Write your own K8s operator

05.08.2023
Simon Schneider
Simon Schneider
Software Engineer
**Mein E-Bike**

胀

Rothwild

RC750 Ultra

**Letzte Fahrt**

Gefahrene Distanz
23 km

Dauer
1h 12m

Geschwindigkeit
12,3 km/h

Verbrannte Kalorien
231 kcal

**Alle Fahrten**

Gefahrene Distanz
200 km

Dauer
1h 12m

**HBF nach Eigelstein**

Distanz
54,5 km

Aktive Zeit
1h 12m

Verbrannte Kalorien
315 kcal

Details zu deiner Fahrt

**HÖHENPROFIL**

Anstieg
130m

Abstieg
130m

ZUSAMMENFASSUNG

Gesamtzeit
1h 15m

Akku Verbrauch
34%
- Development around the globe
- Kubernetes for service orchestration
- We ❤️ Infrastructure as Code
Database management with(out) terraform!?
● Everything in one place
● Database configuration is stored in GIT
● Database configuration can be tested

● Terraform needs direct network access to db server
● Terraform plan takes much time
● Developers need to learn HCL
DAMN YOU TERRAFORM
Write custom K8s operator
WRITE MORE CODE
• Database config with application config
• Network access already available
• **Known interface for developers**
• Terraform needs to inject admin credentials
• Developer user handling
• Operator needs to be maintained
K8s basics
Operator, Controller, etc.
K8s Operator Pattern

Custom Resource Definition + Controller

K8s Resource Definition → Controller

...
The cybernetics in kubernetes
The Operator Framework is an open source toolkit to manage Kubernetes native applications, called Operators, in an effective, automated, and scalable way.
Coding Session
Let us write our own k8s operator, which restarts pods of a deployment when a config map gets changed.
mkdir auto-reload-operator

cd auto-reload-operator

operator-sdk init --domain raynigon.com --repo github.com/raynigon/auto-reload-...
operator-sdk create api --group=apps
--version=v1 --kind=Deployment
--controller=true --resource=false

operator-sdk create api --group=core
--version=v1 --kind=ConfigMap
--controller=true --resource=false
Summary
1. Cybernetic control loop as architecture of k8s controllers

2. What is the operator sdk and how to use it

3. Start writing your own k8s operator today
Questions
Thank you

We are hiring!

simon-schneider-nbg
raynigon
simon.schneider@brose.com
Image References

- Brose Logo: https://static.brose.bike/images/generic/brose-logo.png
- Screenshot Brose Apps: https://apps.apple.com/de/app/brose-e-bike-app/id1571894256
- Memes from imgflip.com
- Logo Operatorframework: https://operatorframework.io/
- Diagrams were drawn with:
  - https://excalidraw.com/
  - https://sequencediagram.org/