lunar way

Building a Fintech Startup on Cloud Native Technology

By Kasper Nissen (@phennex) and Thomas Bøgh Fangel (@tbfangel)

Who?

Kasper Nissen (@phennex)

- Cloud Architect / SRE @lunarway
- Previous; LEGO Systems, IT Minds, Drivelogger
- Organiser & Co-Founder of Cloud Native Aarhus
- MSc. Computer Engineering
- Founder Cloud Native DK Slack Community
- Occasional speaker at meet ups and conferences
- Blogger at kubecloud.io

Who?

Thomas Bøgh Fangel (@tbfangel)

- Web Architect @lunarway
- Previous: Stibo Systems, Mobilethink, IBM
- MSc. Mathematics
- Occasional speaker at meet ups and conferences

lunar way®

Lunar Way in Numbers

35.000+
customers

5M+
transactions

60+
microservices

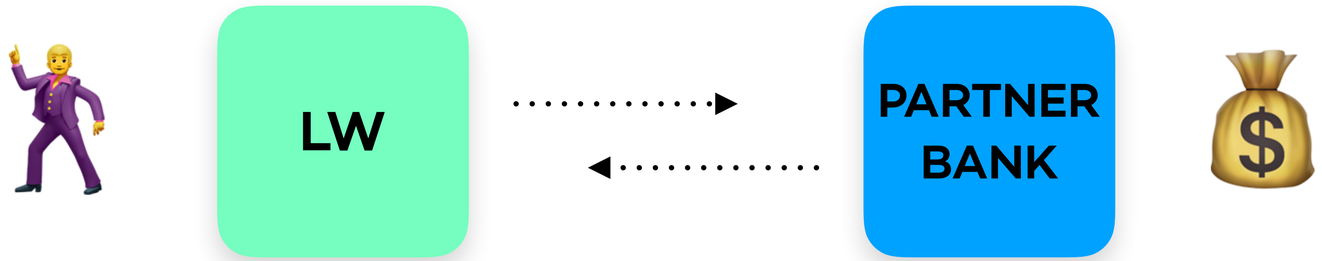
60+
employees

500M+ USD
through our system

3
kubernetes clusters

The Partner Bank Model

- All money is in the partner bank
- Leverage the partner bank's infrastructure and compliance



AGENDA

- The value proposition of Cloud Native
- Where we started
- Where we are now
- Observability at Lunar Way

Cloud Native, the CNCF definition

Cloud native technologies empower organizations to build and run ***scalable applications*** *in modern,* ***dynamic environments*** *such as public, private, and hybrid clouds.* ***Containers****,* ***service meshes****,* ***microservices****,* ***immutable infrastructure****, and* ***declarative APIs*** *exemplify this approach.*

These techniques enable ***loosely coupled*** *systems that are* ***resilient****,* ***manageable****, and* ***observable****. Combined with robust automation, they allow engineers to make* ***high-impact changes frequently*** *and* ***predictably*** *with* ***minimal toil****.*

The Cloud Native Computing Foundation seeks to drive adoption of this ***paradigm*** *by fostering and sustaining an ecosystem of* ***open source, vendor-neutral projects****. We democratize state-of-the-art patterns to make these innovations accessible for everyone.*

