

# METRICS FIRST

by Timo Derstappen  
CTO & Founder at Giant Swarm





# ***Giant Swarm***

Managed Microservice infrastructure





- ★ Fully-managed Kubernetes
- ★ Datacenter Agnostic
- ★ Enterprise Ready



# OVERVIEW

➔ 10.000 Feet of modern Infrastructures

★ Why Metrics First?

★ Metrics in Kubernetes

★ Packaging up your apps

★ Integration LeanIX



# APIS EVERYWHERE

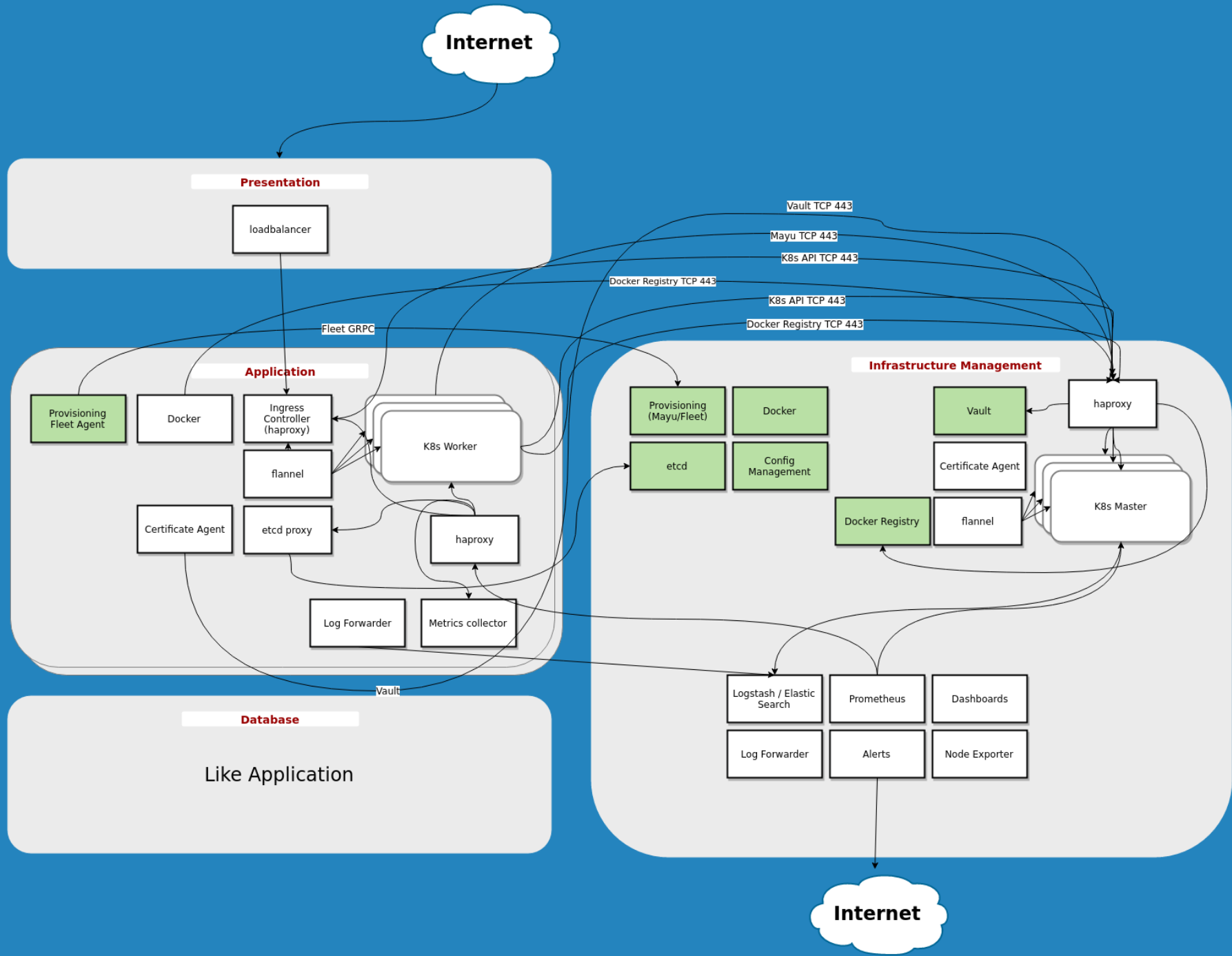
- ★ Software defined Everything
- ★ Everything is code



