

Fearless automation: Deploying OpenStack on top of Kubernetes with YAHOOK

How a retailer became a Cloud Provider



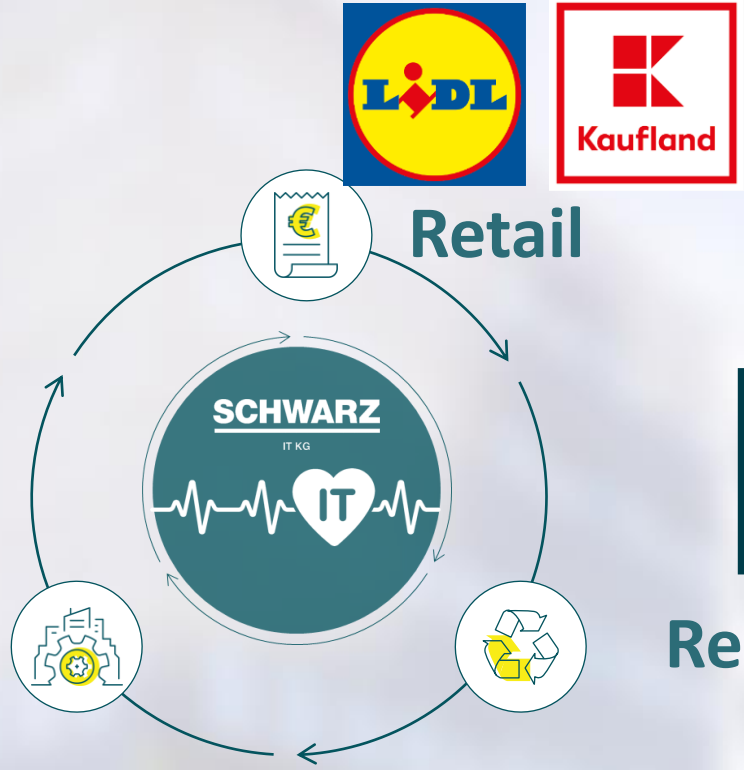
Agenda

- STACKIT and the Schwarz Group
- Use-Cases
- Growth
- Yaook



The Schwarz Group

Figures, data, facts



- Europe's largest trading company
- Shaping a sustainable company
- Less plastic /Close the loop



33
countries



500.000
colleagues



12.900
stores



125,3
mrd. Euro sales
(Net sales FY 2020)

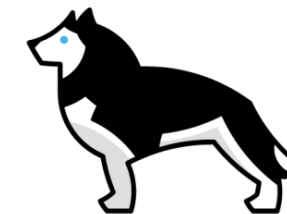
From internal to external



CLOUD
& HEAT



STACKIT



YAOOK

Market



DACH

Target customers



B2B / SMEs in the European area

CLOUD&HEAT – AT A GLANCE

Sustainable and secure digital infrastructures

THE COMPANY



Cloud&Heat Technologies

We develop and operate holistic cloud and data center solutions.




SUSTAINABLE DIGITALIZATION

A comprehensive solution of hardware and software systems - forming a cloud infrastructure, **ready for the applications of the future.**

OUR OFFER

- 1 Optimization of data centers**
→ energy-efficient and sustainable
- 2 Optimization of cloud infrastructures**
→ sustainable and secure
- 3 Set-up and operation of digital infrastructures**
→ expand your business model
- 4 Applications on our infrastructure**
→ optimized for your application

THE PRODUCTS

Software	Applications such as AI/ML
Platform	Managed Kubernetes
Operations & Monitoring	OpenStack / SecuStack (O&M)
IaaS / VMs	
Operating System	
	Data Center Container
	Micro Data Center
	Customized Cooling Kit (blade, server)

OUR COMPETENCIES

- Efficient software solutions**
→ software based energy optimization
→ reduction of CO₂ consumption
- Efficient cooling solutions**
→ direct hot water cooling
→ higher power density
→ less cooling costs
→ waste heat utilization
- Open source based and security hardened cloud operating system**
→ auditable
→ based on OpenStack
- Consulting**
→ expertise in optimizing digital infrastructures
- Life cycle management**
→ 24/7 support (personal)
→ Operation and monitoring

Use-Case: AppCloud

- Based on CloudFoundry
- Build Applications using predefined buildpacks – No Dockerfiles
- Run Cloud-Native Applications – skipping Kubernetes Complexity
- 2 Environments:
 - 2950 Instances
 - 6600 vCPUs
 - 20 TB Memory
- In Total
 - 36% of our Instances
 - 26% of our vCPUs
 - 25% of our Memory

