

Status of the PRISMA server infrastructure

ING. MATTEO DI CARLO

PRISMA DAYS 2024

PARCO ASTRONOMICO DEL SOLE

04/10/2024

Chi sono

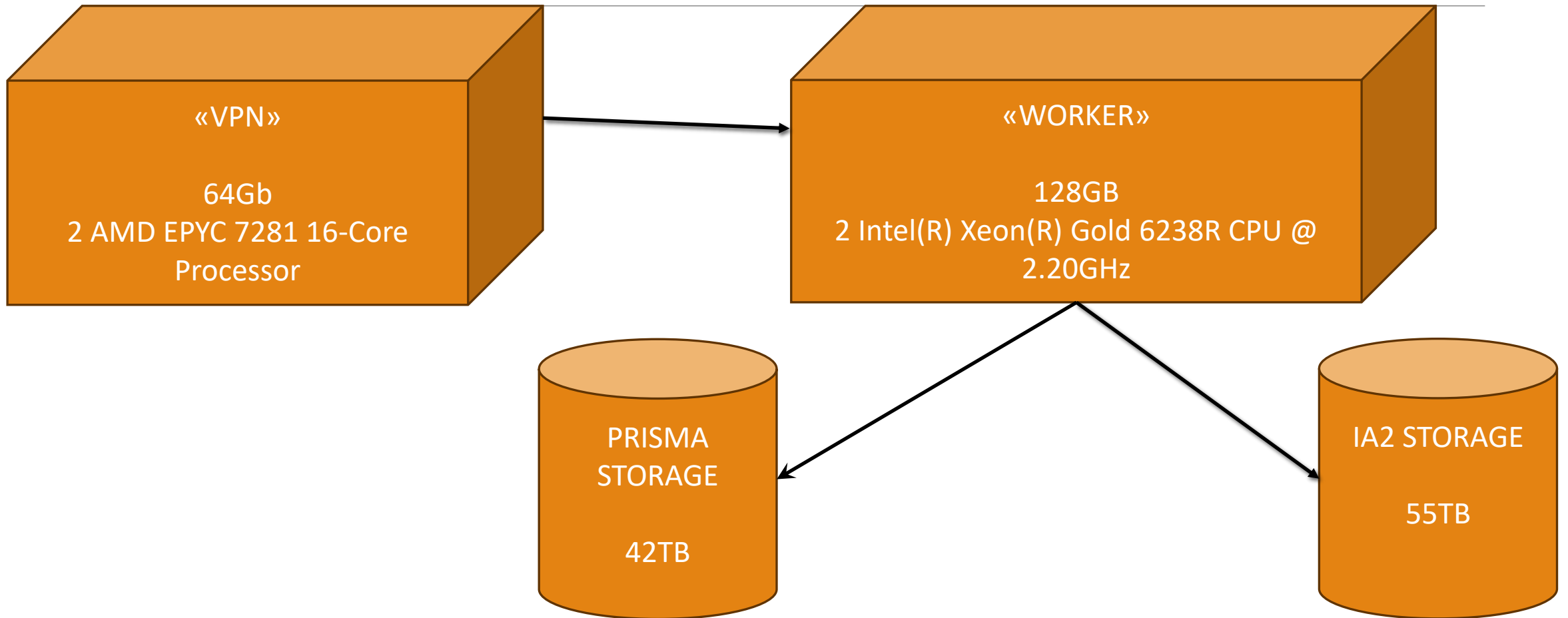
Laurea in Ingegneria informatica