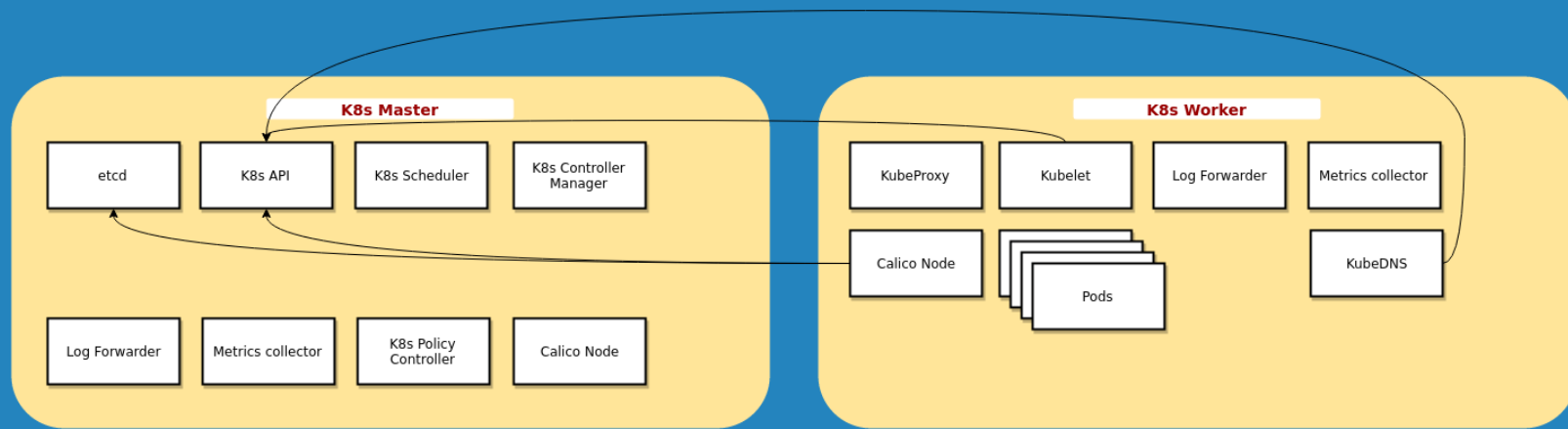
# INTEND-DRIVEN

- ★ Policy-based infrastructure
- ★ Primitives over Frameworks





# KUBERNETES





# CHICKEN & EGG

- ★ Infrastructures itself are Microservices
- ★ Same principles for underlying platform