Use-Case: STACKIT Kubernetes Engine

- Based on Gardener
- Provide Individual Kubernetes Clusters per customer
- Abstracted away control plane management
- Full access to the cluster
- 250 Clusters
 - 2500 Instances
 - 10000 vCPUs
 - 25 TB Memory
- In Total
 - 30% of our Instances
 - 40% of our vCPUs
 - 31% of our Memory

Growth

2021-05-01 (usage):

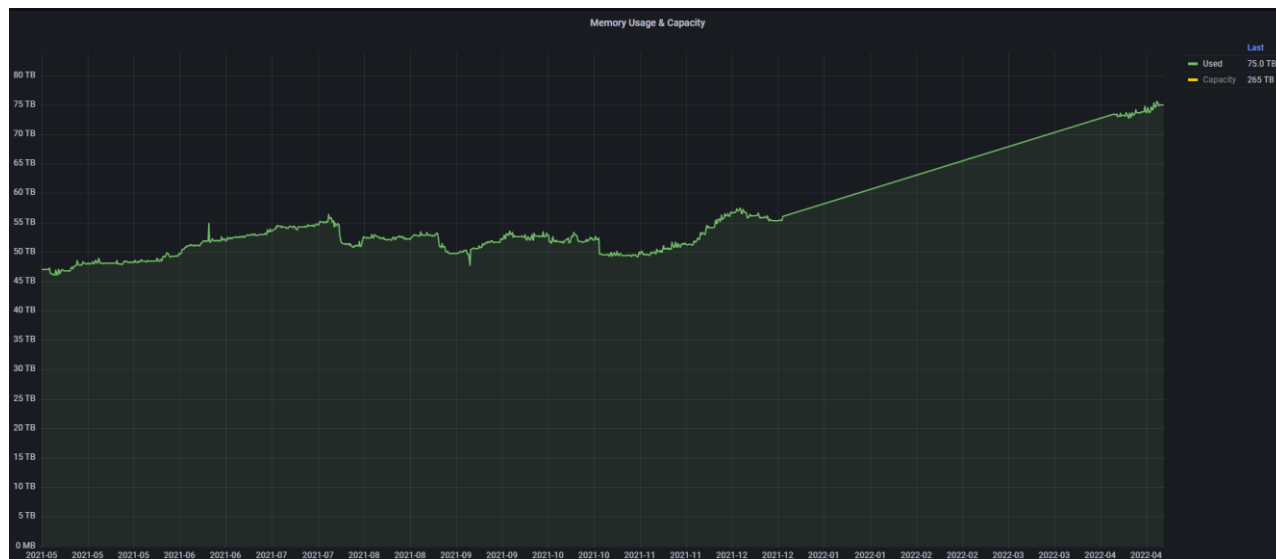
- 13.000 vCPUs
- 47 TB Memory

Yes, we broke our openstack prometheus exporter 😊



2022-05-01 (usage):

- 24.000 vCPUs (+84%)
- 75 TB Memory (+59%)



Decision 1: Using Kubernetes below OpenStack

- Declarative things are nice
- Use the built-in Kubernetes goodies for deploying OpenStack services (replicas, networking, ...)
- Bonus: easier testing, portability, observability

Yaook



- (Yet another ...) OpenStack lifecycle management
- Installing and Upgrading
 - Baremetal
 - Kubernetes
 - OpenStack

