



nmaas Support for Remote K8s Clusters

Lukasz Lopatowski (PCSS)

Vojdan Kjorveziroski (UKIM)

Infoshare: Orchestration Solutions for Network Development

Online

22 October 2025

Public (PU)

Agenda

- nmaas Use-Cases Overview
- New Features
- Applications Updates
- Remote K8s Clusters Use-Case
- Plans for the Future





nmaas Use-Cases Overview

...One Click to Launch. Infinite Ways to Use...

nmaas towards support for many use-cases

- nmaas as a versatile **open-source orchestration platform**
- Support for multiple use-cases by providing relevant software features and deployable applications
- Currently supported use-cases:
 - **nmaas for Virtual NOC** (originally referred to as NMaaS - Network Management as a Service)
 - **nmaas for Virtual Lab** (online hands-on exercises in an education context)



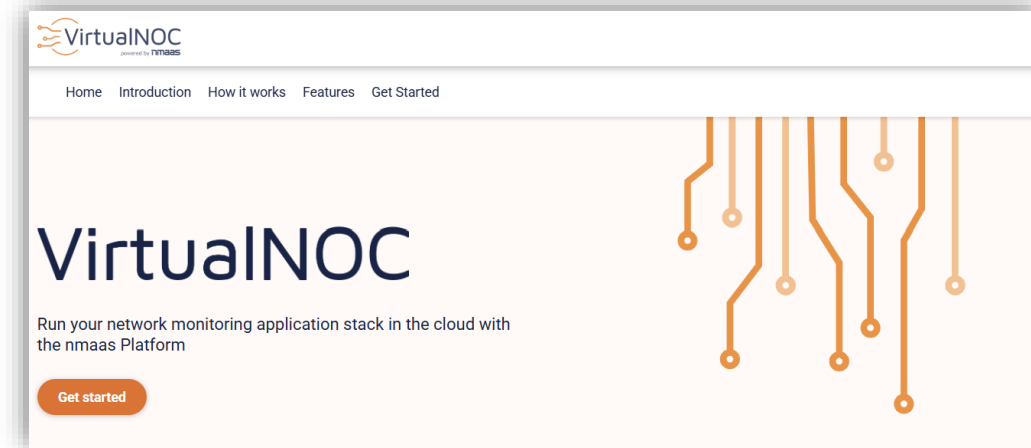
<https://vnoc.nmaas.eu>



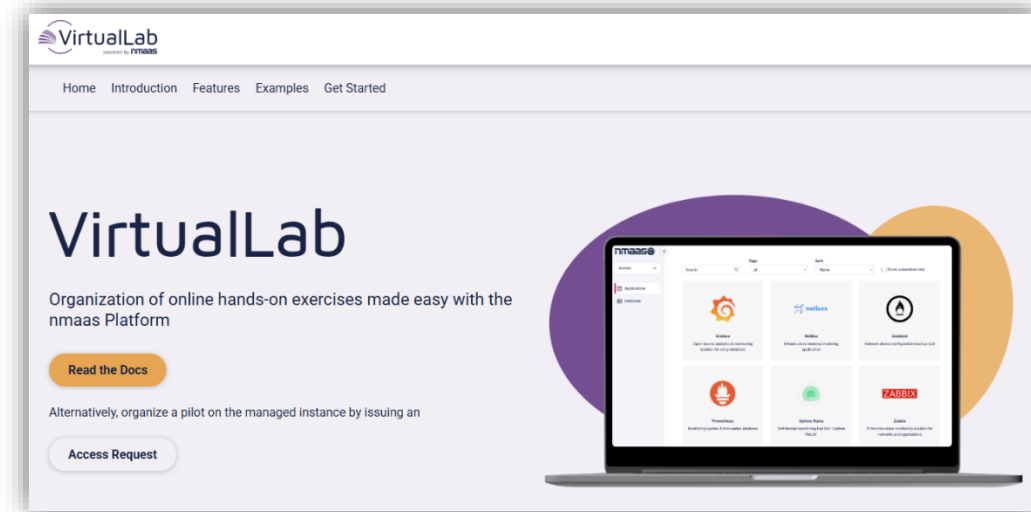
<https://vlab.dev.nmaas.eu>

New landing page and docs pages

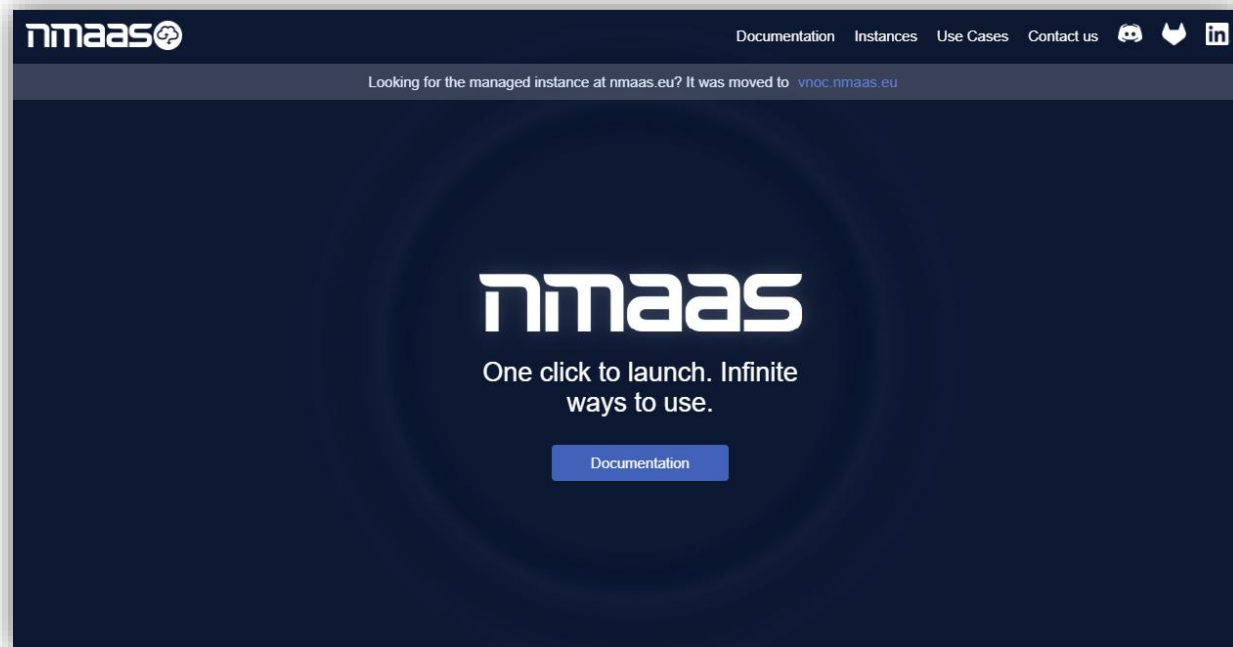
- New landing page at nmaas.eu
 - Migration of production domains completed
- Dedicated documentation pages for each use-case



<https://vnoc.docs.nmaas.eu>



<https://vlab.docs.nmaas.eu>



<https://nmaas.eu>



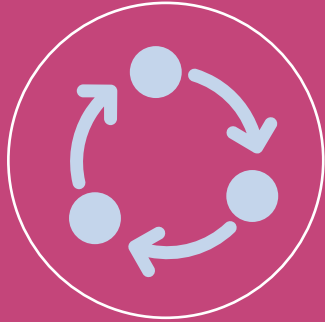
New Features

Information About Recent Software Releases

nmaas 1.8.0



Complete
redesign of the
web interface
(nmaas Portal)



