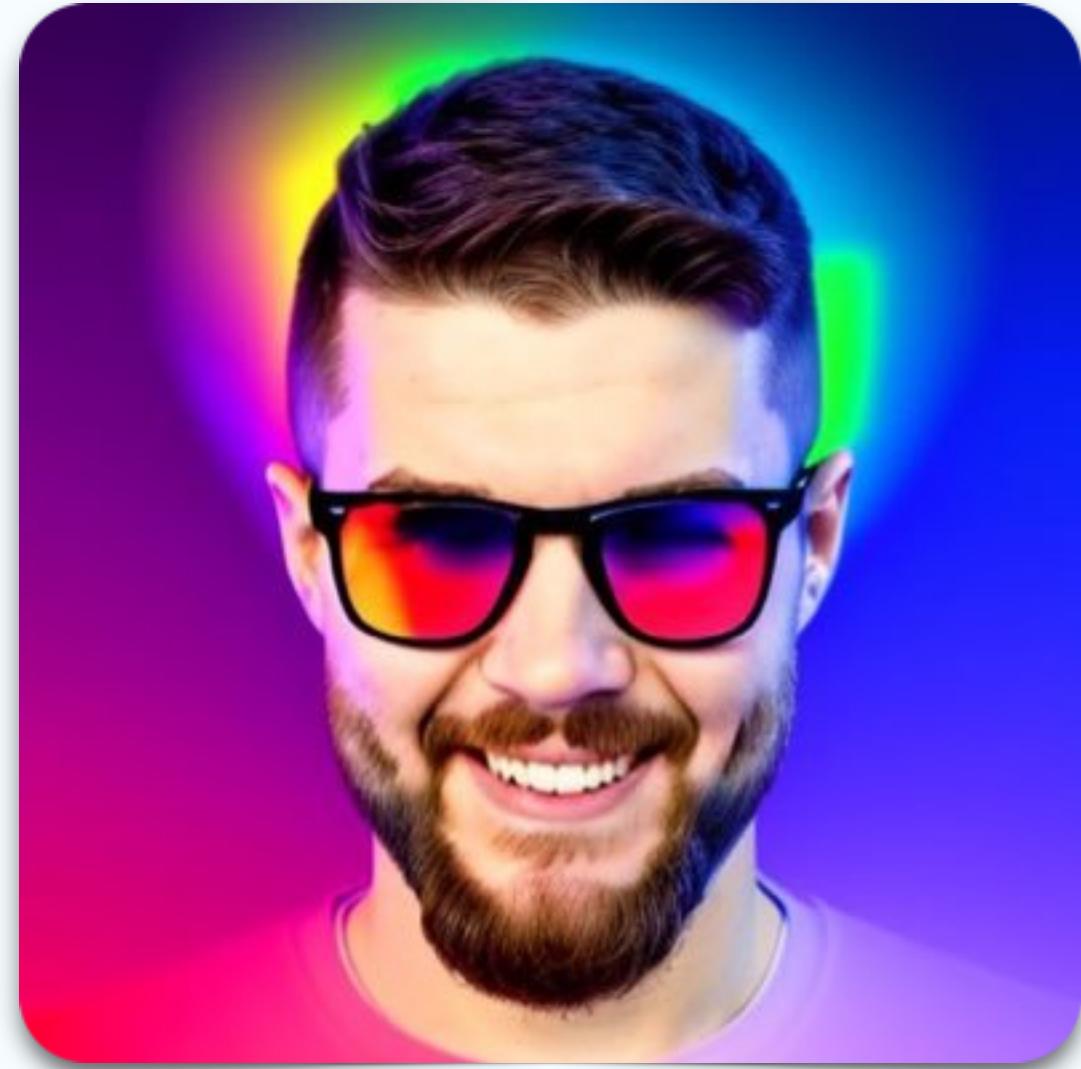
# Brian Morrison II

- Full-stack developer



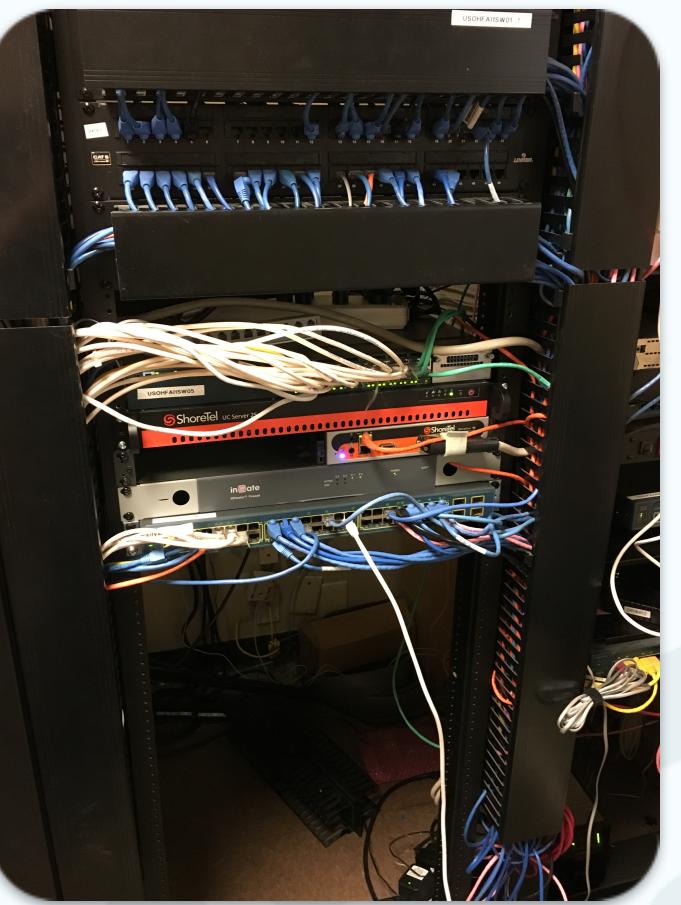
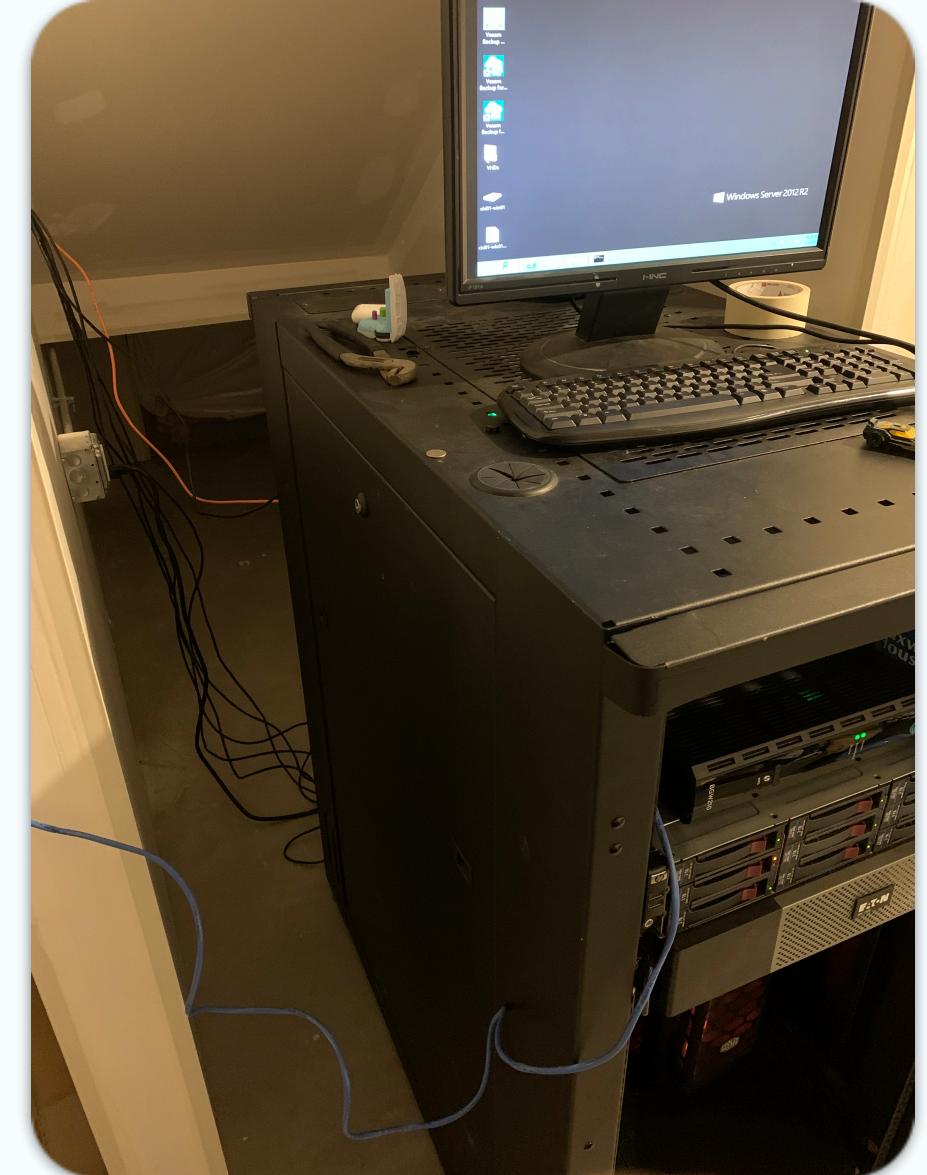
# Brian Morrison II

