

# Managing a managed Kubernetes Platform

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KubeCon



CloudNativeCon

*Virtual*

Europe 2020

# Introduction



Who are we?

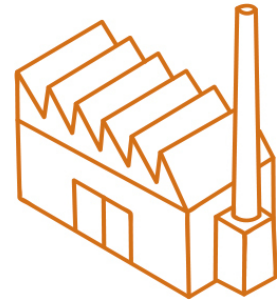


What is NN?

# Container Platform team



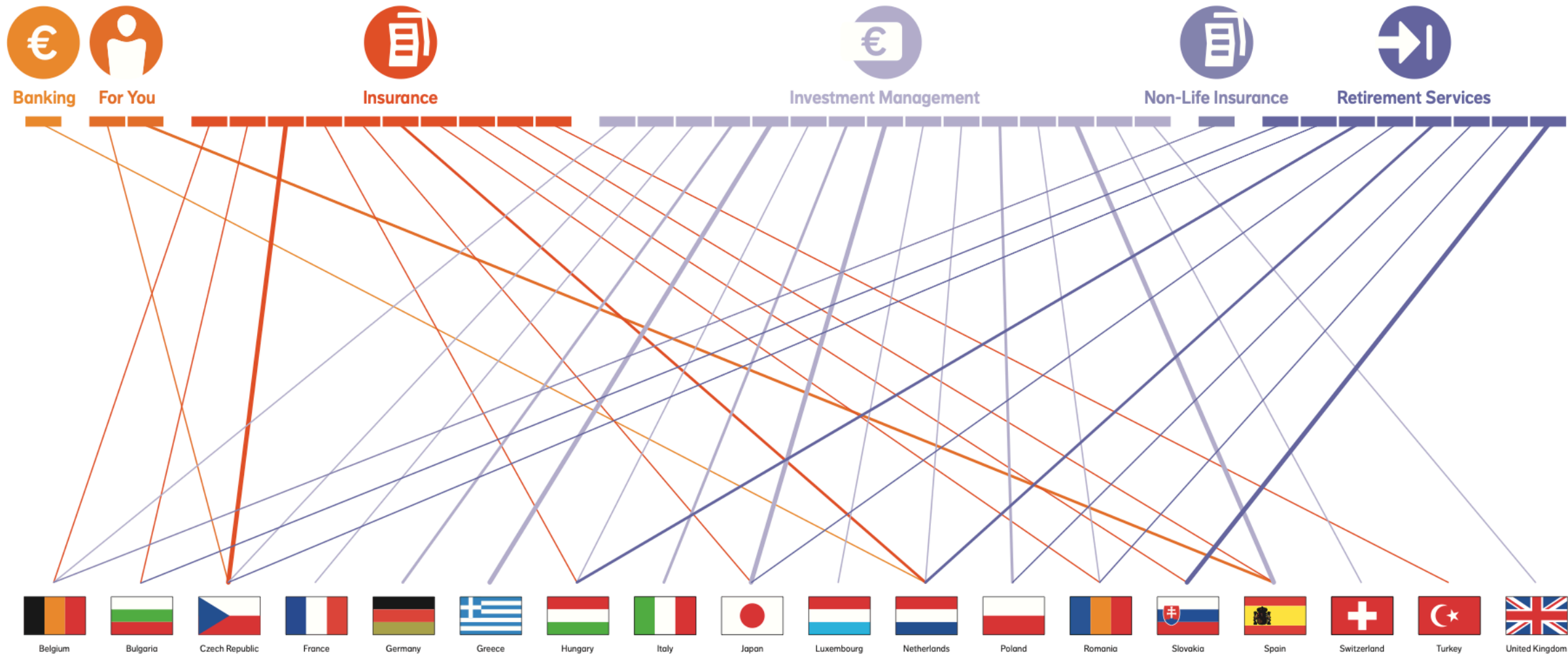
Est. 2019  
6 members  
NN Cloud & Hosting



Cloud factory



# Our products and services in different countries



# What is a platform?

- Running Container Workloads



# Platform Capabilities

- Running Container Workloads
- Load-Balancing
- Security
- Monitoring and alerting
- Backups
- Logging
- Etc.



