UZ LEUVEN

nexuzhealth

Setting up and using the Red Hat OpenShift Container Platform.

Mark Vinkx: System engineer infrastructure & operations

Introduction

UZ Leuven & nexuzhealth

UZ LEUVEN nexuzhealth

UZ Leuven

large hospital in Belgium

🛏 1,955

9,000+

165

Centralized IT

Clinical Work Station (KWS)

EPR

and much more

One stop shop for all care providers

Patient Management

- Planning
- Order entry
- Electronic drug prescription
- Bedside scanning
- Drug-drug interactions
- Lab results

Patient Centric

Workflow oriented

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🏥 20 (18 prod)

🗄 1

🛏 10,000+

👥 25,000+

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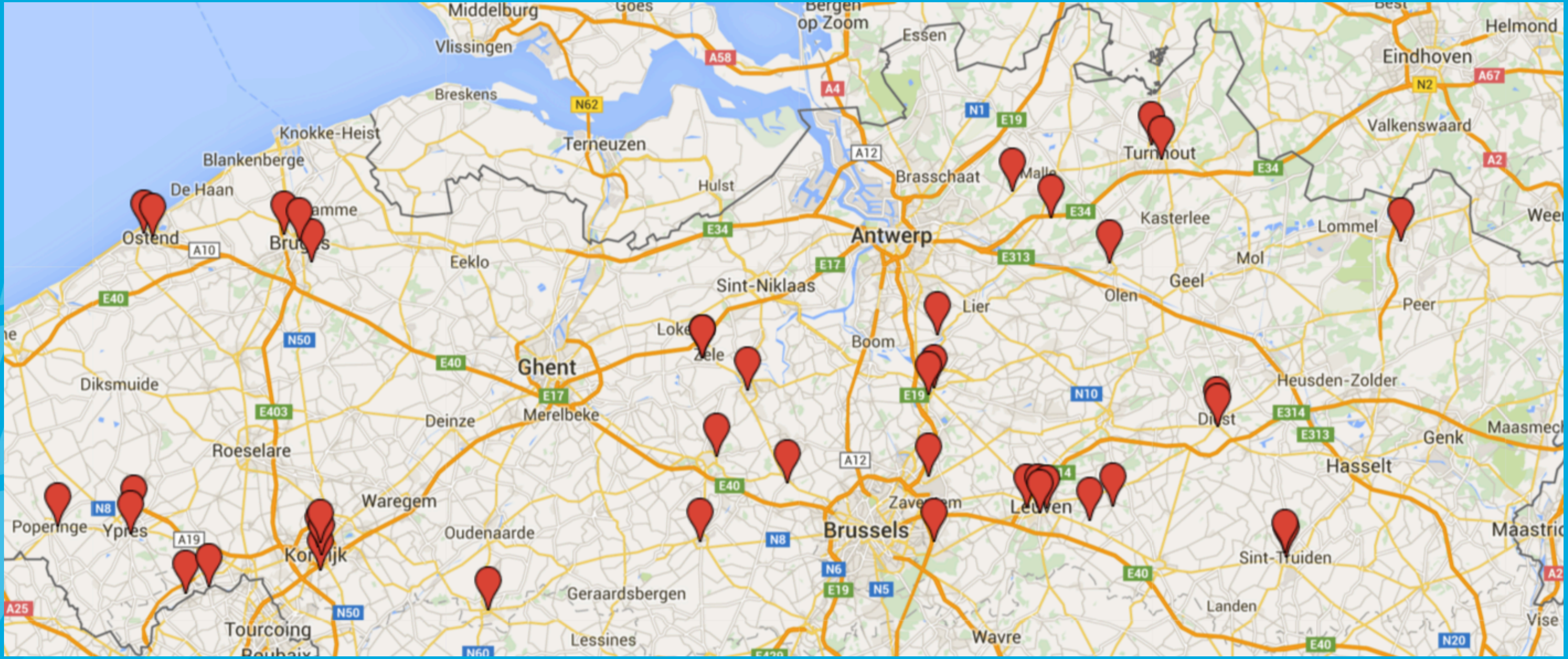
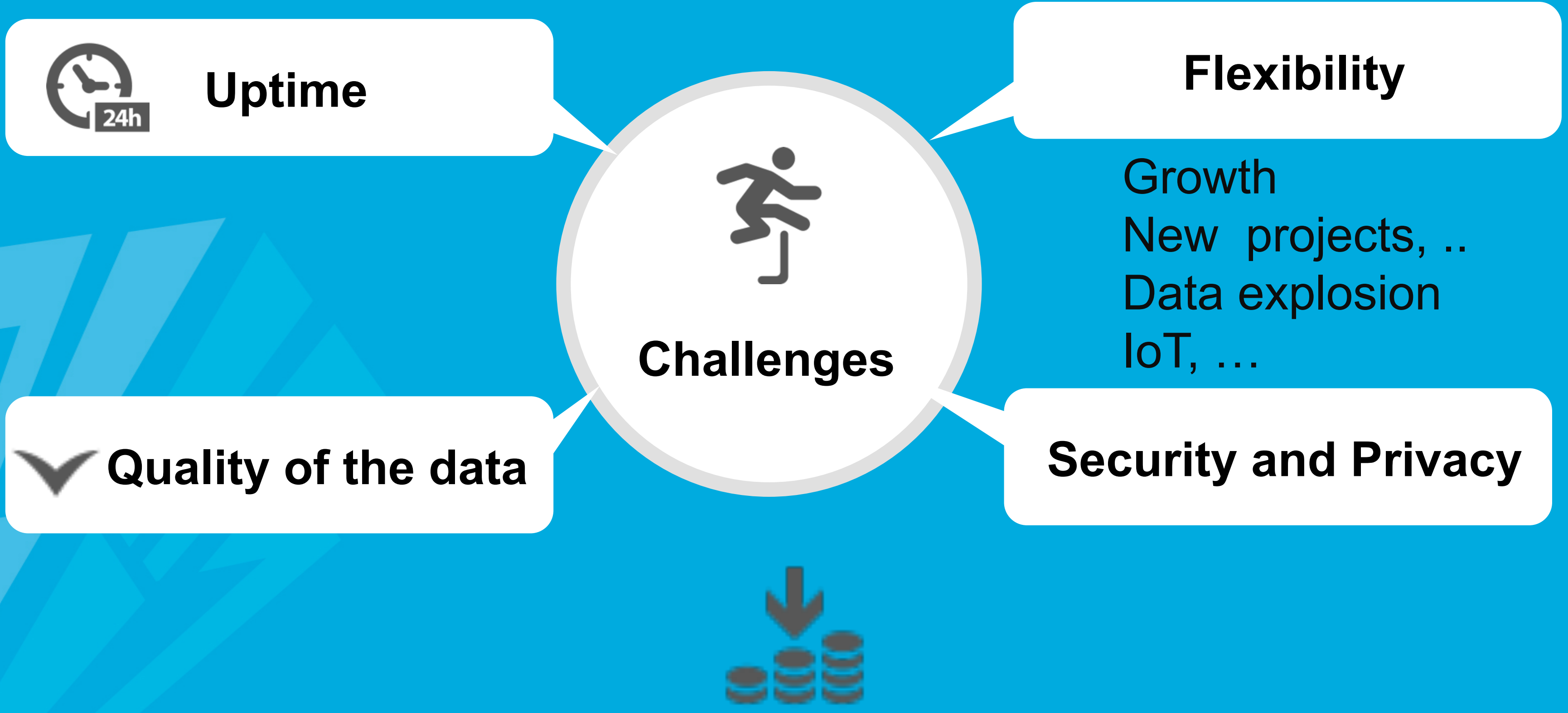
nexuzhealth service points



