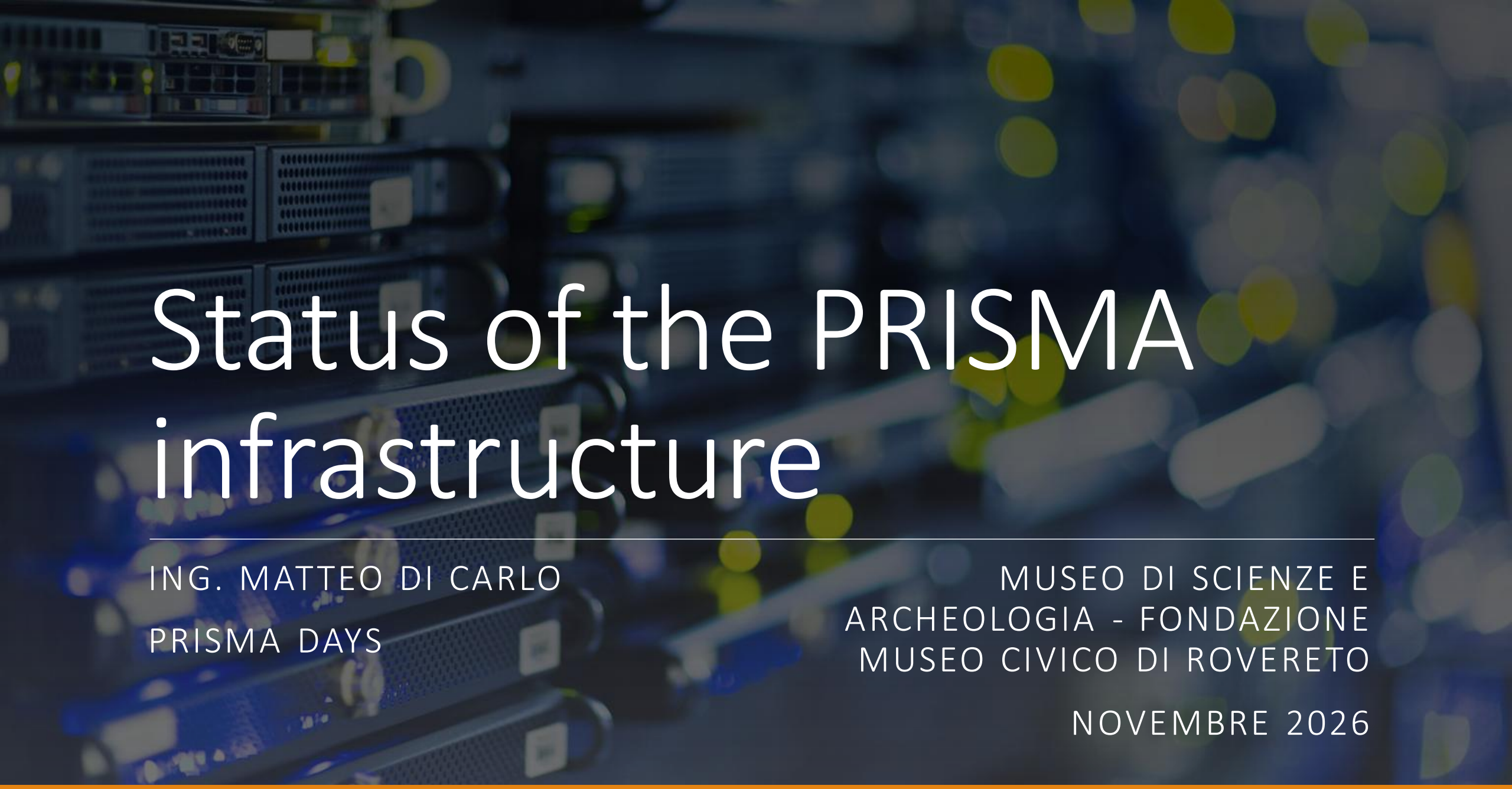


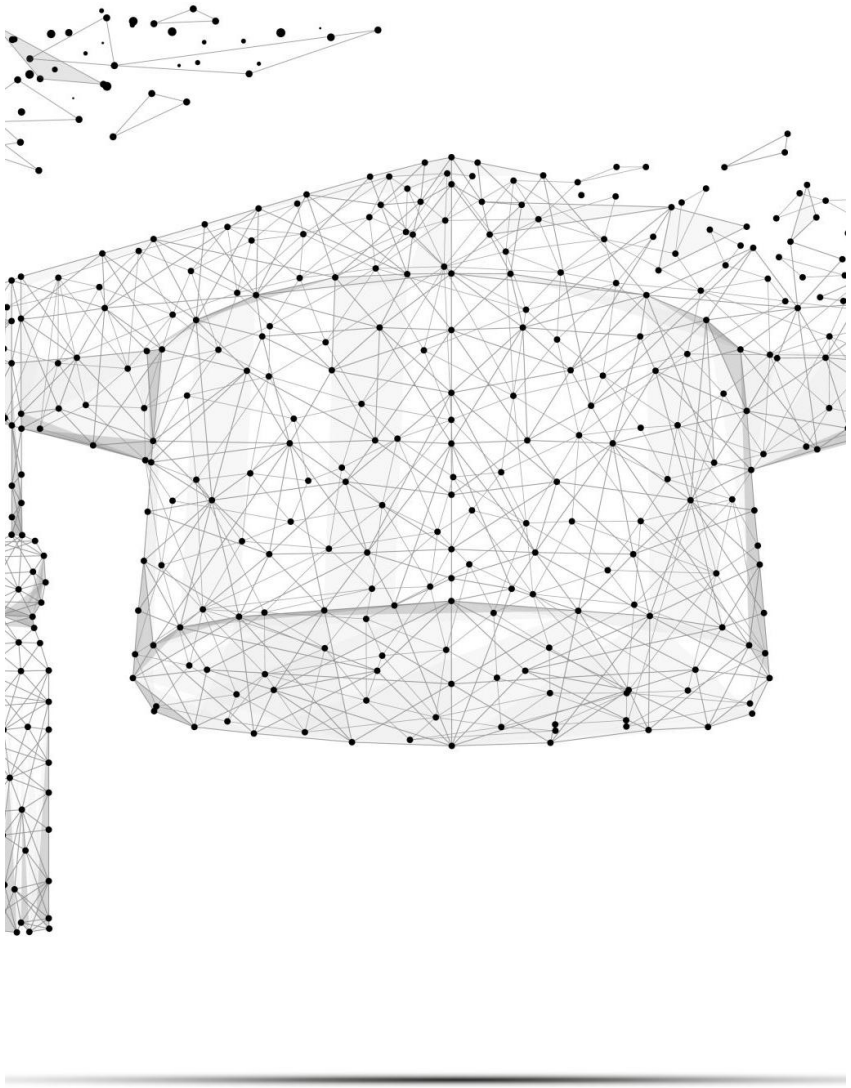
Status of the PRISMA infrastructure

ING. MATTEO DI CARLO

MUSEO DI SCIENZE E ARCHEOLOGIA - FONDAZIONE MUSEO CIVICO DI ROVERETO

PRISMA DAYS

NOVEMBRE 2026



Chi sono

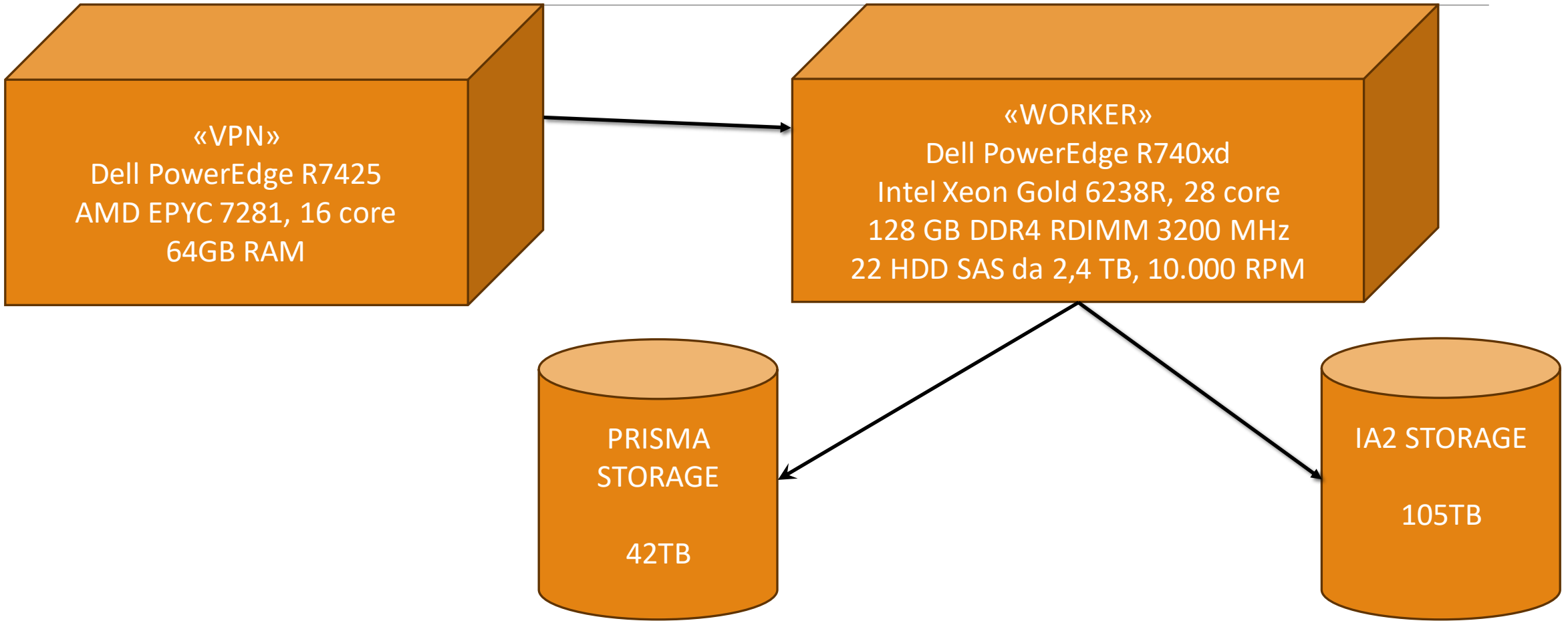
Laurea in Ingegneria informatica

