

# INFN Cloud User Support: the link between research and IT

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# Outline

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## State of Art

- Portfolio
- Guides
- Training courses
- Numbers
- Who? And How?

## Projects

## Activities assigned to different Working-Packages

WP1 	WP2 	WP3 	WP4 	WP5 	WP6 	WP7 
Operation & Infrastructure	User Support & Training	Resources & Sustainability	Security & Policies	Middleware & New Services	R&D	Legal Compliance

# Services – Current portfolio



SaaS



NaaS  
Harbor  
MinIO

PaaS



Simple VM  
DockerCompose, Run Docker  
Elasticsearch&Kibana  
Kubernetes, Spark  
HTCondor Mini  
IAMaaS  
Jupyter with persistence  
Sync&Share

IaaS



Start&Stop  
Hostname choice  
Port managed by the user  
DNSaaS



# Services – Dashboard



## Centralized Services

- No Sys-admin
- Available to all users

A screenshot of the INFN Cloud Dashboard. The top navigation bar includes the INFN logo, "INFN Cloud Dashboard", and menu items: "Deployments", "Advanced", "External Links", and "Admin". On the right, it shows the current environment "infn-cloud-catchall" and the user "Alessandro Pascolini". Below the navigation is a search bar with a magnifying glass icon and the text "Search...". The main content area is titled "CENTRALISED SERVICES:" and contains four service tiles. The first row has three tiles: "INFN Cloud object storage" with a blue stylized 'S' icon, "Notebooks as a Service (NaaS)" with the Jupyter logo, and "INFN Cloud Registry" with the Harbor logo. The second row has one tile: "INFN-Cloud monitoring" with a yellow and orange gear icon.

# Services – Dashboard



## On-Demand

- Sys-Admin ONLY
- WIP: deployments on private network
  - no sys-admin
  - no Floating-IP consumption

A screenshot of the INFN Cloud Dashboard. The top navigation bar includes "INFN Cloud Dashboard", "Deployments", "Advanced", "External Links", and "Admin". The user's name "Alessandro Pascolini" is visible in the top right. The main content area is titled "ON-DEMAND SERVICES:" and displays a grid of service cards. Each card contains a title, an icon, and a brief description. The services shown are: Virtual machine, Docker compose, Run docker, INDIGO IAM as a Service, Elasticsearch and Kibana, Kubernetes cluster, Spark + Jupyter cluster, HTCondor mini, Jupyter with persistence for Notebooks, Jupyter + Matlab (with persistence for Notebooks), and Sync&amp;ShareaaS.

# Guides – Documentation [1]

- Services Catalog
- List of procedures
- Guides on Services deployment

GETTING STARTED

Getting Started

How To: Request the "nomination to be system administrator"

How To: Request the "nomination to be system administrator" (Italian version)

CENTRALISED SERVICES

Use the INFN Cloud Registry service

Use the INFN Cloud object storage service

Use the Notebooks as a Service solution

GENERAL-PURPOSE GUIDES

Enable authenticated security scans

Access cloud storage from a scientific environment

Create a customized docker image for services

Associate a FQDN to your VMs

Request to open ports on deployed VMs

STORAGE SOLUTIONS

Deploy Sync&Share aaS (sys-admin nomination required)

COMPUTING SOLUTIONS

Deploy Working Station for CYGNO Experiment (sys-admin nomination required)

Instantiate docker containers using custom docker-compose files (sys-admin nomination required)

Instantiate docker containers using docker run (sys-admin nomination required)

Deploy Elasticsearch & Kibana (sys-admin nomination required)

Deploy a HTCondor 8.9.9 cluster on Kubernetes (sys-admin nomination required)

Read the Docs v: latest

## Welcome to the INFN Cloud Use Cases Documentation

You'll find here useful information regarding infrastructure.