Challenges



Challenges

Uptime

Flexibility

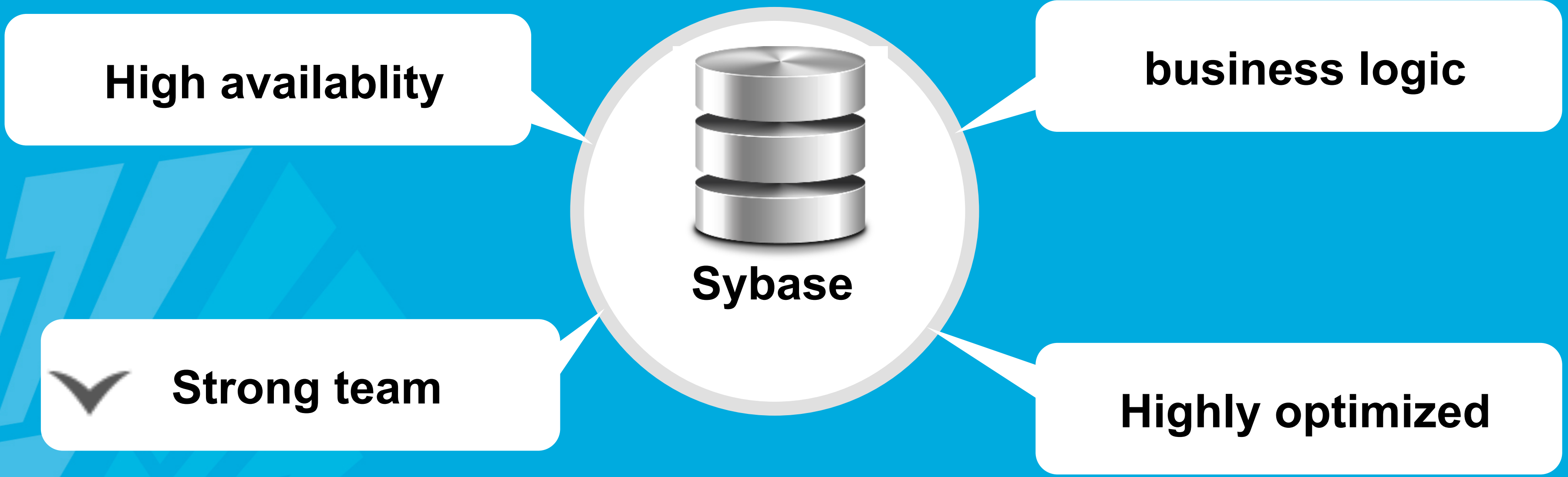
Growth
New projects, ..
Data explosion
IoT, …

Quality of the data

Security and Privacy

Where do we come from

Database



High availablity

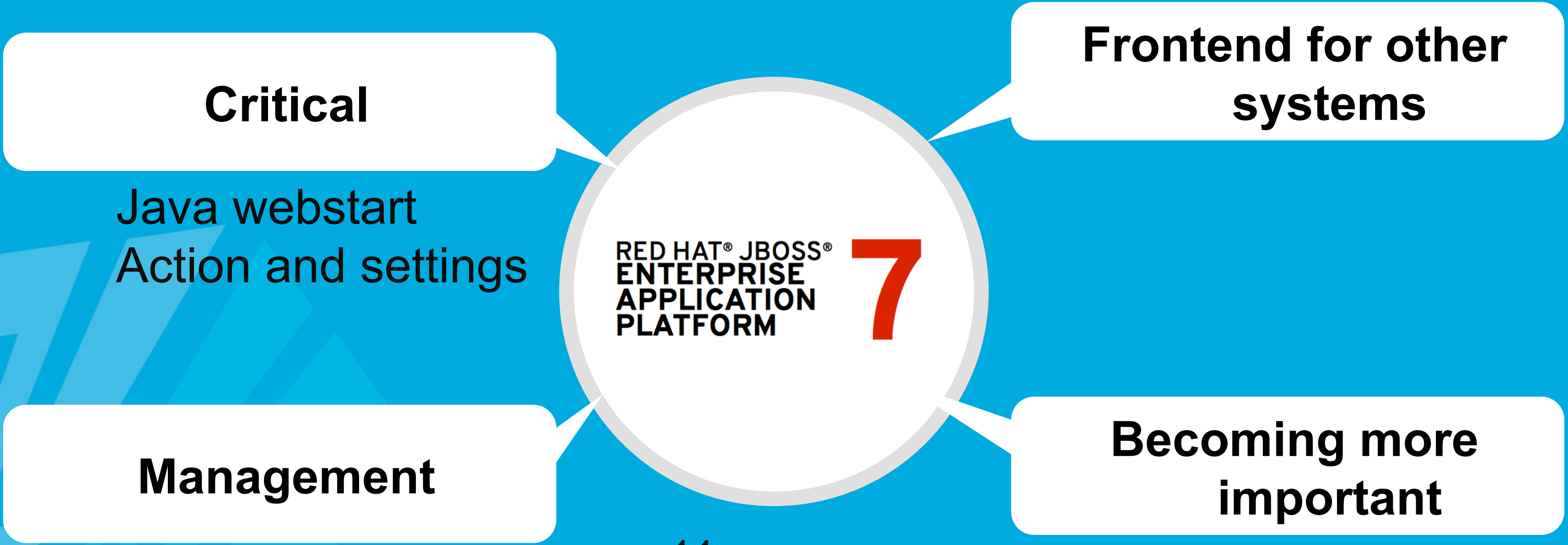
business logic

Sybase

✓ Strong team

Highly optimized

Middle tier



Critical

Java webstart
Action and settings

Management

Frontend for other systems

Becoming more important

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External services
Mobile applications