Esperto di monitoraggio e controllo (SKA project) e tecnologie 3D (per divulgazione)

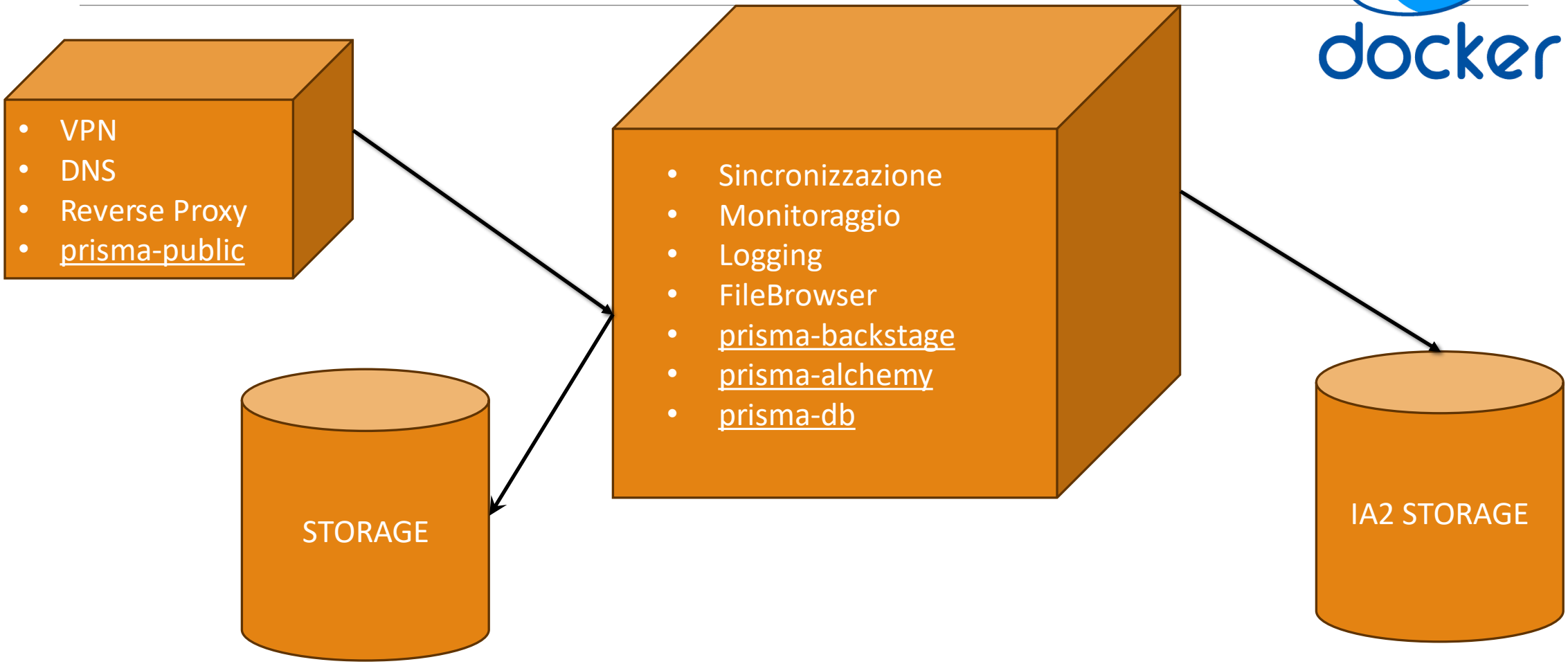
In forze all'Osservatorio Astronomico d'Abruzzo (INAF – OAAB)

Parte del mio tempo è dedicato a PRISMA con l'obiettivo di gestire il monitoraggio e controllo della rete (quindi delle camere) lato server