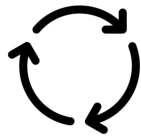
# NN Platform

The NN Container platform is an **opinionated** composition of infrastructure and (open-source) tools that provides a consistent **platform interface**, which we provide to our developers as a **managed** service.



# Managing the managed NN container platform

Lifecycle Management



Testing



CI/CD





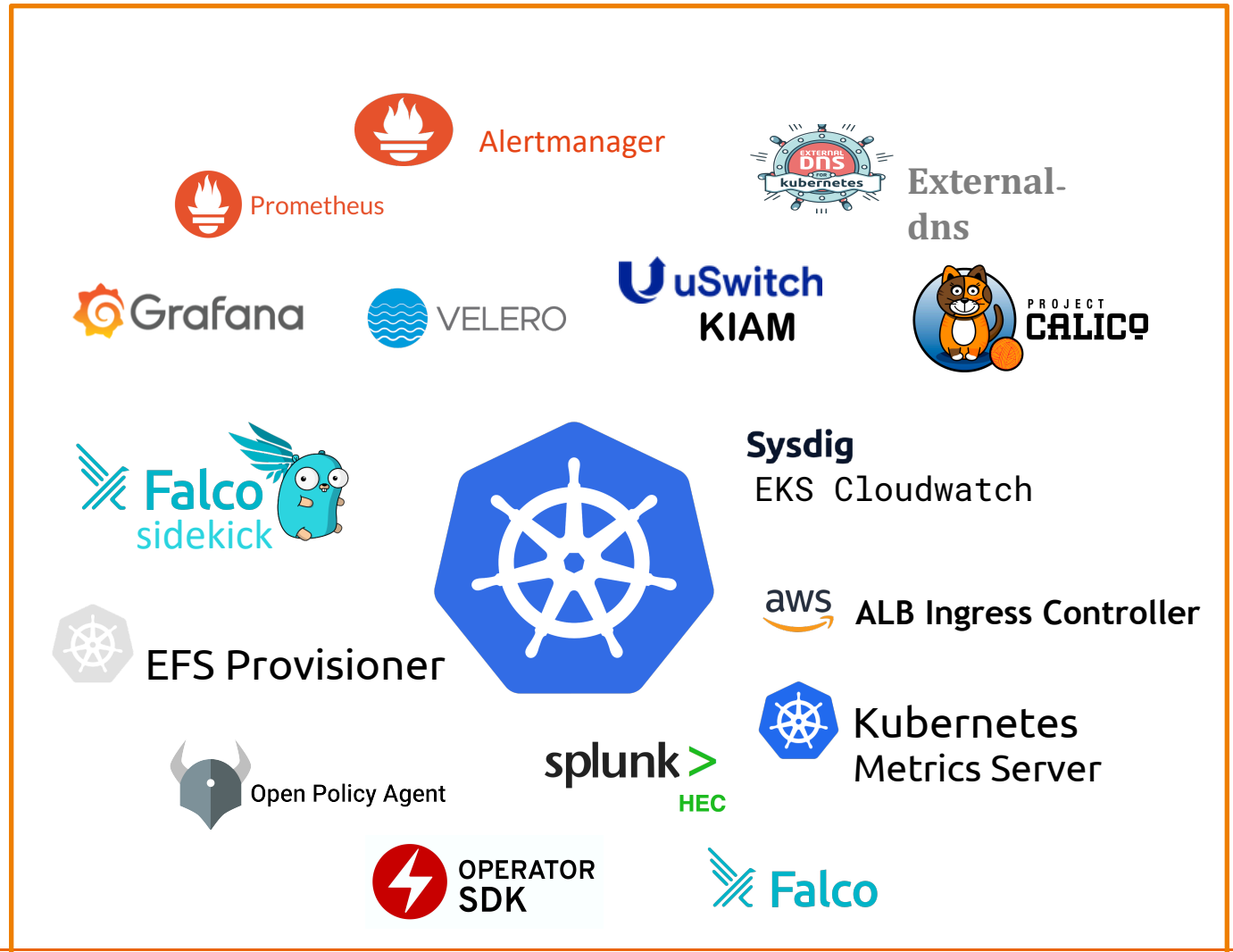
aws-alb-ingress-controller	1.0.0	1.0.2
efs-provisioner	0.12.1	0.12.1
kiam	5.8.1	5.8.1
metrics-server	2.11.1	2.11.1
nn-controller	0.159.0	0.159.0
opa	1.13.6	1.14.0
private-external-dns	3.2.3	3.2.3