https://www.cncf.io/about/faq/

CLOUD NATIVE COMPUTING FOUNDATION

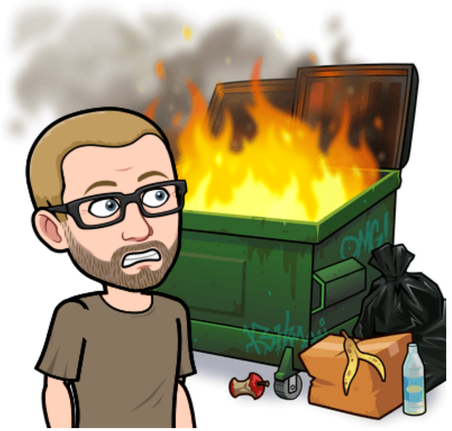
Business Value

Speed

Scalability

Resilience

Format

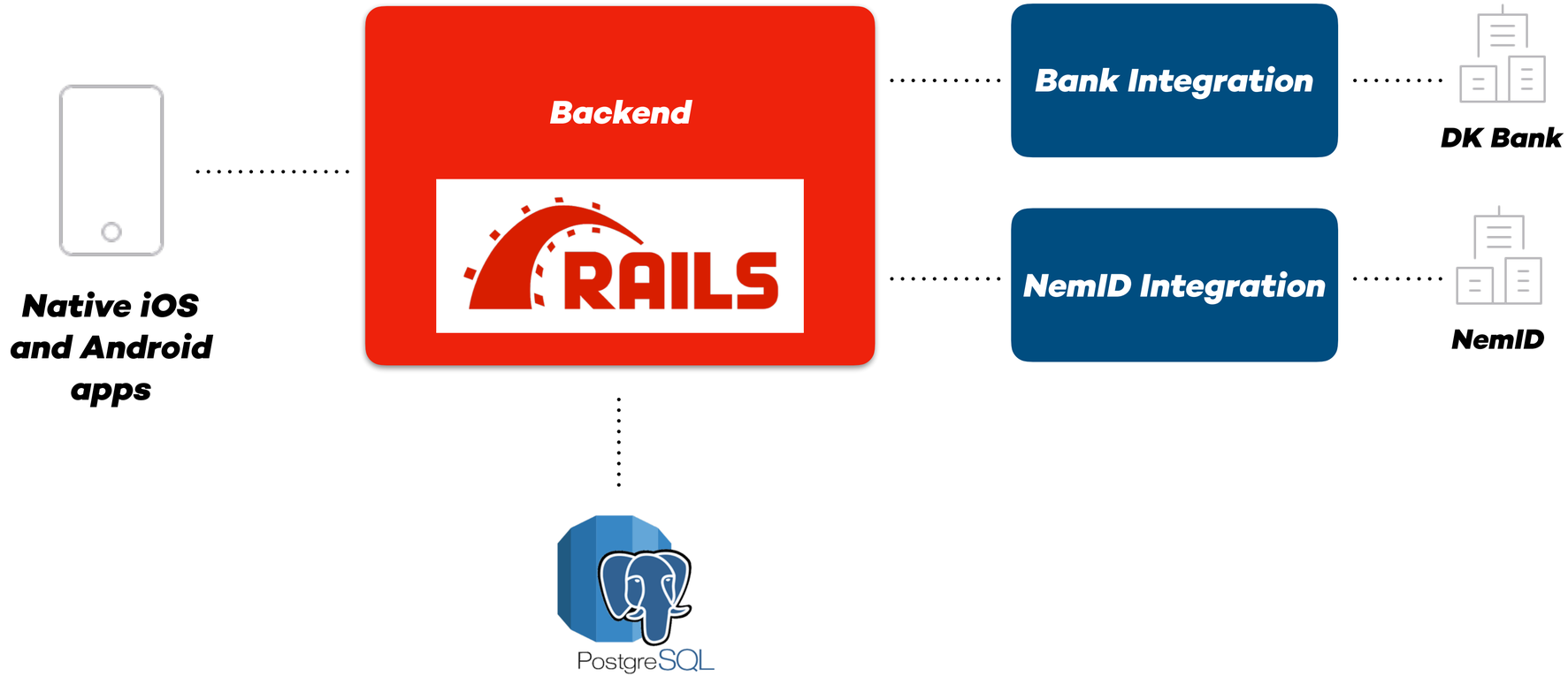


Dev

Ops

Where we started

Application Architecture



Assessment of App Architecture

Relating to Business Value

No Speed

No Scalability

No Resilience

Infrastructure Architecture

iOS/Android

HAPROXY

HAPROXY

amazon web services

Rails | Signup | Goals | Credit | Support | Feed | Push

Rails | Signup | Goals | Credit | Support | Feed | Push

Rails | Signup | Goals | Credit | Support | Feed | Push

HashiCorp Terraform

ANSIBLE

Jenkins

Assessment of Infrastructure Architecture

Relating to Business Value