Server PRISMA @ Trieste



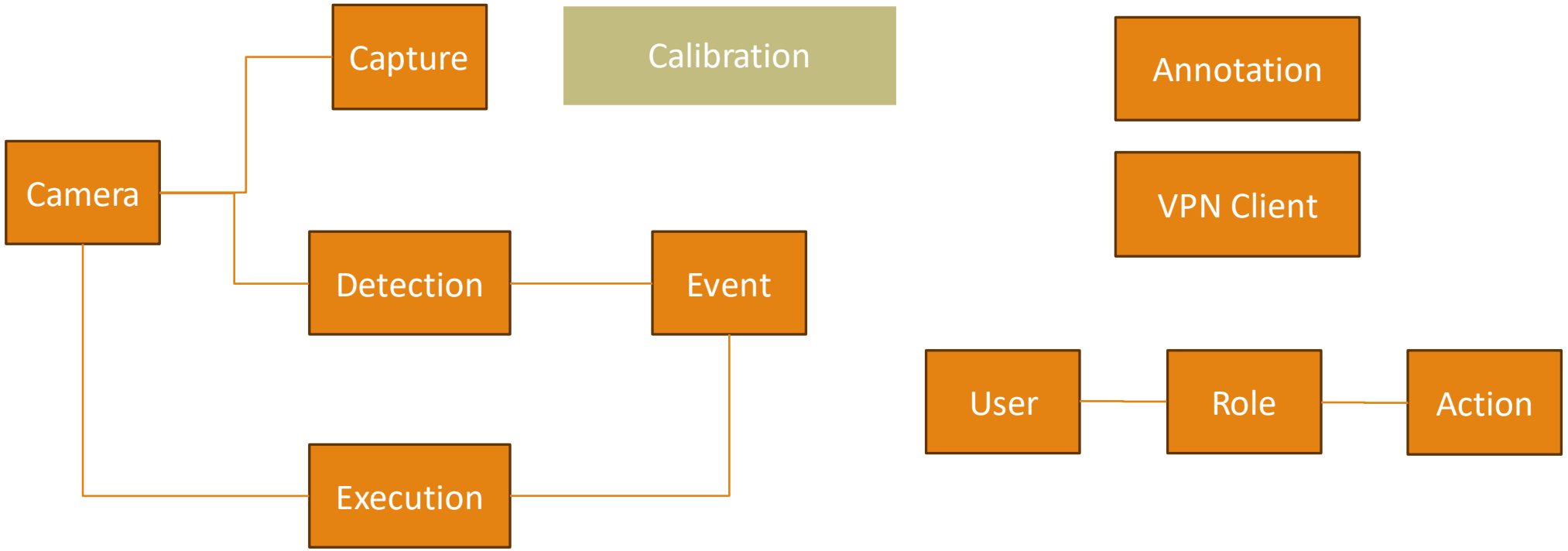
Servizi PRISMA @ Trieste



Obiettivi 2026

- Ottimizzazione sincronizzazione
- Calibrazione e Analisi eventi «on demand»
- Accesso ai dati
  - Archivio pubblico
  - Pagina eventi
  - …

PRISMA Database



prisma-alchemy: motore di esecuzione

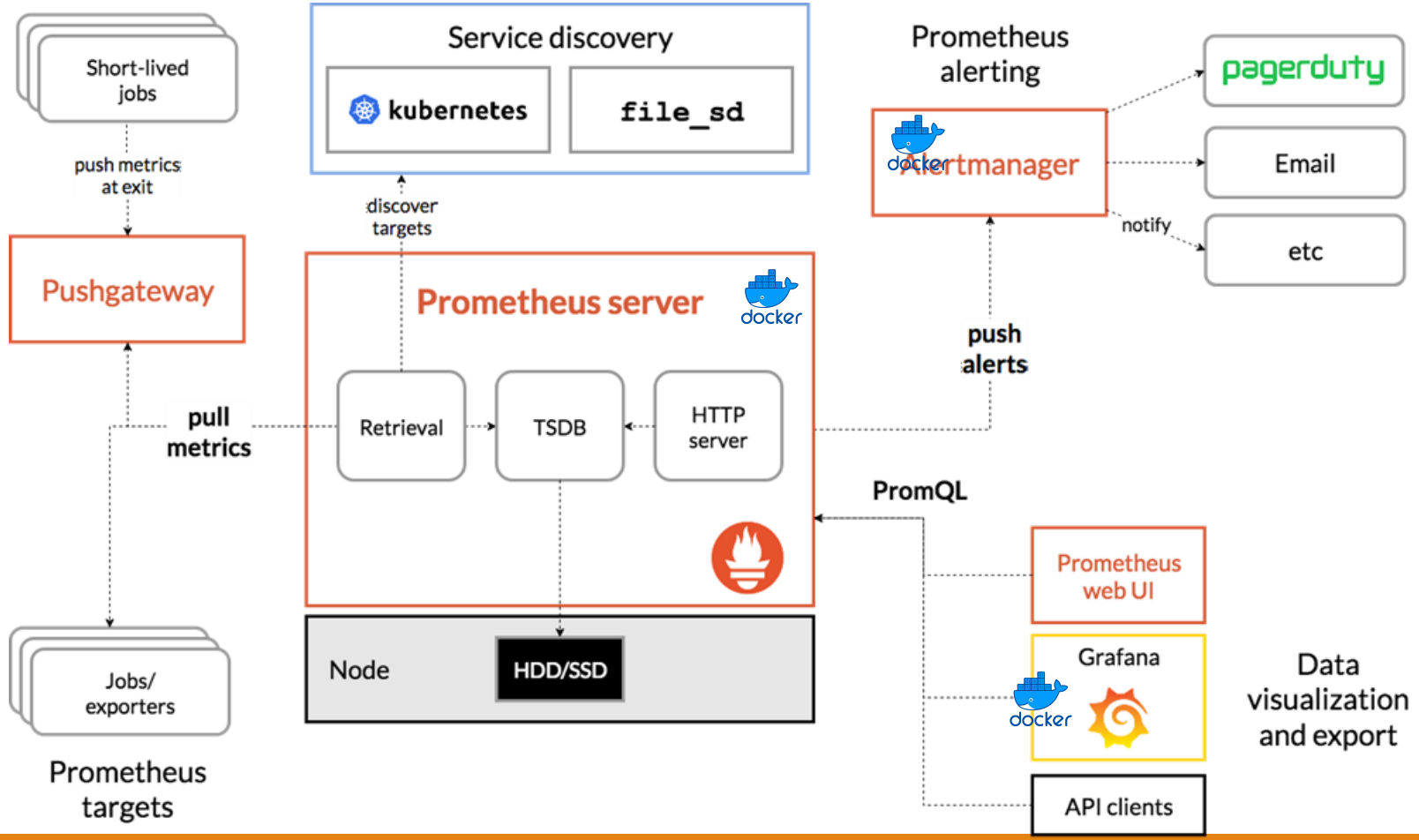
- Popola e aggiorna il database
- Genera esecuzioni ove necessario
- Esegue le esecuzioni schedulate nel database
  - Calibrazioni
  - Analisi eventi
  - Sincronizzazioni
  - Merge/unmerge
  - Generazioni certificati per vpn
- https://gitlab.com/inaf-prisma/prisma-alchemy/

