

# Local (micro)services development on Kubernetes

<http://github.com/omissis/tiltyard>

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# Hello Cloud Natives! 🙌



imgflip.com

# context.Background() 🤝

- Several (teams of) developers working together
- Number of projects increased over time
- Applications started to be packed as containers
- Kubernetes became the de-facto standard for orchestrating them
- Local deployment differs significantly from staging and production
- Running complex deployments locally became next to impossible, especially on Windows and MacOS

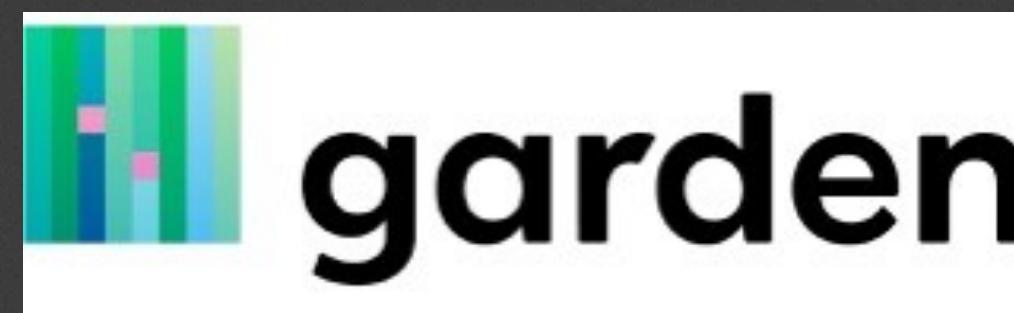
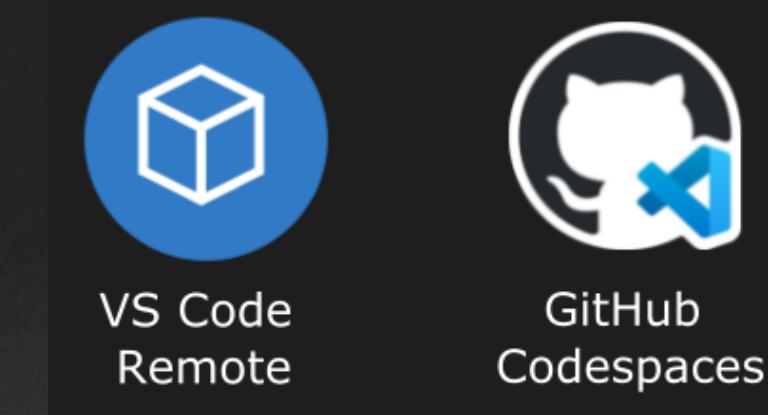
# Looking for an ideal solution have your cybercake and eat it, too