### Getting started

- Getting Started
- How To: Request the "nomination to be system administrator"
- How To: Request the "nomination to be system administrator" (Italian version)

### Centralised services

- Use the INFN Cloud Registry service
- Use the INFN Cloud object storage service
- Use the Notebooks as a Service solution

### General-purpose guides

- Enable authenticated security scans
- Access cloud storage from a scientific environment
- Create a customized docker image for services
- Associate a FQDN to your VMs
- Request to open ports on deployed VMs

### Storage solutions

- Deploy Sync&Share aaS (sys-admin nomination required)

### Computing solutions

- Deploy Working Station for CYGNO Experiment (sys-admin nomination required)
- Instantiate docker containers using custom docker-compose files (sys-admin nomination required)
- Instantiate docker containers using docker run (sys-admin nomination required)
- Deploy Elasticsearch & Kibana (sys-admin nomination required)
- Deploy a HTCondor 8.9.9 cluster on Kubernetes (sys-admin nomination required)
- Run JupyterHub on a single VM enabling notebook persistence (sys-admin nomination required)
- Deploy a Kubernetes cluster (sys-admin nomination required)
- Deploy an Apache Mesos cluster (sys-admin nomination required)
- Deploy RStudio Server (sys-admin nomination required)
- Deploy a Spark cluster + Jupyter notebook (sys-admin nomination required)
- Create VM with ssh access (sys-admin nomination required)

## User responsibilities

! Important

The solution described in this guide consists on the deployment of a Kubernetes cluster on top of Virtual Machines instantiated on INFN-CLOUD infrastructure. The instantiation of a VM comes with the responsibility of **maintaining it and all the services it hosts**. In particular, be careful when updating the operating system packages, as they could incorrectly modify the current version of the cluster (v1.24.12) and cause it to malfunction.

Please read the [INFN Cloud AUP](#) in order to understand the responsibilities you have in managing this service.

## Kubernetes cluster configuration

! Note

If you belong to multiple projects, aka multiple IAM-groups, after login into the dashboard the upper right corner, select the one to be used for the deployment you intend to perform. All solutions are available for all projects. The resources used for the deployment will be accounted to the respective project, and impact on their available **quota**. See figure below

### Implementation (advanced) tab

Here you can choose the type of service and whether to add an IAM group authorized to access the service as admins (applicable only with nextcloud). If there are no special needs, the use of ownCloud is recommended.

Deployment description

General Implementation (advanced) Advanced

data\_service\_implementation

Select the backend solution that implements the storage service

iam\_admin\_group

IAM group authorized to access the service as admins (applicable only with nextcloud)

Submit Cancel

Figure 2c: Implementation (advanced) tab

[1] <https://guides.cloud.infn.it/docs/users-guides/en/latest/>



# Organised/supported training events (2022/2024)

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## 2022

- ClueApp – 13-16/09
- 3° [ML-INFN Hackaton](#) 21-24/11
- [Administration of resources provided through INFN Cloud](#) – 29/11 – 2/12

## 2023

- [User Course](#) 29-30/05
- [Clue App](#) – 31/05-1/06
- [4t ML-INFN Hackathon](#) 21-23/06
- [Openstack & INFN Cloud](#) 27-30/11