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

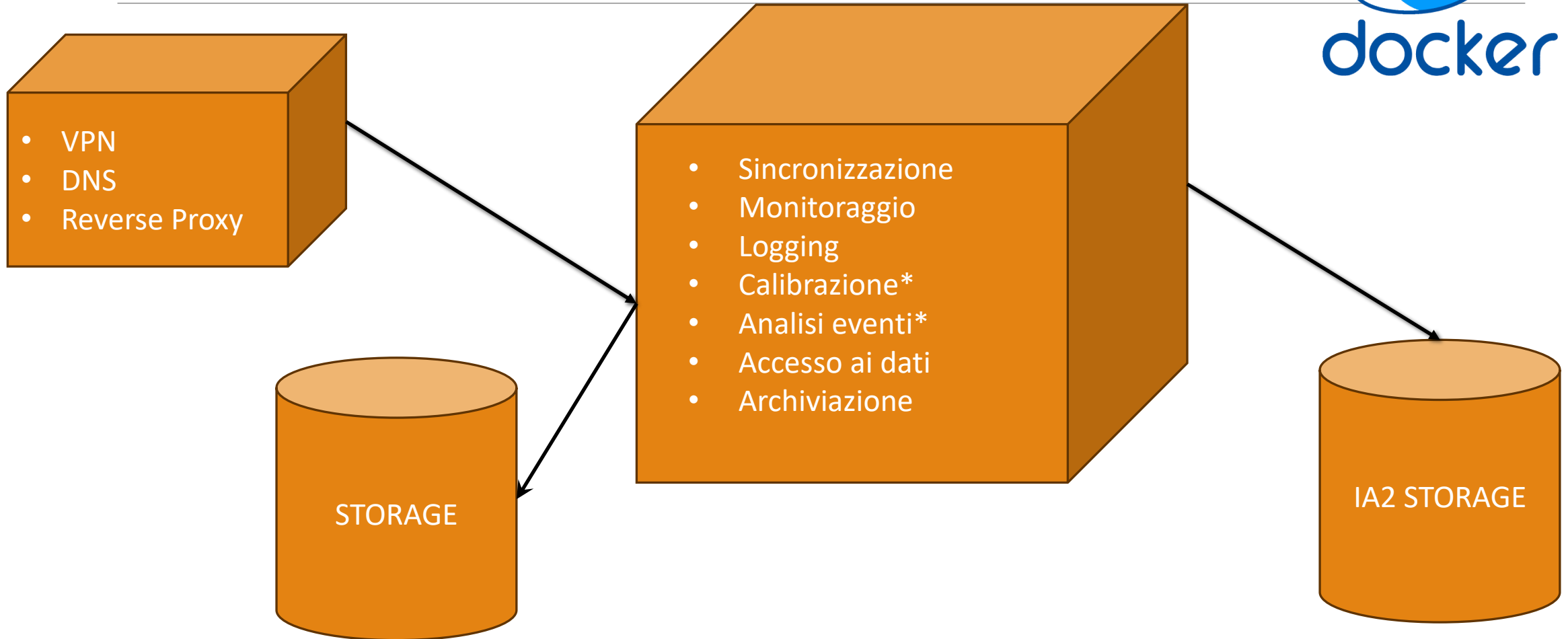
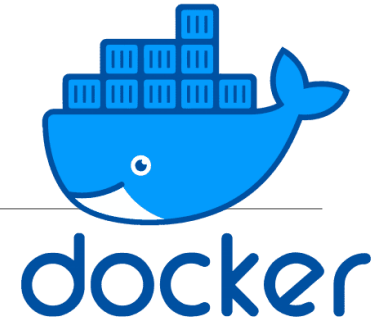
In forze all'Osservatorio Astronomico d'Abruzzo (INAF – OAAB)