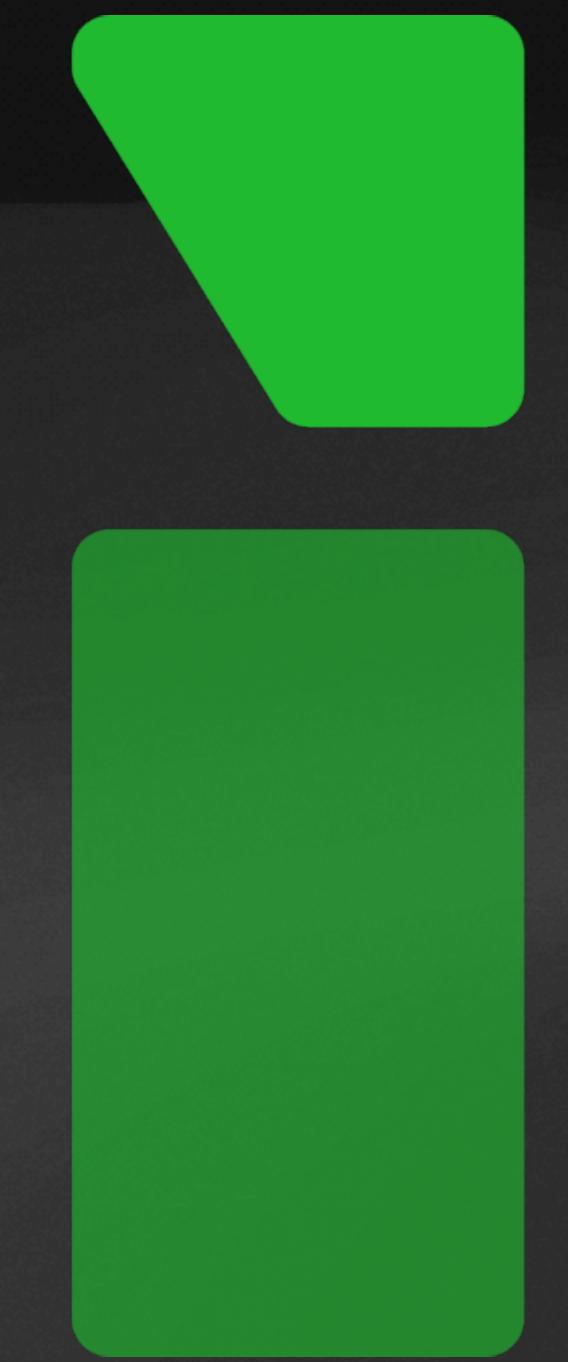


- **Kubernetes-based**, to be closer to prod
- **Modular**, to be able to run only a subset of the services
- **Hybrid**, to be able to mix and match local and remote resources
- **Fast**, to reduce friction and improve productivity
- **Flexible**, to allow for customization
- **Simple**, for faster onboarding
- **Transparent**, to stay close to dev-ops the toolchain