11 server
78 apps

First Steps

The Team

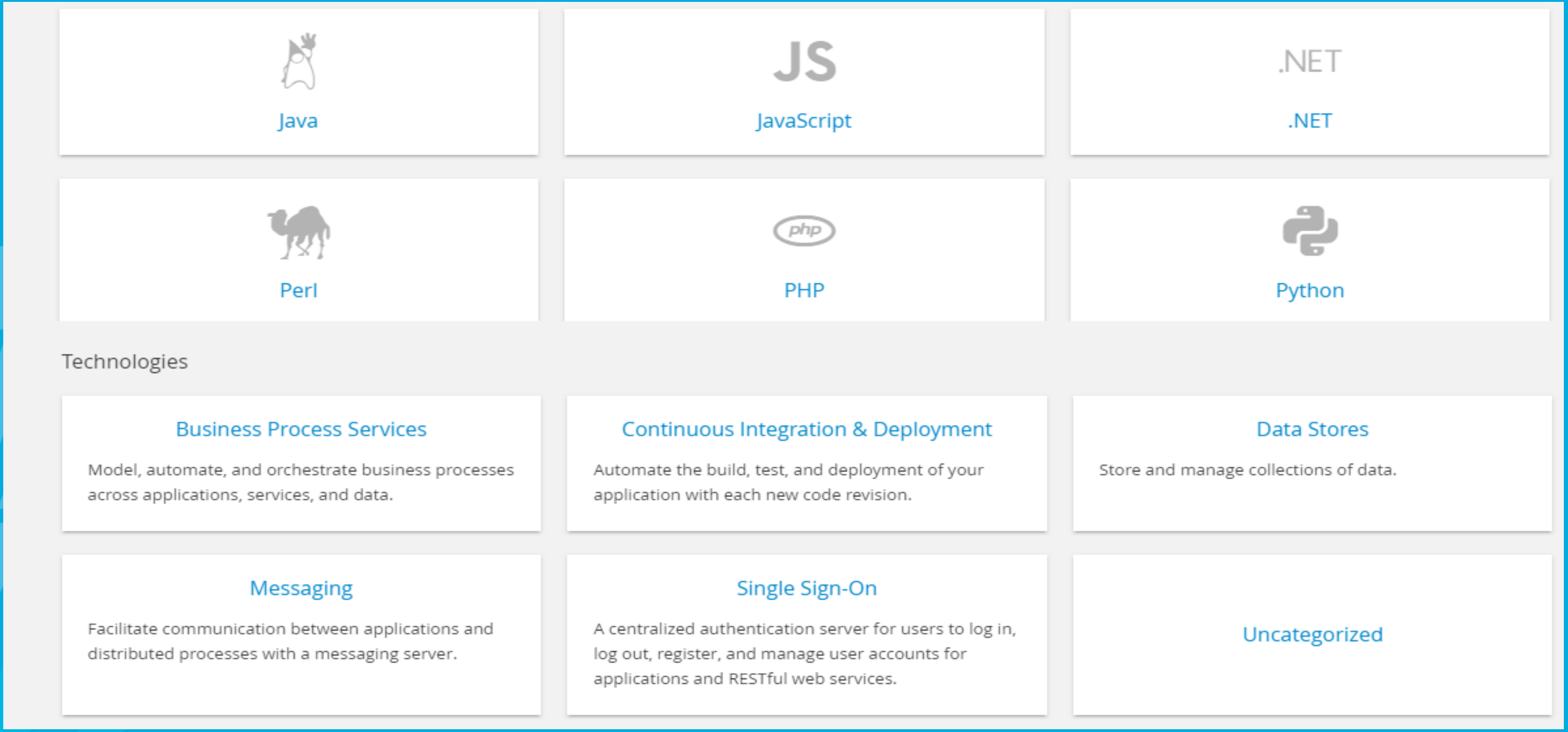
Developer

JBoss admin

Unix admin

Network storage specialist

Application catalog



Java

JavaScript

.NET

Perl

PHP

Python

Technologies

Business Process Services

Model, automate, and orchestrate business processes across applications, services, and data.