Circa 36 esecutori (nel 2025 erano 32 solo per le sincronizzazioni)

prisma-backstage

- Portale web per il monitoraggio camere
- Esplorazione dei dati
- Gestione delle esecuzioni
- Funzioni amministrative (nuove camere, vpn, ruoli)
- https://gitlab.com/inaf-prisma/prisma-backstage

Monitoraggio con Prometheus




datasource
Prometheus
Job
node
Host:
prisma
Port
9100
Used Disk Space
69.8%
/
90.9%
/prismadata
29.8%
/prisma_storage
CPU Busy
3.95%
RAM Used
33%
SWAP Used
66.3%
Disk Space Availability
/ 265 GiB
/prismadata 4 TiB
/prisma_storage 74 TiB
Disk Space Total
/ 879 GiB
/prismadata 41 TiB
/prisma_storage 106 TiB
Quick CPU / Mem / Disk
Sys Load (1m...
3.84
Sys Load (5m avg)
3.31%
Sys Load (15m avg)
4.46%
Root FS Used
69.8%
CPU Cores
112
RA...
125 GiB
SW...
10 GiB
Uptime
8.9 weeks

Prisma-exporter

Metriche specifiche per PRISMA	Number of successful captures done of yesterday
	Number of expected captures of yesterday
	Number of daily captures
	Number of monthly detections
	Number of daily events
	Daily calibration
	Montly calibration
	Processed event