# Lifecycle Management

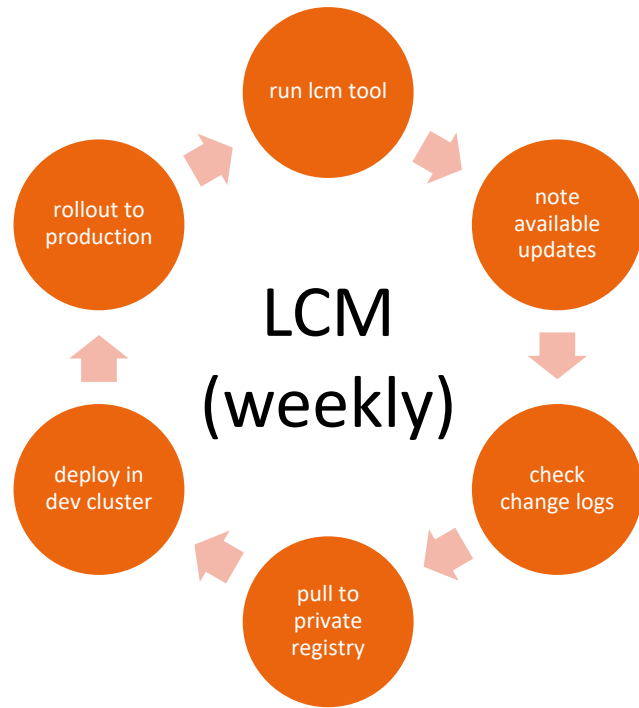
Challenges and solutions

# Lifecycle Management: Challenges

- Keeping up with new releases
- A lot of components
- Private registries and remote repositories
- Vulnerabilities
- Upgrade Kubernetes/EKS
- Update our 'managed' nodes (EKS AMI)
- Update tooling



# Lifecycle Management: Solutions



# Github: Kubernetes platform lifecycle management

<https://github.com/arminc/k8s-platform-lcm>

**Life Cycle Management dashboard**

Status: Done  
Last run: 22:36:42 19-12-2019

### Images

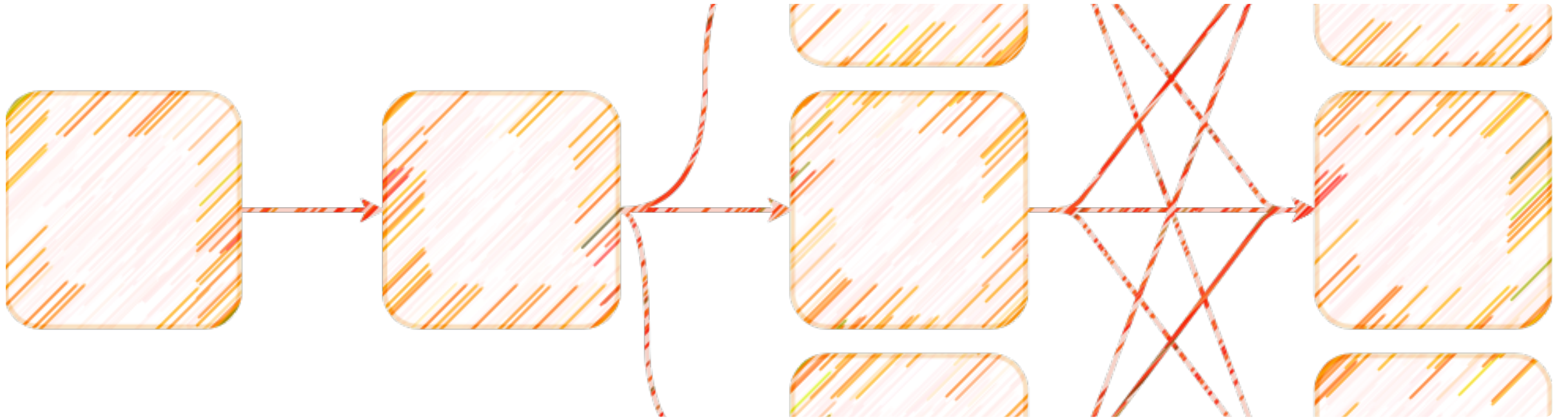
Image	Current Version	Latest Version	Vulnerabilities
alpine	3.10.1	3.10.3	0
calico/node	v3.8.1	v3.11.0	0
coredns	1.4.0	1.4.0	0
falcosecurity/falco	0.15.3	0.18.0	28