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



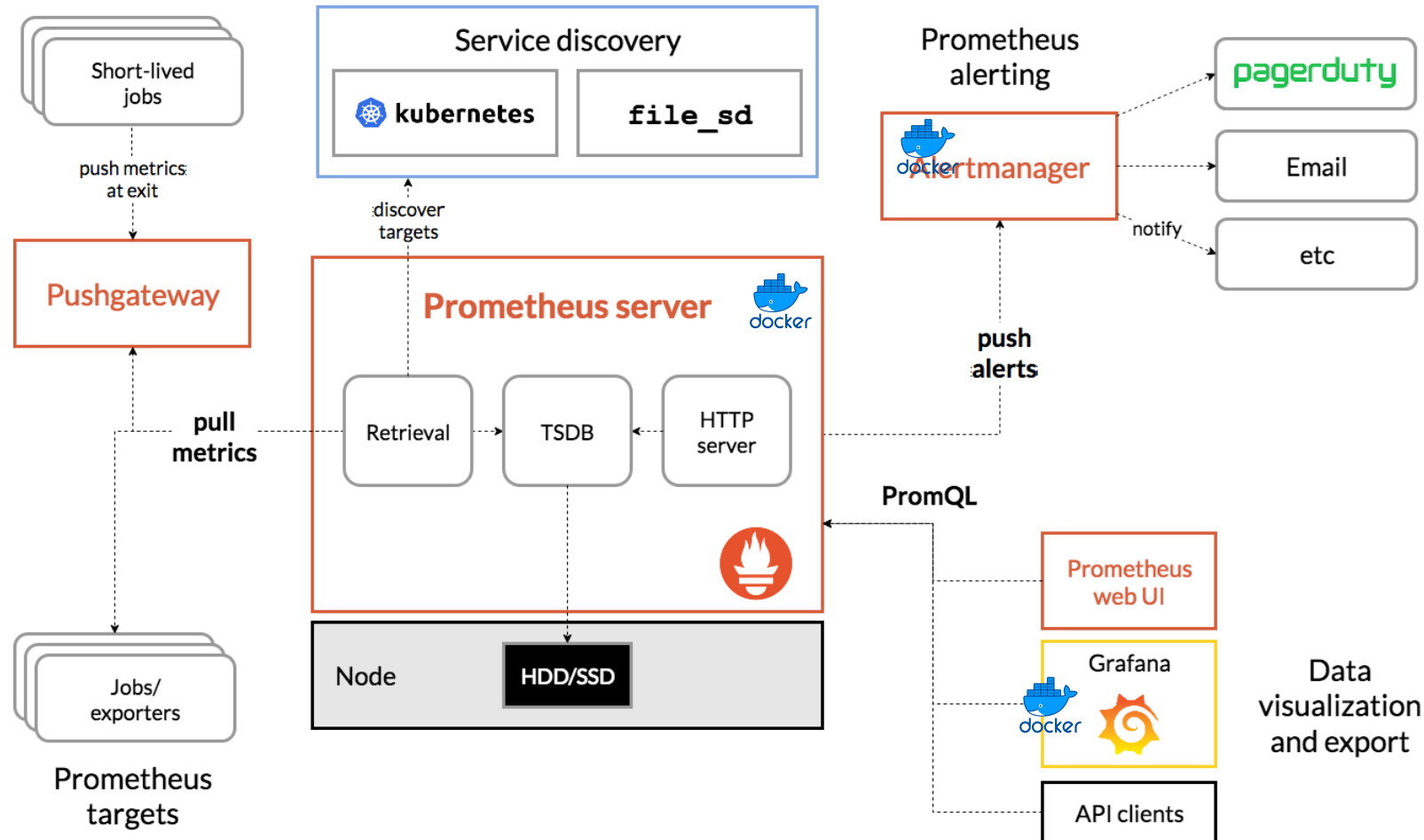
Servizi PRISMA @ Trieste



Sincronizzazione

- Due containers sempre attivi che sincronizzano capture, detection ed eventi dal server FRIPON in Francia e dai nodi PRISMA esclusivamente italiani
- Basata sugli ultimi n giorni
- Possibilità di controllo di anni passati o su specifici intervalli temporali

Monitoraggio con Prometheus



Node-exporter

Prometheus exporter for hardware and OS metrics exposed by *NIX kernels, written in Go with pluggable metric collectors.