Continuous Integration & Deployment

Automate the build, test, and deployment of your application with each new code revision.

Data Stores

Store and manage collections of data.

Messaging

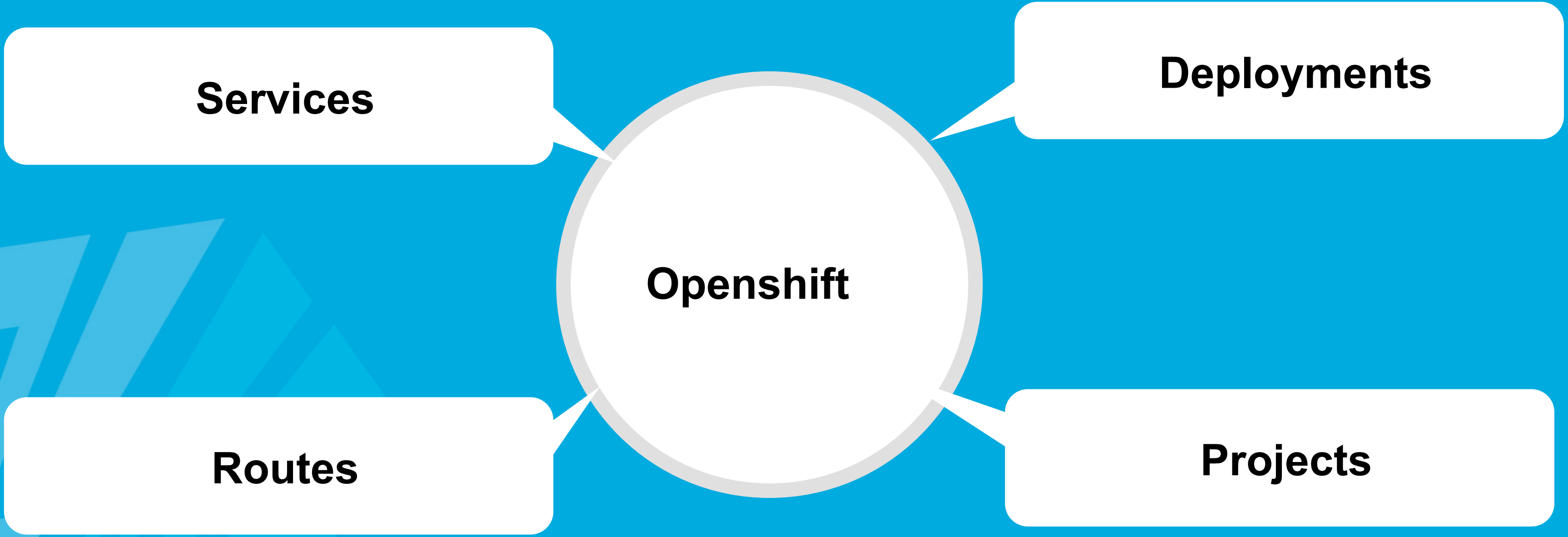
Facilitate communication between applications and distributed processes with a messaging server.