- Full-stack developer
- Developer Educator, PlanetScale



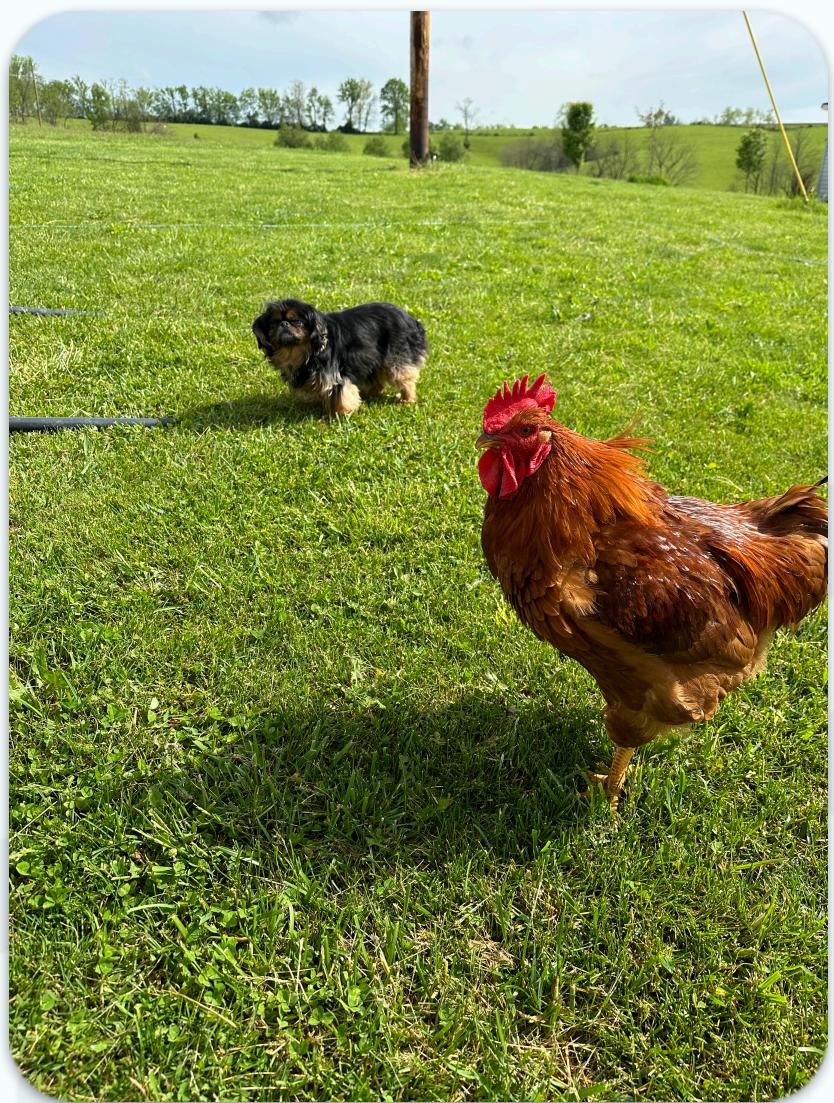
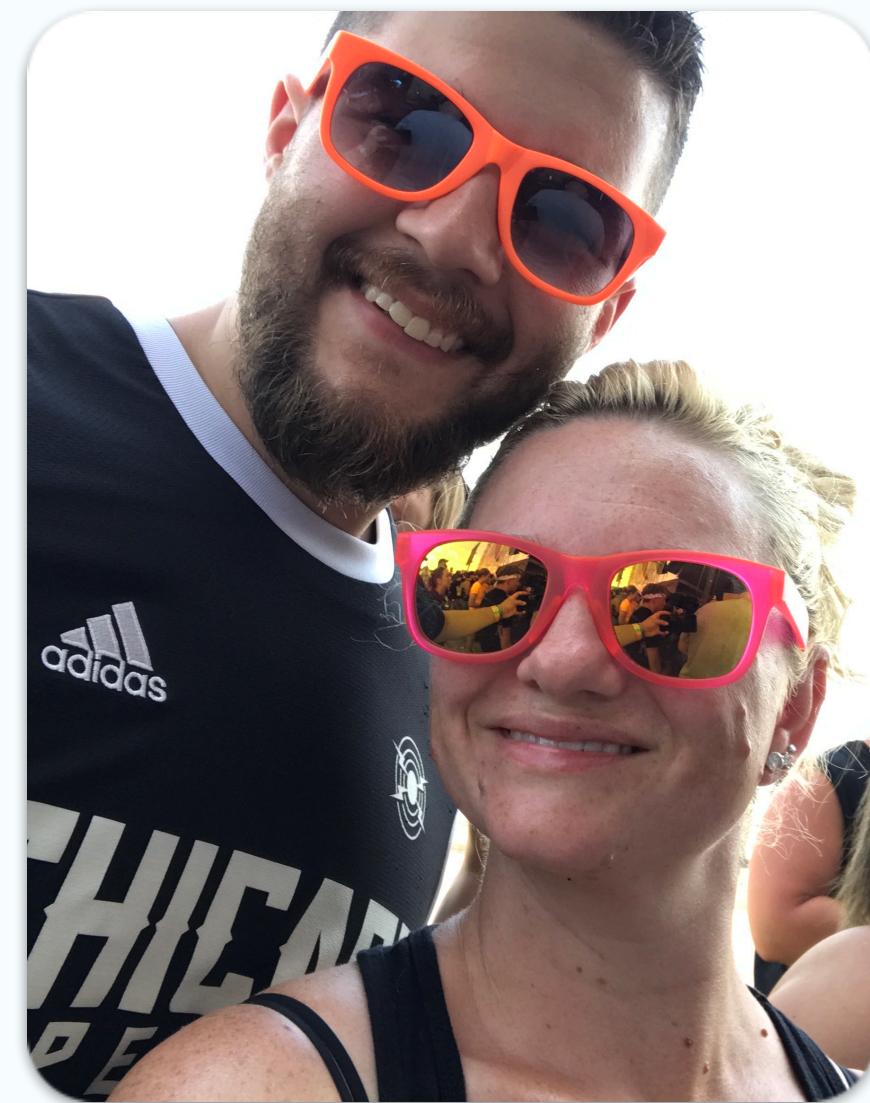
# Brian Morrison II

- Full-stack developer
- Developer Educator, PlanetScale
- Former:
  - Lead Backend Dev
  - Sr Systems Engineer



# Brian Morrison II

- Full-stack developer
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- Wife & 3 boys



# Brian Morrison II

- Full-stack developer
- Developer Educator, PlanetScale
- Former:
  - Lead Backend Dev
  - Sr Systems Engineer
- Wife & 3 boys
- Gamer



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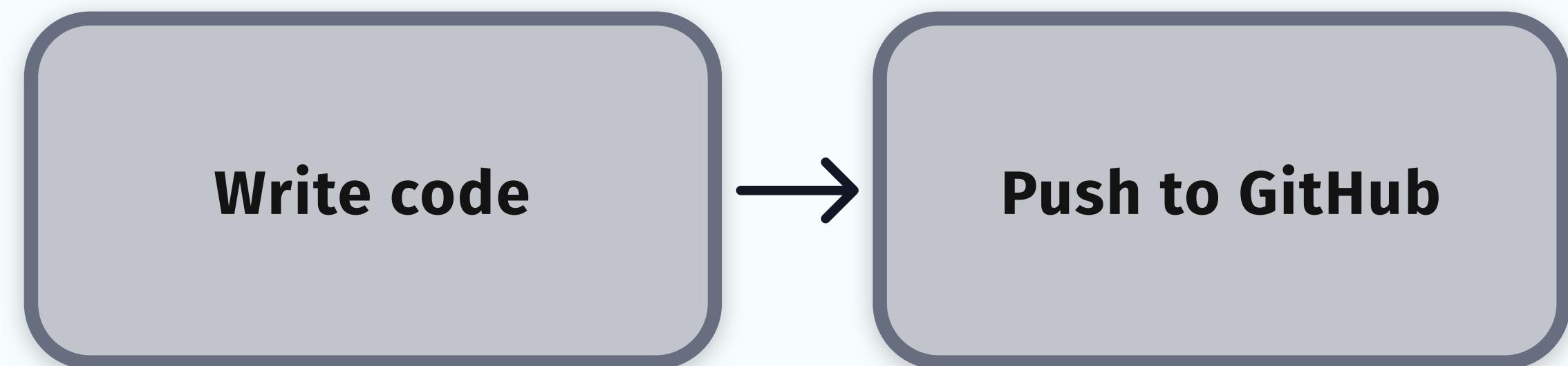