Servizio installato nei nodi che fornisce dati relative all'hardware ed al sistema operativo

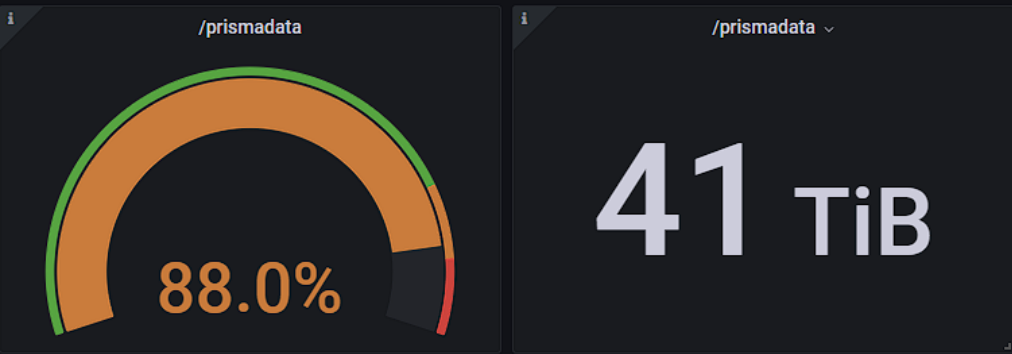
https://github.com/prometheus/node_exporter

* possibile lo sviluppo di nuovi exporter per monitorare direttamente free-ture

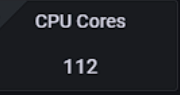
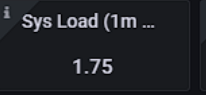
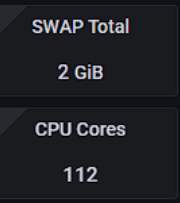
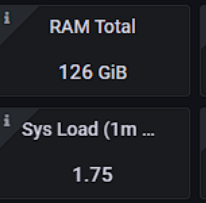
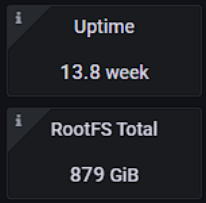
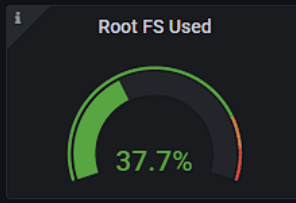
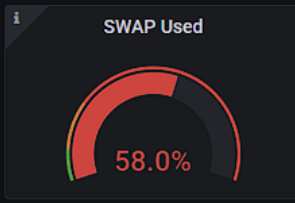
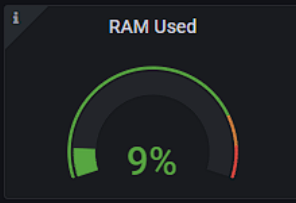
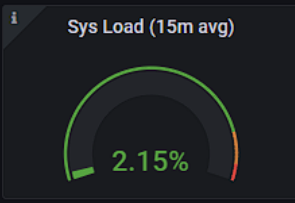
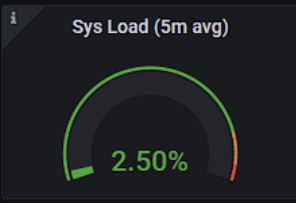
Prisma-exporter