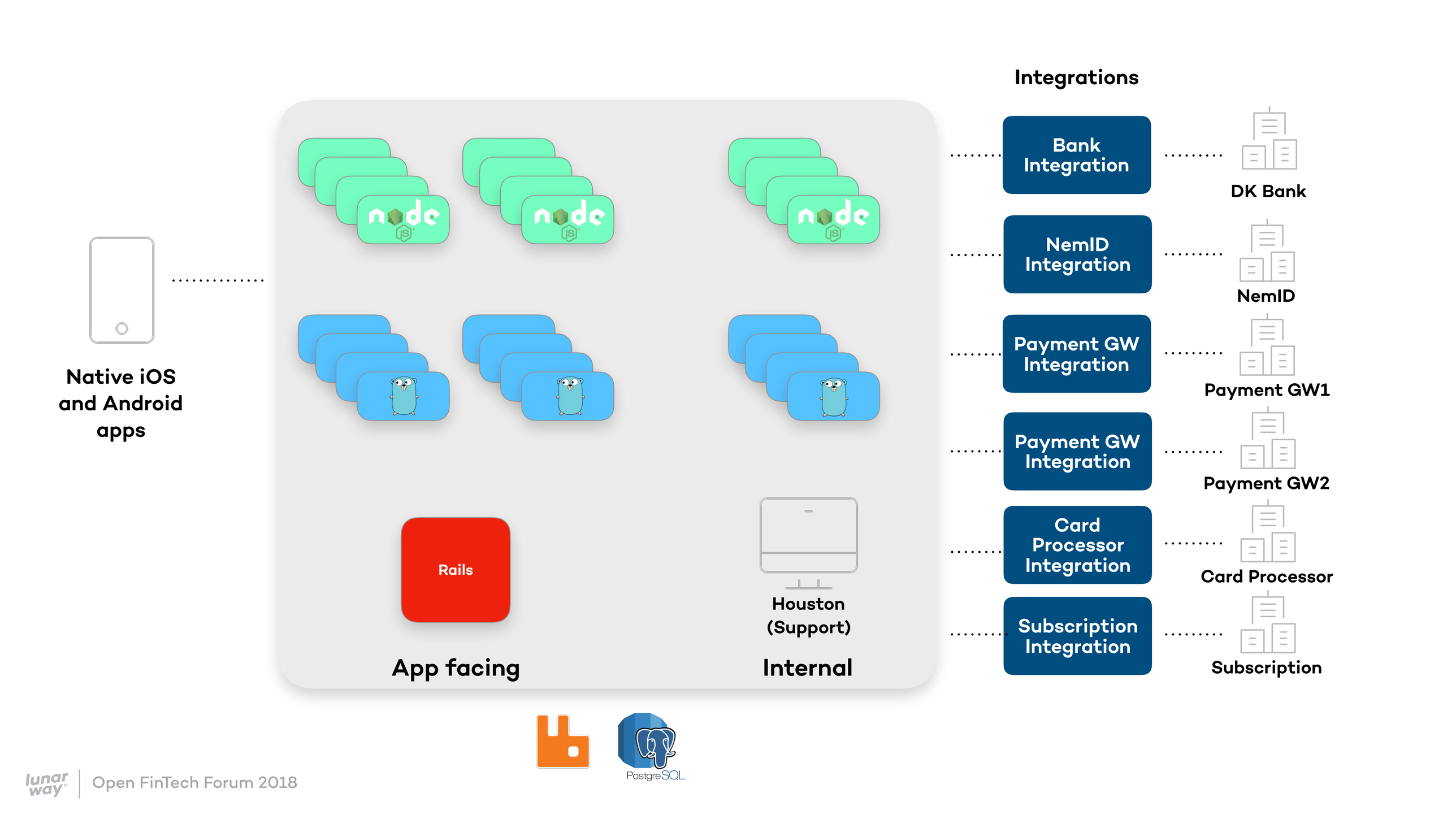
No Speed

No Scalability

No Resilience

Where we are now

New App Architecture Principles


Native iOS and Android apps
Rails
App facing
Houston (Support)
Internal
Integrations
Bank Integration
DK Bank
NemID Integration
NemID
Payment GW Integration
Payment GW1
Payment GW Integration
Payment GW2
Card Processor Integration
Card Processor
Subscription Integration
Subscription
PostgreSQL

Assessment of New Architecture

Speed

Scalability

Resilience

New App Architecture Challenges

Key Learnings App Architecture

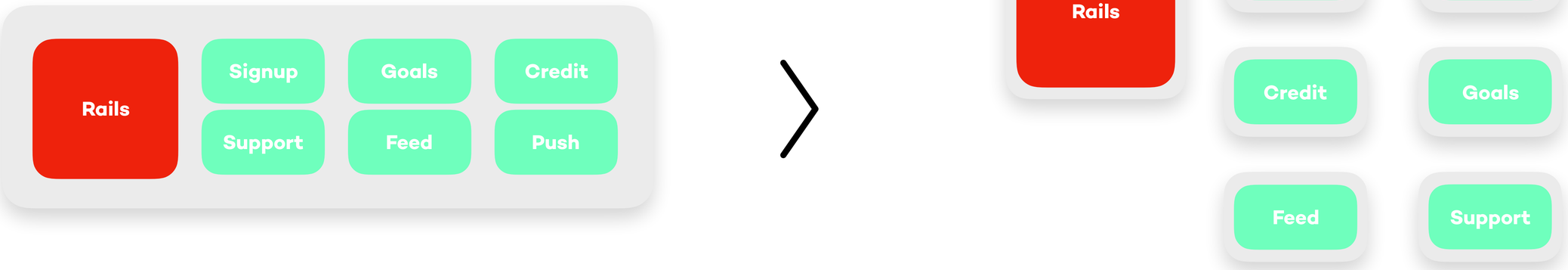
”Think about the challenges, specifically prioritize deployment and runtime platform”

”Be systematic and automate”