## 2024

- [Administration of IT resources](#) – 6-9/02

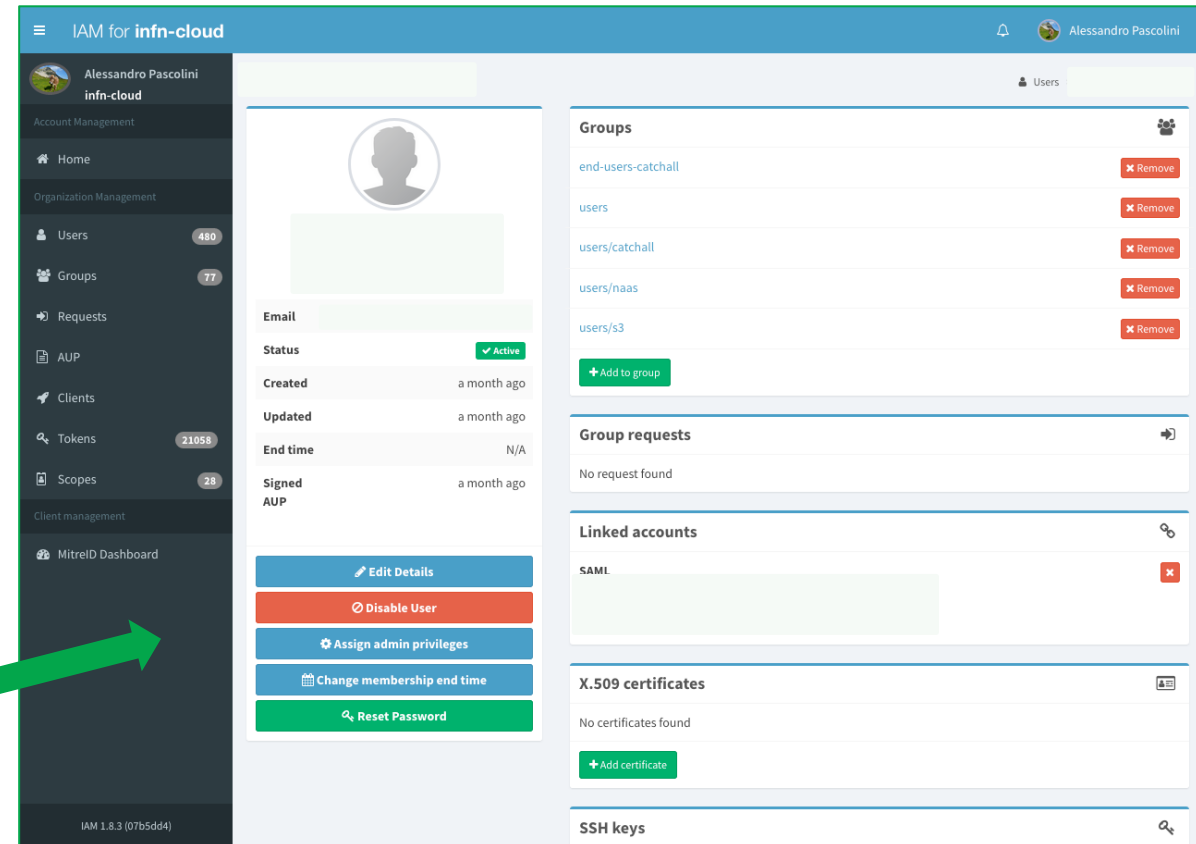
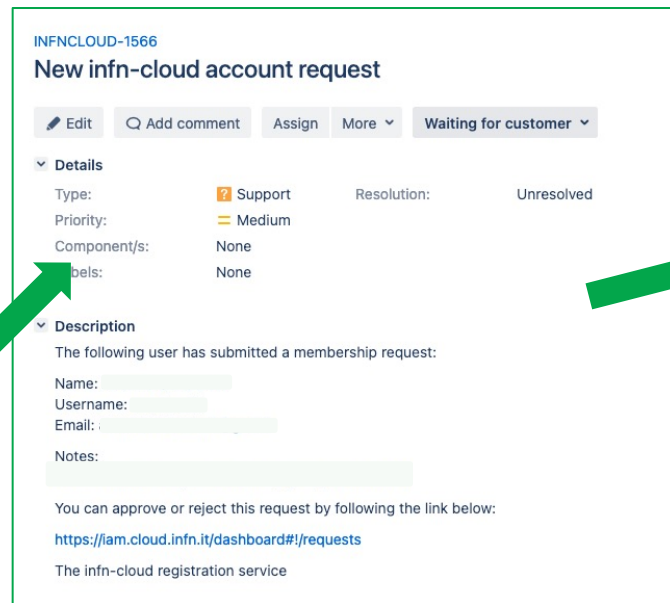
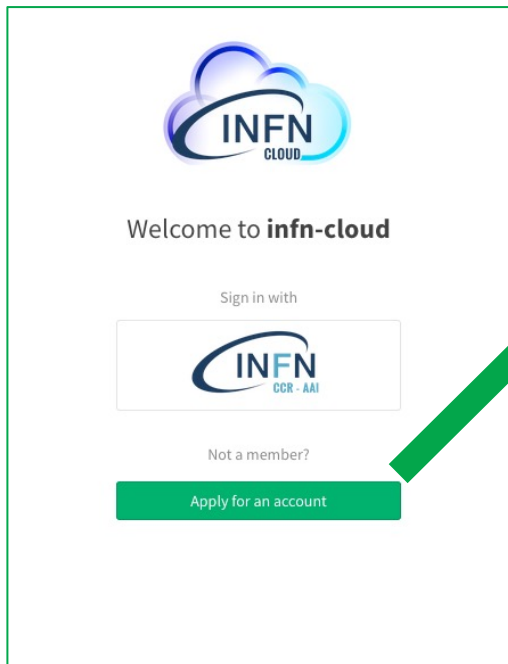