Metriche specifiche per PRISMA

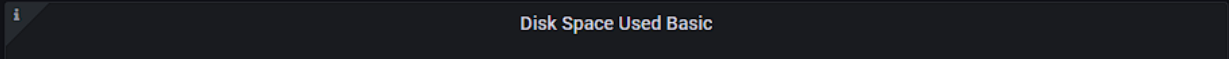
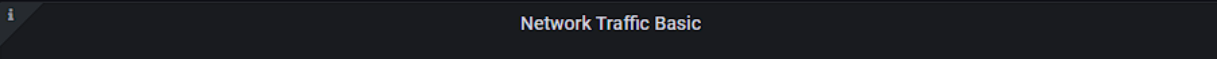
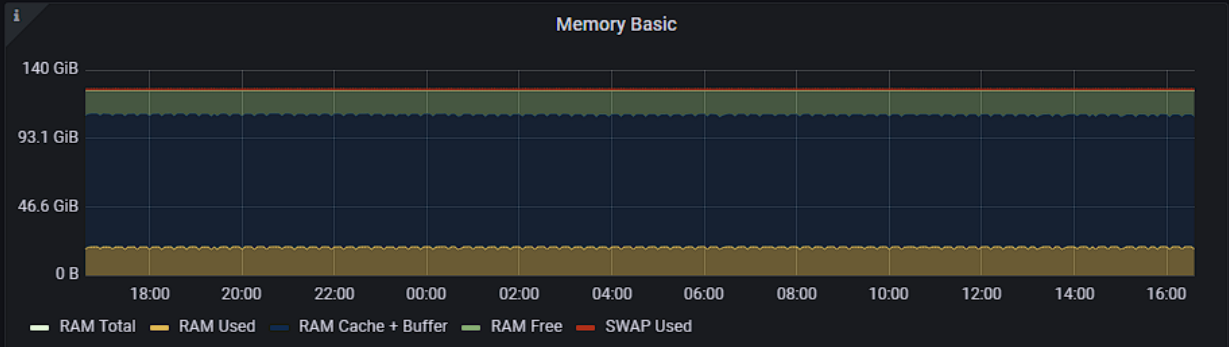
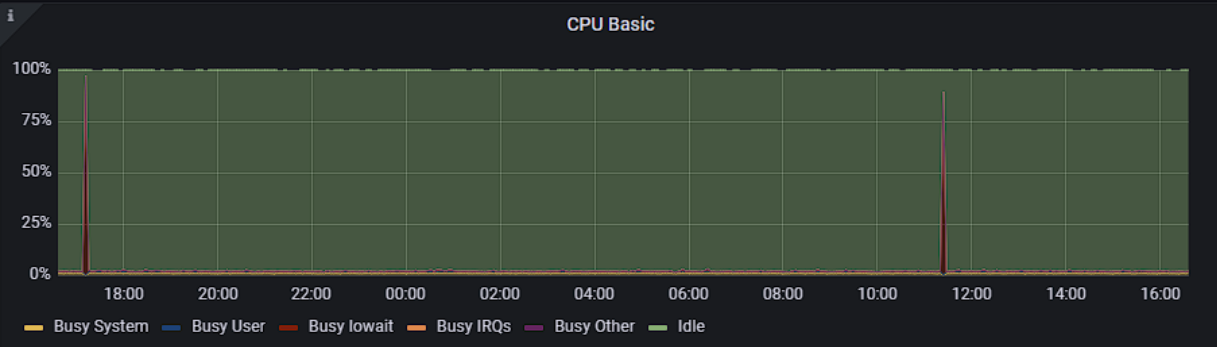
- Number of successful captures done of yesterday
- Number of expected captures of yesterday
- Number of daily captures
- Number of monthly detections
- Number of daily events
- Daily calibration
- Monthly calibration
- Processed event



Quick CPU / Mem / Disk



Basic CPU / Mem / Net / Disk





Camera

ITAB01 ▾



Synchronization total

82

Synchronization status

39

Percentage

47.6

Captures Status (last 30 days)

ITAB01	0
ITAB03	0
ITAB04	4172
ITCL01	0
ITCL02	0
ITCL03	1041
ITCP01	3812
ITCP02	3973
ITCP03	0
ITCP04	0
ITER01	4031
ITER02	0
ITER03	4056
ITER04	3928
ITER05	4051
ITER06	3995
ITER07	0
ITER08	4059
ITER10	4208
ITFV01	0
ITFV02	0
ITLA01	3985
ITLA02	4058
ITLI01	0
ITLI02	0
ITLI03	3492
ITLO01	4060
ITLO02	0
ITLO03	4077



