

# Network Management as a Service (NMaaS)

*NMaaS concept, architecture and deployment*

**Łukasz Łopatowski**

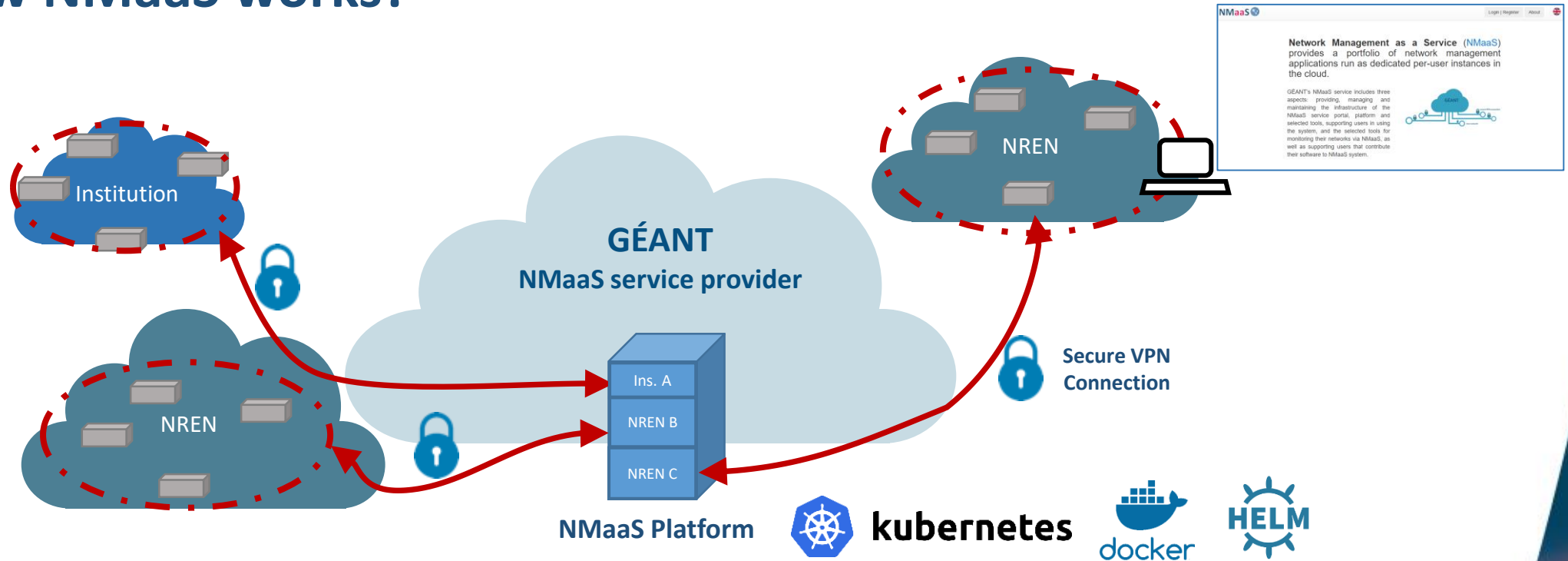
*GN4-3 WP6T3 – NMaaS Team Leader*

GÉANT Network Management as a Service (NMaaS)  
Infoshare

November 25<sup>th</sup> 2020

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# How NMaaS works?

