Network Management as a Service NMaaS

Platform for Multi-Tenant Network Monitoring

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CNaaS Infoshare

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NMaaS in a nutshell

What?

"Market place" offering Network Management ... in the cloud

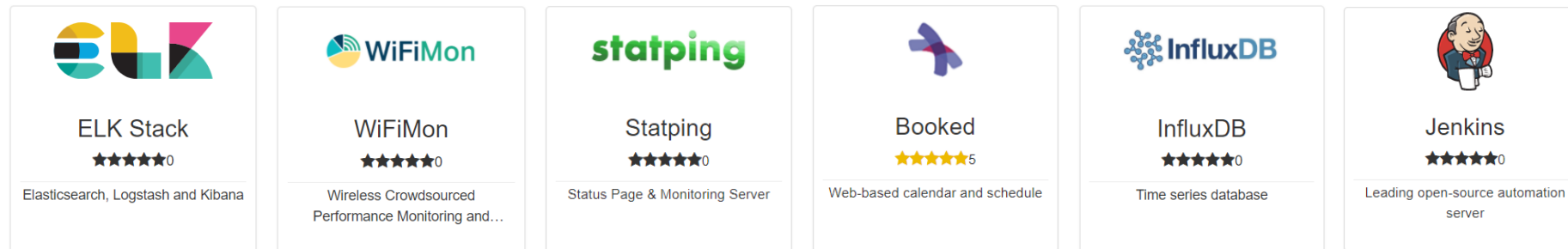Production service developed and maintained by the GÉANT Project (WP6 T3)

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

ELK Stack	WiFiMon	Statping	Booked	InfluxDB	Jenkins
★★★★★ 0	★★★★★ 0	★★★★★ 0	★★★★★ 5	★★★★★ 0	★★★★★ 0
Elasticsearch, Logstash and Kibana	Wireless Crowdsourced Performance Monitoring and…	Status Page & Monitoring Server	Web-based calendar and schedule	Time series database	Leading open-source automation server

NMaaS for CNaaS

Fills the infrastructure gaps observed by CNaaS institutions

CNaaS institutions – Campuses or Schools – **don't want to manage**

- The infrastructure needed to manage networks
  - ➤ **NMaaS provides the infrastructure**
- The tools needed to manage networks
  - ➤ **NMaaS provides and maintains the tools**

Assists CNaaS operators and managers

CNaaS operators and managers **don't want** to have a separate monitoring infrastructure for each network they manage

➤ **NMaaS enables multi-tenant usage**

➤ **A domain per network**

➤ **Multiple domains per user / CNaaS operator**

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How you can use NMaaS service?

To try NMaaS out or test offered applications

use NMaaS sandbox instance: *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*

(secure, fully supported)

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

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NMaaS Portal

www.geant.org

NMaaS Tool Deployment Process

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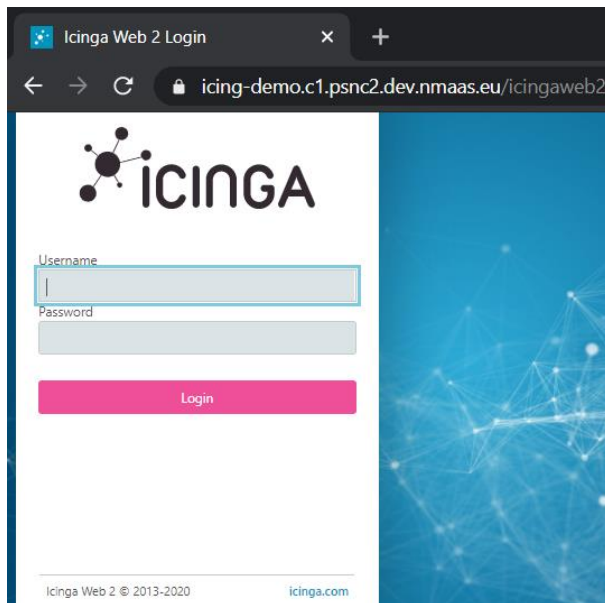
NMaaS Tools