Allarmi

Alertmanager

Alerts

Silences

Filter

Custom matcher, e.g. `env="production"`

Active **9**

Pending

Expired **1**

Ends 2024-10-04T15:38:01.684Z [View](#)

`alertname=InstanceDown`

`datacentre=p`

prisma-alerts

Messaggi Aggiungi canvas +

Mercoledì 2 ottobre

[FIRING:1] InstanceDown (prisma 10.8.0.24:9100 node critical)
@canale
Alert: <InstanceDown>
Summary: Instance 10.8.0.24:9100 down
See: Alerts and all Slack Notifications

prisma-alerts APP 18:22
[FIRING:2] InstanceDown (prisma node critical)
@canale
Alert: <InstanceDown>
See: Alerts and all Slack Notifications
Details:

alertname: InstanceDown
Mostra di più

prisma-alerts APP 18:28
[FIRING:2] InstanceDown (prisma node critical)
@canale
Alert: <InstanceDown>
See: Alerts and all Slack Notifications
Details:

alertname: InstanceDown
Mostra di più

Oggi

prisma-alerts APP 0:09
[FIRING:1] InstanceDown (prisma 10.8.0.34:9100 node critical)
@canale
Alert: <InstanceDown>
Summary: Instance 10.8.0.34:9100 down
See: Alerts and all Slack Notifications

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

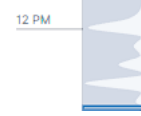
🔍 container.name: "sync_fripon"

👁️ Customize 🗨️ Highlights 📅 Last 1 day || Stop streaming

Sep 20, 2024	event.dataset	Message	
13:59:27.132		/prismadata/stations/ITT001/202409/ITT001_20240920T114047_UT-0.fit	03 PM
13:59:28.204		/prismadata/stations/ITT002/202409/ITT002_20240920T113042_UT-0.fit	
13:59:29.258		/prismadata/stations/ITT004/202409/ITT004_20240920T112048_UT-0.fit	
13:59:30.184		/prismadata/stations/ITT004/202409/ITT004_20240920T113048_UT-0.fit	06 PM
13:59:31.056		/prismadata/stations/ITT004/202409/ITT004_20240920T114048_UT-0.fit	
13:59:32.144		/prismadata/stations/ITT006/202409/ITT006_20240920T113044_UT-0.fit	
13:59:33.204		/prismadata/stations/ITT008/202409/ITT008_20240920T113046_UT-0.fit	09 PM
13:59:34.412		/prismadata/stations/ITUM02/202409/ITUM02_20240920T113045_UT-0.fit	
13:59:35.457		/prismadata/stations/ITVA01/202409/ITVA01_20240920T113049_UT-0.fit	
13:59:36.332		/prismadata/stations/ITVA01/202409/ITVA01_20240920T114049_UT-0.fit	
13:59:37.424		/prismadata/stations/ITVE02/202409/ITVE02_20240920T113040_UT-0.fit	Fri 20
13:59:38.488		/prismadata/stations/ITVE03/202409/ITVE03_20240920T113045_UT-0.fit	
13:59:39.424		/prismadata/stations/ITVE03/202409/ITVE03_20240920T114045_UT-0.fit	⋮
13:59:40.668		/prismadata/stations/ITVE06/202409/ITVE06_20240920T113044_UT-0.fit	03 AM
13:59:41.684		/prismadata/stations/ITVE06/202409/ITVE06_20240920T114044_UT-0.fit	
13:59:43.648		Done downloading	
13:59:43.648		Stop execution at 2024-09-20 11:59:43	06 AM
14:00:43.709		Start execution at 2024-09-20 12:00:43	
14:00:45.790		Get last_n_days 90 days	
14:00:45.790		Get days from 2024-06-22 to 2024-09-20	
14:04:19.495		Get events of the last days...DONE	09 AM
14:05:47.772		Get capture of the last %s days...DONE	

