

SPECIAL THANKS TO ALL OUR AWESOME CAMP SPONSORS!

Unspecified



DATASTAX



Demystifying Deployment as a Service

Understand the magic that powers modern web hosting platforms.



Brian Morrison II

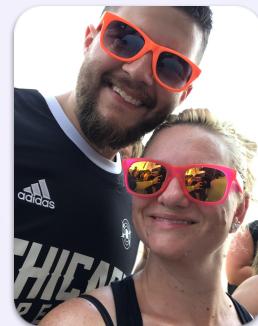
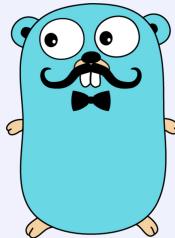
Demystifying Deployment as a Service

Agenda

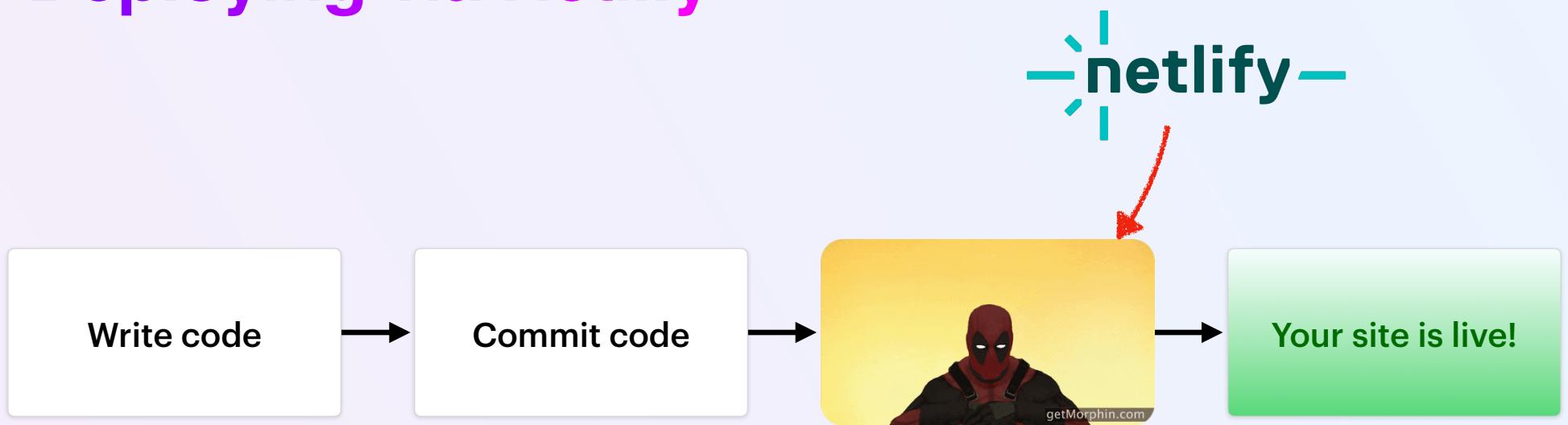
- Explore how Netlify deploys code
- Deconstruct the process and tools used
- Demo
- Getting started on your own
- Demo 2 🙏
- Wrap up and Q&A

Brian Morrison II

- Developer Educator
- Former roles:
 - Lead Backend Dev
 - Full Stack Dev
 - Systems Engineer
 - Network Engineer
- Husband & father
- Gamer



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

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.com/teams/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  
12    https://github.com/CubScoutsPack99/cubscoutspack99.com  
13 11:20:17 AM: Preparing Git Reference refs/heads/master  
14 11:20:18 AM: Parsing package.json dependencies  
15 11:20:19 AM: Starting build script  
16 11:20:19 AM: Installing dependencies  
17 11:20:19 AM: Python version set to 2.7  
18 11:20:19 AM: v16.19.0 is already installed.  
19 11:20:20 AM: Now using node v16.19.0 (npm v8.19.3)  
20 11:20:20 AM: Enabling node corepack  
21 11:20:20 AM: Started restoring cached build plugins  
22 11:20:20 AM: Finished restoring cached build plugins  
23 11:20:20 AM: Attempting ruby version 2.7.2, read from environment  
24 11:20:20 AM: Using ruby version 2.7.2  
25 11:20:21 AM: Using PHP version 8.0  
26 11:20:21 AM: No npm workspaces detected  
27 11:20:21 AM: Started restoring cached node modules  
28 11:20:21 AM: Finished restoring cached node modules
```

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:  _____
```

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)
```

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
```

