



GÉANT Network Management as a Service in GARRLab

Łukasz Łopatowski
PSNC

Damiano Verzulli
GARR

TNC22

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www.geant.org



NMaaS in a nutshell



What?

“Market place” offering Network Management applications ... in the cloud

Software and production service developed and maintained by the GÉANT Project







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

 <p>ELK Stack ★★★★★ Elasticsearch, Logstash and Kibana</p>	 <p>WiFiMon ★★★★★ Wireless Crowdsourced Performance Monitoring and...</p>	 <p>Zabbix ★★★★★ Enterprise-class monitoring solution for networks and applications</p>	 <p>NetBox ★★★★★ Infrastructure resource modeling application</p>	 <p>InfluxDB ★★★★★ Time series database</p>	 <p>Jenkins ★★★★★ Leading open-source automation server</p>
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MANAGED SERVICE

How you can use NMaaS?

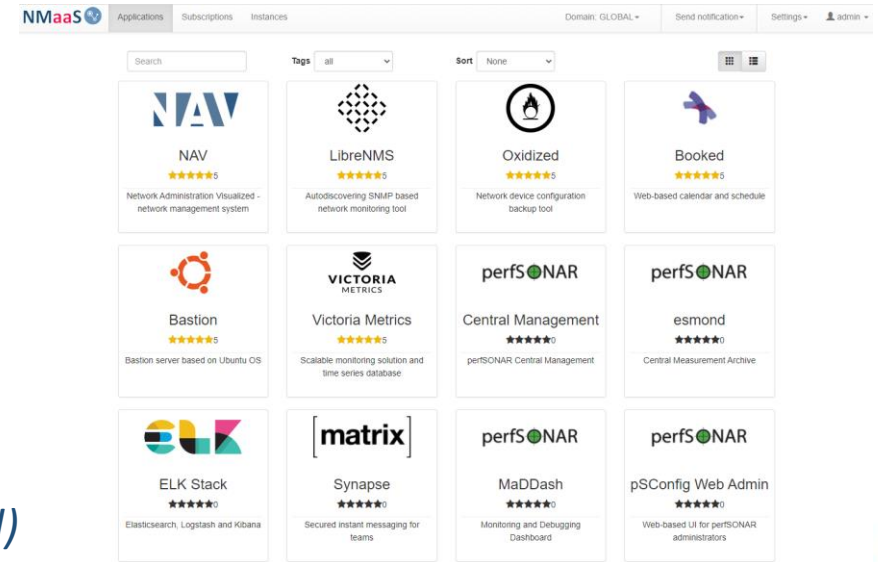
To set up your own NMS on the central GÉANT NMaaS use NMaaS production instance: <https://nmaas.eu> (secure, fully supported)

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

SELF-HOSTED

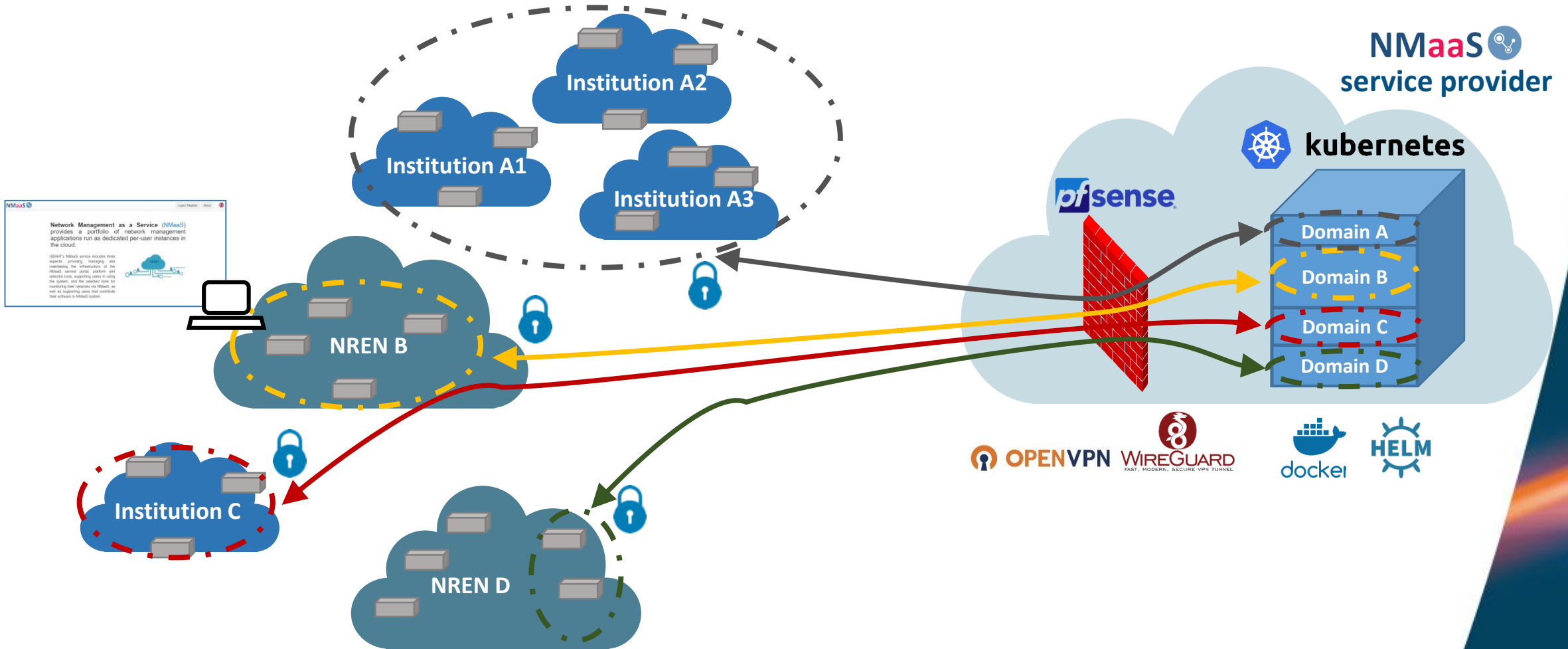
To run your own instance of NMaaS (Kubernetes cluster required) visit NMaaS Installation Guide: <https://docs.nmaas.eu/install-guide>