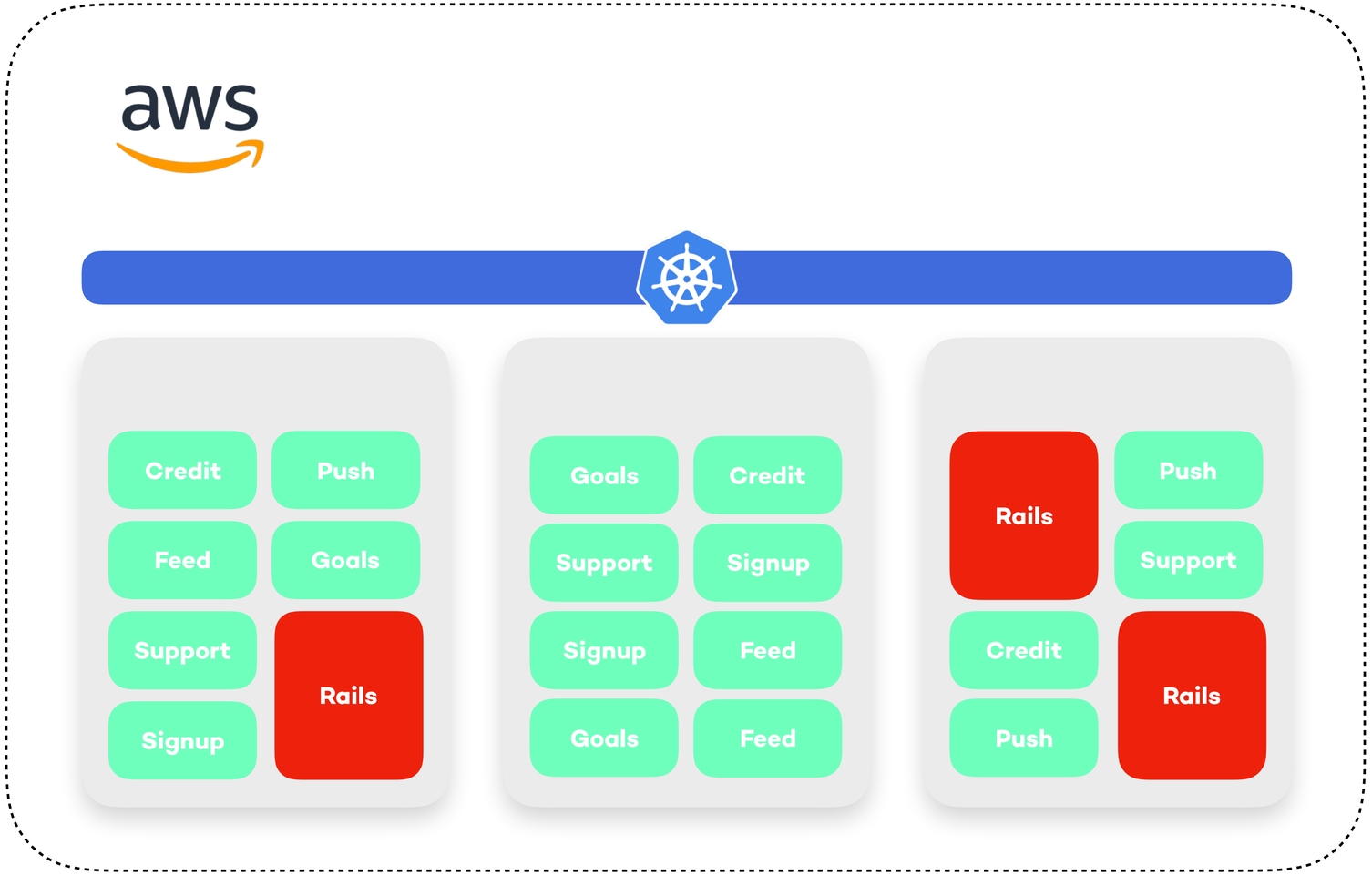
”Prefer async communication... preferably event driven”