# Cloud Subscriptions

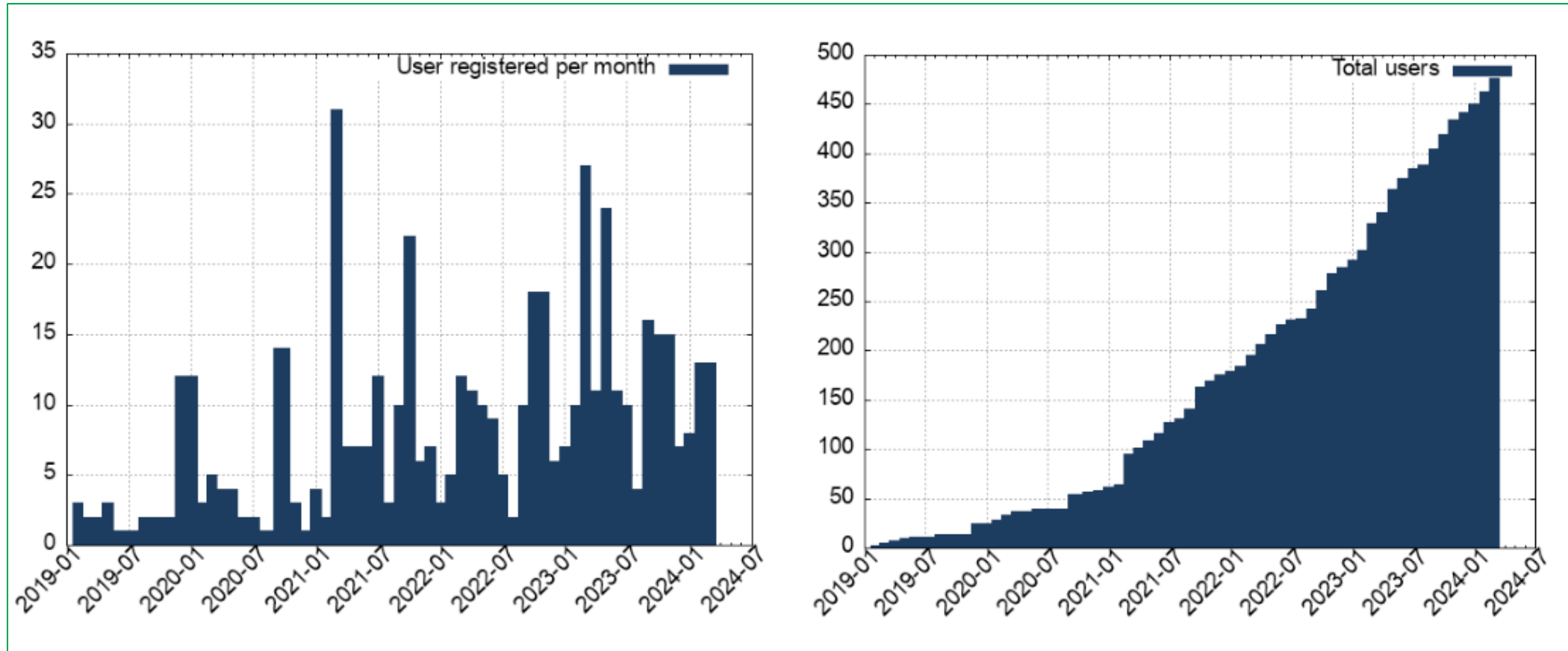
## IAM-Cloud

- IAM instance to perform AuthN/Z on the PaaS
- Resources allocation based on IAM Groups
- Access reserved only for INFN associates\*