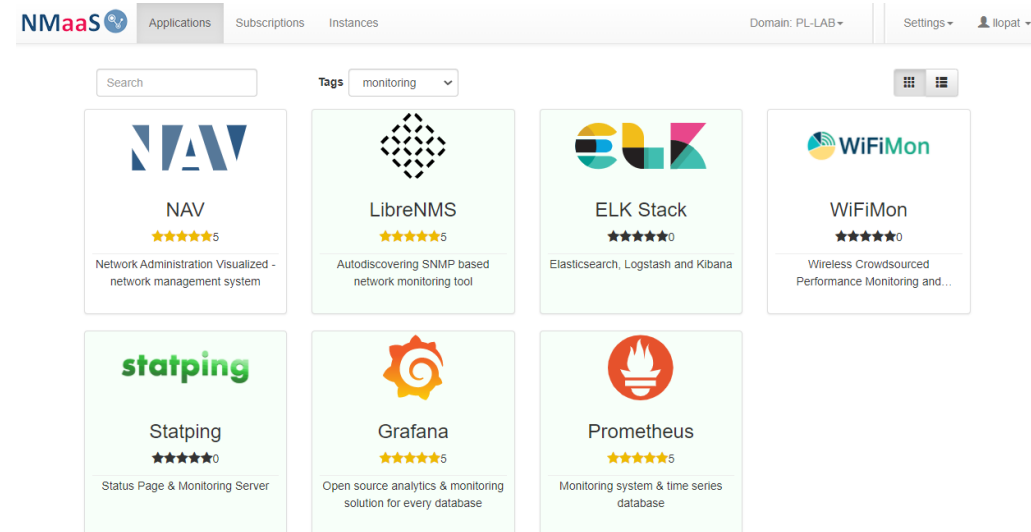


Shared **cloud platform** managed by the GÉANT Project  
Each user gets an **isolated** tenant environment connected over a **VPN** to his network  
Tool deployment and access via a **web portal**

# NMaaS system

## Goals

- Straightforward tool installation process
- Easily extendable with more tools
- Federated login 



# NMaaS system

## Software components

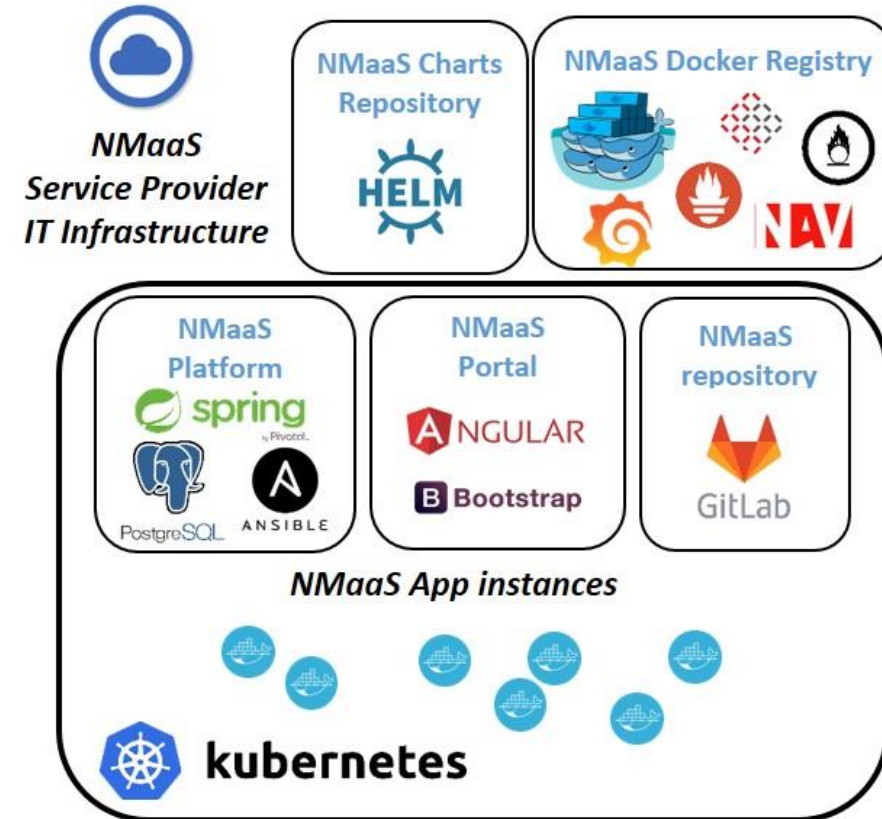
- NMaaS Platform
  - Domain and user management
  - Tool deployment process orchestration
- NMaaS Portal
  - Web-based user front-end