Yaook Operator



Yaook Kubernetes



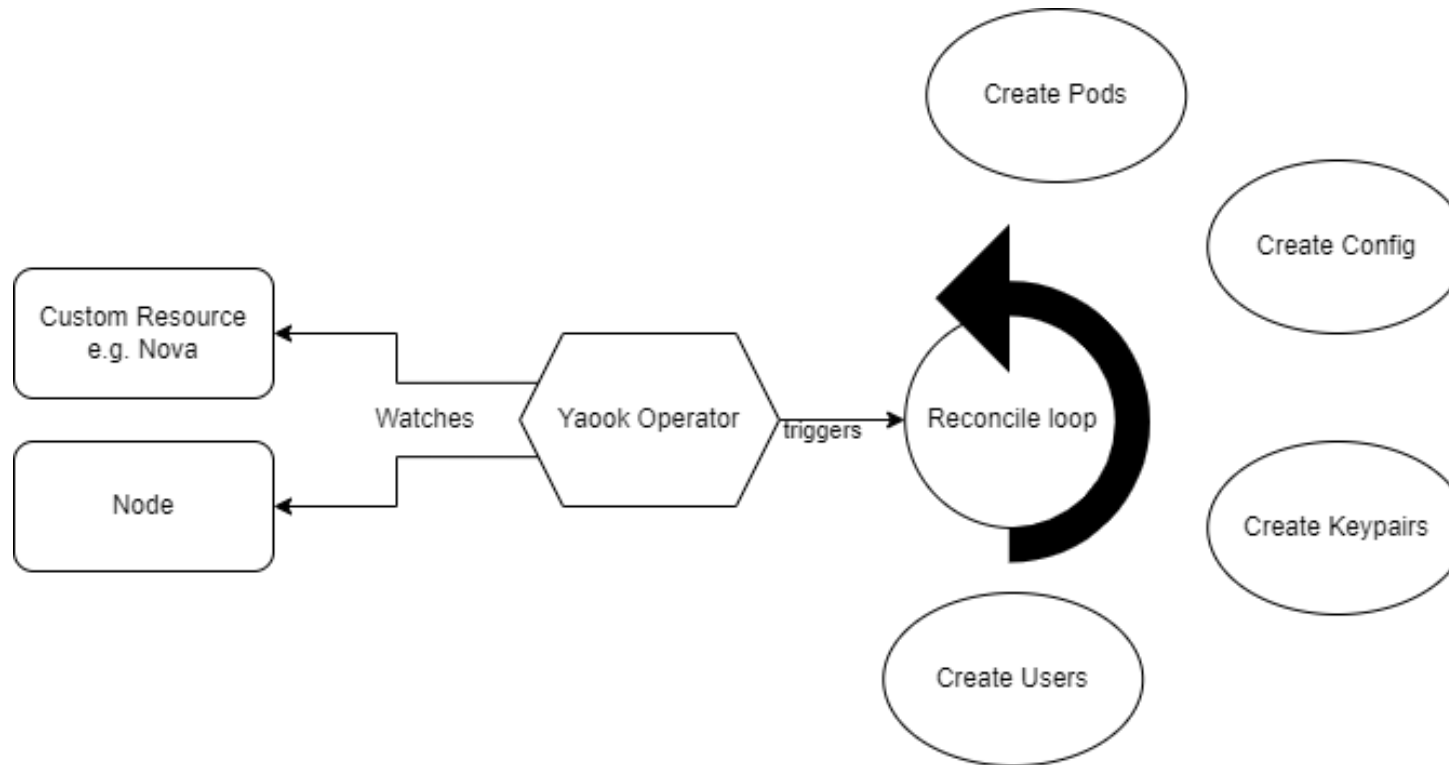
Yaook Bare metal



Decision 2: Control loops (Operators)

Fearless Automation

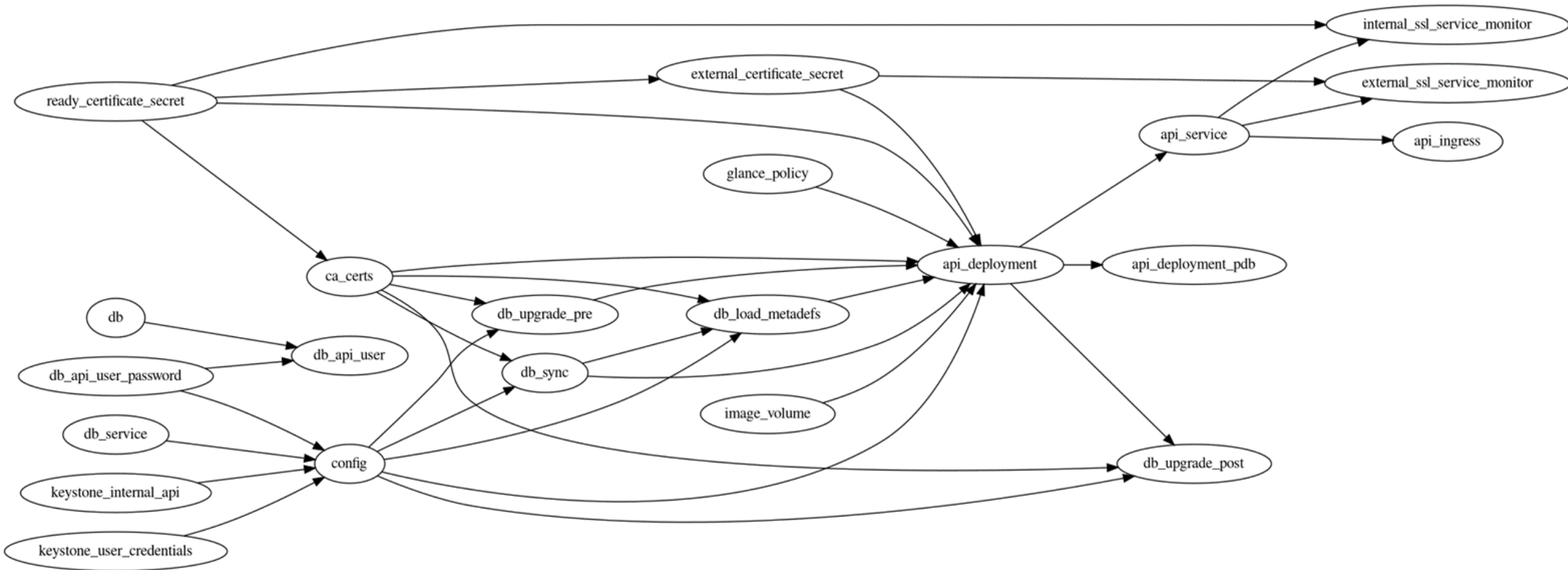
In an ~~isolated~~ unattended system, the ~~entropy~~ breakage can only increase.