### Charts

Chart	Current Version	Latest Version
efs-provisioner	0.8.0	0.8.0
velero	2.5.0	2.7.3

### Tools

Tool	Current Version	Latest Version
hashicorp/terraform	0.11.14	v0.12.18



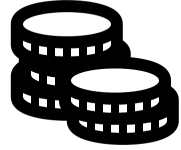
# CI/CD

## Challenges and solutions

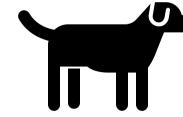
# CI/CD: Challenges



Large scale



Infrastructure  
costs

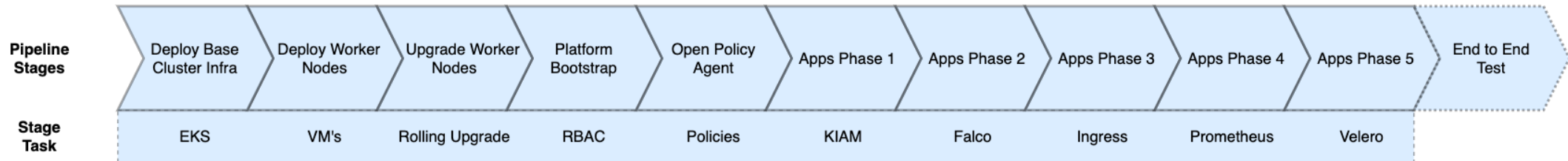
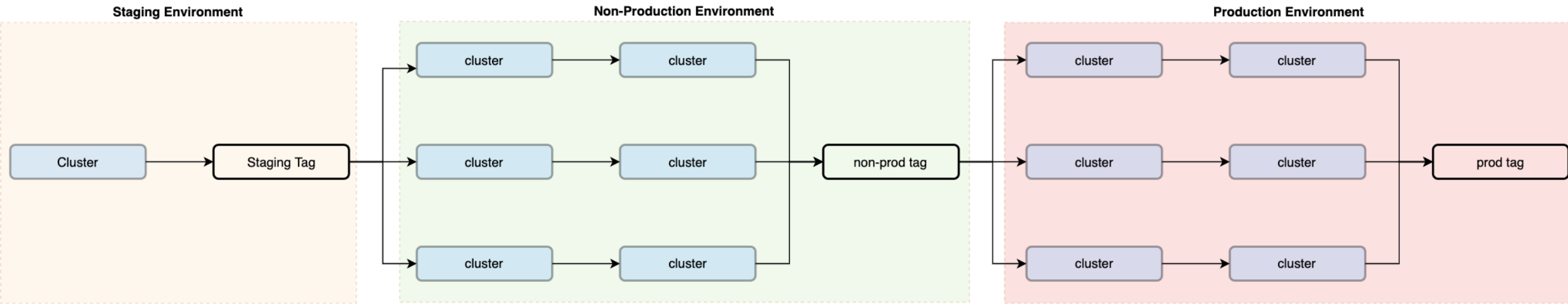