\* Planning to extend access to non-INFN users

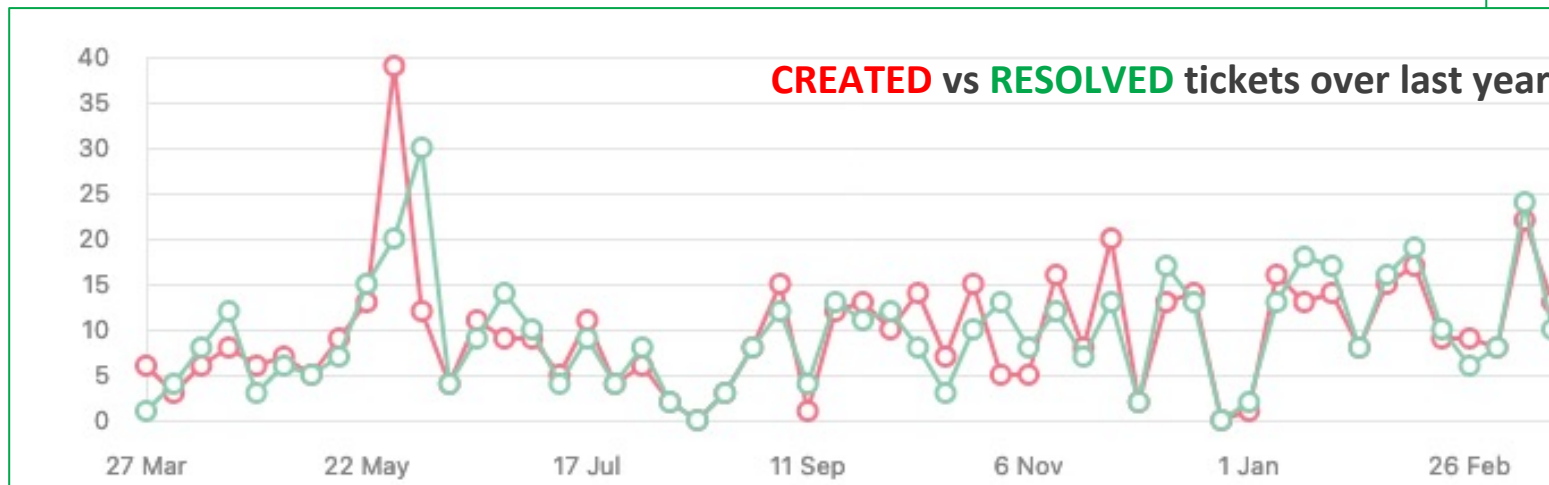
# Numbers – Cloud Subscriptions





# Numbers – User Support

- ~1600 suport tickets in over 4 years
- Only 14 tickets open right now



All open [Switch Queues](#) ▾

<input type="checkbox"/>	Time to resolution	T	Key	Status
<input type="checkbox"/>	8h 41m		<a href="#">INFNCLOUD-1573</a>	WAITING FOR CUSTO...
<input type="checkbox"/>	6h 37m		<a href="#">INFNCLOUD-1568</a>	WAITING FOR SUPPO...
<input type="checkbox"/>	-2h 36m		<a href="#">INFNCLOUD-1566</a>	WAITING FOR CUSTO...
<input type="checkbox"/>	-3h 31m		<a href="#">INFNCLOUD-1565</a>	WAITING FOR CUSTO...
<input type="checkbox"/>	-1d 2h		<a href="#">INFNCLOUD-1564</a>	WAITING FOR CUSTO...
<input type="checkbox"/>	-4d 5h		<a href="#">INFNCLOUD-1549</a>	WAITING FOR SUPPO...
<input type="checkbox"/>	-4d 8h		<a href="#">INFNCLOUD-1545</a>	WAITING FOR CUSTO...