# Deploying via Netlify

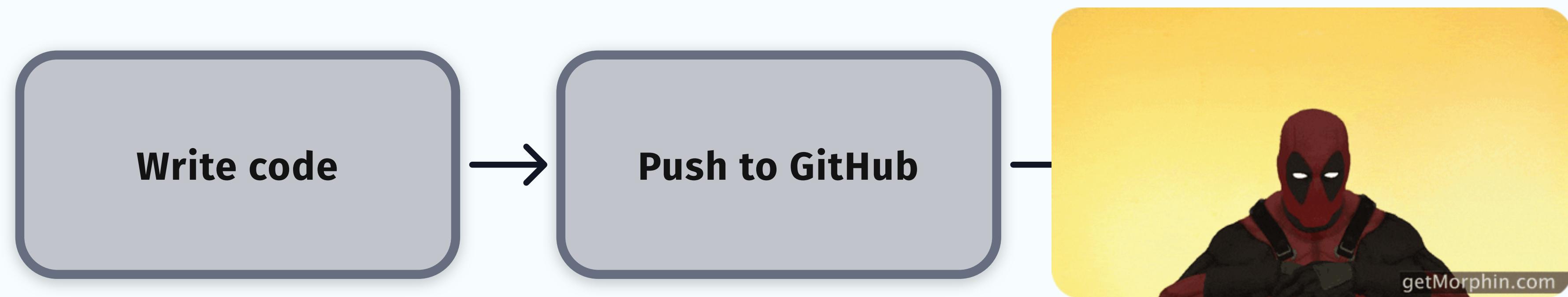
# Deploying via Netlify

**Write code**

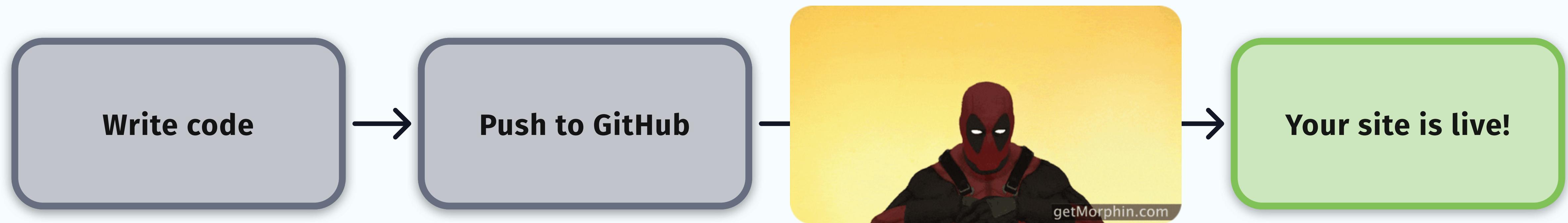
# Deploying via Netlify



# Deploying via Netlify



# Deploying via Netlify



# “How does the magic work?”

# DEVOPS!

# Lets peek inside the “black box”

1. Initialize
2. Build
3. Deploy
4. Cleanup
5. Post-processing

# Lets peek inside the “black box”

## 1. Initialization

- Setup build container
- Install dependencies

Initializing      Complete

```
1 11:19:15 AM: Waiting for other deploys from your team to complete. Check the queue:  
2 https://app.netlify.comteams/bmorrisondev/builds  
3 11:20:15 AM: Build ready to start  
4 11:20:17 AM: build-image version: d55944c047ef0aee2ac01971edde72cb2a50acfe (focal)  
5 11:20:17 AM: build-image tag: v4.16.1  
6 11:20:17 AM: buildbot version: 0be68edd034c744ad79b207db44f42646b4e8ecb  
7 11:20:17 AM: Fetching cached dependencies  
8 11:20:17 AM: Failed to fetch cache, continuing with build  
9 11:20:17 AM: Starting to prepare the repo for build  
10 11:20:17 AM: No cached dependencies found. Cloning fresh repo  
11 11:20:17 AM: git clone --filter=blob:none  
https://github.com/CubScoutsPack99/cubscoutspack99.com  
12 11:20:17 AM: Preparing Git Reference refs/heads/master  
13 11:20:18 AM: Parsing package.json dependencies  
14 11:20:19 AM: Starting build script  
15 11:20:19 AM: Installing dependencies  
16 11:20:19 AM: Python version set to 2.7  
17 11:20:19 AM: v16.19.0 is already installed.  
18 11:20:20 AM: Now using node v16.19.0 (npm v8.19.3)  
19 11:20:20 AM: Enabling node corepack  
20 11:20:20 AM: Started restoring cached build plugins  
21 11:20:20 AM: Finished restoring cached build plugins  
22 11:20:20 AM: Attempting ruby version 2.7.2, read from environment  
23 11:20:20 AM: Using ruby version 2.7.2  
24 11:20:21 AM: Using PHP version 8.0  
25 11:20:21 AM: No npm workspaces detected  
26 11:20:21 AM: Started restoring cached node modules  
26 11:20:21 AM: Finished restoring cached node modules
```