Cameras

105

Synchronization status

37

Percentage

35.2

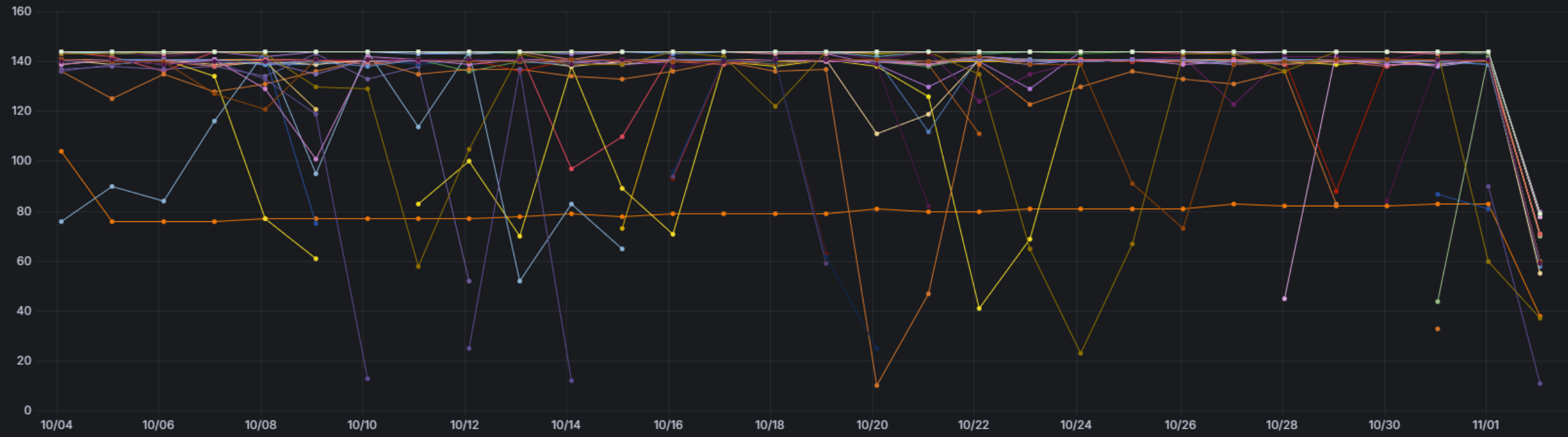
Total Working in the last month

32

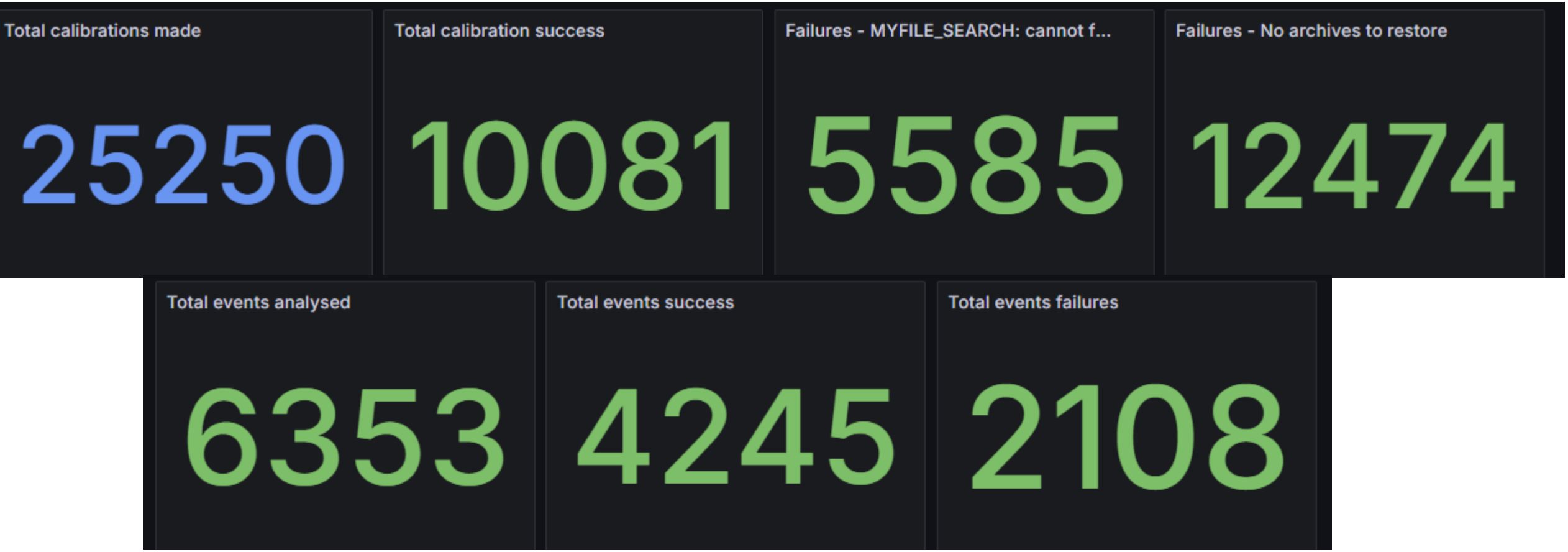
VPN IP Count

70

Captures Time series



captures DEBW21 (FTP01) captures DEBW22 (FTP02) captures DEBY20 (MUENSTERSCHWARZACH) captures FRCA20 (NICE) captures GREA20 (EA01) captures GREV21 (EA02) captures GRVO22 (EA03) captures ITAB03 (TERAMO) captures ITAB04 (LANCIANO) captures ITCL01 (REGGIOCALABRIA) captures ITER02 (SAVIGNANO) captures ITER04 (BEDONIA) captures ITER07 (MONTEROMANO) captures ITER08 (RAVENNA) captures ITER10 (CENTO) captures ITFV02 (CHIONS) captures ITLA01 (ROMA) captures ITLA02 (GORGA) captures ITLO06 (CODOGNO) captures ITLO07 (SESTOSANGIOVANNI) captures ITLO08 (FERNO) captures ITLO11 (ORIOLITTA) captures ITLO12 (SANBENEDETTOPO) captures ITMA01 (CAMERINO) captures ITMA02 (CIVITANOVAMARCHE) captures ITMA03 (FOLIGNANO) captures ITMO01 (PESCHE) captures ITPI04 (LUSERNASANGIOVANNI) captures ITSA01 (SARDINIARADIOTELESCOPE) captures ITSA03 (GENNARGENTU) captures ITSI03 (SERRALANAVE) captures ITSI04 (RACALMUTO) captures ITSI05 (STROMBOLI) captures ITSI08 (COMITINI) captures ITSI09 (MONTEMUFARA) captures ITTA01 (TRENTO) captures ITTA02 (ROVERETO) captures ITTO04 (MONTELUPOFIORENTINO) captures ITTO05 (CHIANTI) captures ITTO08 (ELBA) captures ITTO09 (ROSELLETERME) captures ITTO12 (MONTARRENTI) captures ITTO13 (SANSEPOLCRO) captures ITUM02 (AMELIA) captures ITUM03 (CESI) captures ITVA01 (LIGNAN) captures ITVE04 (AGORDO) captures PTAV20 (FERMENTELOS) captures PTVI22 (MOIMENTA)



Tutti i processamenti per calibrazioni ed eventi sono basati su IDL (8.8) e il software realizzato da D. Barghini

Global Summary (All Cameras)

matteo1981

Completed	Executed	Failed	To Execute	Running
25250	10081	15169	2	0

REFRESH

CAMERA CODE	MIN CALIBRATION CODE	MAX CALIBRATION CODE	FAILED	QUEUED	EXECUTED	EXECUTIONS
DEBW21	201601	20261101	133	0	248	381
DEBW22	201601	20261101	148	0	197	345
DEBY20	201601	20261101	135	0	192	327
FRCA20	201601	20261101	137	0	176	313
FRCA21	201601	202610	159	0	42	201

5 rows 1-5 of 105

Select a camera group to view executions

CODE	EVENT TYPE	HAS TRIANGULATION MAP IMAGE	CAMERA CODES	MIN ABSOLUTE MAGNITUDE FINAL	MIN ABSOLUTE MAGNITUDE FINAL LINE	VELOCITY FINAL	VELOCITY FINAL LINE	HEIGHT FINAL	H F L
	teor✕								
20261024 T192555_ UT	Meteor	✓	ITER02 ITER08 ITER10	-6.263	[/] -6.263 ± 0.093 @ 49.1 km	1.5605	[km/s] 20.9760 ± 0.2155 1.5605 ± 5.0503	37.8941	[7 0 3 0
20260823 T232222_ UT	Meteor	✓	ITTO04 ITTO05 ITTO13	-5.993	[/] -5.993 ± 0.112 @ 312.7 km	52.3063	[km/s] 2.4355 ± 303.4388 52.3063 ± 303.3658	23.5577	[± 2 3
20260817 T220025_ UT	Meteor	✓	ITER02 ITER08 ITER10	-5.758	[/] -5.758 ± 0.037 @ 80.8 km	44.8416	[km/s] 60.6599 ± 3.3578 44.8416 ± 32.6125	70.6638	[1 0 7 0