New Infrastructure Architecture Principles

Deployable Unit



iOS/Android



kops

Assessment of New Infrastructure

Speed

Scalability

Resilience

Key Learnings Infrastructure Architecture

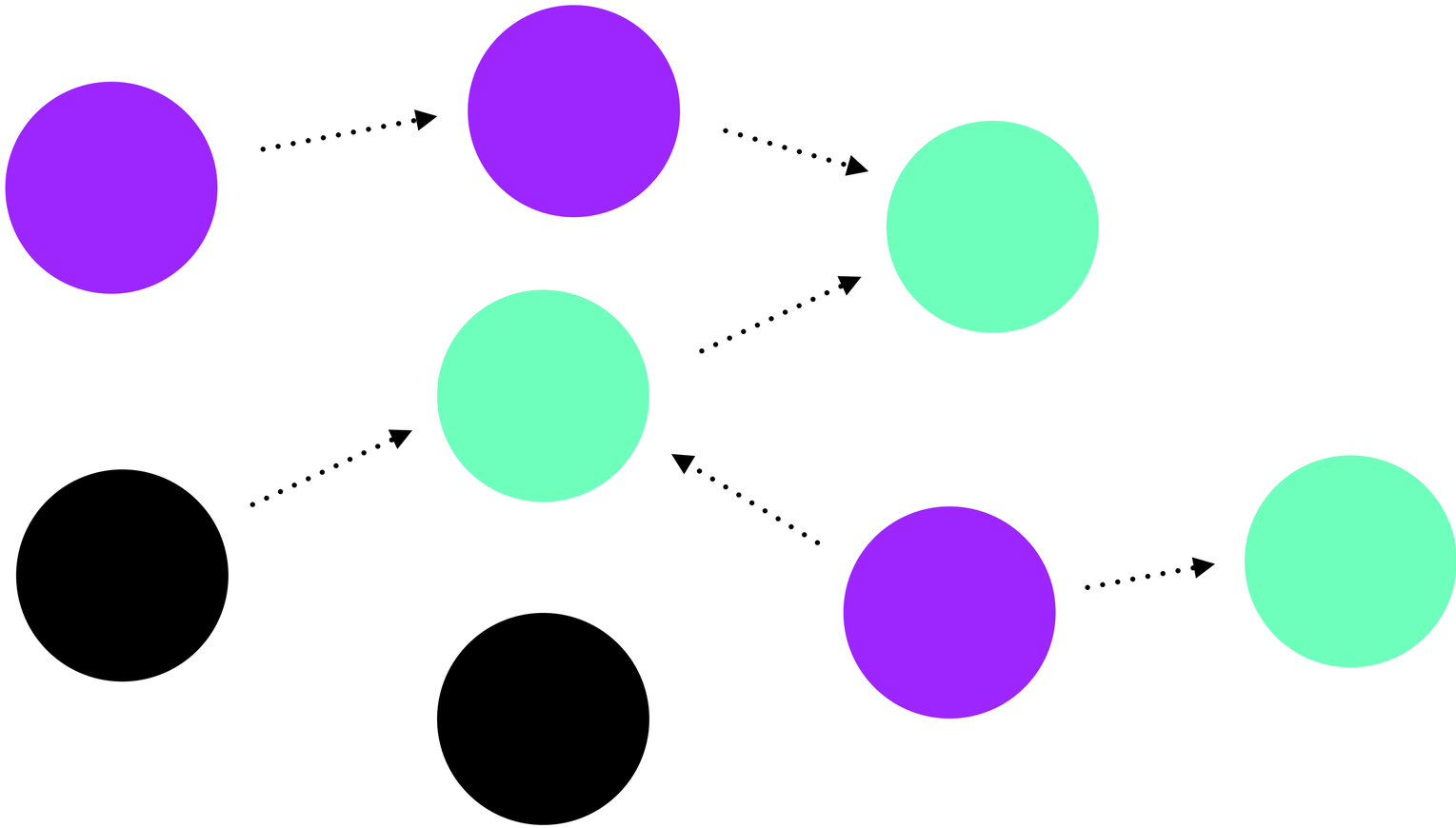
”If it hurts, do it more often”

”Prioritize your infrastructure to unlock the potential of microservices”

”Apply #1 to infrastructure as well”