# Lets peek inside the “black box”

## 2. Build

- Build the site
- Build the serverless functions

Building      ✓ Complete

```
66 11:20:52 AM: Netlify Build
67 11:20:52 AM:
68 11:20:52 AM:
69 11:20:52 AM: > Version
70 11:20:52 AM: @netlify/build 29.2.1
71 11:20:52 AM:
72 11:20:52 AM: > Flags
73 11:20:52 AM: baseRelDir: true
74 11:20:52 AM: buildId: 63ab1b02d0e37e0008da7eb6
75 11:20:52 AM: deployId: 63ab1b02d0e37e0008da7eb8
76 11:20:52 AM:
77 11:20:52 AM: > Current directory
78 11:20:52 AM: /opt/build/repo
79 11:20:52 AM:
80 11:20:52 AM: > Config file
81 11:20:52 AM: No config file was defined: using default values.
82 11:20:52 AM:
83 11:20:52 AM: > Context
84 11:20:52 AM: production
85 11:20:52 AM:
86 11:20:52 AM: > Installing plugins
87 11:20:52 AM: - @netlify/plugin-gatsby@3.4.8
88 11:21:01 AM:
89 11:21:01 AM: > Loading plugins
90 11:21:01 AM: - @netlify/plugin-gatsby@3.4.8 from Netlify app
91 11:21:02 AM:
92 11:21:02 AM: 1. @netlify/plugin-gatsby (onPreBuild event)
93 11:21:02 AM:
```

# Lets peek inside the “black box”

## 3. Deploy

- Push “artifacts” to publicly accessible servers
- Deploy serverless function binaries
- Replace files in CDN
- Update routing

```
Deploying Complete

216 11:22:01 AM: 6. Deploy site
217 11:22:01 AM:
218 11:22:01 AM:
219 11:22:01 AM: Starting to deploy site from 'public'
220 11:22:01 AM: Creating deploy tree
221 11:22:01 AM: 1 new files to upload
222 11:22:01 AM: 2 new functions to upload
223 11:22:08 AM: Section completed: deploying
224 11:22:14 AM: Finished waiting for live deploy in 6.087599781s
225 11:22:14 AM: Site deploy was successfully initiated
226 11:22:14 AM:
227 11:22:14 AM: (Deploy site completed in 12.9s)
228 11:22:14 AM:
229 11:22:14 AM: 7. @netlify/plugin-gatsby (onSuccess event)
230 11:22:14 AM:
231 11:22:14 AM:
232 11:22:14 AM:
233 11:22:14 AM: (@netlify/plugin-gatsby onSuccess completed in 3ms)
```

# Lets peek inside the “black box”

## 4. Cleanup

- Cache artifacts for rollback if needed
- Cache dependencies for the next build

```
▼ Cleanup ✓ Complete  
234 11:22:14 AM: Netlify Build Complete  
235 11:22:14 AM:  
236 11:22:14 AM:  
237 11:22:14 AM: Caching artifacts  
238 11:22:14 AM: Started saving node modules  
239 11:22:14 AM: Finished saving node modules  
240 11:22:14 AM: Started saving build plugins  
241 11:22:14 AM: Finished saving build plugins  
242 11:22:14 AM: Started saving pip cache  
243 11:22:14 AM: Finished saving pip cache  
244 11:22:14 AM: Started saving emacs cask dependencies  
245 11:22:14 AM: Finished saving emacs cask dependencies  
246 11:22:14 AM: Started saving maven dependencies  
247 11:22:14 AM: Finished saving maven dependencies  
248 11:22:14 AM: Started saving boot dependencies  
249 11:22:14 AM: Finished saving boot dependencies  
250 11:22:14 AM: Started saving rust rustup cache  
251 11:22:14 AM: Finished saving rust rustup cache  
252 11:22:14 AM: Started saving go dependencies  
253 11:22:14 AM: Finished saving go dependencies  
254 11:22:15 AM: Build script success  
255 11:22:16 AM: Uploading Cache of size 200.9MB  
256 11:22:18 AM: Section completed: cleanup
```