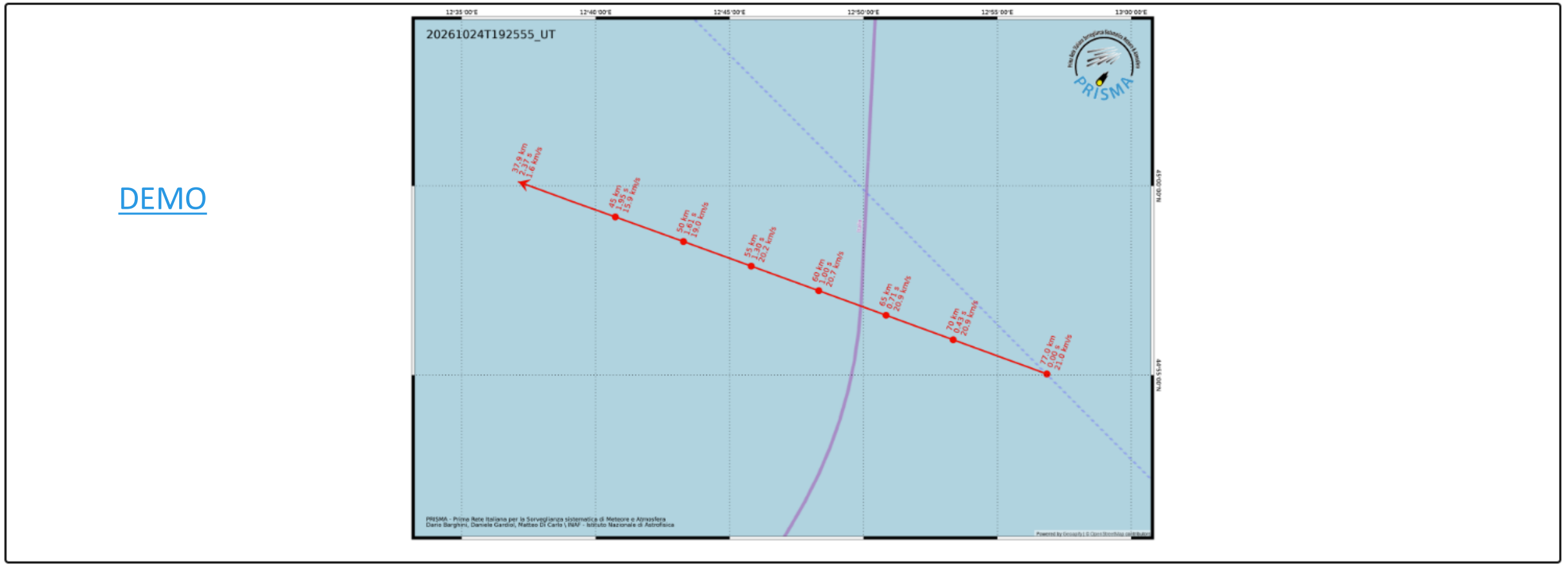
Event 20261024T192555_UT

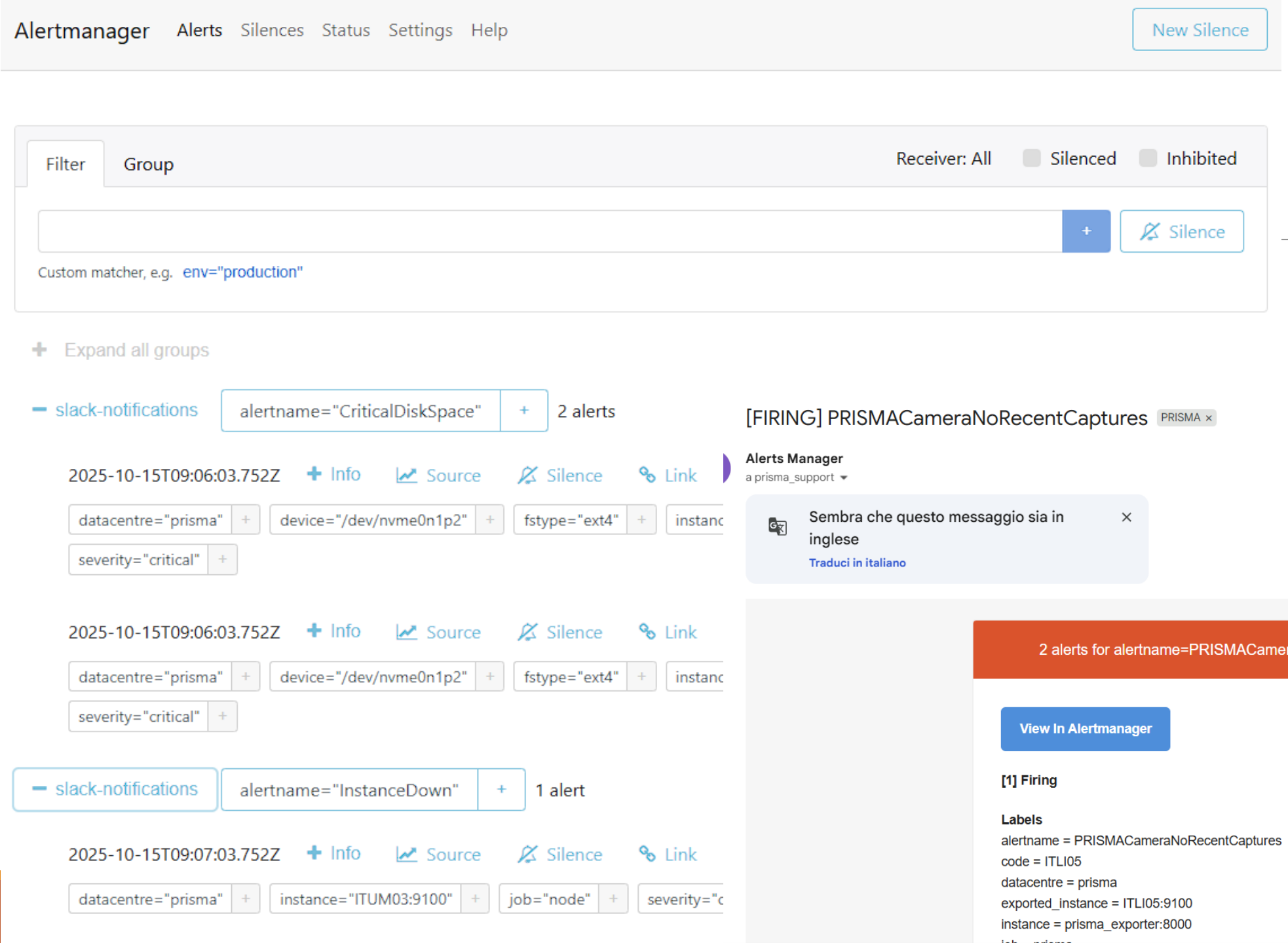
matteo1981

Overview OVPN Clients Authorization Admin New Camera Camera Capture Detection Event Create Executions Event Executions Calibration Executions Calibration Executions (Grouped)
Sync Executions Merge / Unmerge Executions Archive Executions

Triangulation Map

DEMO




Alertmanager
Alerts
Silences
Status
Settings
Help
New Silence
Filter
Group
Receiver: All
Silenced
Inhibited
Silence
Custom matcher, e.g. env="production"
Expand all groups
slack-notifications
alertname="CriticalDiskSpace"
2 alerts
2025-10-15T09:06:03.752Z
Info
Source
Silence
Link
datacentre="prisma"
device="/dev/nvme0n1p2"
fstype="ext4"
severity="critical"
2025-10-15T09:06:03.752Z
Info
Source
Silence
Link
datacentre="prisma"
device="/dev/nvme0n1p2"
fstype="ext4"
severity="critical"
slack-notifications
alertname="InstanceDown"
1 alert
2025-10-15T09:07:03.752Z
Info
Source
Silence
Link
datacentre="prisma"
instance="ITUM03:9100"
job="node"

[FIRING] PRISMACameraNoRecentCaptures
PRISMA ×
Alerts Manager
a prisma_support
09:15 (5 ore fa)
Sembra che questo messaggio sia in inglese
Traduci in italiano
2 alerts for alertname=PRISMACameraNoRecentCaptures
View In Alertmanager
[1] Firing
Labels
alertname = PRISMACameraNoRecentCaptures
code = ITLI05
datacentre = prisma
exported_instance = ITLI05:9100
instance = prisma_exporter:8000

[Prisma_support] PRISMA Infrastructure Report - 2026-10-27

Posta in arrivo ×

prisma_support@inaf.it

a prisma_support

Sembra che questo messaggio sia in inglese

Traduci in italiano

PRISMA Infrastructure Report - 2026-10-27
==========

Reporting window: last 1 days (2026-10-26 to 2026-10-26)

SUMMARY

Cameras total: 104
Sync working (yesterday): 34 / 104
Active last 1 days: 36 / 104

EVENTS (last 1 days): 1
2026-10-26 23:29:05 20261026T232905_UT https://backstage.prisma.inaf/prisma-db/event/20261026T232905_UT

EXECUTIONS (last 1 days): 94 total, 77 failed
Type Total Failed Link
---------- ----- ------ ----
synccapture 38 37 https://backstage.prisma.inaf/prisma-db/executions?exec_type=synccapture
syncdetection 37 37 https://backstage.prisma.inaf/prisma-db/executions?exec_type=syncdetection

Logging con Elasticsearch



Real-time distributed search and analytics engine

“Real-time” refers to the ability to search (and sometimes create) data as soon as they are produced

Distributed because its indices are divided into shards with zero or more replicas