**THE SRE WAS BORN**

O'REILLY®



# Site Reliability Engineering

HOW GOOGLE RUNS PRODUCTION SYSTEMS

Edited by Betsy Beyer, Chris Jones,  
Jennifer Petoff & Niall Richard Murphy

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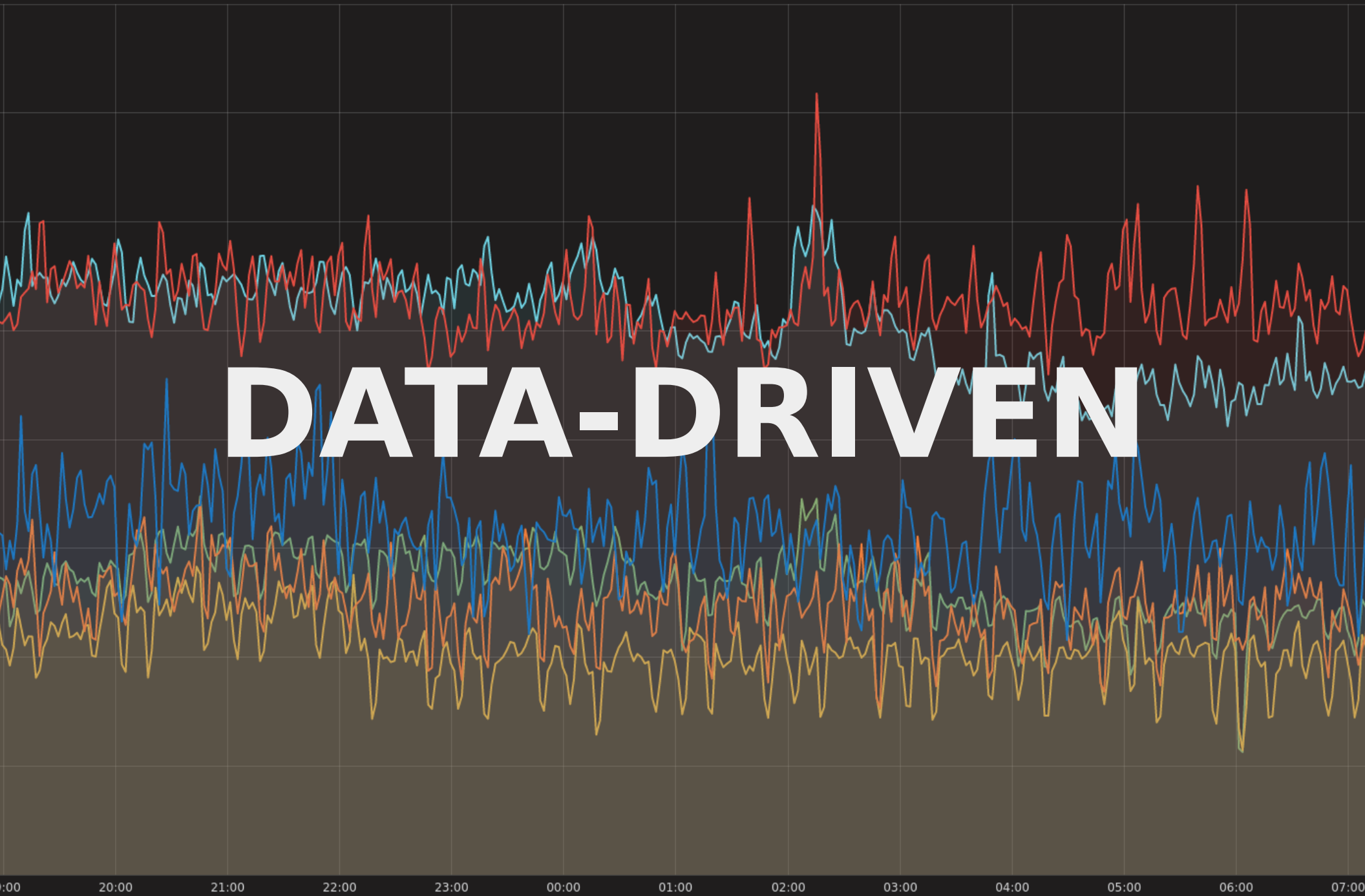
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RAFT

Message sent latency (by type)