# Lets peek inside the “black box”

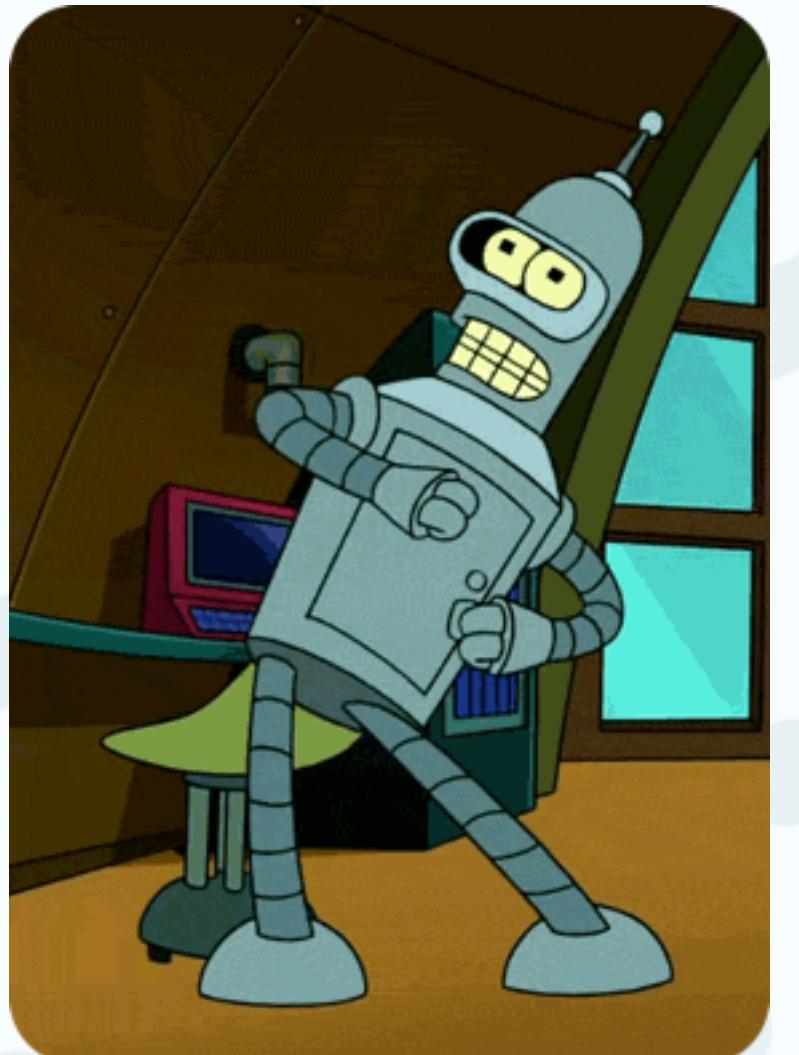
## 5. Post-processing

- Netlify-specific stuff

```
▼ Post-processing ✓ Complete  
257 11:22:08 AM: Starting post processing  
258 11:22:08 AM: Post processing - HTML  
259 11:22:08 AM: Processing form - contact  
260 11:22:08 AM: Detected form fields:  
      - name  
      - phone  
      - email  
      - message  
261 11:22:08 AM: Post processing - header rules  
262 11:22:08 AM: Post processing - redirect rules  
263 11:22:09 AM: Post processing done  
264 11:22:09 AM: Section completed: postprocessing  
265 11:22:13 AM: Site is live ✨
```

# We'll build our own black box

with dark mode and webhooks!





# Orchestration

Orchestration

# File storage & hosting

Orchestration

File storage & hosting

**Content delivery network (CDN)**

Orchestration

File storage & hosting

Content delivery network (CDN)

**Backend code execution**

Orchestration

File storage & hosting

Content delivery network (CDN)

Backend code execution

**Routing**

Orchestration

File storage & hosting

Content delivery network (CDN)

Backend code execution

Routing

# Authentication

Orchestration

File storage & hosting

Content delivery network (CDN)

Backend code execution

Routing

Authentication

**Infrastructure as Code (IaC)**

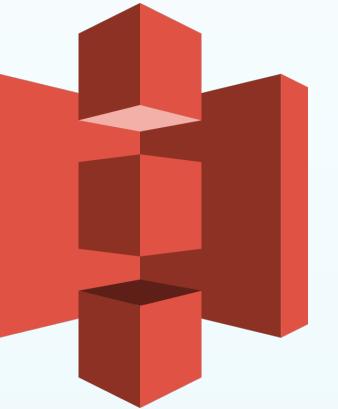
# Demo time!