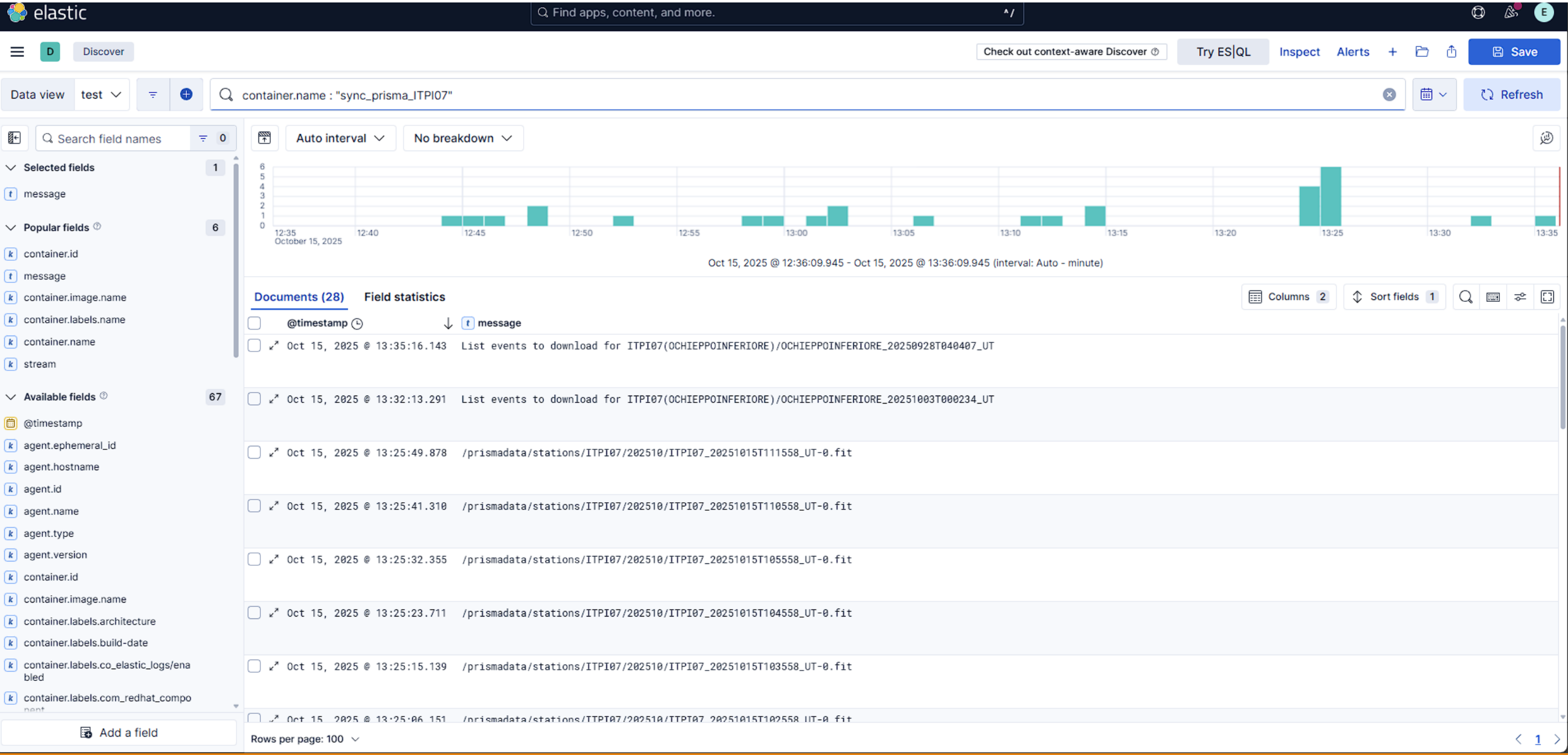
the analytics engine which allows the discovery, interpretation, and communication of meaningful patterns in data



Based on Apache Lucene: a free and open-source information retrieval software library



It is developed alongside a data-collection and log-parsing engine called Logstash, and an analytics and visualization platform called Kibana


elastic
Find apps, content, and more.
Discover
Check out context-aware Discover
Try ES|QL
Inspect
Alerts
Save
Data view
test
container.name : "sync_prisma_ITPI07"
Refresh
Search field names
Auto interval
No breakdown
Selected fields
message
Popular fields
container.id
message
container.image.name
container.labels.name
container.name
stream
Available fields
@timestamp
agent.ephemeral_id
agent.hostname
agent.id
agent.name
agent.type
agent.version
container.id
container.image.name
container.labels.architecture
container.labels.build-date
container.labels.co_elastic_logs/enabled
container.labels.com_redhat_component
Add a field
12:35
October 15, 2025
Oct 15, 2025 @ 12:36:09.945 - Oct 15, 2025 @ 13:36:09.945 (interval: Auto - minute)
Documents (28)
Field statistics
Columns 2
Sort fields 1
@timestamp
message
Oct 15, 2025 @ 13:35:16.143 List events to download for ITPI07(OCHIEPPOINFERIORE)/OCHIEPPOINFERIORE_20250928T040407_UT
Oct 15, 2025 @ 13:32:13.291 List events to download for ITPI07(OCHIEPPOINFERIORE)/OCHIEPPOINFERIORE_20251003T000234_UT
Oct 15, 2025 @ 13:25:49.878 /prismadata/stations/ITPI07/202510/ITPI07_20251015T111558_UT-0.fit
Oct 15, 2025 @ 13:25:41.310 /prismadata/stations/ITPI07/202510/ITPI07_20251015T110558_UT-0.fit
Oct 15, 2025 @ 13:25:32.355 /prismadata/stations/ITPI07/202510/ITPI07_20251015T105558_UT-0.fit
Oct 15, 2025 @ 13:25:23.711 /prismadata/stations/ITPI07/202510/ITPI07_20251015T104558_UT-0.fit
Oct 15, 2025 @ 13:25:15.139 /prismadata/stations/ITPI07/202510/ITPI07_20251015T103558_UT-0.fit
Rows per page: 100

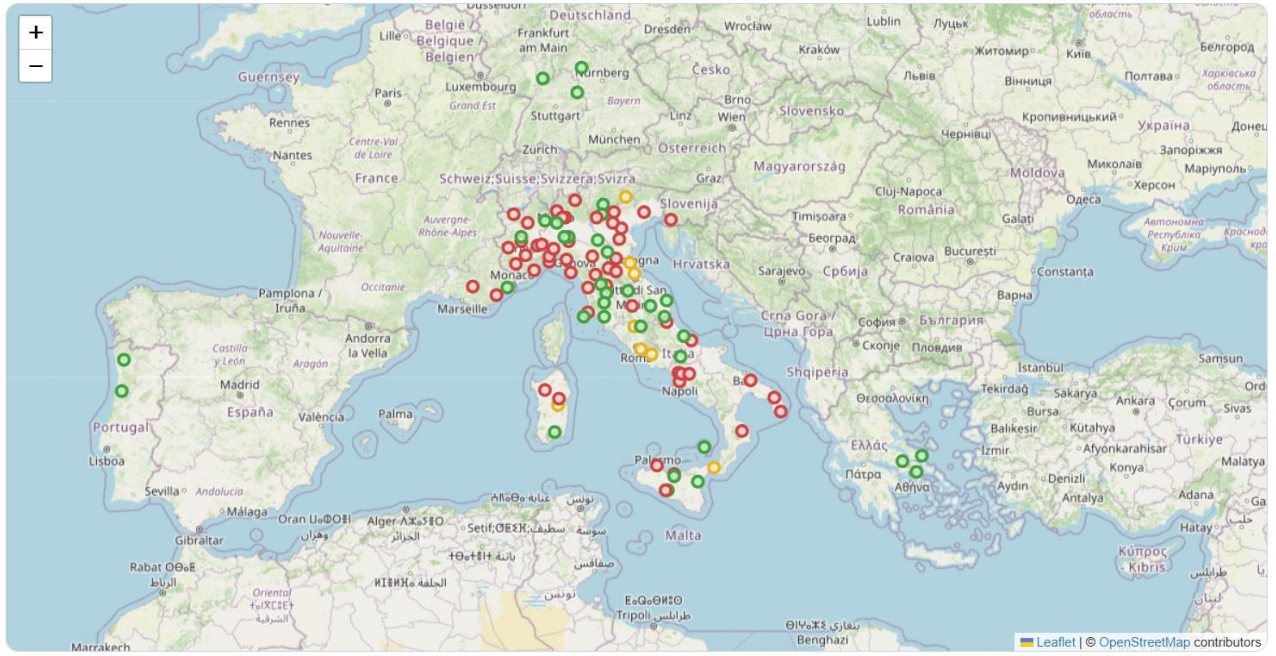


Accesso ai dati

[Portale pubblico: http://prismavpn.oats.inaf.it/](http://prismavpn.oats.inaf.it/)