Last update 2 seconds ago

🔄 Streaming new entries



Accesso ai dati

Rss eventi: http://prismavpn.oats.inaf.it/prisma_rss/events

Evento singolo:

http://prismavpn.oats.inaf.it/prisma_rss/event/<yyyymm>/<yyyymmddThhmmss_UT>; esempi:

- http://prismavpn.oats.inaf.it/prisma_rss/event/202210/20221012T043037_UT **

- http://prismavpn.oats.inaf.it/prisma_rss/event/202210/20221004T040456_UT **

Capture: http://prismavpn.oats.inaf.it/prisma_rss/captures/<camera_code>

- http://prismavpn.oats.inaf.it/prisma_rss/captures/ITLO06

- http://prismavpn.oats.inaf.it/prisma_rss/captures/ITLO07

Altre considerazioni – Spazio disco

Totale camere === 69 (non tutte funzionanti)

Dimensione capture mensili circa 10 Gb per camera

Dimensione captures mensili (potenziali) totali 690 GB (nella realtà circa 500)

Detection singola camera ... trascurabili


Eventi mensilmente fino ad un massimo di 500 GB

Spazio disco

Totale: 42T

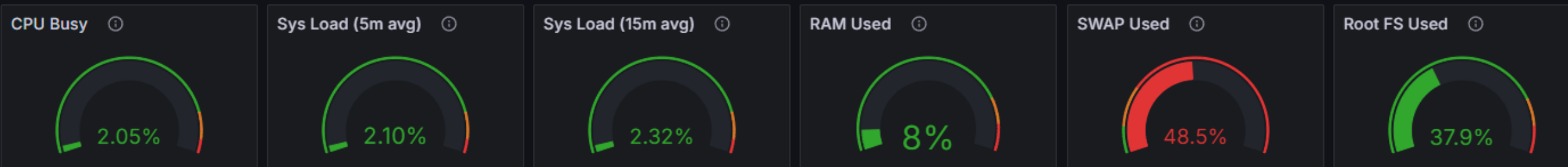
Utilizzato: 35T

Libero: 4,7T

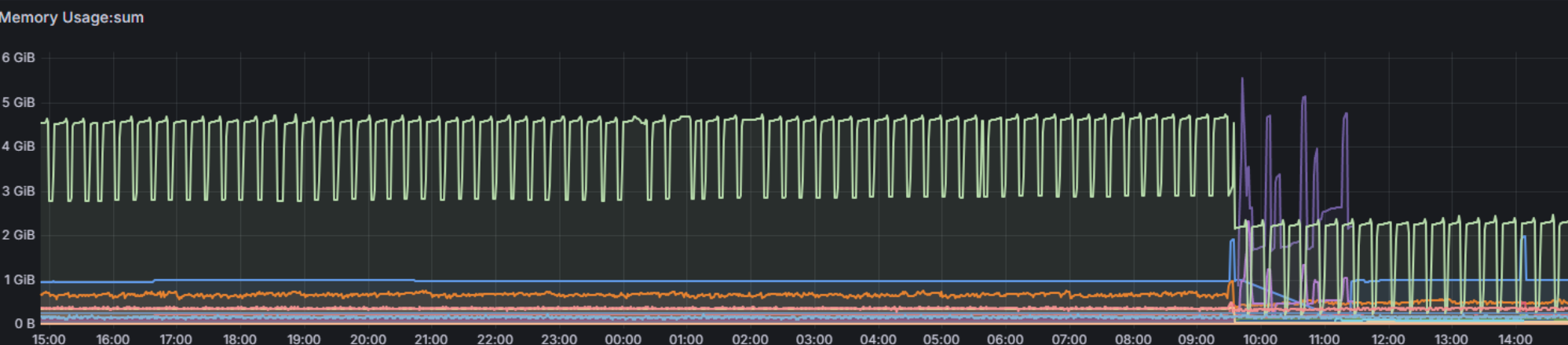


Archiviazione
necessaria
annualmente

Altre considerazioni – CPU e RAM



Process	Current	Max	Min
filebeat:	0.0616%	0.917%	0%
alertmanager:	2.56%	3.83%	0.370%
prometheus:	28.9%	28.9%	2.10%
kibana:	0.664%	21.1%	0.321%
elasticsearch:	4.65%	188%	1.26%
kibana:	6.94%	288%	0.526%
elasticsearch:	5.12%	391%	1.10%
grafana:	5.93%	5.93%	0.613%
lamp1:	0.301%	0.541%	0.0626%
lamp2:	0.385%	0.542%	0.0626%



Name	Last *	Max	Min
filebeat:	102 MiB	260 MiB	97.2 MiB
filebeat:	40.1 MiB	133 MiB	6.57 MiB
alertmanager:	37.9 MiB	91.9 MiB	32.9 MiB
prometheus:	539 MiB	999 MiB	379 MiB
kibana:	232 MiB	506 MiB	153 MiB
elasticsearch:	1015 MiB	1.98 GiB	19.1 MiB
kibana:	517 MiB	2.31 GiB	28.3 MiB
elasticsearch:	2.18 GiB	5.55 GiB	861 MiB
grafana:	108 MiB	110 MiB	78.6 MiB
lamp1:	251 MiB	251 MiB	251 MiB
lamp2:	240 MiB	240 MiB	240 MiB

Incide

Settembre 2023

Ottobre 2023

Novembre 2023

Dicembre 2023

Gennaio 2024