Initial support
for webhooks



On-demand
application
pausing and
resuming

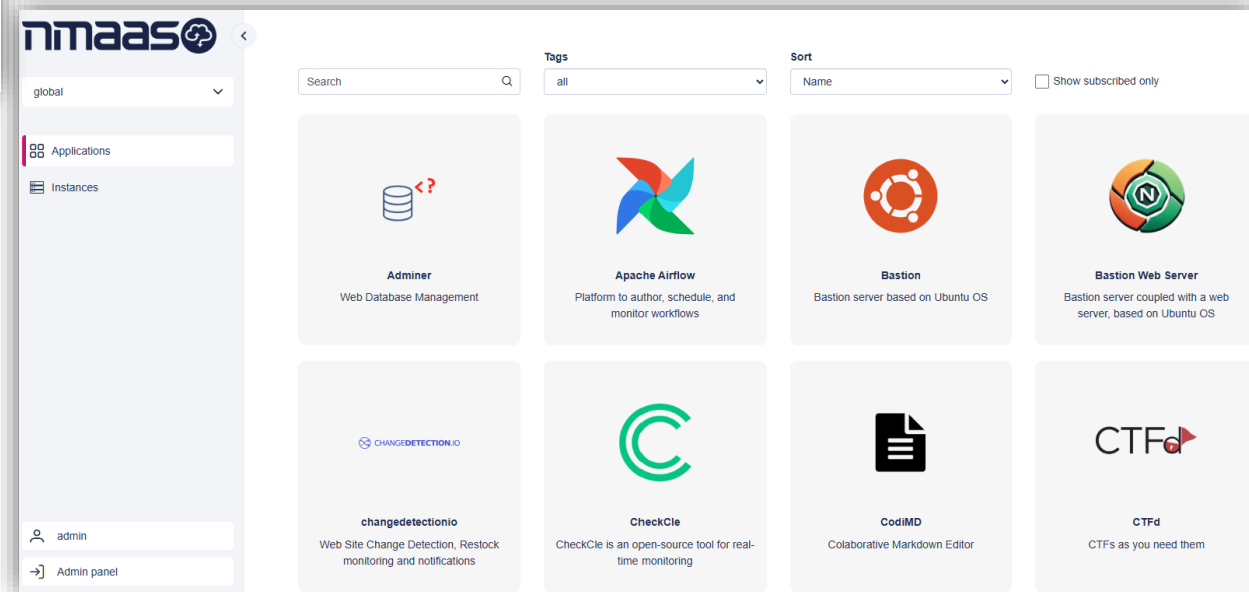
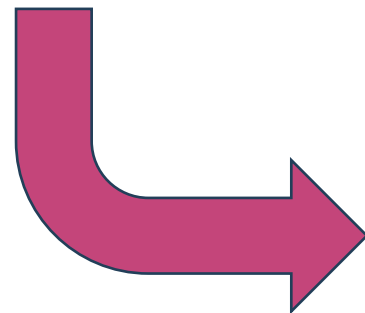
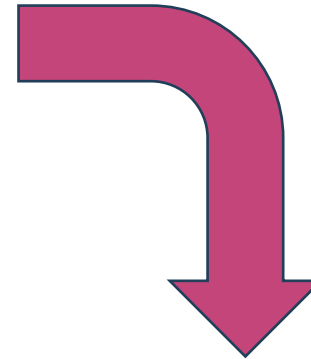
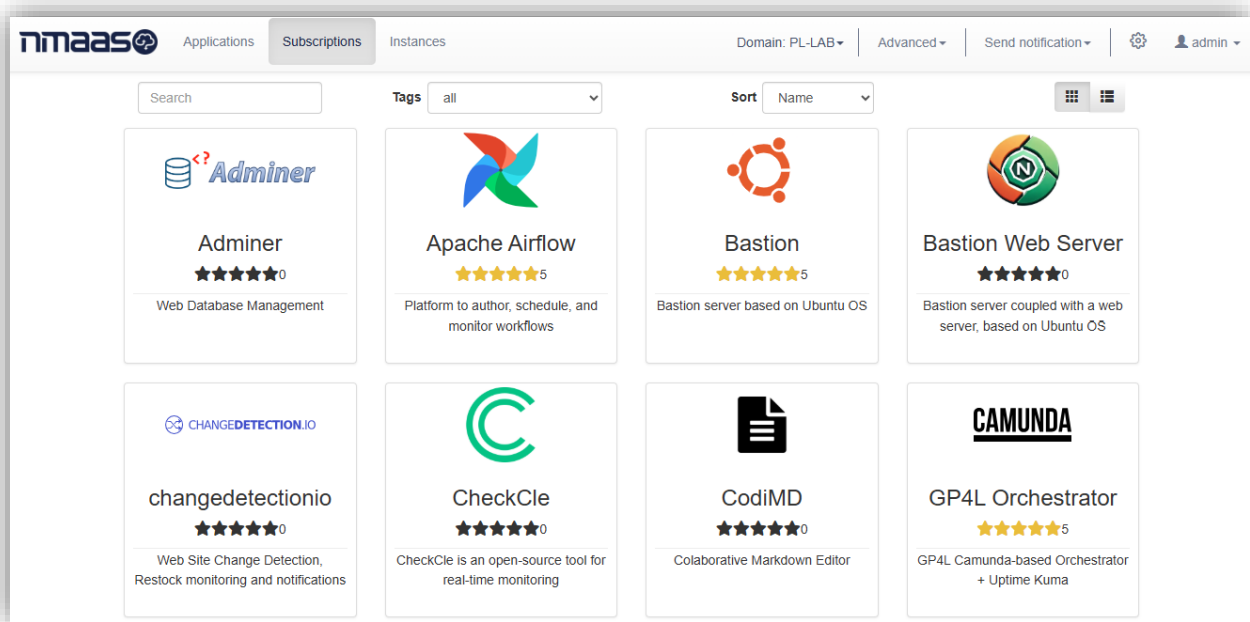