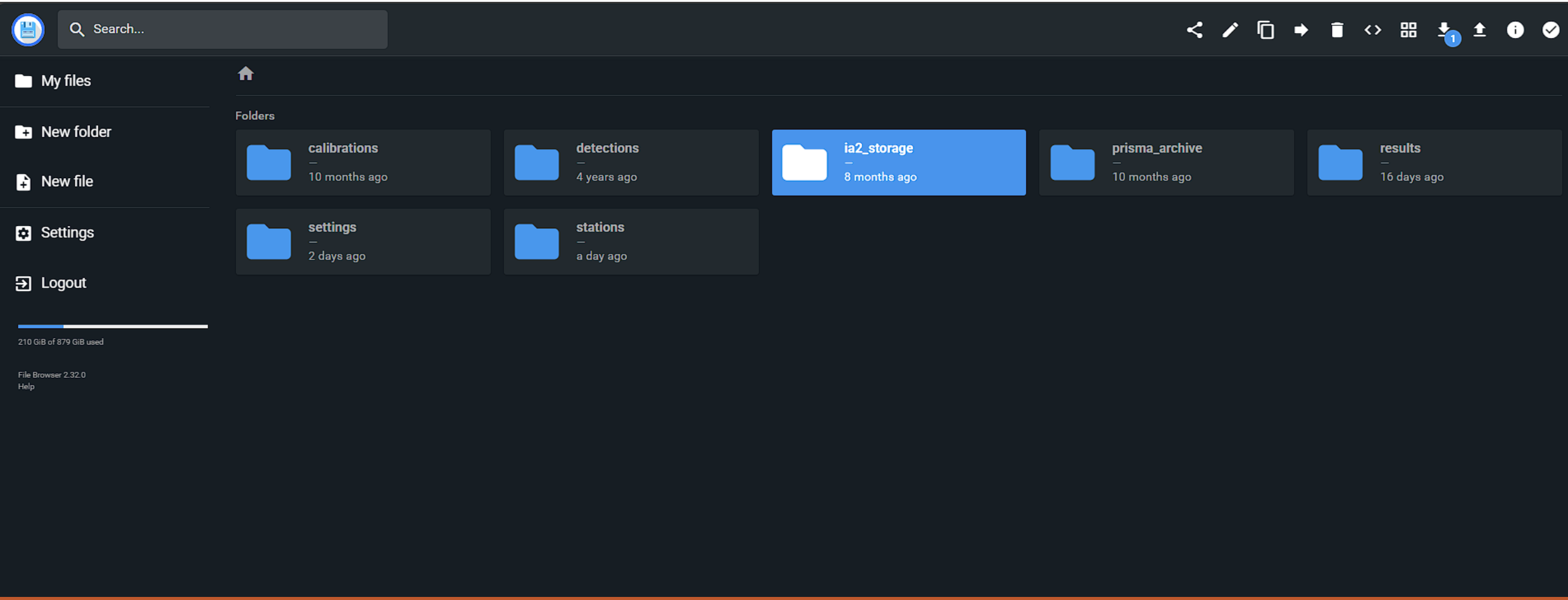
Camera Map

Showing 95 cameras with valid coordinates.



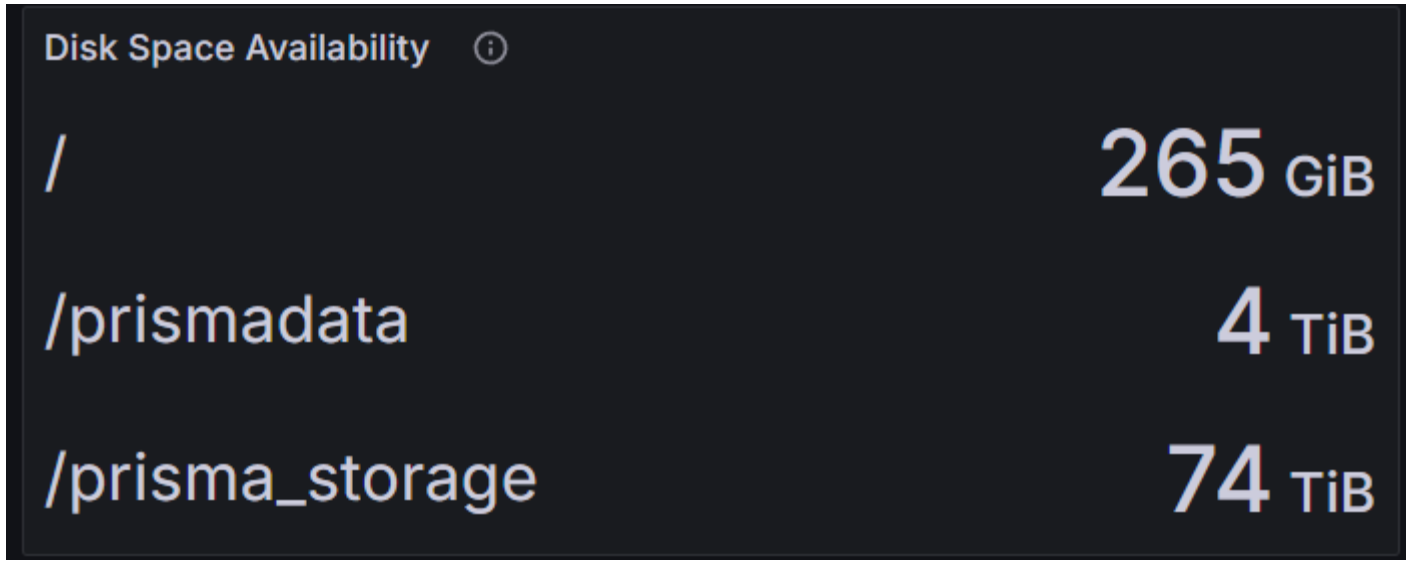
Accesso ai dati – File browser

New



Altre considerazioni – Spazio disco

- Alcun problema di spazio



prisma-play: infrastructure as code



make prisma_alchemy <component>

make monitoring

make prisma_web

Playbooks ansible per il deploy e la gestione delle operazioni in PRISMA
https://gitlab.com/inaf-prisma/prisma_play

Dalla rete di osservazione a un ecosistema di Citizen Science

- PRISMA Alchemy: automatizza la raccolta, l'elaborazione e la gestione dei dati scientifici.
- PRISMA Backstage: centralizza l'accesso alle informazioni e agli strumenti operativi della rete.
- PRISMA Play: rende riproducibile e manutenibile l'infrastruttura che supporta il progetto.

Conclusioni e sviluppi futuri

- Modello di ricerca partecipativa, aperta e sostenibile
  - Studenti, ricercatori e tutta la comunità PRISMA ha accesso a tutte i dati disponibili
- Obiettivi 2027:
  - Scalabilità: nuovo nodo a Torino
  - Coder/Pascal
  - Miglioramento workflow di analisi risultati scientifici
  - Citizen science: app ricerca bolidi
  - Video/animazioni