# It takes all sorts to make a Cloud Dev Env ☁

## *Developers developers developers*

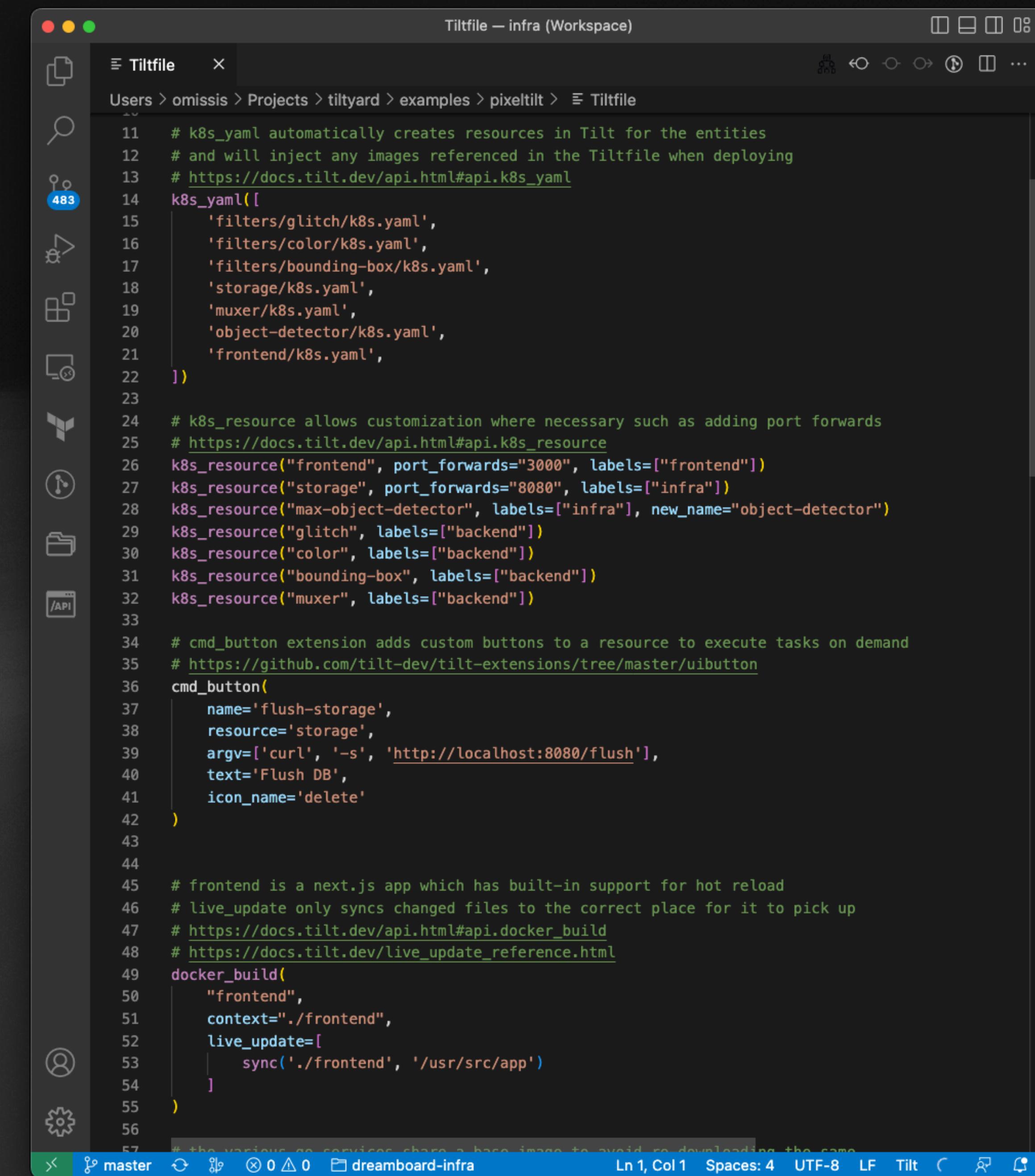




# Tilt in a 🥔

- A **Command-line tool** coupled with a **Web UI**
- Controlled by one or more **Tiltfiles** written in **Starlark**
- Sporting **loops, conditionals, variables**
- Featuring an extensive library of **functions** and **extensions**
- Powered by the **Tilt Engine**, updating the **Cluster's Resources** automatically

# Tilt in a 🥔



```
Users > omissis > Projects > tiltyard > examples > pixeltilt > Tiltfile
```

```
11 # k8s_yaml automatically creates resources in Tilt for the entities
12 # and will inject any images referenced in the Tiltfile when deploying
13 # https://docs.tilt.dev/api.html#api.k8s\_yaml
14 k8s_yaml([
15     'filters/glitch/k8s.yaml',
16     'filters/color/k8s.yaml',
17     'filters/bounding-box/k8s.yaml',
18     'storage/k8s.yaml',
19     'muxer/k8s.yaml',
20     'object-detector/k8s.yaml',
21     'frontend/k8s.yaml',
22 ])
23
24 # k8s_resource allows customization where necessary such as adding port forwards
25 # https://docs.tilt.dev/api.html#api.k8s\_resource
26 k8s_resource("frontend", port_forwards="3000", labels=["frontend"])
27 k8s_resource("storage", port_forwards="8080", labels=["infra"])
28 k8s_resource("max-object-detector", labels=["infra"], new_name="object-detector")
29 k8s_resource("glitch", labels=["backend"])
30 k8s_resource("color", labels=["backend"])
31 k8s_resource("bounding-box", labels=["backend"])
32 k8s_resource("muxer", labels=["backend"])
33
34 # cmd_button extension adds custom buttons to a resource to execute tasks on demand
35 # https://github.com/tilt-dev/tilt-extensions/tree/master/uibutton
36 cmd_button(
37     name='flush-storage',
38     resource='storage',
39     argv=[curl, '-s', 'http://localhost:8080/flush'],
40     text='Flush DB',
41     icon_name='delete'
42 )
43
44
45 # frontend is a next.js app which has built-in support for hot reload
46 # live_update only syncs changed files to the correct place for it to pick up
47 # https://docs.tilt.dev/api.html#api.docker\_build
48 # https://docs.tilt.dev/live\_update\_reference.html
49 docker_build(
50     "frontend",
51     context=".//frontend",
52     live_update=[
53         sync('.//frontend', '/usr/src/app')
54     ]
55 )
56
57 # the previous sync uses shared base image to avoid re-downloading the same
```

The terminal status bar at the bottom shows: master, 0△0, dreamboard-infra, Ln 1, Col 1, Spaces: 4, UTF-8, LF, Tilt, and a few other icons.

# Tilt in a 🥜

The screenshot shows the Tilt application interface. On the left, the "All Resources" sidebar lists categories: backend (4/4), frontend (1/1), and infra (2/2). Under "backend", four tasks are listed: "glitch" (completed <30s ago), "color" (completed 14m ago), "bounding-box" (completed 14m ago), and "muxer" (completed 14m ago). Under "frontend", one task "frontend" is listed (completed 14m ago). Under "infra", two tasks are listed (2/2). On the right, the main pane displays the logs for the "glitch-5f447bbf67-6hmzm Pod ID". The log viewer includes filters for All Levels, Errors (0), Warnings (0), and a text search/filter field. A "Clear Logs" button is located at the bottom right of the log viewer.