Single Sign-On

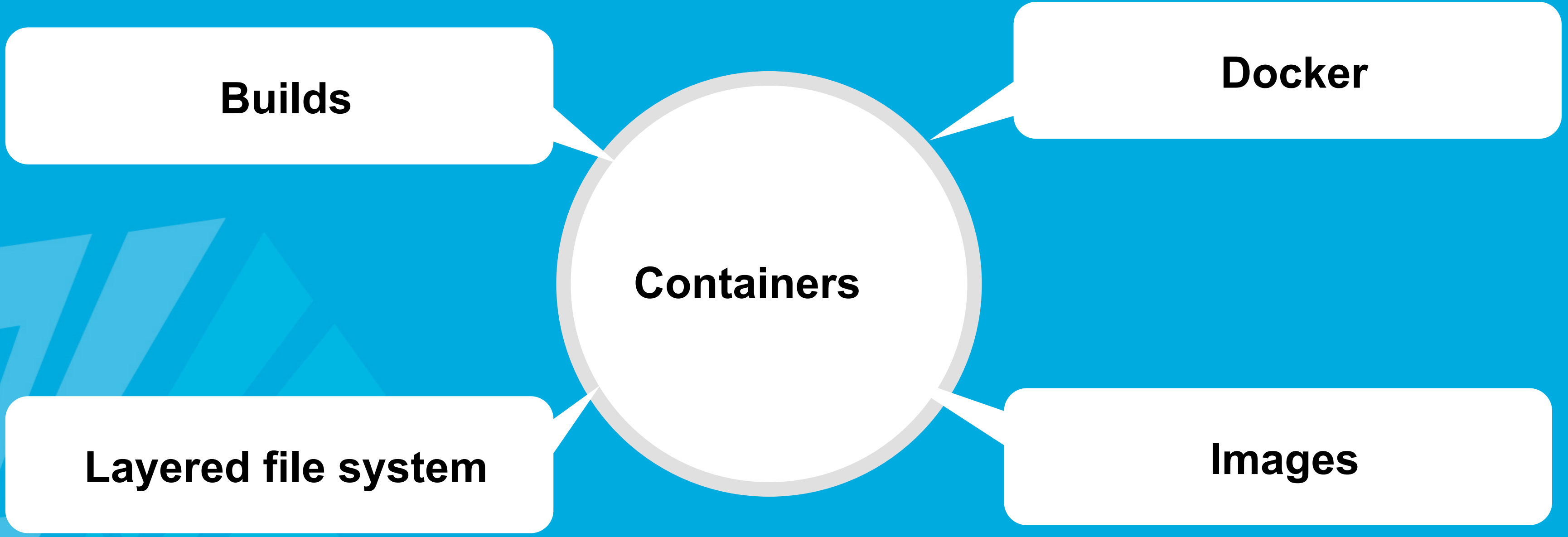
A centralized authentication server for users to log in, log out, register, and manage user accounts for applications and RESTful web services.

Uncategorized

Learning about openshift



Learning about containers



Builds

Docker

Containers

Layered file system

Images

Setting up the production cluster

Production cluster

- Deployment options
- Subscription model
- Installation
- Impact on Development

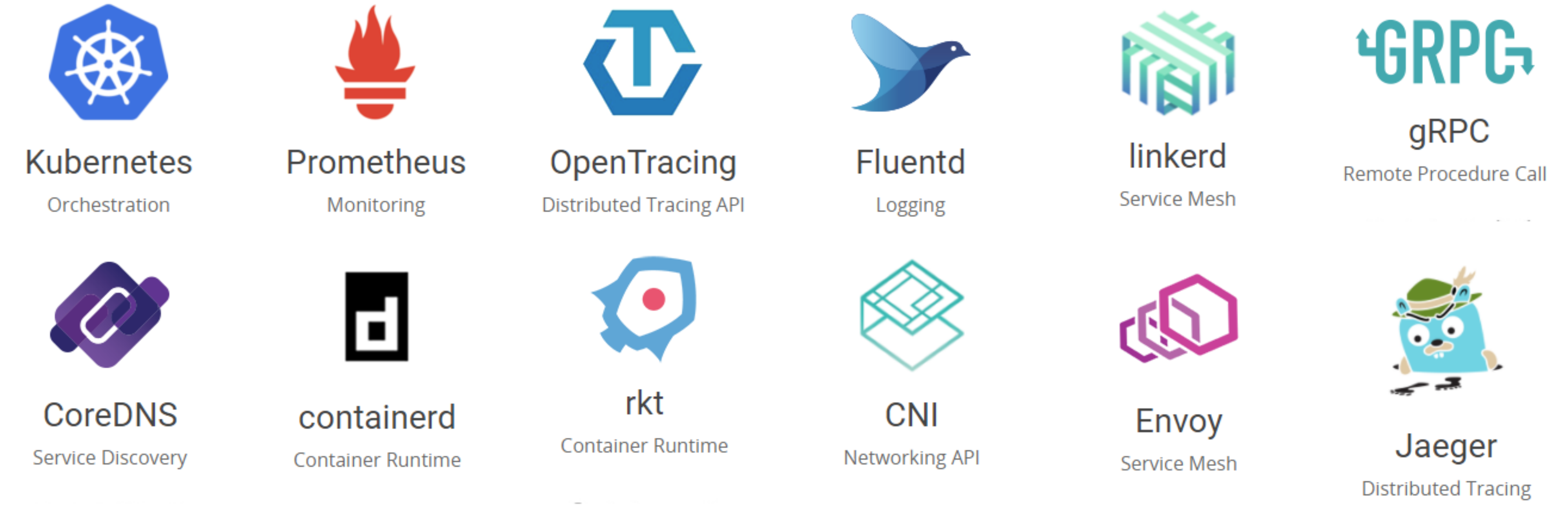
CloudNativeCon pushed us to the limit

Cloud Native Computing Foundation

- Mission
  - drive the adoption of a new computing paradigm that is optimized for modern distributed systems environments