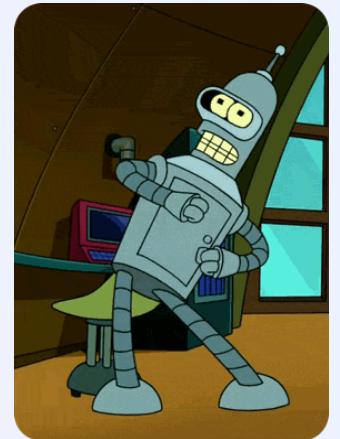
Post-processing

- 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

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Content delivery network (CDN)

Backend code execution

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Routing

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Authentication

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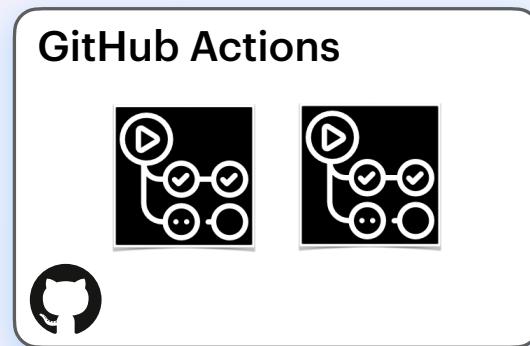
Authentication

Infrastructure as Code (IaC)

Demo time!

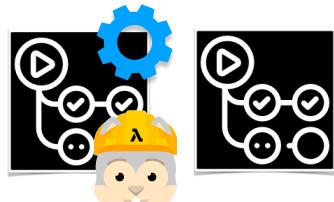
GuardianForge Infrastructure

Orchestration



Infrastructure as Code

GitHub Actions



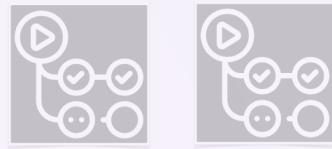
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aws
The AWS logo icon, which is the word "aws" in lowercase with an orange arrow underneath.

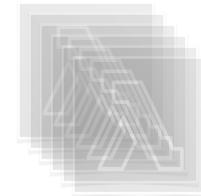


File storage for hosting

GitHub Actions



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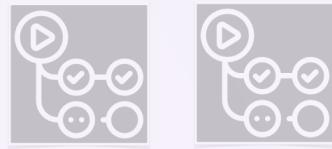


aws



Content delivery network

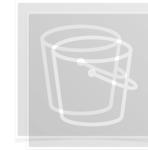
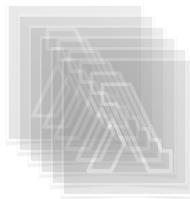
GitHub Actions



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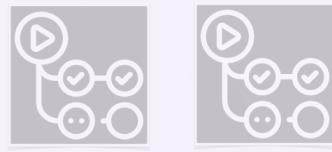


aws

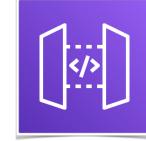


Routing

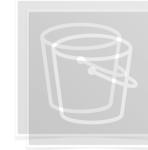
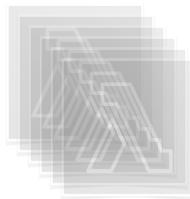
GitHub Actions



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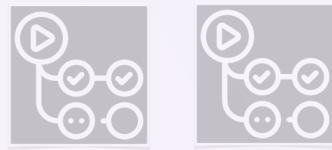


aws

Backend code execution

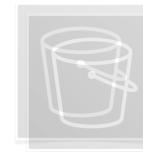
GitHub Actions



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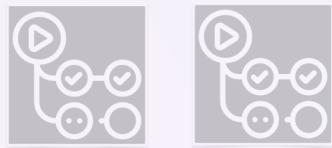


aws



Authentication

GitHub Actions



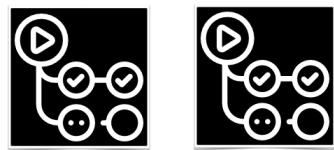
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aws