Reliability

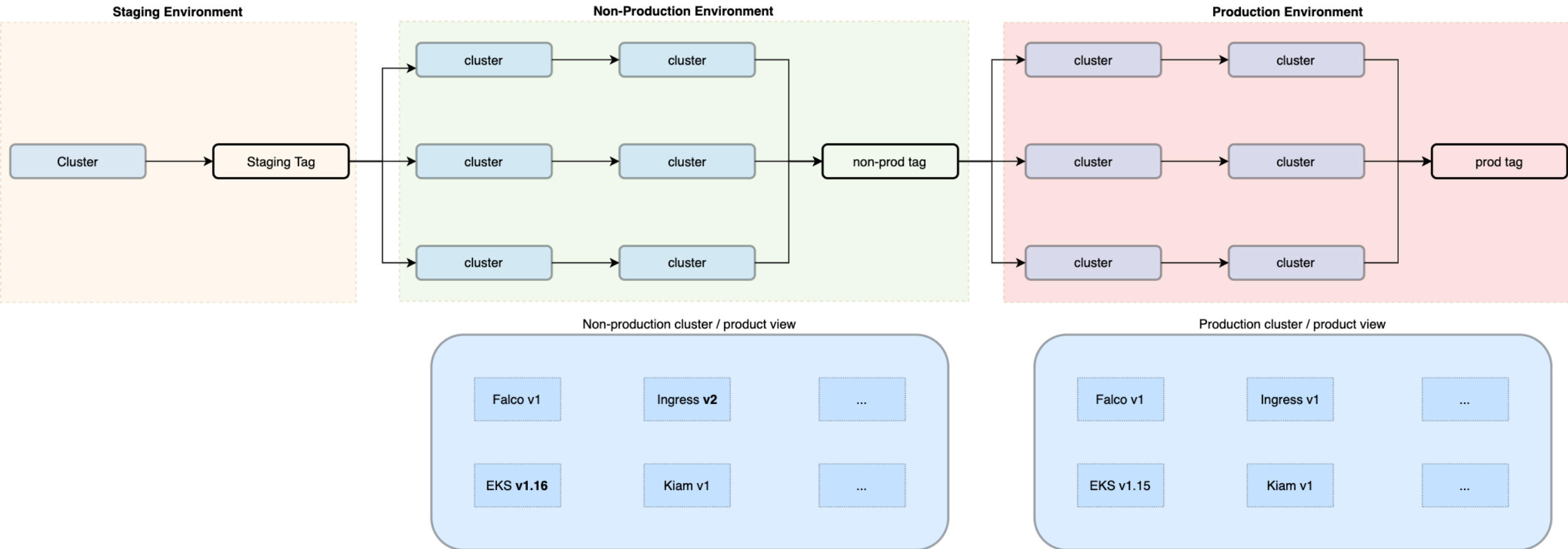


Duration

# CI/CD: Our setup



# CI/CD: Feature flagging





```
rootdir: /data, inifile: pytest.ini
plugins: dependency-0.5.1, mock-1.11.2
collecting ...
collecting 26 items
collected 26 items / 4 deselected / 22 selected

nn-controller.py::test_nodegroup_success
----- live log setup -----
11:09:56 INFO Swapping assume policy of config-admin and creating contexts
11:09:56 INFO Found credentials in shared credentials file: ~/aws/credentials
```

# Testing

## Challenges and solutions



Test, test, test

# Testing: Challenges

- “unit testing”
- Integration testing
- Complicated and time consuming
- Integration between cloud provider and k8s

```
apiVersion: controller.nn.nl/v1alpha1
kind: NodeGroup
metadata:
  name: develop
spec:
  size: 3
  type: t3.large
  shared: true
```

# Testing: Solutions



Testing framework



Take time to write proper tests



Customer example project



# What's next?



Smart Cloud  
Agnostic



Everyone on board



Maturity

# Information

- Visit our digital booth: NN
- <https://www.nn-group.com/>
- Contact us  
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Wien: Wiender.Sarup@nn-group.com



**NN**