**DATA-DRIVEN**

**"YOU BUILD IT, YOU RUN IT"**



# HOW TO OWN SOMETHING YOU HAVEN'T BUILT?



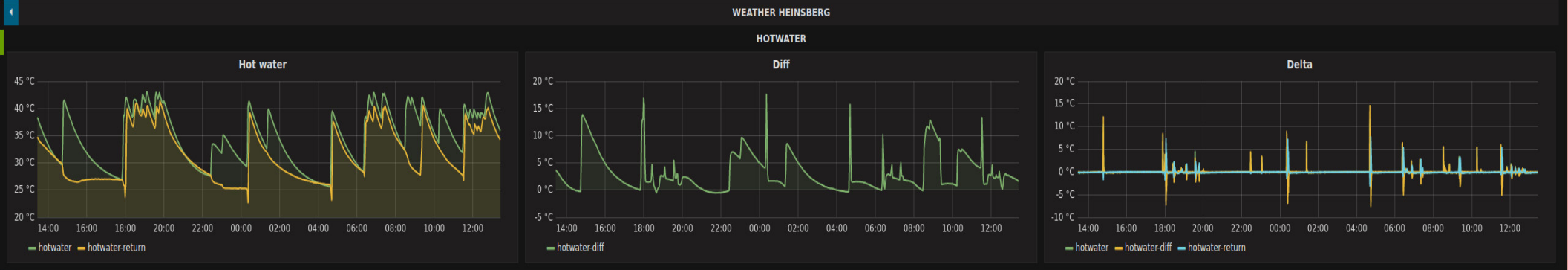
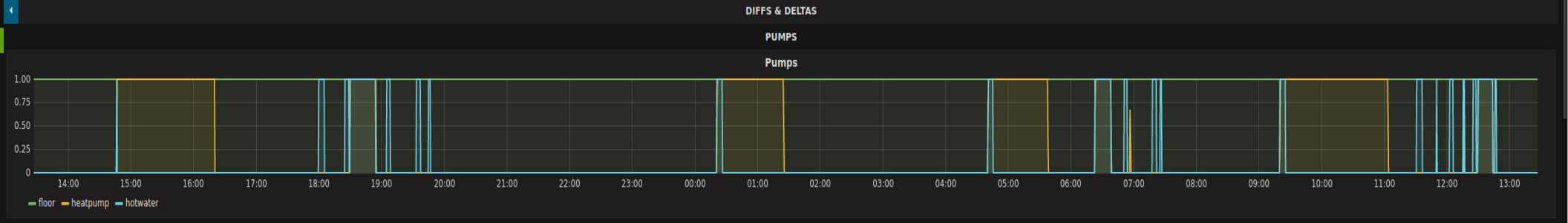
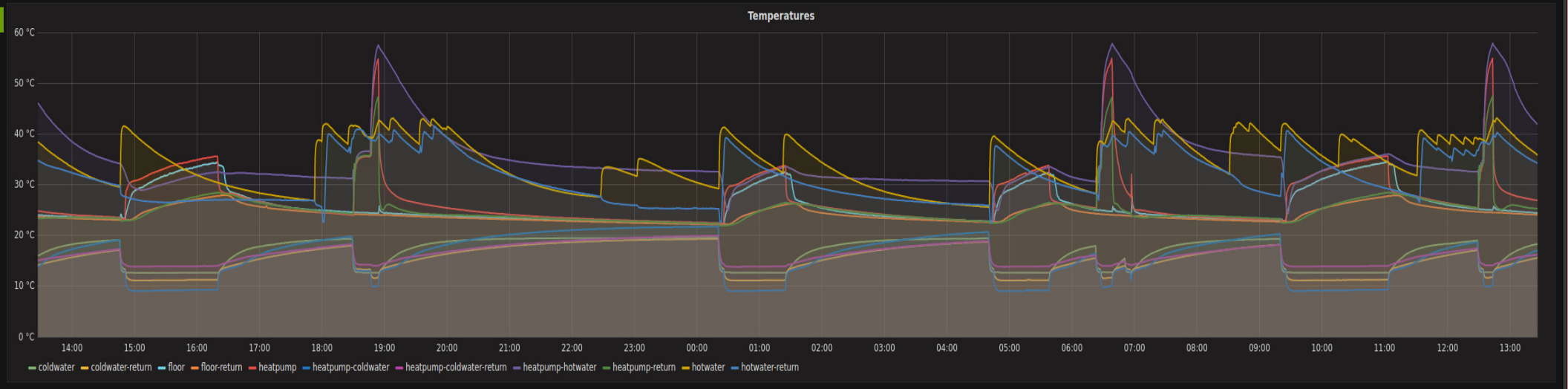
# EXCURSUS: HOMEOPS