# Who? How?

## Support Team

### First Level

Ahmad Alkhansa  
Federica Fanzago  
Daniele Lattanzio  
Alessandro Pascolini  
Carmelo Pellegrino  
Francesco Sinisi  
Stefano Stalio  
**Simona Stellacci**  
**Carmen Giugliano**  
**Alessandro Alberto Oliva**  
**Salvatore Aurnia**

**NEW ENTRIES!!**

### Second Level

Stefano Stalio  
Marica Antonacci  
Giacinto Donvito  
Daniele Spiga  
Barbara Martelli  
Vincenzo Ciaschini  
Diego Michelotto  
Daniele Cesini  
Luca Giovanni Carbone  
Enrico Vianello  
Massimo Sgaravatto  
Nadina Foggetti

**And many more ...**

- Contacts via [Service Desk](#)
- Announcements [cloud-announce@lists.infn.it](mailto:cloud-announce@lists.infn.it)

Calendario turni supporto INFN Cloud

Oggi ← ▶ marzo 2024 ▼

lun	mar	mer	gio	ven	sab	dom
26	27	28	29	1 mar	2	3
Alex P. + Ahmad				09:30 INFN Cloud WP2:		
4	5	6	7	8	9	10
Alessandro P. + Carmelo				09:30 INFN Cloud WP2: 10:30 Soluzioni Backup		
11	12	13	14	15	16	17
Alex O. + Daniele				09:30 INFN Cloud WP2:		
18	19	20	21	22	23	24
Carmen + Alessandro P.				14:00 Plenaria DataClo	09:30 INFN Cloud WP2:	
25	26	27	28	29	30	31
Federica + Salvo				09:30 INFN Cloud WP2:		