Simplified
deployment
model



Improved
application
healthchecks

New nmaas Layout



Brand New Admin Panel

nimaas

global ▼

- Dashboard
- Domains ▼
- Applications ▼
- Users
- Settings
- Webhooks
- Remote clusters
- Translations
- Monitoring
- To all users

admin

User panel

Current number of users

60

Current number of domains

47

Current number of deployed applications

268

Application deployments from 13.10.2025 to 20.10.2025 13.10.2025 - 20.10.2025 ✕

	Name	Version	Domain
	perfSONAR Testpoint	5.2.2-1	tests

Most popular applications

Application	Count of deployments
Prometheus	60
Grafana	40
Maat	13
PostgreSQL	11
NetBox	11
perfSONAR Testpoint	10
MailDev	8
Moodle	8
Apache Airflow	7
VS Code Server	6



Application Updates

New notable additions to the nmaas catalogue

New and Updated Applications

CheckCle

- Uptime Monitoring

PgBackWeb

- Automated PostgreSQL DB Backup

Metabase

- Data Visualization

N8n

- Visual Workflow Builder

Prometheus 3

- New Major Version





Support for Remote K8s Clusters

New nmaas Use-Case

Remote K8s Cluster Support

- New use-case, under active development
 - First features already available in v1.8.0
- **Core idea:** a central nmaas instance manages distributed Kubernetes clusters
- **Remote** Kubernetes **cluster(s)** associated with existing nmaas domains
- Solves the problem of managing many diverse environments
- nmaas catalogue applications deployable on any of the on-boarded clusters