## Tools (packaged applications)

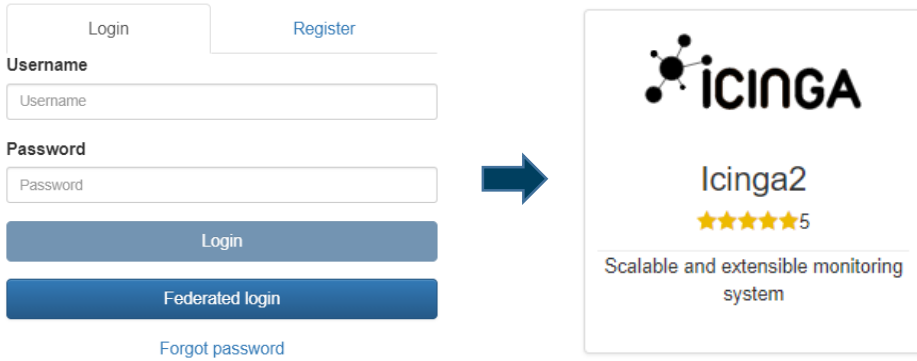
- Docker images
- Helm charts

## Infrastructure

- Kubernetes
- VPN
- Networking



# NMaaS tool deployment process



# NMaaS tool deployment process

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

**Domain:** Customer 1

Close Deploy



Custom instance name



Version selection



Domain indication

# NMaaS tool deployment process

Login Register

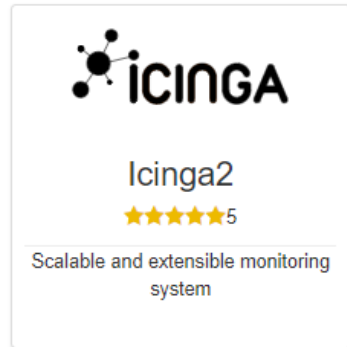
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Deploy new instance of Icinga2

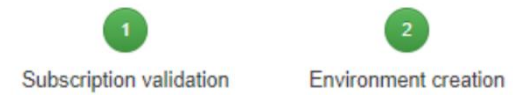
**Instance name**  
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2.11.4

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## Installation progress



Access methods to the application

**External access options**

**Service name**  
icinga Access the application

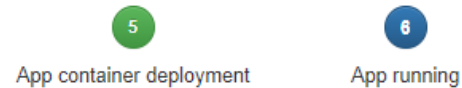
**Internal access options**

Service name	Access method
api	API: 10.2.128.23

Cancel

View application access methods Update configuration

Add members Undeploy



## 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

# NMaaS tool deployment process

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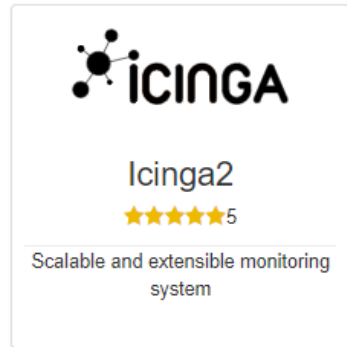
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Federated login

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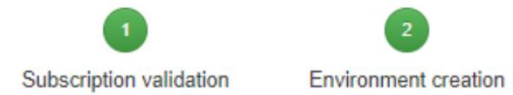
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icing-demo

**Select version**  
2.11.4

**Domain:** Customer 1

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## Installation progress



Access methods to the application

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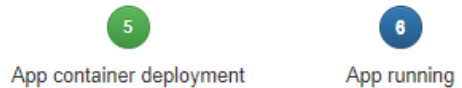
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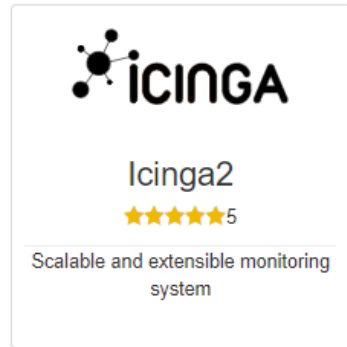
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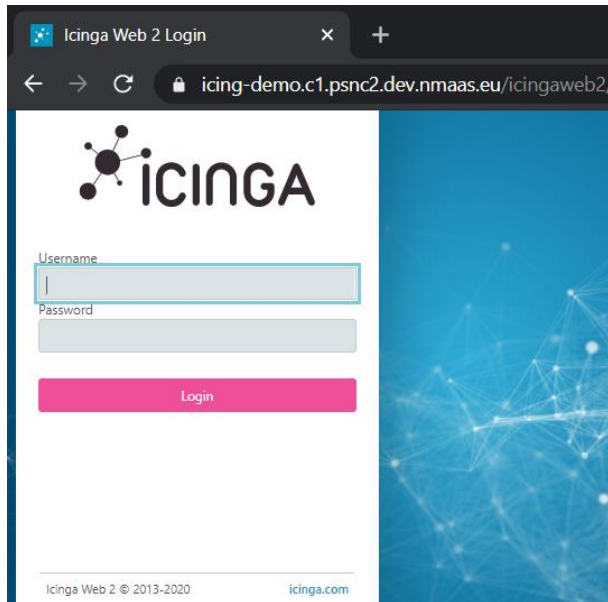
Instance name  
icing-demo

Select version  
2.11.4

Domain: Customer 1

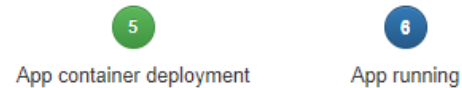
Close Deploy

## Installation progress



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Default web admin user \*  
llopat@nmaas.eu