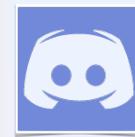
Other services

GitHub Actions



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aws

Creating a build



Creating a build



Creating a build



Creating a build



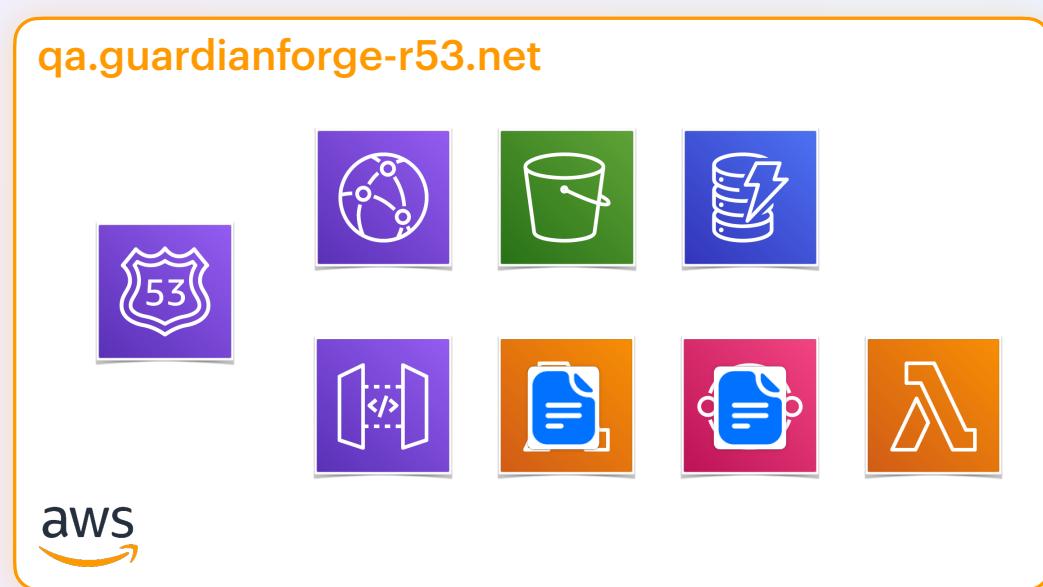
Creating a build



Creating a build



Creating a build



Creating a build



Creating a build



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Creating a build



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Creating a build



Creating a build

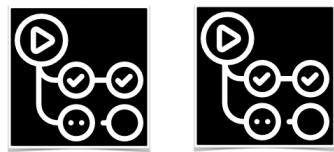


Discord

Congrats! People actually use this SaaS

Creating new environments

GitHub Actions



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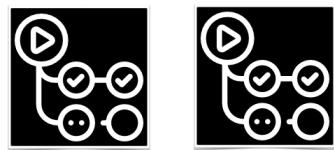
aws




Creating new environments

⌚ thatdemo

GitHub Actions



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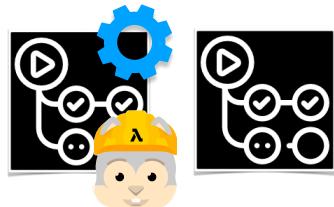


aws
amazon



Creating new environments

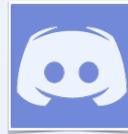
GitHub Actions



thatdemo.guardianforge-r53.net



aws
amazon



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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

Know your ecosystem

Start small & grow

Know your ecosystem

Learn how to automate

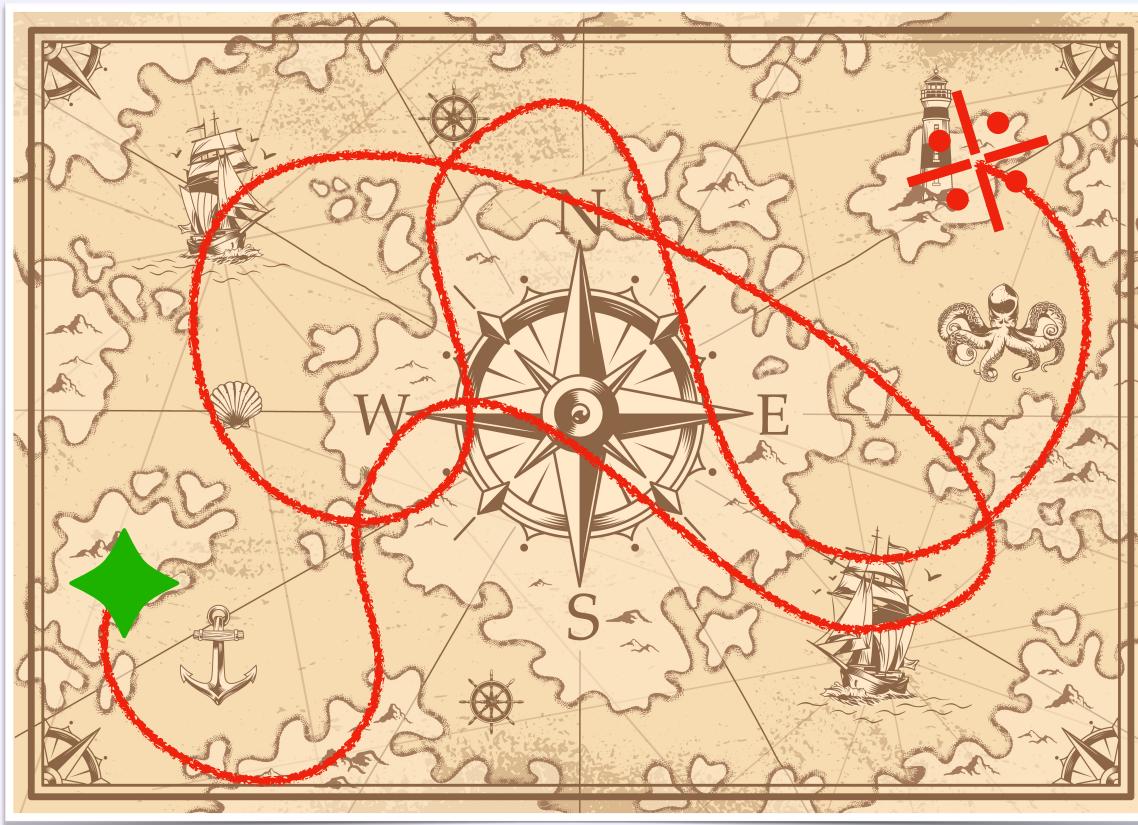
**If at first you don't succeed...
...try, try again!**