21 applications available in the marketplace

Oxidized

LibreNMS

NAV UNINETT

Prometheus

Grafana

Booked

Bastion

Statping

SPA Inventory

Debian repository

ELK Stack

Synapse

perfSONAR Central Management

WiFiMon

InfluxDB

Jenkins

Icinga

Victoria Metrics

Planned: ROUTINATOR

Addition of new Tools

- **Possible** based on user request
- Requirements
  - Docker image(s)
  - Helm chart
  - Metadata and information about the application

NMaaS Service Usage Statistics

https://nmaas-metr.pllab.nmaas.eu
https://a8e91173-eabd-4bac-a882-8856338eaaea.public.nmaas.eu
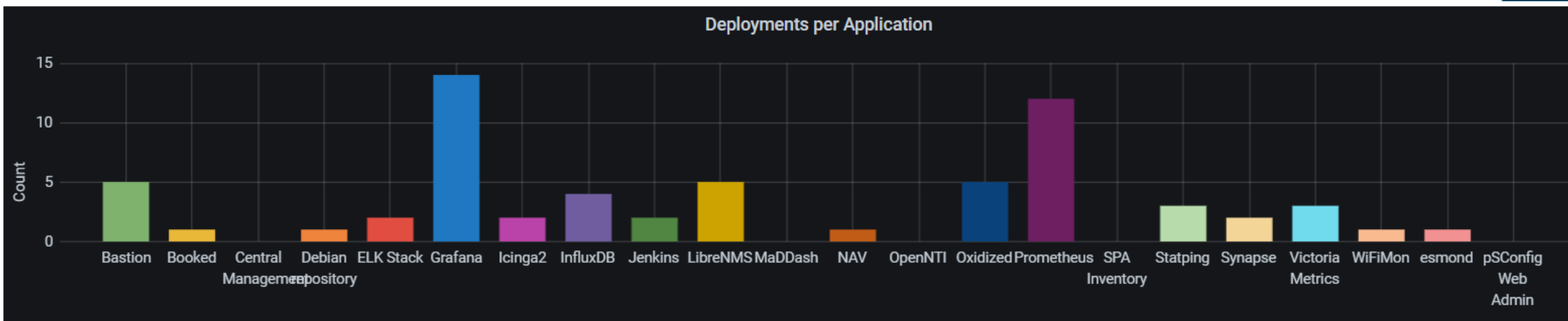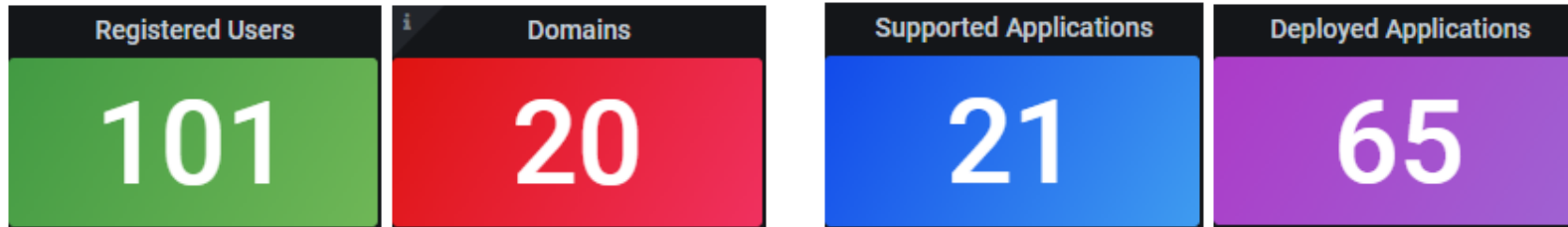
Who is using NMaaS?