+ Google Calendario



## Supported Projects

AI\_INFN

AMS-02

Cygno

Darkside

ELETBIC

EUROLABS

HERD

IXPE

KM3NeT

LHCb

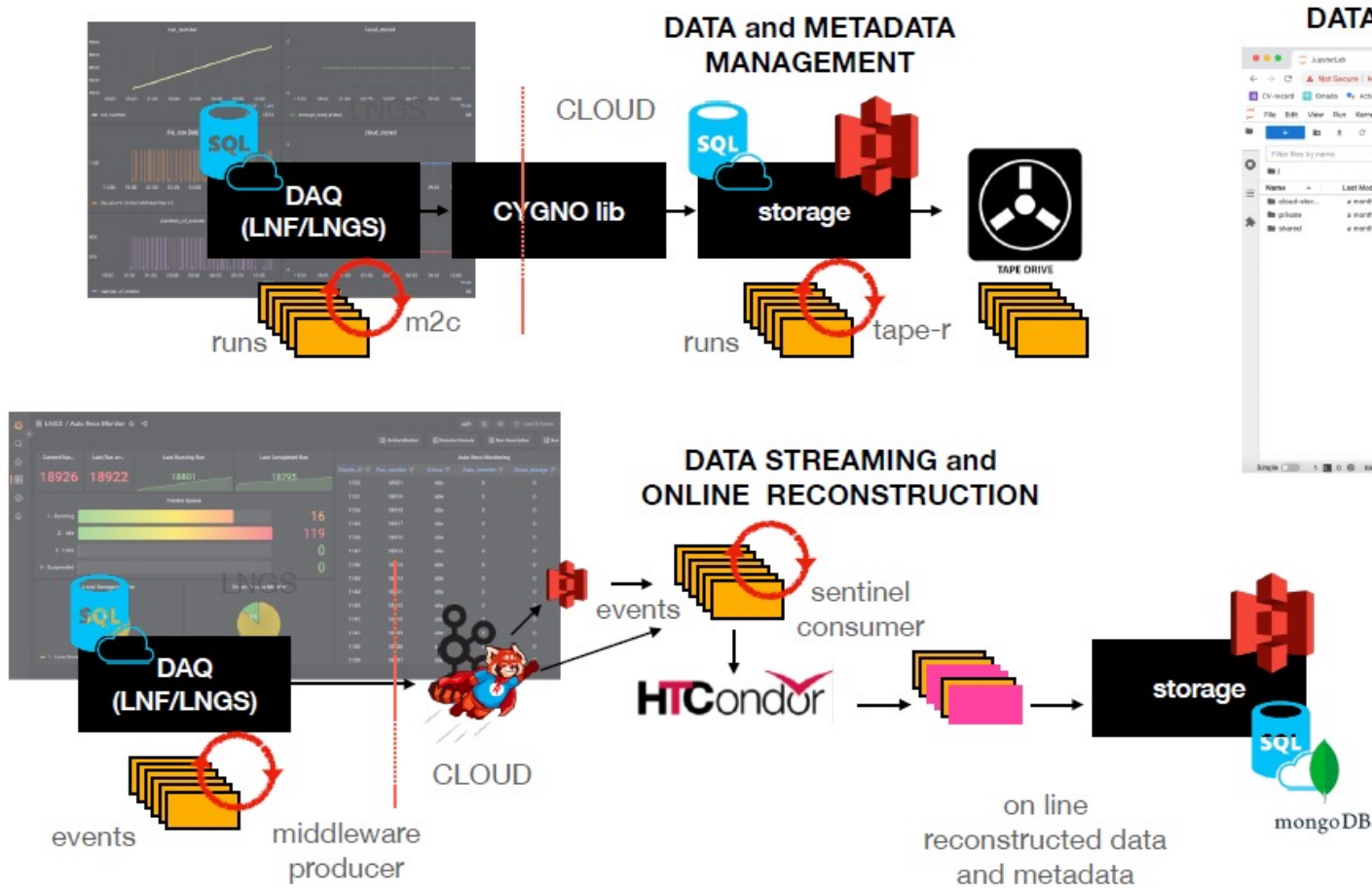
MUONE

NUCS

QUAX

SI

TIFPA



### DATA ANALYSIS and SIMULATION

HTCondor  
GEANT4

Clusters/image  
Clusters/run  
Total light/run  
Avg clusters/img

17351 RUNNING Fri May 5 11:12:38 2023 alive -21

6.02 0.915 19.9

ON -41407 -9.54

**DATA and METADATA online visualisation and historization**



## SVN repo

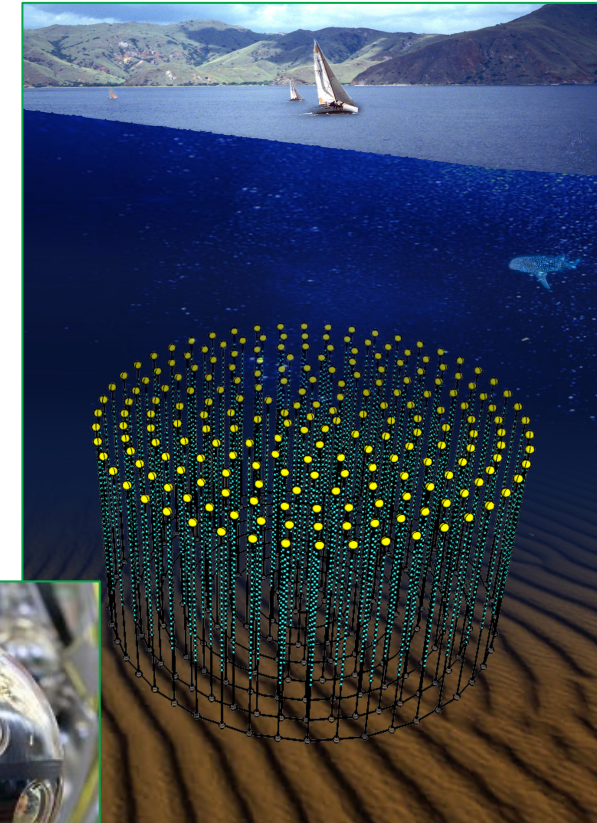
- A legacy SVN repo being maintained as a reference