# GuardianForge Infrastructure

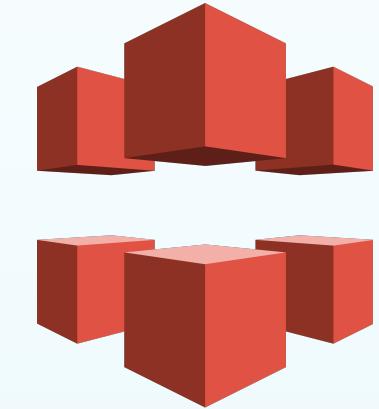
Orchestration



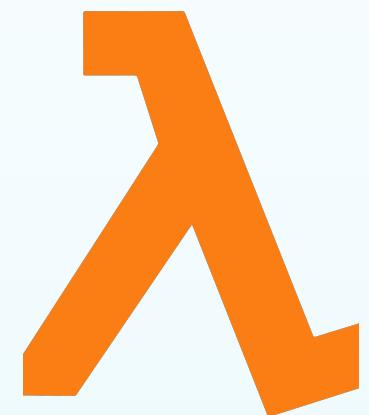
File storage & hosting



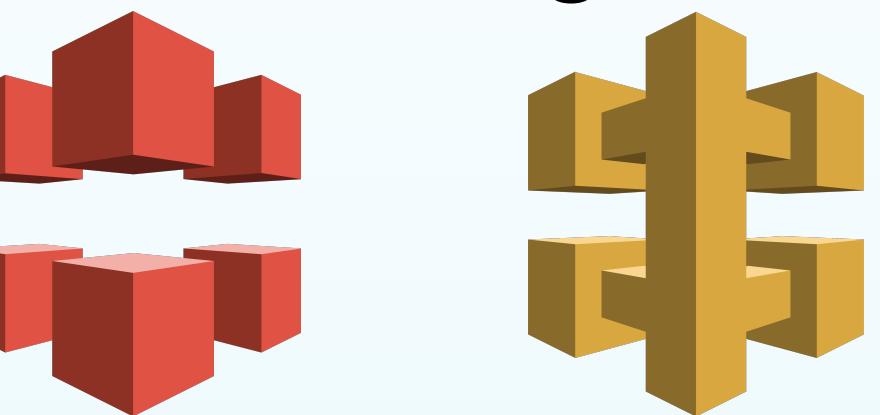
CDN



Backend code



Routing



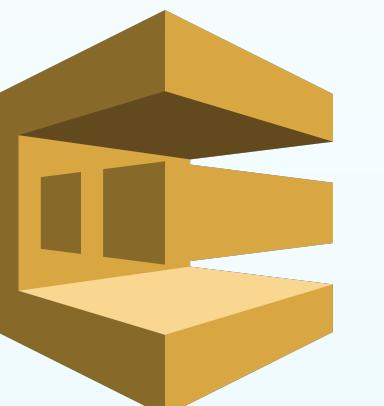
Authentication



IaC



Search



Payments



**Now for the real question...**



# More skills = more opportunities

More skills = more opportunities

**More services you can use**

More skills = more opportunities

More services you can use

# Fundamental knowledge

More skills = more opportunities

More services you can use