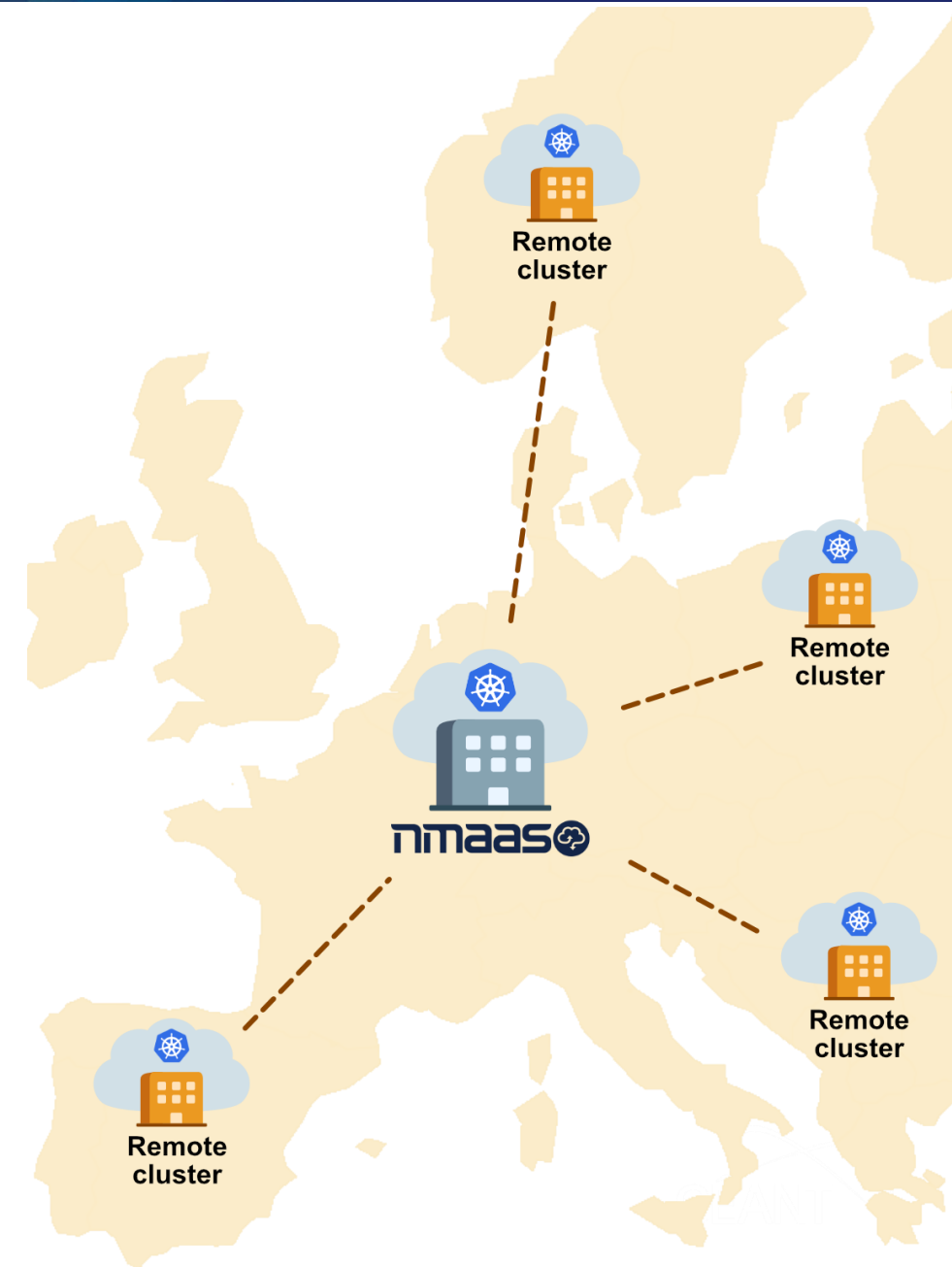


Remote K8s Cluster Support Benefits

- Applications run **on-premise**
- No need for complex connectivity to a central instance
 - Eliminates the need for a site-to-site VPN
- Can use existing infrastructure for (remote) access to applications
 - Dedicated nmaas client access VPNs not needed
- **Full control over data**
- Applications can be deployed at **multiple locations**
 - **Local and external network visibility**

Pilot Usage of Remote K8s Cluster Features

- Monitoring tools deployed from a **single nmaas** instance across Kubernetes clusters in **multiple locations**
- **Piloted by RENATER** for deploying network monitoring tools across different PoPs