## KM3DIA

- **DOM** Integration **A**ssistant (DIA)
  - database collecting all the informations from DOM integration sites
- Redundance on more sites

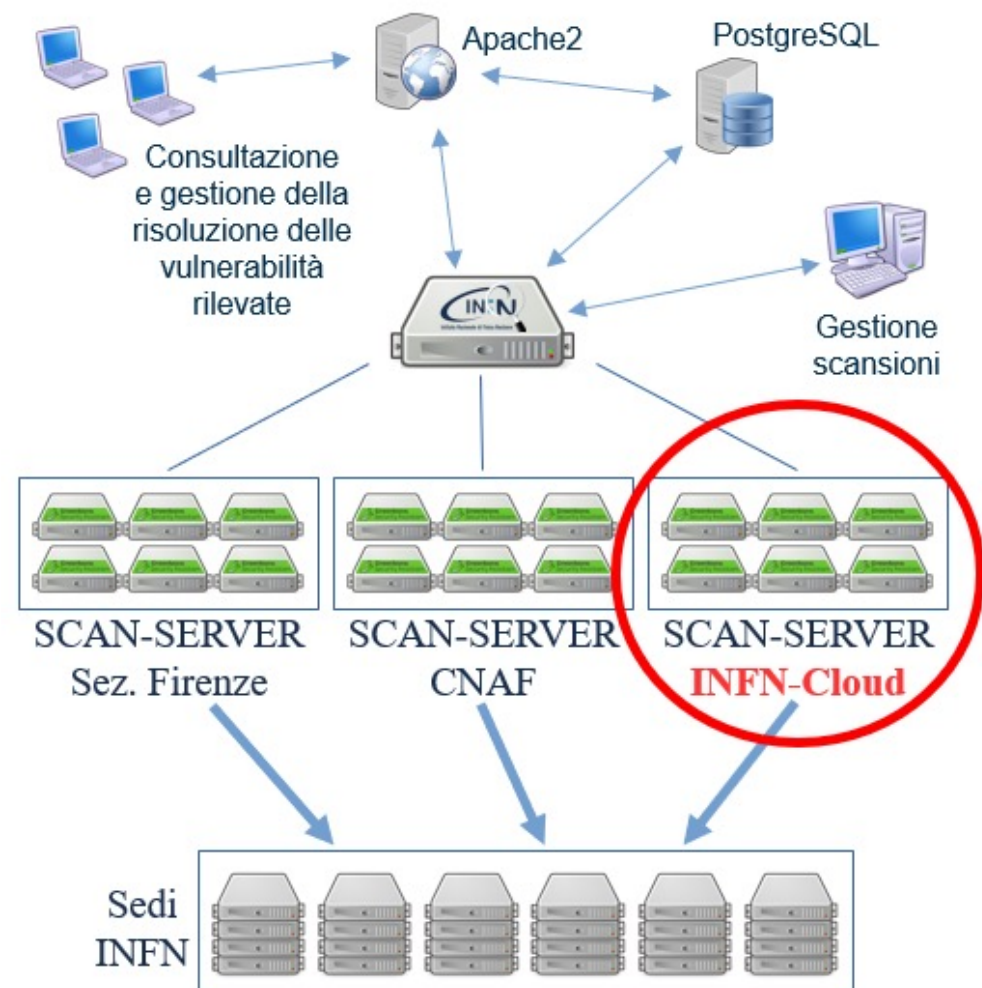
## Owncloud

- A shared spasse to keep documents



## Scan-Servers

- 6 virtual-machines instantiated on INFN-Cloud alongside the previous 12 at INFN-CNAF and INFN-Firenze





# Conclusions

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## WP2 deals with user **support** and **training**

- Interaction with projects
- Support for the adoption of Cloud-native technological solutions

## **Collaboration** with other groups present in INFN Cloud

## New challenges are expected as **DataCloud** begins

- Update on-boarding procedures for new non-INFN users
- Guides and training to support the evolution of services



**Thanks for the attention!**