Fundamental knowledge

# Appreciation

# Tips on getting started



# Start small & grow

Start small & grow

**Master your ecosystem**

Start small & grow

Master your ecosystem

**Learn how to automate**

**If at first you don't succeed...**

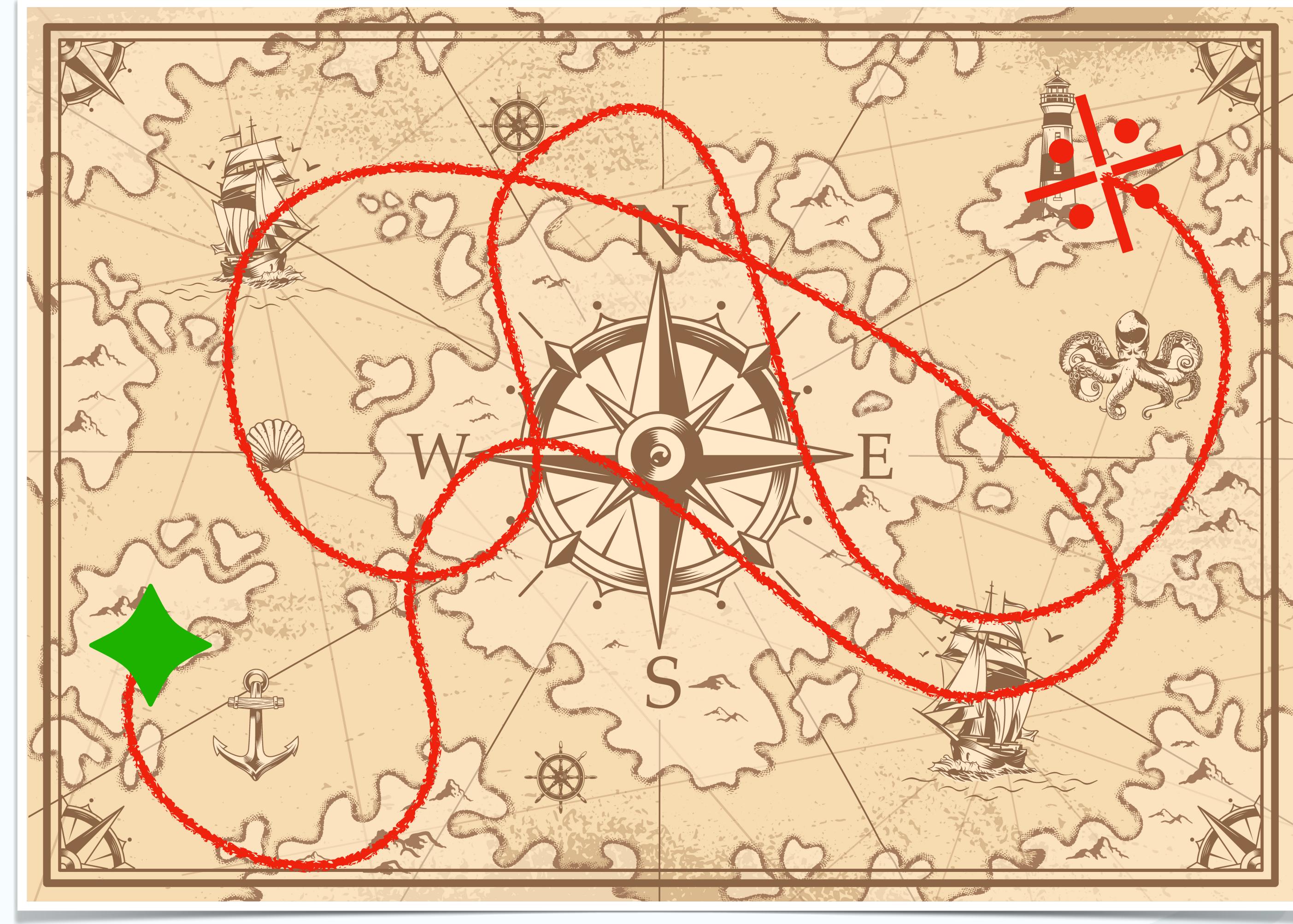
**...try, try again!**

# If at first you don't succeed...

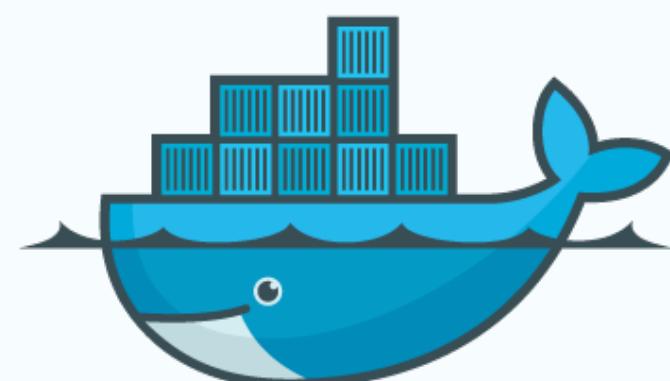
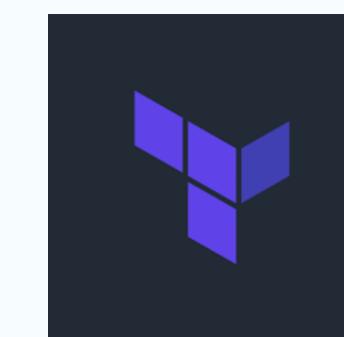
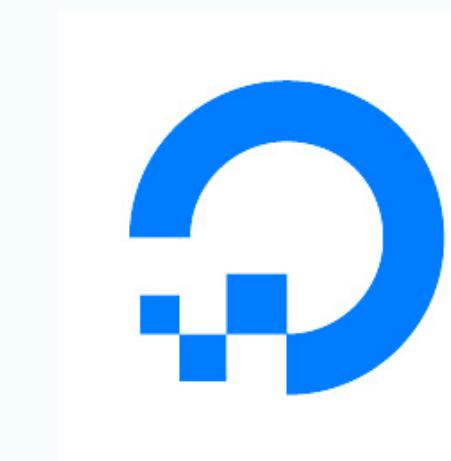
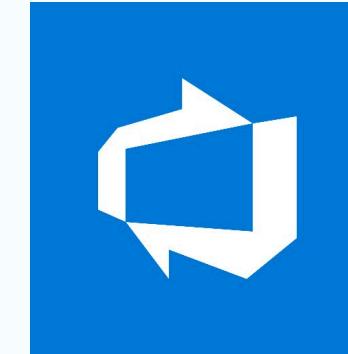
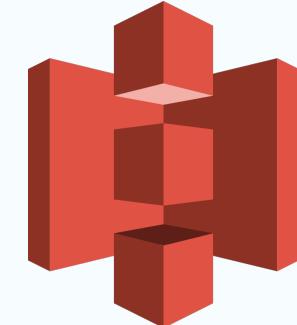
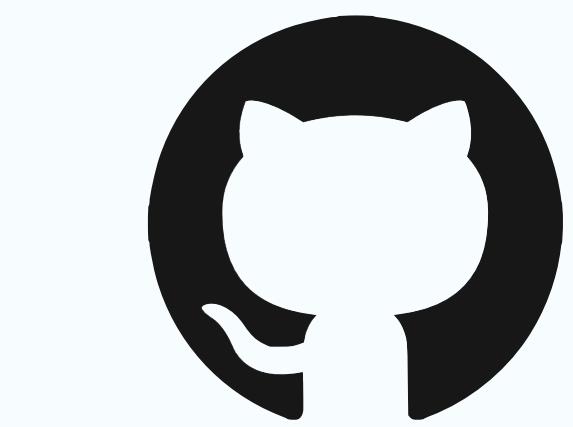
...try, try again!