Observability at Lunar Way

Application Perspective



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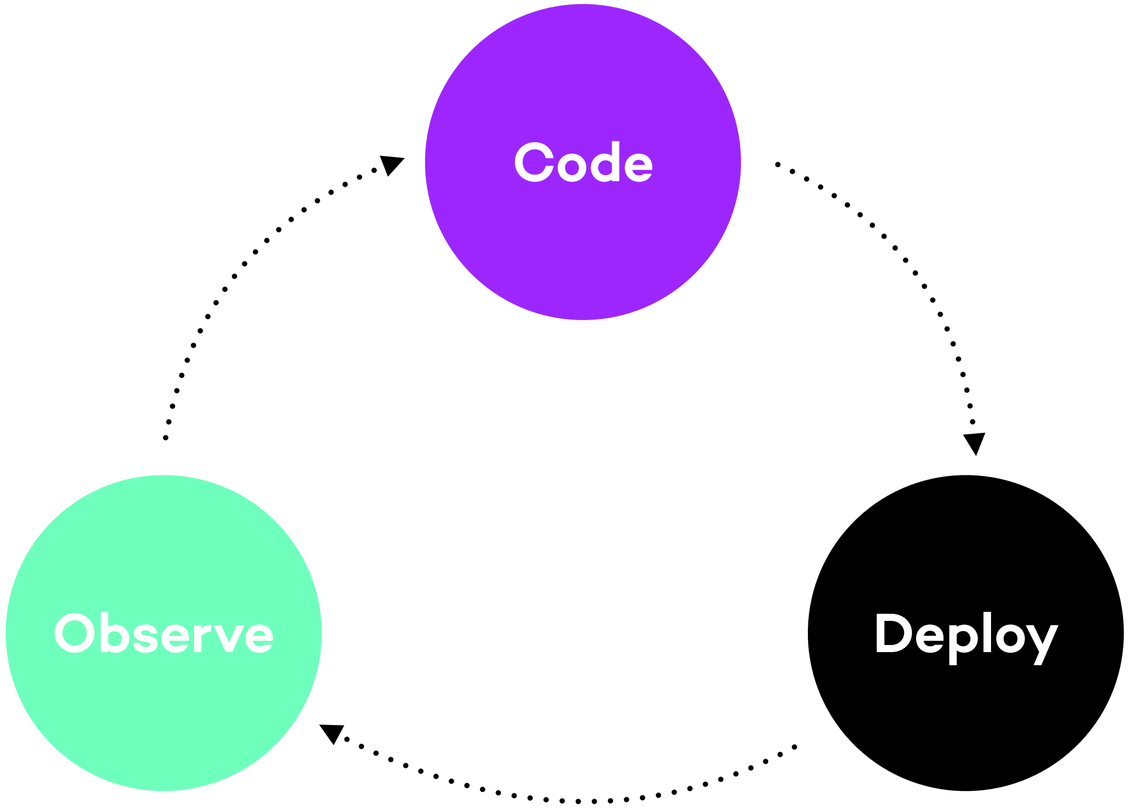
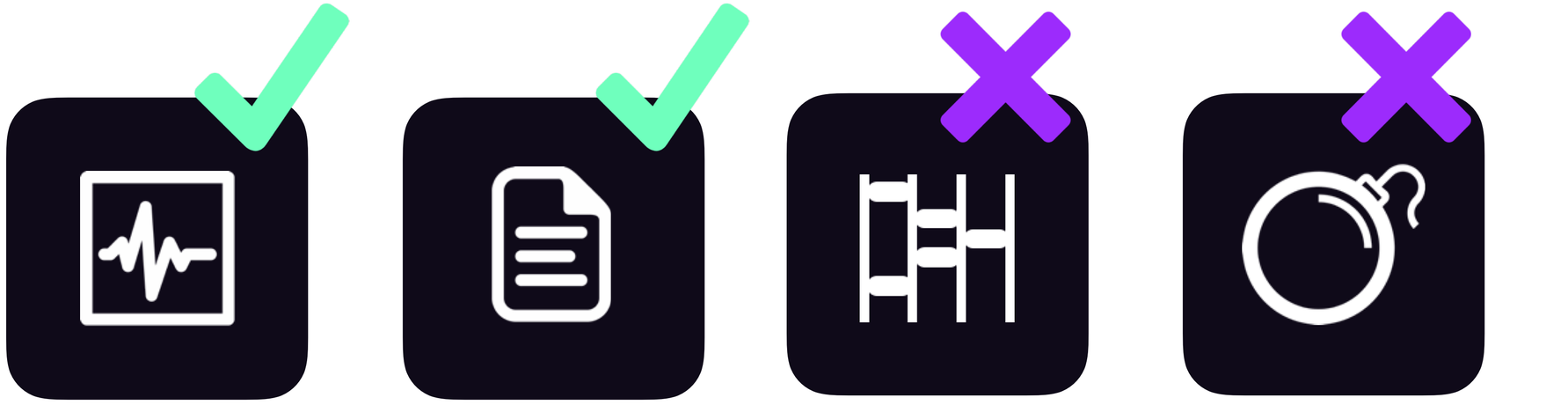
Observability Drives Improvement

