

# K8s as a service with Rancher

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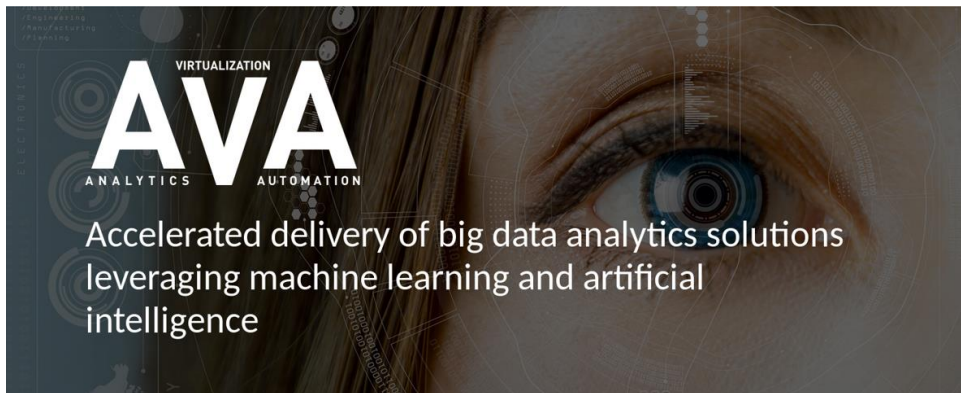
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# Goals

- What is Rancher ?
- How Rancher can be used for k8s deployment ?
- How Rancher leverages kubernetes functionality ?

## Few words about me

- 8 years in Nokia
- Worked in telco research (VoIP, MIMO), QA, Technical Support and Development
- Currently developing Nokia AVA platform as part of Analytics Engine



- Sites in Warsaw, Wrocław, Kraków and Bydgoszcz
- Smart City, 5G evaluation
- code::dive, test dive, Nokia Garage
- ~4500 employees in Wrocław
- Wrocław: BTS SW, OSS, MANO, AE

# Why Nokia needs Analytics Engine?

- 1865 started as a pulp (paper) mill

....

- 1979-1984 established first fully automated cellular phone system (1G) with commercially available phones
  - 1991 first 2G call with Nokia 1011
    - 2000 ;)



- 1998 – ... 3GPP, LTE, 5G

# Nokia Analytics Engine ecosystem



# Kubernetes as a service

- Separate cluster per each project
- Better granularity
  - Separate openstack account
  - Separate CEPH account
  - ...
- Security
- Cluster failure mitigation

# K8s as a service - assumptions

## Access

- Ingress

## Network

- cluster networking (flannel, calico, etc.)

- Network security

## Deployment

- K8s deployment

- Orchestrator deployment (multiple clusters)

## Apps

- Deployment/Helm

- Scaling

- Service discovery

- Catalog

## Security

- Users/RBAC

- LDAP integration

- Namespaces – workspace separation

## Monitoring

- FM orchestrator

- FM on k8s

- Logs orchestrator

## Volumes/storage

## Backup/restore

- Backup/restore of orchestrator



# How to deploy k8s?

Gardener



Kubermatic by  loodse



kubeadm



## Why Rancher?

- More than k8s deployment tool
- More than vanilla k8s
- Cheaper - open source
- Big community, great materials, regular online meetups - <https://rancher.com/>



# What is Rancher?

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## Network

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Network security

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K8s deployment 

Orchestrator deployment (multiple clusters) 

## Apps

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## Security

Users/RBAC 

LDAP integration 

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FM on k8s

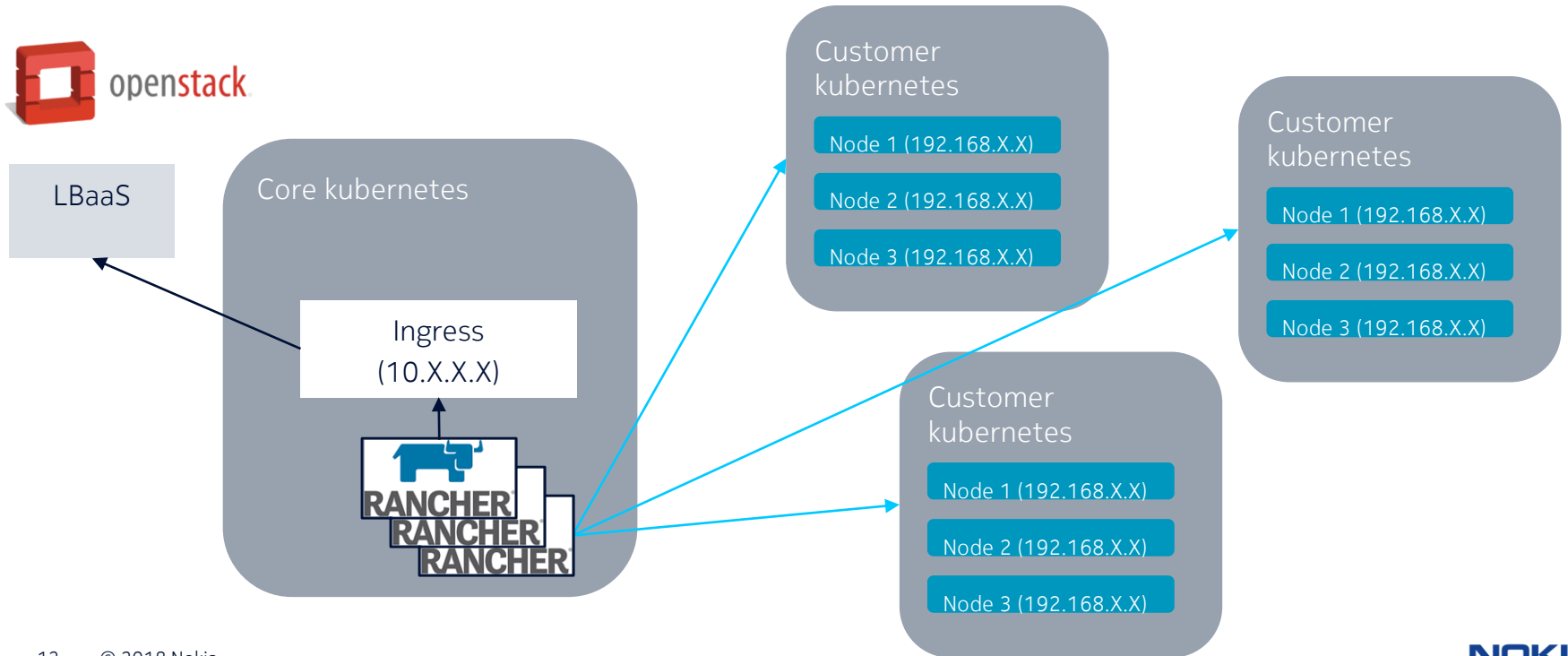
Logs orchestrator 

Volumes/storage 

## Backup/restore

Backup/restore of orchestrator 

# Rancher working as a proxy – big picture



# DEMO

- Cluster discovery, local cluster, REST API
- Manual deployment, Rundeck
- Basic operations on local cluster (kubectl, kubeconfig copy, nodes, scale nodes)
- Members and permissions, RBACs, integration with keycloak
- Project/namespaces, quota, how to create different workspaces for different groups of users (dev, users, etc)
- Rancher CLI, Catalogue, how apps are viewed in Rancher
- Alerts, Notifiers, Logging (EFK)

## Things to consider using rancher

- Single point of failure (possibly addressed in 2.2)
- No federation
- Not fully reflecting cloud providers features (i.e. openstack affinity rules)
- Cost of support

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