RESOURCES ✓ 8 / 8

v0.22.1

All Resources

Alerts on Top

Filter resources by name

backend ✓ 4 / 4

- glitch <30s ago
- Completed in 0.6s

- color 14m ago
- Completed in 6.1s

- bounding-box 14m ago
- Completed in 9.7s

- muxer 14m ago
- Completed in 7.2s

frontend ✓ 1 / 1

- frontend 14m ago
- Completed in 40s

infra ✓ 2 / 2

glitch-5f447bbf67-6hmzm Pod ID

All Levels Errors (0) Warnings (0)

Filter by text or /regexp/

A Clear Logs

Enough said 😎



# Find Tilt.dev on the interwebz

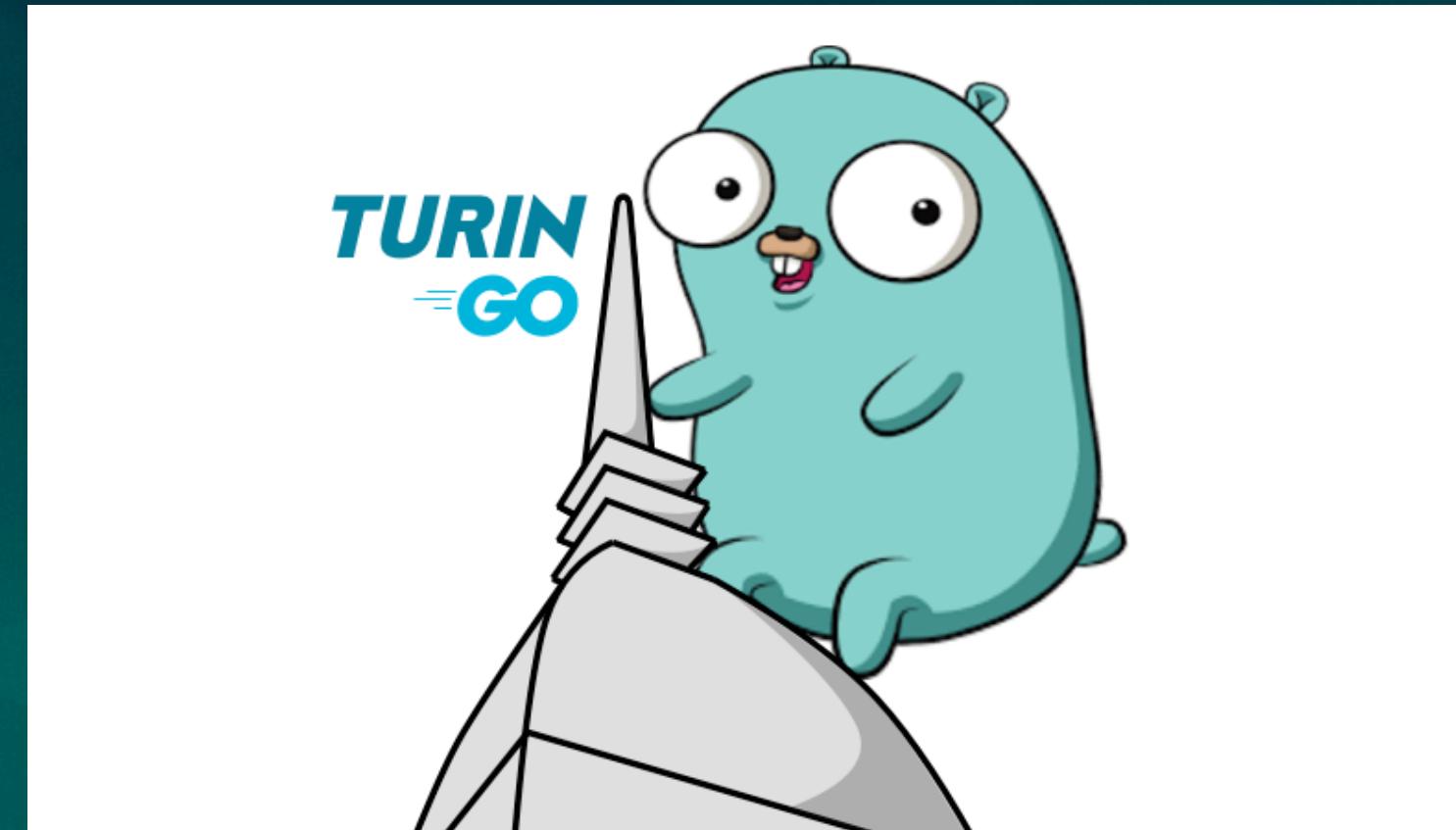


#tilt on Kubernetes Slack

[tilt-dev/tilt](#) on Github

[tilt.dev](#)

# But also don't forget to find Gophers!



# Thanks! 🚀



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- 🦜 [@omissis](#)
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