If at first you don't succeed...

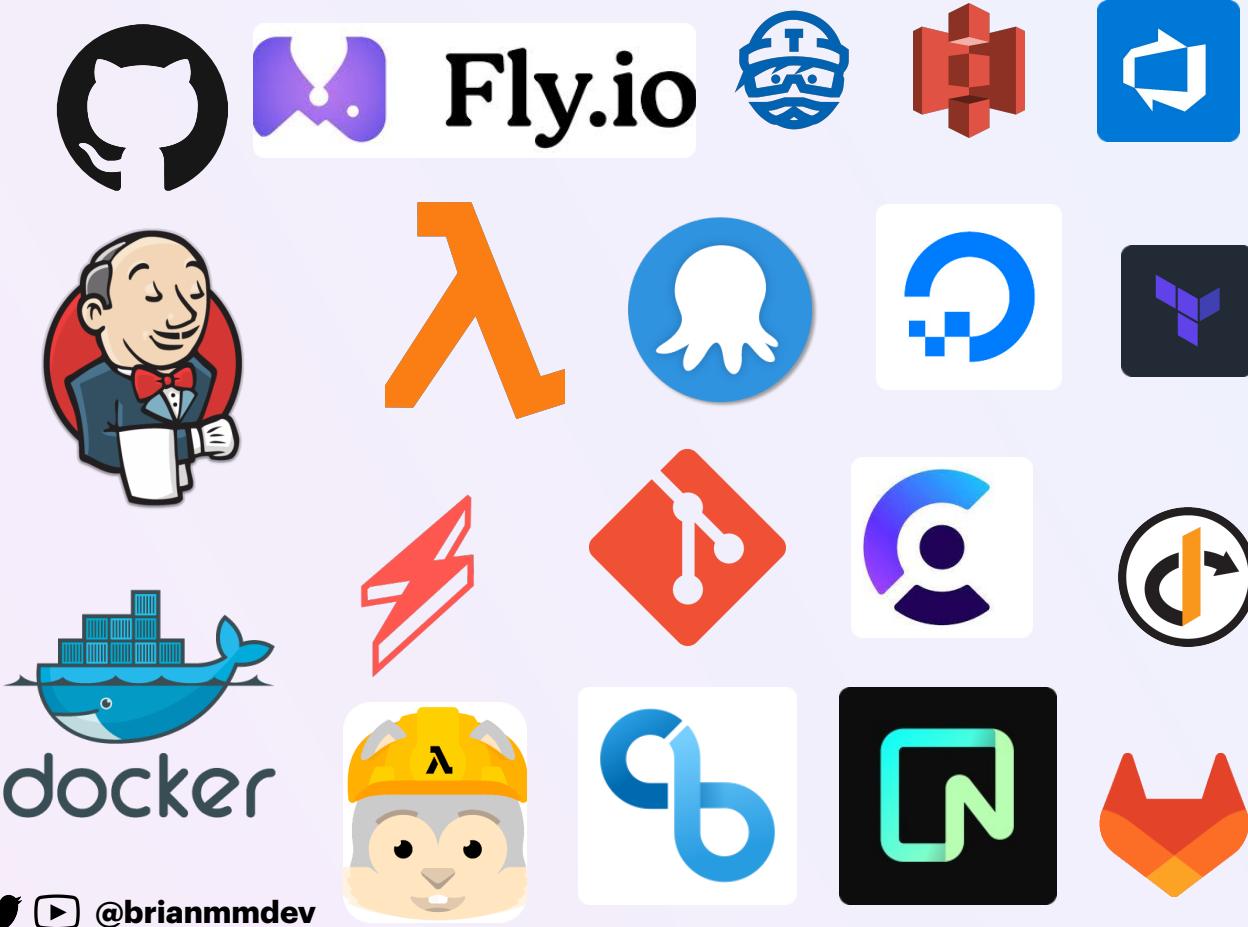
...try, try again!

**...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...**

There is no one right way



Build something yourself!



🙏 Demo time 2! 🙏



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 brianmm.dev