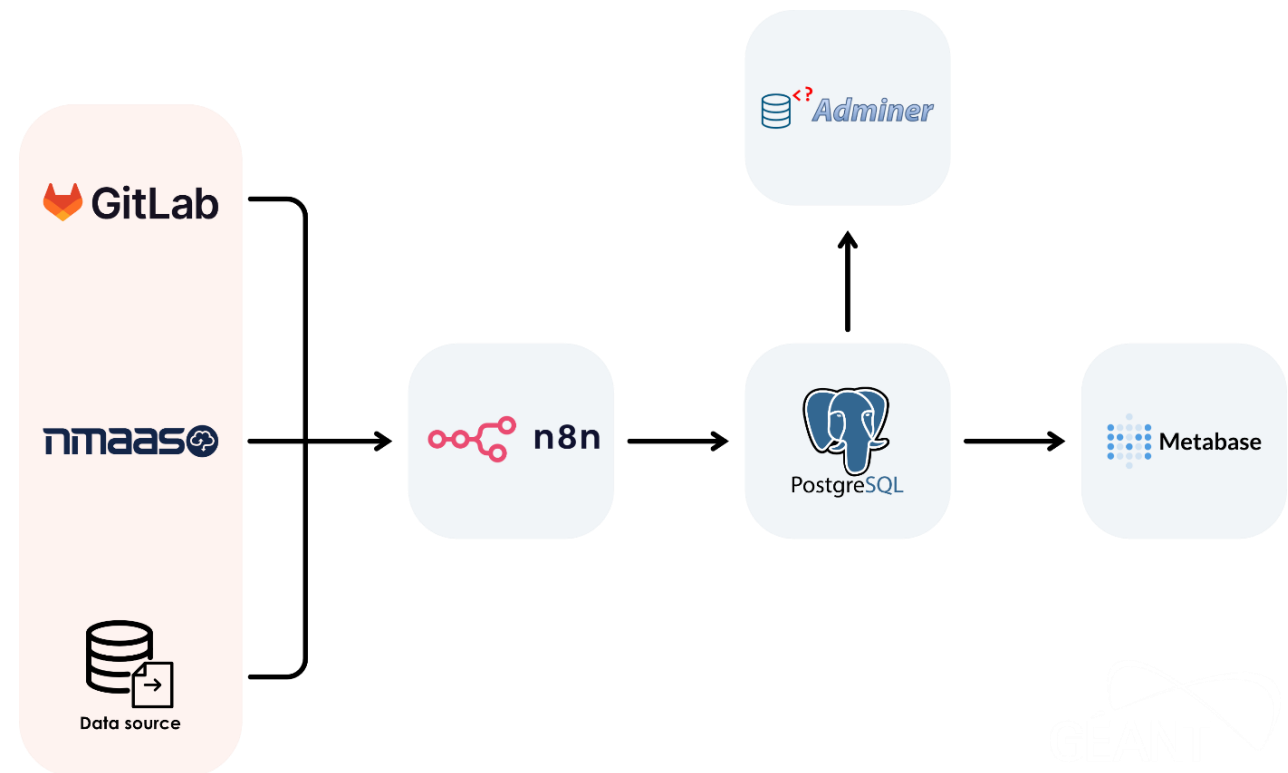


Plans for the Future

Use-Cases, Features, AI

New Use of nmaas: KPI Monitoring

- Tracking of **key performance indicators** for teams
- **Aggregation** of information from multiple sources – N8n
- **Visualization** of aggregated data – Metabase
- Historical **comparison**, progress tracking
- Optional interaction with **LLMs**
- All components already on nmaas
 - PostgreSQL
 - N8n
 - Metabase
 - Adminer

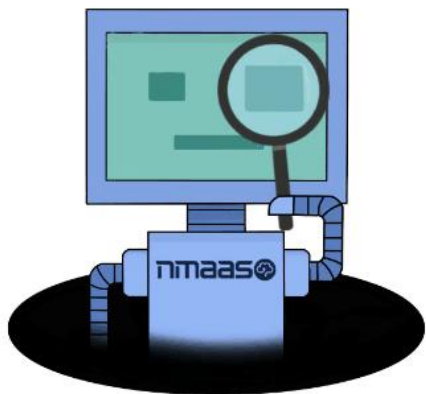


Sharing of Costly Resources using Remote K8s Clusters

- Pooling of distributed scarce resources (GPUs)
 - **nmaas as an enabler for AI workloads**
 - Not limited only to network management
- AI ready application support in the catalogue
- Direct application access to GPUs
- Time-sharing using already implemented pause/resume mechanisms (v1.8.0)

Stay informed

- **Discord** server – <https://discord.gg/CZzvZH2TAe>
 - General discussion, announcements, troubleshooting, and help
- **LinkedIn** nmaas user group – <https://linkedin.com/groups/10068131/>
 - nmaas related news, events, blog posts
- **Blog** posts – <https://docs.nmaas.eu/blog/>
 - Featuring new catalogue applications and tutorials





Thank You

Documentation
Contact the nmaas team

<https://docs.nmaas.eu>
nmaas@lists.geant.org



www.geant.org



Co-funded by
the European Union

The scientific work is published for the realization of the international project co-financed by Polish Ministry of Science and Higher Education from financial resources of the programme entitled "PMW"