To run Kubernetes cluster and NMaaS on local machine visit local NMaaS Testing Environment Installation Guide: <https://docs.nmaas.eu/local-vm>



NMaaS Portal

NMaaS service deployment



NMaaS Service offered by the GÉANT Project

- **Offered free of charge**
- Service operated by a dedicated team within the GÉANT Project
- **Current funding assured till end of 2024** (part of GÉANT 5)
- **Statistics**
 - Registered users: **147**
 - Domains: **25**
 - Offered applications: **28**
 - Deployed applications: **98**

NMaaS tools

28 applications available in the portfolio

Oxidized

NAV

Prometheus

Grafana

Booked

Bastion

Debian repo

Routinator

NetBox

SPA & Inventory



perfSONAR

Central Management

WiFiMon

InfluxDB

ELK Stack

Jenkins

Zabbix

Uptime Kuma

Icinga2

Victoria Metrics

Synapse

Statping

LibreNMS




CodiMD

WebDAV Server



NMaaS tools

Added recently

 Uptime Kuma ★★★★★ Self-hosted monitoring tool like "Uptime Robot"	 NetBox ★★★★★ Infrastructure resource modeling application	 Zabbix ★★★★★ Enterprise-class monitoring solution for networks and applications
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Addition of new Tools

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



NMaaS tool deployment workflow

Login Register

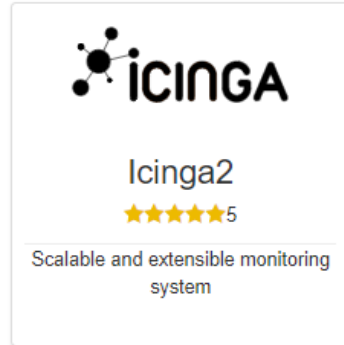
Username
Username

Password
Password

Login

Federated login

Forgot password



Deploy new instance of Icinga2

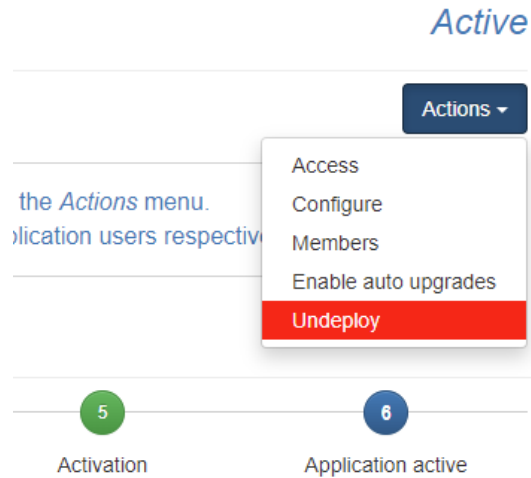
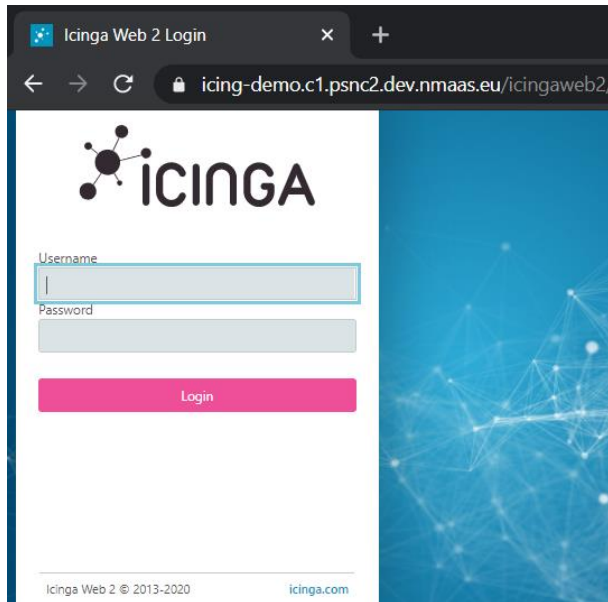
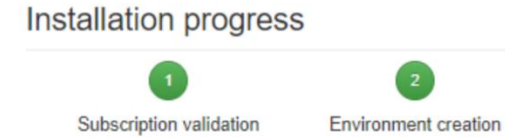
Instance name
icing-demo

Select version
2.11.4

Enable automatic upgrades:

Domain: Customer 1

Cancel Deploy



Configuration

Detailed field descriptions are available at [NMaaS Tools Page](#).

Base

Default web admin user *
llopat@nmaas.eu

Default web admin password *
.....

Allocated configuration directory storage (GB) *
1Gi

Allocated SQL database storage (GB) *
16Gi

Apply configuration

Current activities

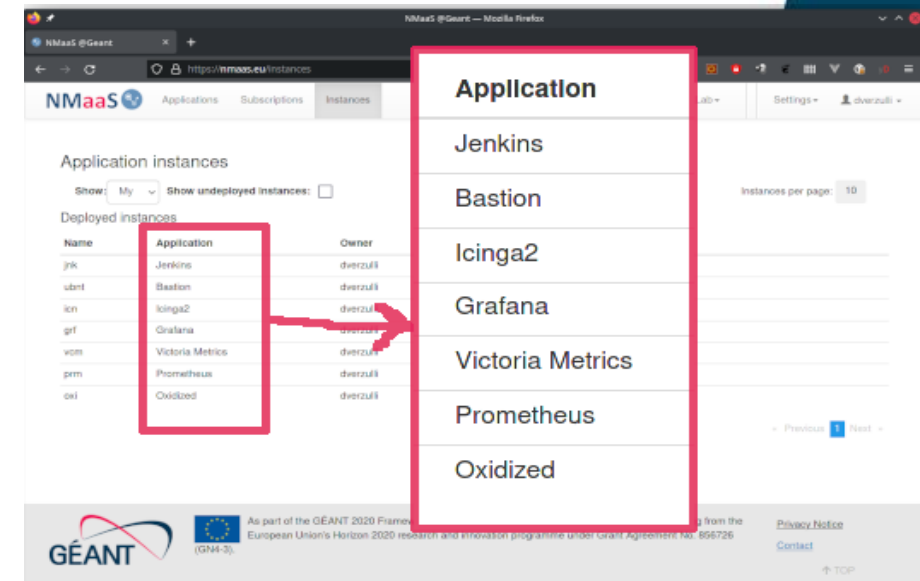
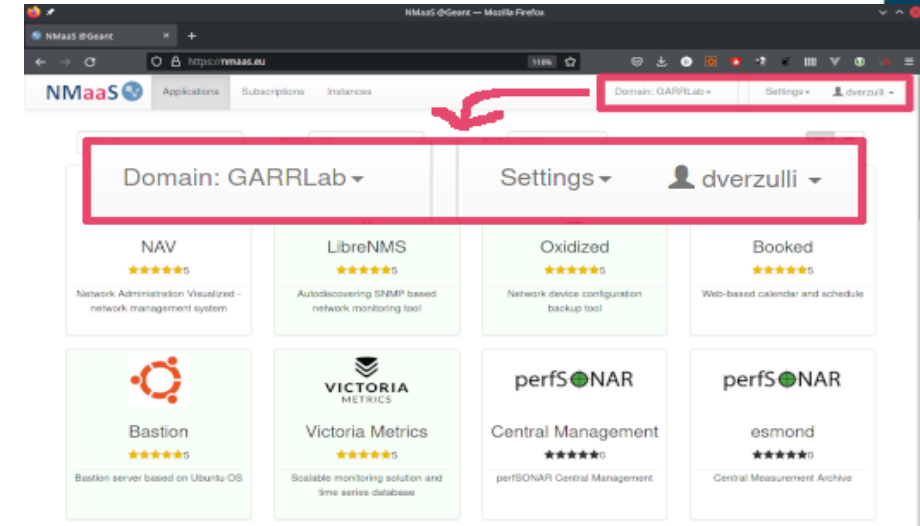
- Recent release of NMaaS v1.5.0
 - Advanced application version management and running application upgrades
- Ongoing user support activities
 -  URAN
 -  RENATER Regional Networks, ESRF Organization
 -  UniMe
- Integration of Healthchecks application
- NMaaS tutorial held at JRES (Marseille, France)
 - Recording available at <https://replay.jres.org/w/obsGzthAQQpMzVL8bLjDc8>