Heating Dashboard





Events



FLOOR  
HEATPUMP

# OWNERSHIP

3rd party software without an owner

=> Legacy from day one



# WITH METRICS YOU

- work on the right things
- work on the important things
- which improves quality a lot



# AIRBNB

- Valuation: \$30b
- \$900m revenue last year
- 500 experiments per week on the platform (= Software updates)
- 2000 metrics tracked to improve bookings and conversion rate



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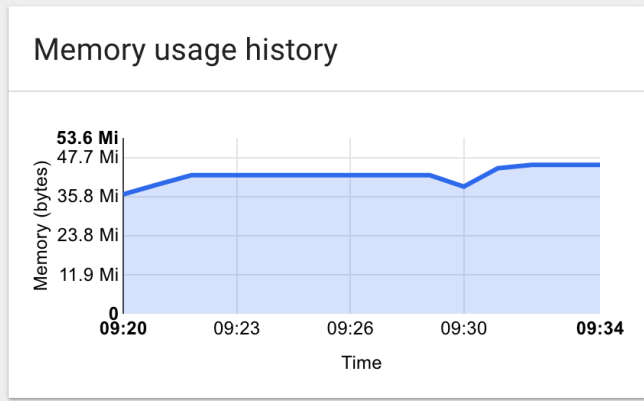
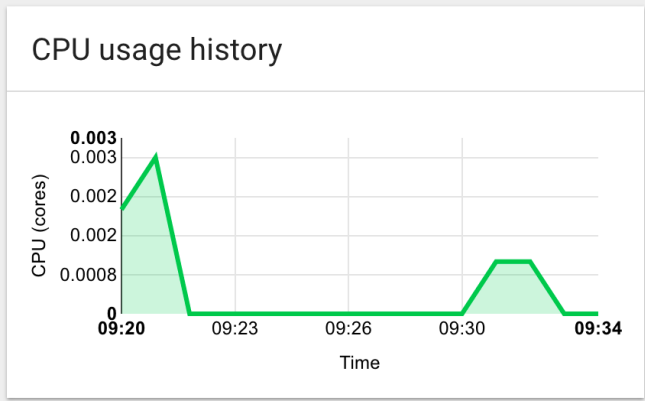
# METRICS IN K8S

- Many tools and products
- Integrated into service discovery
- Cluster drill down
- Filtering via labels



**kubernetes** Pods + CREATE

- Admin
  - Namespaces
  - Nodes
  - Persistent Volumes
- Namespace
  - default
- Workloads
  - Deployments
  - Replica Sets
  - Replication Controllers
  - Daemon Sets
  - Pet Sets
  - Jobs
  - Pods
- Services and discovery
  - Services
  - Ingress
- Storage
  - Persistent Volume Claims



Name	Status	Restarts	Age	Cluster IP	CPU (cores)	Memory (bytes)			
dash-demo-...	Running	0	2 days	10.148.0.3	0.002	23.418 Mi			
ewa-app-j26...	Running	805	2 days	10.148.0.11	-	-			
ewa-app-xm...	Running	804	2 days	10.148.1.3	-	-			
frontend-ml...	Running	0	2 days	10.148.0.5	0	5.844 Mi			
integration-t...	Running	0	2 days	10.148.0.4	0	5.734 Mi			
maxmaxma...	Pending	0	2 days	10.148.0.14	-	-			
mysql	Pending	0	19 days	-	-	-			