Febbraio 2024



Giugno 2024

Macchine server PRISMA



Di Carlo, Matteo <matteo.dicarlo@inaf.it>
a Cristina, Sara, Riccardo, Daniele, I

Ciao Cristina,
ti scrivo perché a Torino ci sono dei problemi di spegnimento delle macchine PRISMA. Daniele, giustamente, chiede se è possibile trasferirle lì ma, dato che



Gasparo, Federico <federico.gasparo@inaf.it>
a Dario, cristina.knapic, Daniele, Sara,

ciao
le macchine sono arrivate e sono state



Gasparo, Federico <federico.gasparo@inaf.it>
a me

ciao
in ritardo ma ho settato il firewall



Gasparo, Federico <federico.gasparo@inaf.it>
a assistenza-ts2-lotto3, Daniele, me, Cosimo

buon giorno,
come da accordi telefonici riporto i dati e lo stato del server in oggetto.



Gasparo, Federico <federico.gasparo@inaf.it>
a assistenza-ts2-lotto1@converge.it, Daniele, me, Cosimo, Call, backoffice.maintenance

buon giorno
confermo che la motherboard è arrivata
restiamo in attesa di un vostro tecnico per la sostituzione



Gasparo, Federico <federico.gasparo@inaf.it>
a me, Daniele, Dario, Cosimo

ciao
ho sistemato un po' le configurazioni e connessioni di rete,
credo che adesso sia tutto a posto,

Stato sincronizzazione

Esterni



Di Carlo, Matteo <matteo.dicarlo@inaf.it>
a Dario, Daniele, andrea.novati

Ciao Dario e Daniele,
volevo solo informarvi che il server PRISMA è sincronizzato con i dati delle camere francesi sia per il 2023 che per il 2024. Per il momento ho cancellato solo le captures del 2018 e 2019 (salvandole su IA2 preventivamente). Se sarà necessario cancellerò le captures del 2020.

gio 14 dic 2023, 13:23

mar 23 gen, 16:04

mar 30 gen, 11:10

7 giu 2024, 14:25

Conclusioni

Numerosi servizi attivati e aggiornati

- (VPN, DNS)
- Sincronizzazione
- Monitoraggio
- Logging
- Archiviazione su archivi IA2 INAF TRIESTE

In lavorazione:

- Ottimizzazione sincronizzazione
- Rinnovo certificati
- Calibrazione e Analisi eventi «on demand» e automatiche*