Network Management as a Service (NMaaS)

Platform for multi-tenant network monitoring

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NMaaS in a nutshell

**What?**
“Market place” offering Network Management ... in the cloud
Production service developed and maintained by the GÉANT Project (WP6 T3)

**For whom?**
NREN End Institutions, GÉANT Project teams, and NRENs

**Why?**
To ease network management and monitoring software deployment, configuration and maintenance
To allow users to focus solely on managing their services
Why should you consider NMaaS service?

- You want to install or **quickly try** (in few minutes) a new network management app
- You don’t have **sufficient resources** (servers, virtual machines) for network management apps
- You don’t have enough **knowledgeable staff** who can install/manage the required infrastructure (servers/VMs/containers)
- You have **multiple customers** who want their network and server infrastructure to be managed by you
- You have **customers who don’t have sufficient resources** to manage their infrastructure
- You want to **focus solely on managing your services**
How you can use NMaaS service?

To try NMaaS out or test offered applications use NMaaS sandbox instance: [https://nmaas.geant.org](https://nmaas.geant.org)
*(no configuration overhead, demo applications already deployed)*

To set up your own NMS on the central GÉANT NMaaS NMaaS production instance: [https://nmaas.eu](https://nmaas.eu)
*(secure, fully supported)*

To run your own instance of NMaaS visit NMaaS Installation Guide: [https://wiki.geant.org/display/NMAAS/NMaaS+Installation+Guide](https://wiki.geant.org/display/NMAAS/NMaaS+Installation+Guide)
NMaaS tools

21 applications available in the marketplace

- Oxidized
- LibreNMS
- NAV
- Prometheus
- Grafana
- Booked

Recently added:
- perfSONAR
- Central Management
- SPANventory
- WiFiMon
- InfluxDB
- Jenkins

Planned:
- Routinator
- ICINGA
- Victoria
- Metrics
- Matrix

Booked Planned:
NMaaS service usage statistics

- 95 Registered Users
- 19 Domains
- 64 Deployed Applications

- 6 NRENs
- 4 Institutions
- 5 Project teams

https://nmaas-metr.pllab.nmaas.eu
https://a8e91173-eabd-4bac-a882-8856338eaaea.public.nmaas.eu
NMaaS tool deployment process
NMaaS multi-tenancy support

Introduced NMaaS *domains* – tenant environments with isolation enforced on multiple levels

- software (in NMaaS Portal)
  - user and role management
  - application subscription, deployment, configuration and access
- Kubernetes namespace (a virtual sub-cluster)
- network
  - routing and firewall rules
  - dedicated VPNs (user access, monitoring data exchange)
  - outgoing traffic control on Kubernetes namespace level
NMaaS multi-tenancy support

Institution A1

Institution A2

Institution A3

Institution C

NREN B

NREN D

NMaaS service provider

Domain A

Domain B

Domain C

Domain D

pfSense

kubernetes

OPENVPN

WireGuard

docker

HELM
NMaaS contact and further information

Contact us at nmaas@lists.geant.org if you’d like to:

• **monitor** your equipment with tools offered by NMaaS
• **share** your own custom tools with the community via the NMaaS marketplace
• **test** NMaaS capabilities or offered tools

Check out the latest NMaaS posts: [https://wiki.geant.org/x/i5nTC](https://wiki.geant.org/x/i5nTC)

NMaaS public wiki space: [https://wiki.geant.org/display/NMAAS](https://wiki.geant.org/display/NMAAS)
NMaaS production instance: [https://nmaas.eu](https://nmaas.eu)
NMaaS sandbox instance: [https://nmaas.geant.org](https://nmaas.geant.org)
RARE infrastructure monitoring use case

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RARE validation designs: P4 European testbed design

- SLOUGH
- AMSTERDAM
- FRANKFURT
- POZNAN
- BUDAPEST
- GENEVA
- PARIS
- MURCIA
- LYON

RARE P4 switch
10GE link

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RARE validation designs: P4 LAB network management via NMaaS!
NMaaS Portal

NMaaS Portal

NAV
Network Administration Visualized - network management system

LibreNMS
Autodiscovering SNMP based network monitoring tool

Oxidized
Network device configuration backup tool

Booked
Web-based calendar and scheduler

Bastion
Bastion server based on Ubuntu OS

Central Management
perfSONAR Central Management

esmond
Central Measurement Archive

ELK Stack
Elasticsearch, Logstash and Kibana

MaDDash

pConfig Web Adm

WiFiMon

Jenkins

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