- Role
  - Fostering the growth and evolution of the ecosystem

Cloud Native Computing Foundation



Kubernetes	Orchestration
Prometheus	Monitoring
OpenTracing	Distributed Tracing API
Fluentd	Logging
linkerd	Service Mesh
gRPC	Remote Procedure Call
CoreDNS	Service Discovery
containerd	Container Runtime
rkt	Container Runtime
CNI	Networking API
Envoy	Service Mesh
Jaeger	Distributed Tracing

CloudNativeCon

- Kubernetes
- Ecosystem of tools
- A lot of traction

Then the dark times came

Problems

- Container to container communication
- Healthchecks

Result

- failing applications
- Bootloops

Tackling the problems

- Support case
- Escalation engineer

Getting it fixed

- Kubernetes Core
- Openshift network plugins

Putting it all together

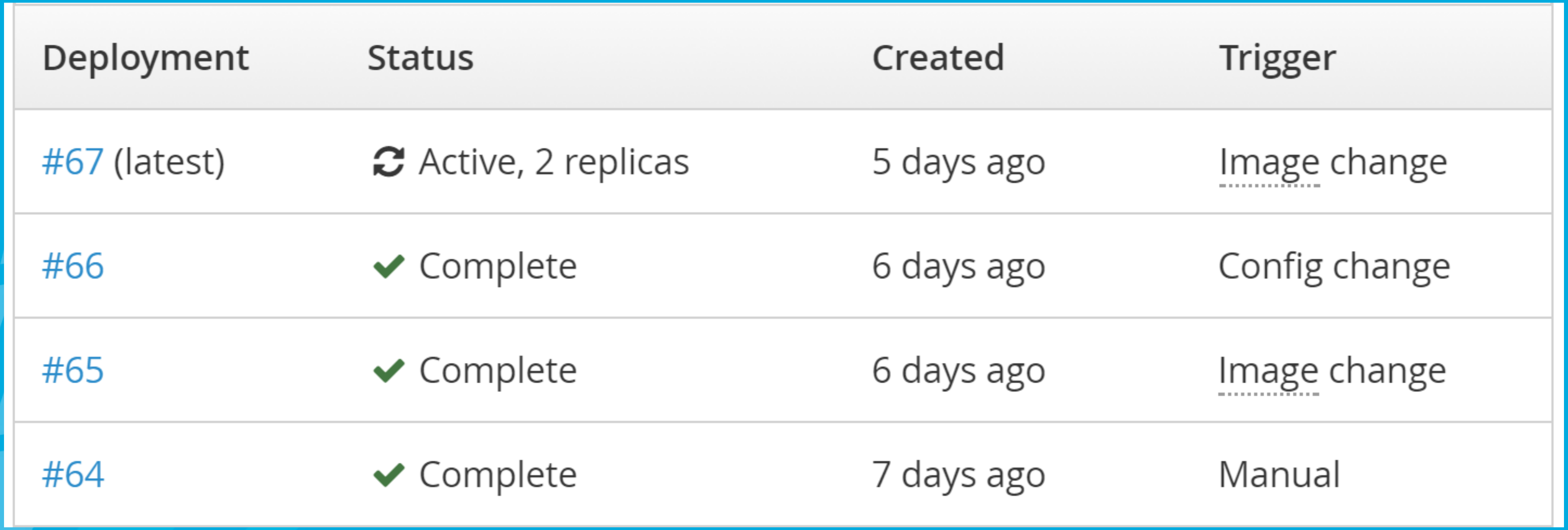
Building confidence

- Stabilize the cluster
- Integrate in our environment
- Expand the team

Enjoying the benefits

- Applications in production
- More environments
- Greater level of control

Greater level of control



Deployment	Status	Created	Trigger
#67 (latest)	⟳ Active, 2 replicas	5 days ago	Image change
#66	✓ Complete	6 days ago	Config change
#65	✓ Complete	6 days ago	Image change
#64	✓ Complete	7 days ago	Manual

Looking beyond

Things to do

- Setting up multiple clusters
- Interface for development
- Metrics and monitoring

Is this the end ?