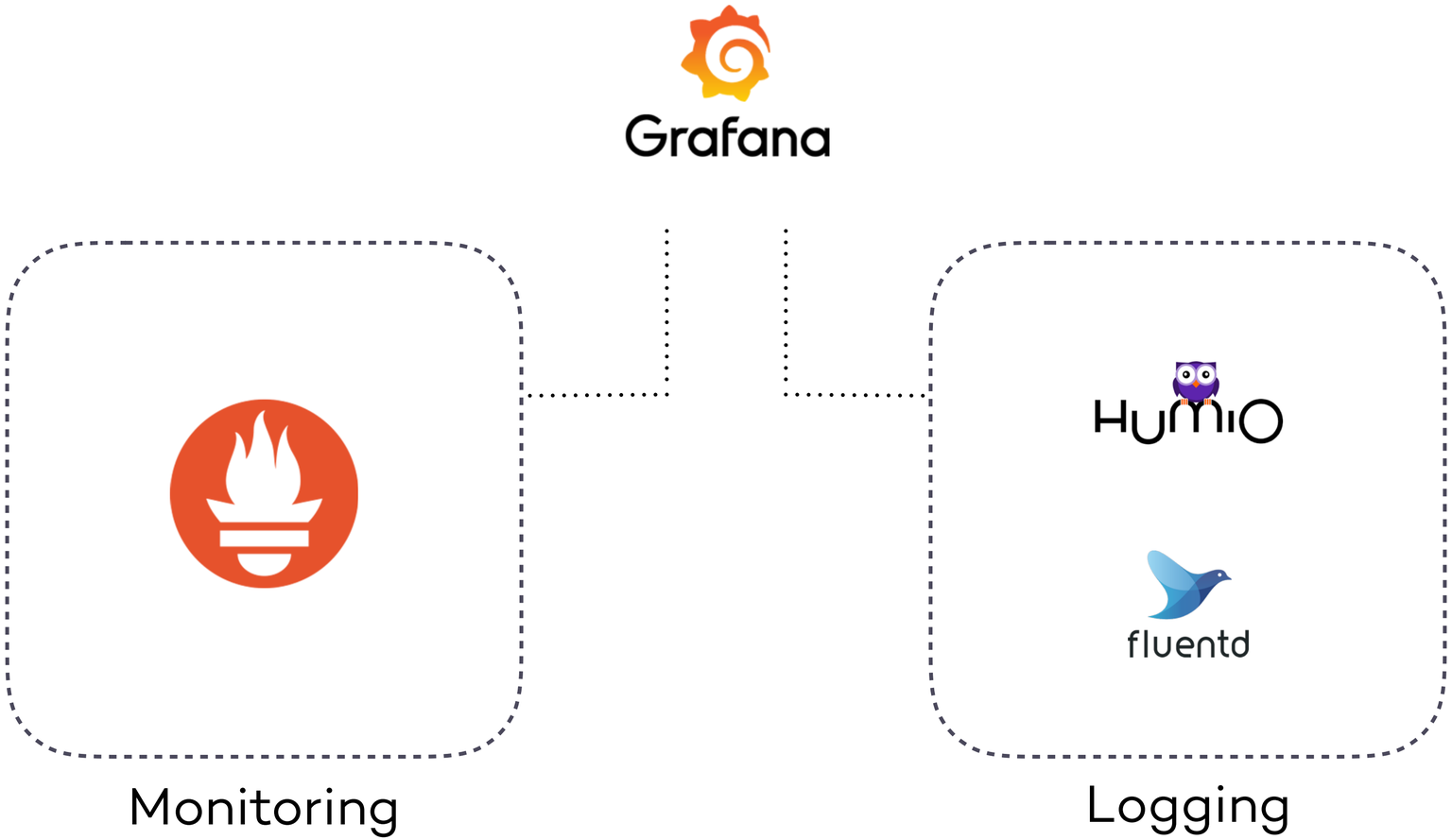


Infrastructure Perspective



Monitor Logging Tracing Chaos Experiments

Observability at Lunar Way



Key Learnings Observability

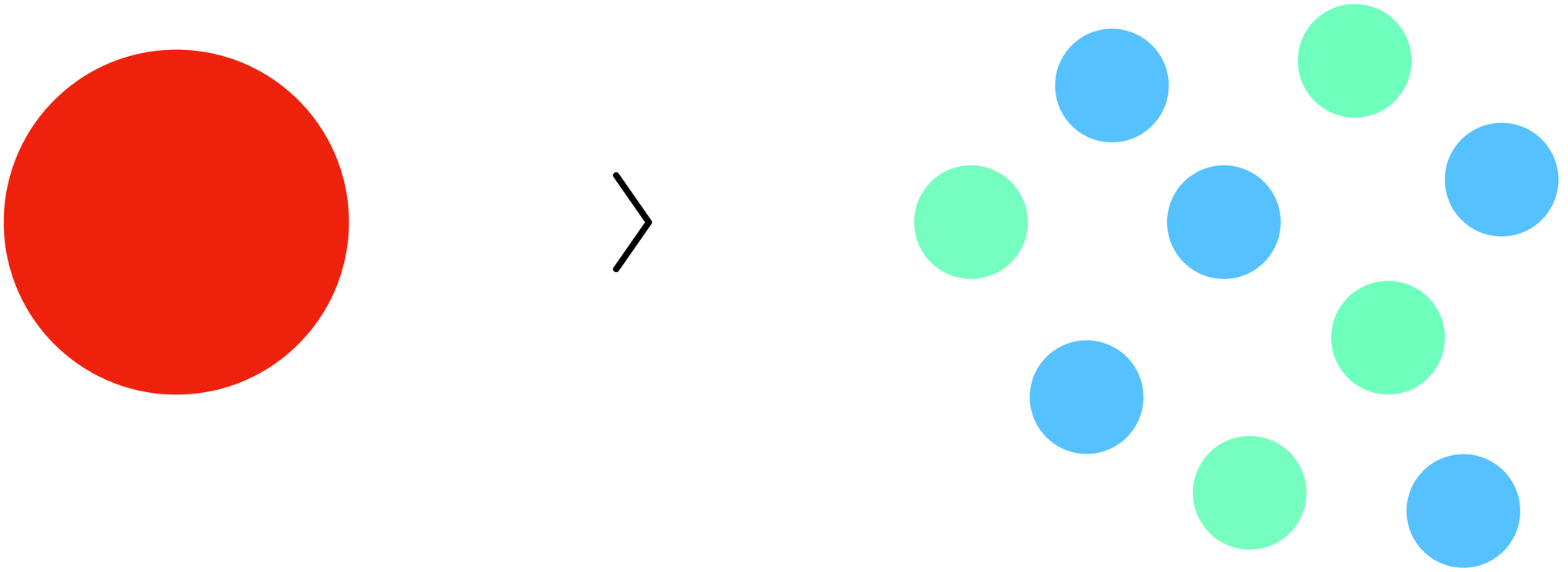
”Read your logs, use your metrics and improve them”