- **NRENs + GÉANT**
  - CYNET
  - HEANET
  - PSNC
  - ARNES
  - SURFnet
- **End institutions**
  - Franja Malgaja Primary School / ARNES
  - University of Murcia / RedIRIS
  - Friedrich Alexander Universität / DFN

- **GÉANT Project teams**
  - Performance Measurement Platform (PMP)
  - RARE project
  - perfSONAR development team
- **Tool developers**
  - perfSONAR
  - WiFiMon
  - SPA Inventory

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

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NMaaS Multi-Tenancy Support

Institution A2

Institution A1

Institution A3

NMaaS service provider

NMaaS

Domain A

Domain B

Domain C

Domain D

NREN B

Institution C

NREN D

pfsense

OPENVPN

WireGuard
FAST, MODERN, SECURE VPN TUNNEL

kubernetes

docker

HELM
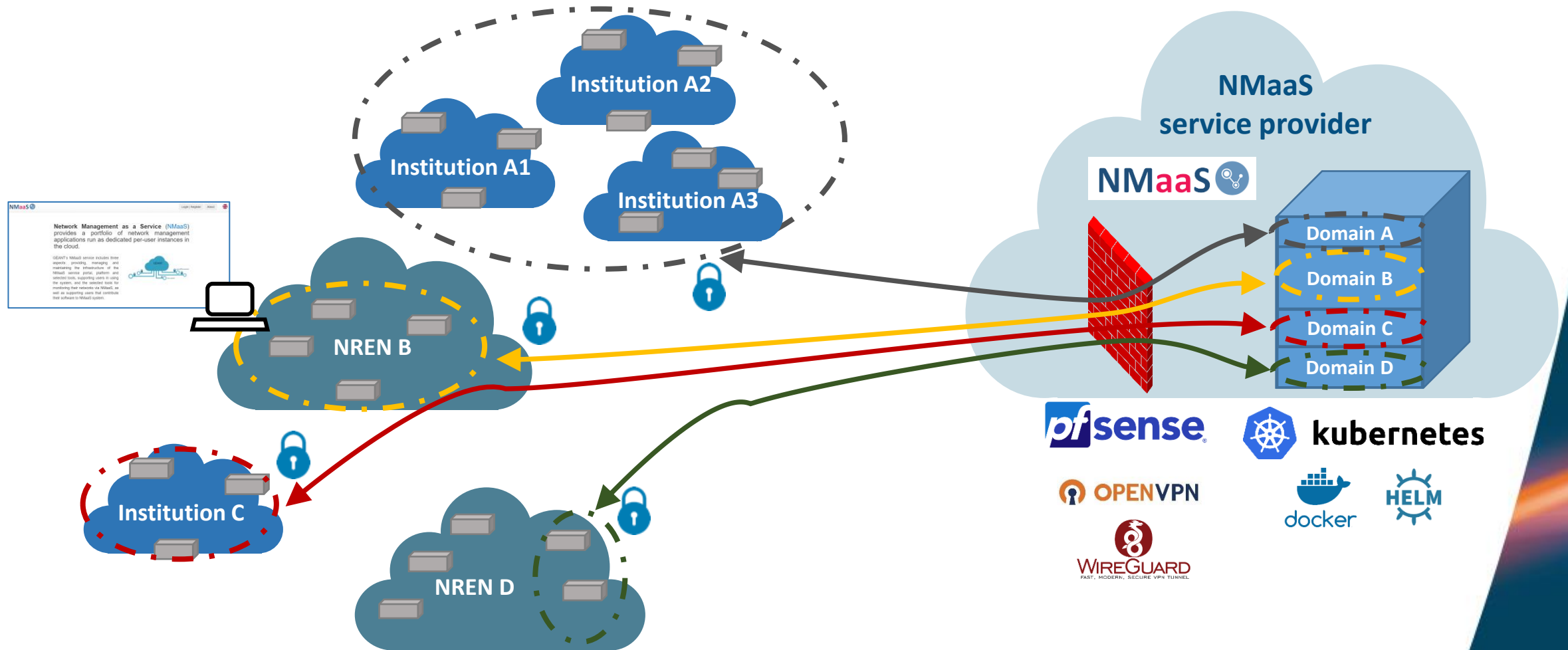
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NMaaS contact and further information

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*

NMaaS public wiki space: *https://wiki.geant.org/display/NMAAS*

NMaaS production instance: *https://nmaas.eu*

NMaaS sandbox instance: *https://nmaas.geant.org*

Thank you

Any questions?

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