...and again, and again, and again, and again, and again,  
and again, and again, and again, and again, and again,  
and again, and again, and again, and again, and again,  
and again, and again, and again, and again, and again,  
and again, and again, and again, and again, and again,  
and again, and again, and again, and again, and again,  
and again, and again, and again, and again...

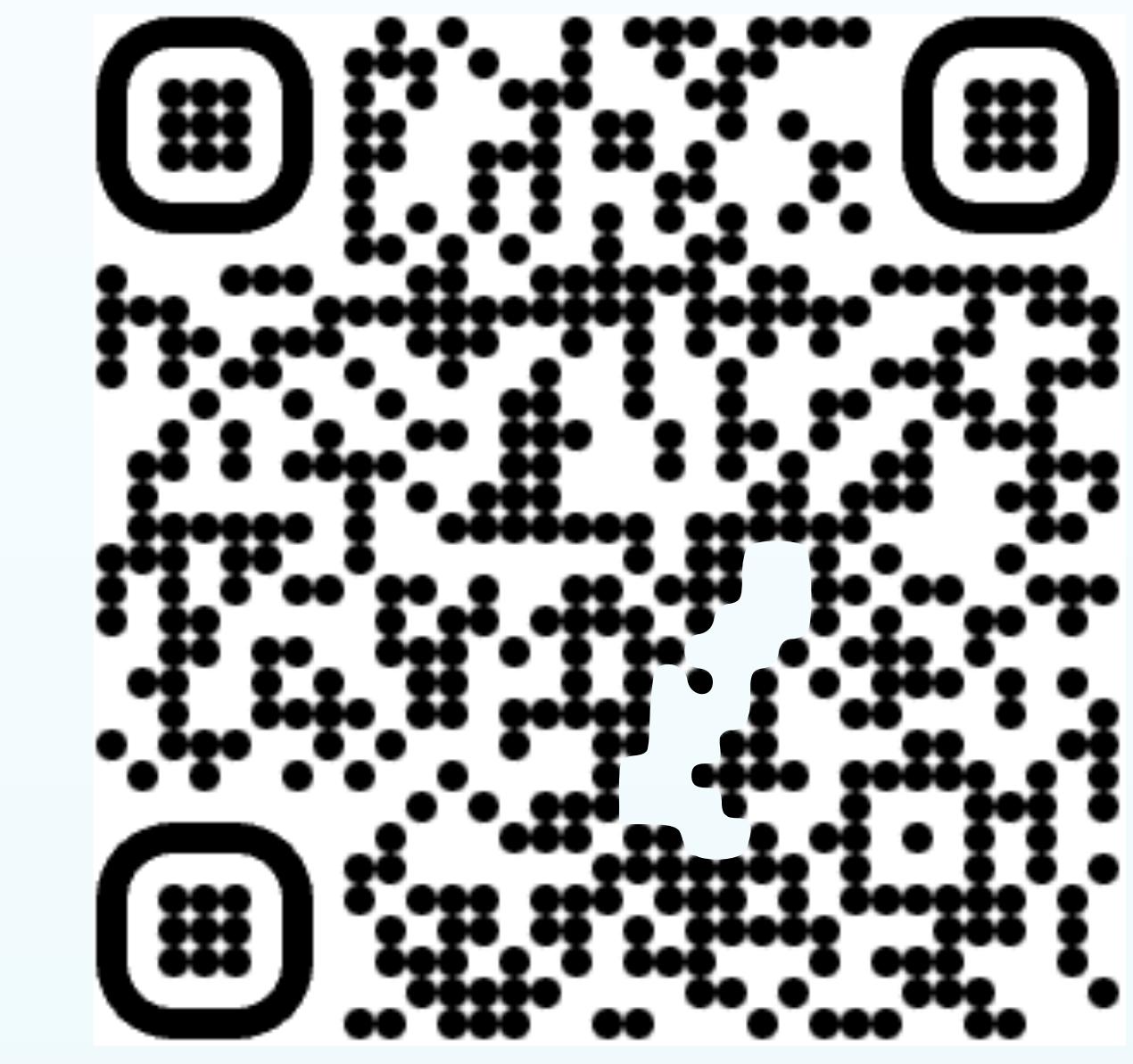
# There is no one right way



# Build something yourself!



docker





## Brian Morrison II

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 @brianmmdev@threads.net

 youtube.com/@brianmmdev

 brianmm.dev



<https://that.land/3O5iFd6>