”Systematize logging and metrics”

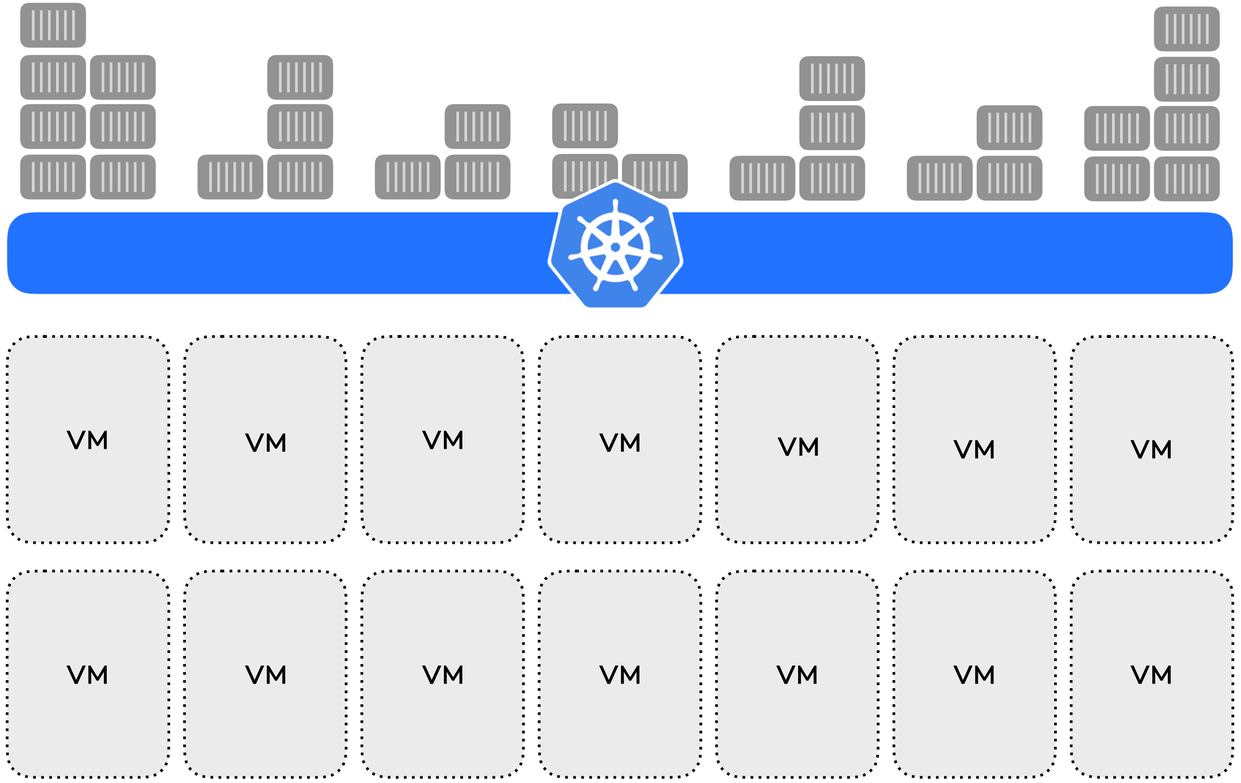
”Logging and monitoring is not enough!”

Open Source Perspectives at Lunar Way

Transformation to Microservices



Kubernetes is the foundation on which we built this



Wrapping up

Key takeaways

Kubernetes is complex, but enables endless possibilities

Prioritize your infrastructure to unlock the potential of Microservices

Make your system observable

Read your logs and make them easily accessible

If it hurts, do it more often

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Thank You!

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