Glance – how to deploy

```
apiVersion: yaook.cloud/v1
kind: GlanceDeployment
metadata:
  name: glance
spec:
  database:
    replicas: 3
  api:
    replicas: 3
  glanceConfig:
    glance_store:
      default_store: "rbd"
  backends:
    ceph:
      keyringReference: glance-client-key
      keyringUsername: glance
      keyringPoolname: glance-pool
  policy:
    "context_is_admin": "role:admin"
  targetRelease: yoga
```

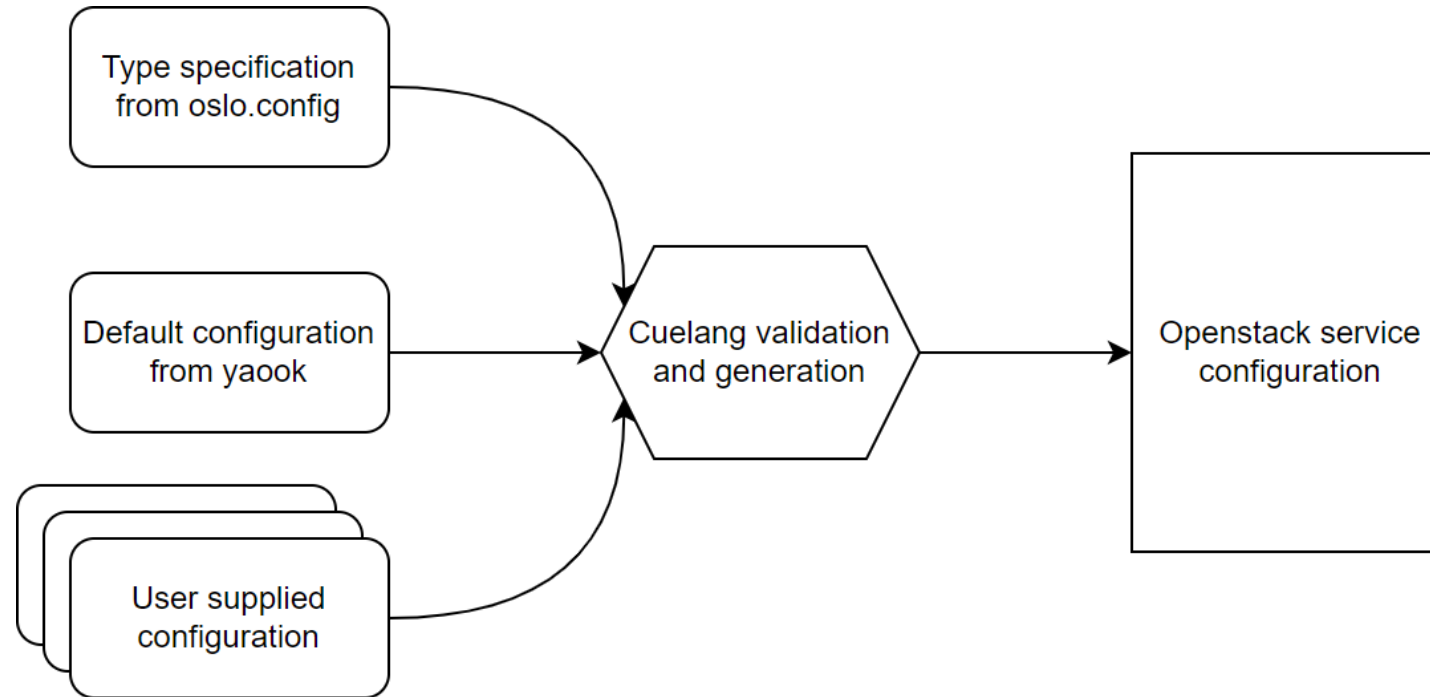
Deploying Glance in Yaook



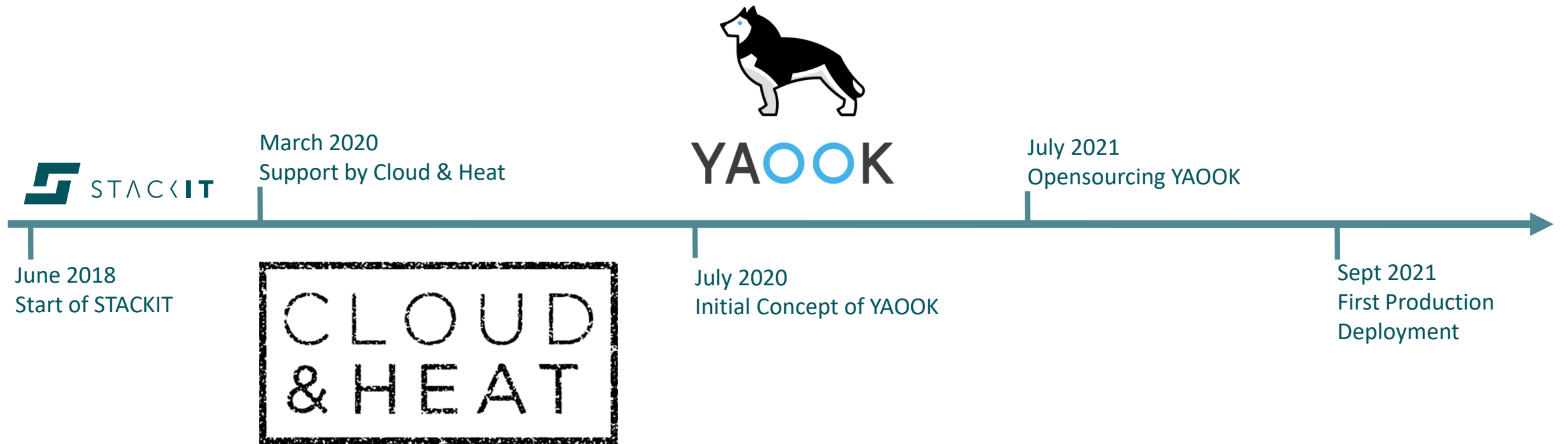
Decision 3: Eliminate complexity elsewhere

Fearless Automation

Configuration management is hard

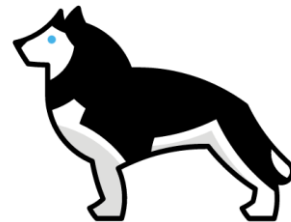
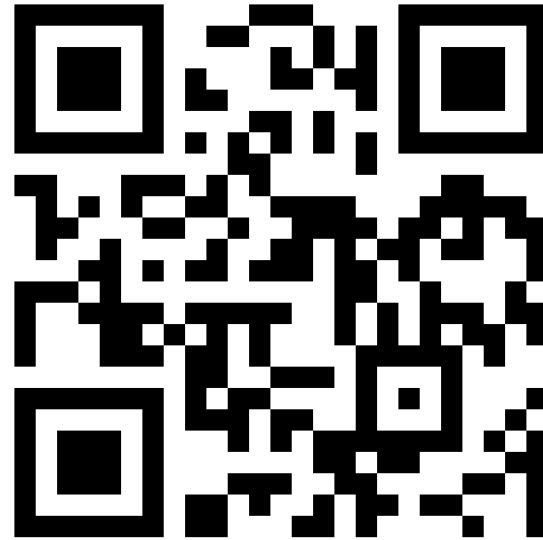


Road to YAOOK



<https://yaook.cloud>

We are hiring



YA^{OO}OK