Next steps

- Migrating production service to IPv6-compatible Kubernetes cluster
- Publishing NMaaS software as open source
- Building a community around NMaaS tools
 - Share experience and best practices
 - Keep application version update to date

NMaaS@!_/_-3
GARR

- GARRLab asked for an NMaaS domain to be used to monitor GARRLab resources;
- Currently such a domain is running on the GÉANT DC in Poznan (Poland), connected to GARRLab infrastructure via a VPN;
- Price (no cost!), provisioning time (hours!) and underlying technology (cloud) deserve additional notes...



Timeline

DISCUSSION

- August 2021: discovered the NMaaS project
- Aug 13rd 2021: send a contact request (via slack)
- [~1 month delay, by me, due to other on-going tasks and projects]
- Sep 30th 2021: first “call” with NMaaS team (Lukasz & Frederic)

REAL WORK

- Oct 13rd 2021: sent official request to activate the NMaaS domain
- Oct 13rd 2021: “user account” (IDEM) and domain (“GARRLab”) created!
- Oct 14th 2021: VPN setup and routing configuration LAN2LAN NMAAS<=>GarrLab
- Oct 19th 2021: on-line training session (demo setup & admin activities)
- Oct 19th 2021: first Prometheus deployment (configuration)
- Oct 23rd 2021: first Grafana deployment (app + config)
- Oct 23rd 2021: first Icinga commit (config)

10 days, including 5 days
“delay” (by me!)

- Something worth-noting:

- NMaaS is “Cloud”! -> *Good to know, for your CEO/CIO*
- NMaaS is backed by “GÉANT”! -> *...a “trusted” supplier. Don’t you?*
- NMaaS is “no joke”! -> *EU pushed *LOT* of money on it!*
- NMaaS is “open”! -> *based on K8S, git, CI/CD pipelines – zero lockin!*
- Is NMaaS perfect? -> *of course NOT! How could it be?*

- ...and about “thorny” issues:

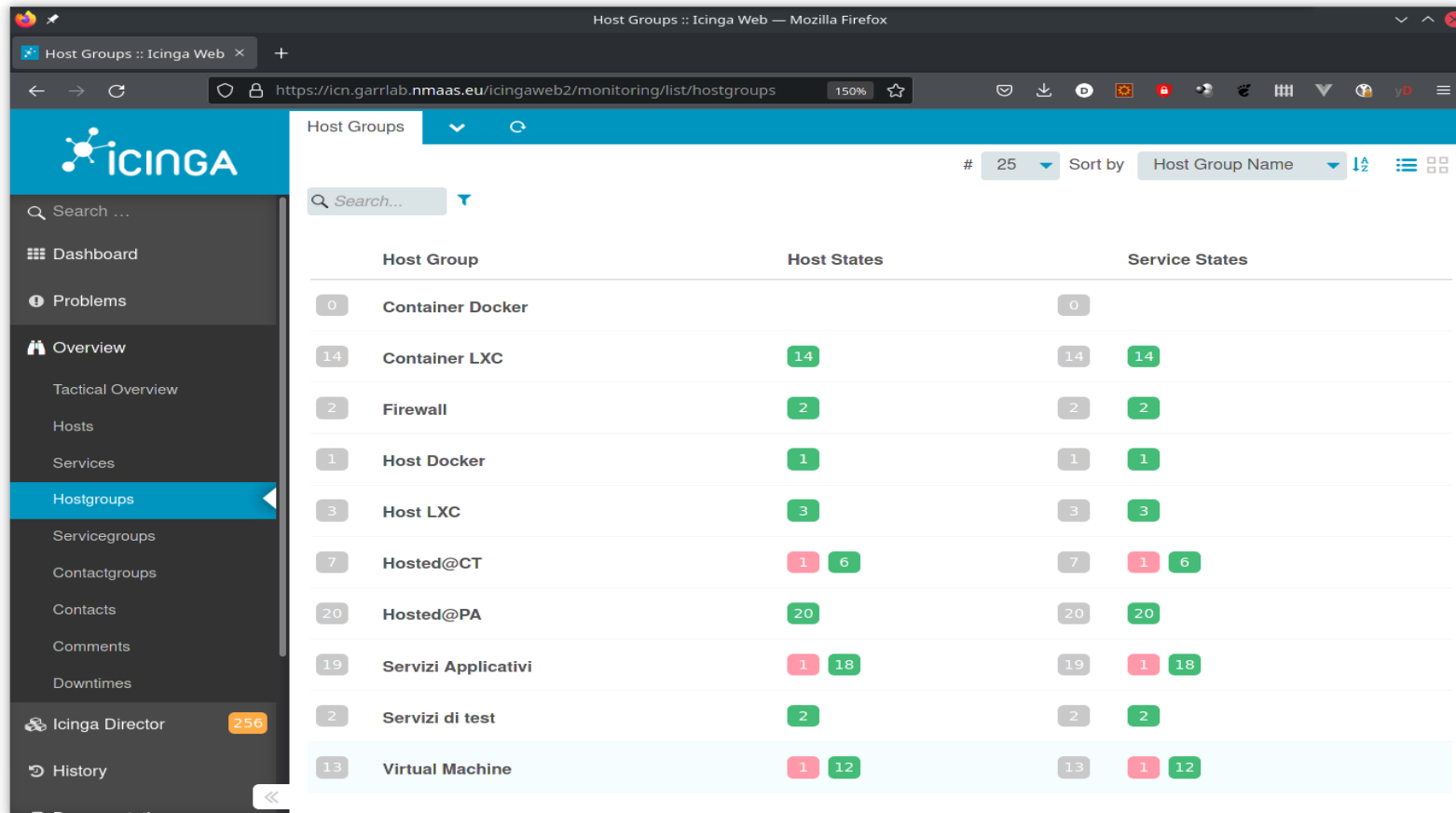
- SLAs?
- Infrastructure SLAs?
- Support?
- Project life-span / roadmap?

Those are NON-technical arguments.
My “feeling” is optimal.
The commitment to push forward the
project, is crystal-clear...
But to reach the goal, a community of
users is mandatory!

Grafana: Last 7 days



Icinga



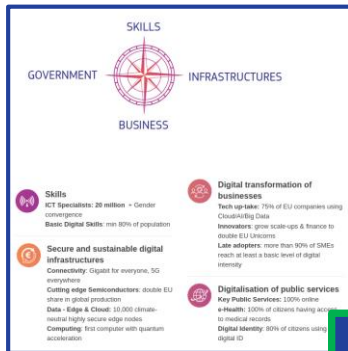
The screenshot shows the Icinga Web interface in a Mozilla Firefox browser. The page title is "Host Groups :: Icinga Web". The URL is "https://icn.garrlab.nmaas.eu/icingaweb2/monitoring/list/hostgroups". The interface includes a search bar, a navigation menu on the left, and a main table of host groups.

Host Group	Host States	Service States
0 Container Docker		0
14 Container LXC	14	14 14
2 Firewall	2	2 2
1 Host Docker	1	1 1
3 Host LXC	3	3 3
7 Hosted@CT	1 6	7 1 6
20 Hosted@PA	20	20 20
19 Servizi Applicativi	1 18	19 1 18
2 Servizi di test	2	2 2
13 Virtual Machine	1 12	13 1 12

NMaaS: some additional (and personal..) thoughts

“...we want to find European solutions in the digital-age...”

Ursula von der Leyen - President of the Commission
“Shaping Europe's digital future” - February 2020
<https://youtu.be/NRUa1AeE9k4>



“...Second, the Commission [...] will contribute to investments in European High Impact projects on European data spaces and trustworthy and energy efficient cloud infrastructures...”

https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age_en

I really can't understand WHY, within the GÉANT and NRENs communities, there are ***NO*** joint-efforts to put in practice such a clear mandate.

What are you waiting for?

(hint: NMaaS could be your first step....)

Thank you

Any questions?

More information: <https://docs.nmaas.eu>

Contact us: nmaas@lists.geant.org

www.geant.org



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