SEARCH

PROCESSES

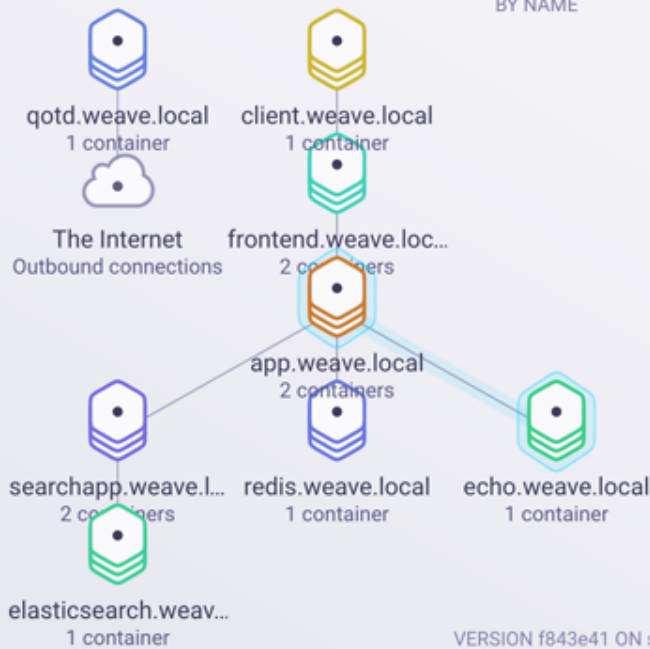
CONTAINERS

HOSTS

BY NAME

BY DNS NAME

BY IMAGE



9 NODES (7 FILTERED)

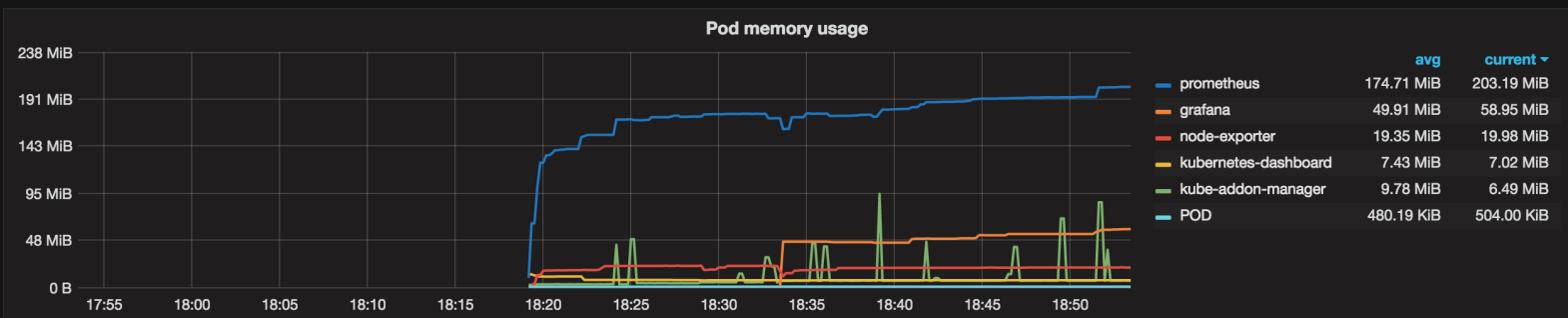
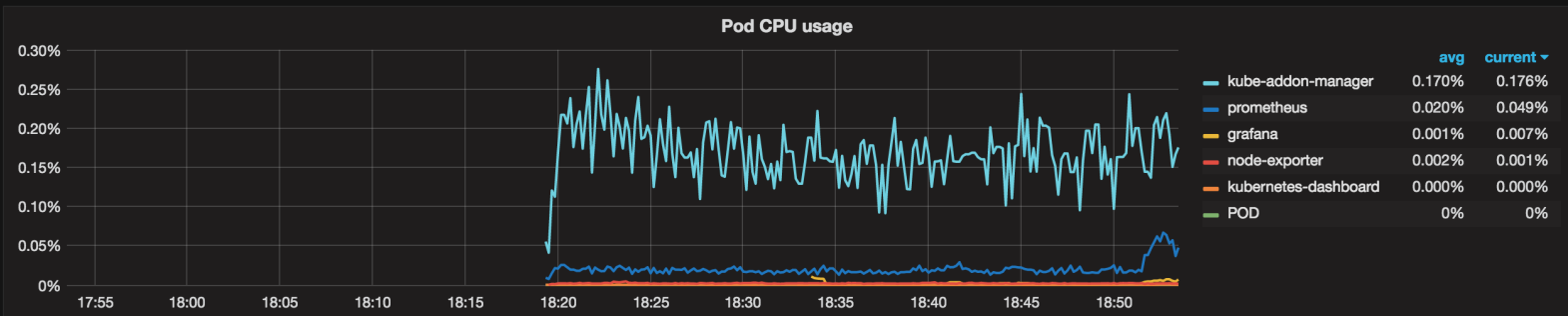
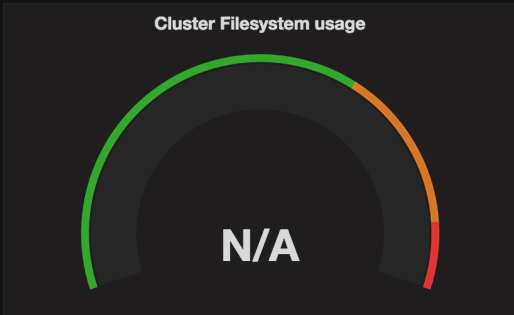
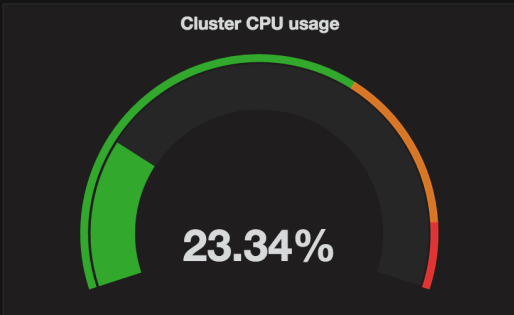
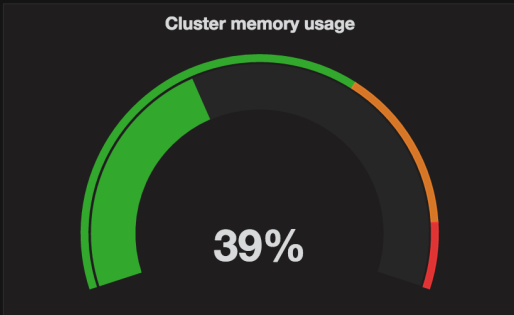
System containers Application containers Both

Stopped containers Running containers Both

VERSION f843e41 ON scope-tastic PLUGINS: n/a







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# BATTERIES INCLUDED?

- Container image
- Service Definition
- Dashboards
- Metrics endpoint
- Labels



# STANDARDS

- Cloud Native Foundation works on recommendations - not standards
- Establish your conventions for labels
- Establish your conventions for metrics
- [label-schema.org](https://label-schema.org)



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# LEANIX INTEGRATION

- LeanIX and Giant Swarm cooperate to create a Kubernetes integration
- First prototype was done in June



# AUTOMATIC HOUSEKEEPING

- Dynamically add services to LeanIX when they are deployed
- Keep information up to date
- Automatically add dependencies



# HOUSE CLEANING

- Scan for old versions
- Scan for vulnerabilities
- Latest conventions applied?





# METRICS

- Number of Deployments
- Uptime / Latency of a service (SLAs)
- Resource Usage of a service



# BUSINESS METRICS

- Revenue/Infrastructure Costs
- Customer usage
- Conversions



# THANKS FOR LISTENING!

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