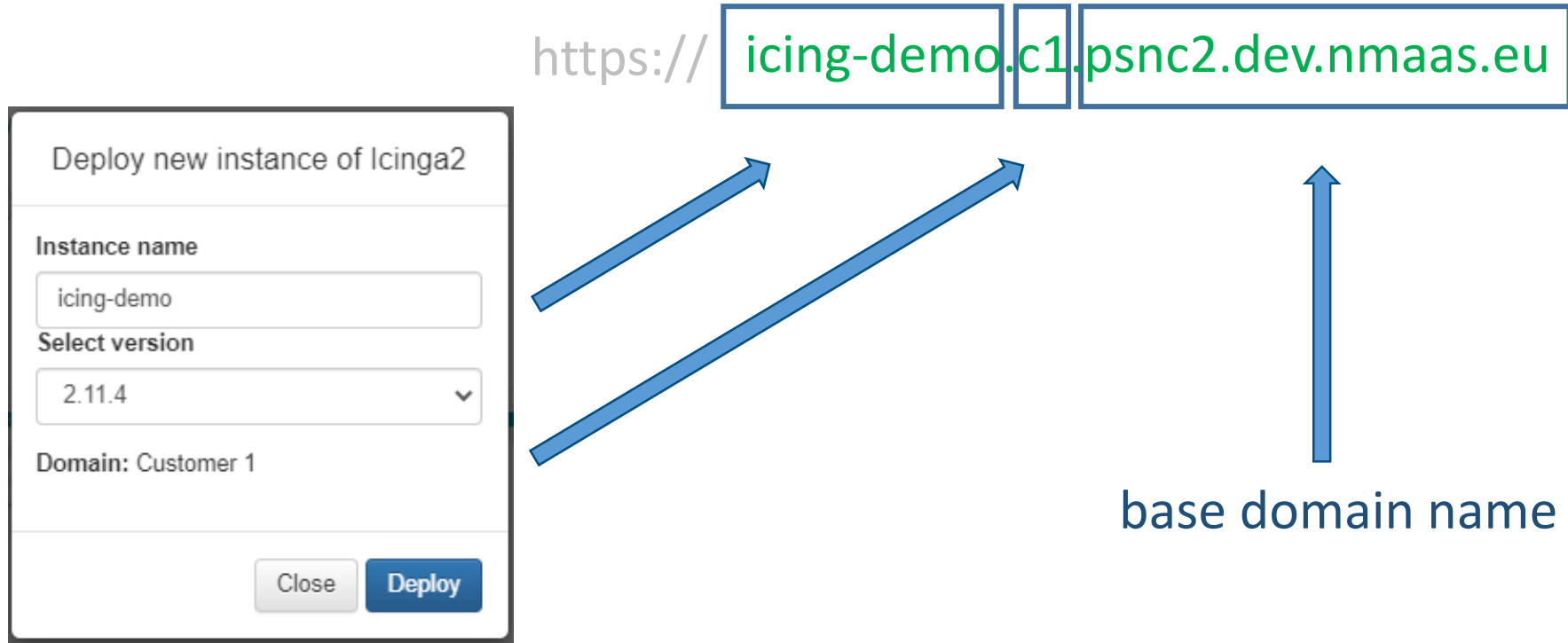
Default web admin password \*  
.....

Allocated configuration directory storage (GB) \*  
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16Gi

Apply configuration

# NMaaS tool instance access



# NMaaS tool instance configuration process



- Dedicated **git repository** created for tool instance
- Configuration files **populated with custom data** entered by the user
- SSH key based user access to clone, **commit and push configuration changes**
- **Automated tool configuration reload** triggered by push action (depends on the tool)

A screenshot of a GitLab web interface showing a repository named "pionier-prometheus-276". The current branch is "master". The file "prometheus.yml" is selected, showing its initial commit by "Administrator" 4 days ago. The file content is a YAML configuration for Prometheus, including global settings, alerting, rule files, and scrape configurations for a "router" job.

```
1 global:
2   scrape_interval: 15s
3   evaluation_interval: 30s
4 alerting:
5   alertmanagers:
6     - static_configs:
7       - targets:
8 rule_files:
9 scrape_configs:
10  - job_name: 'router'
11    metrics_path: /metrics
12    scrape_interval: 15s
13    static_configs:
14  - targets: ['10.255.225.1:9001']
15    labels:
```

# Thank you

Any questions?

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