

# State of Storage

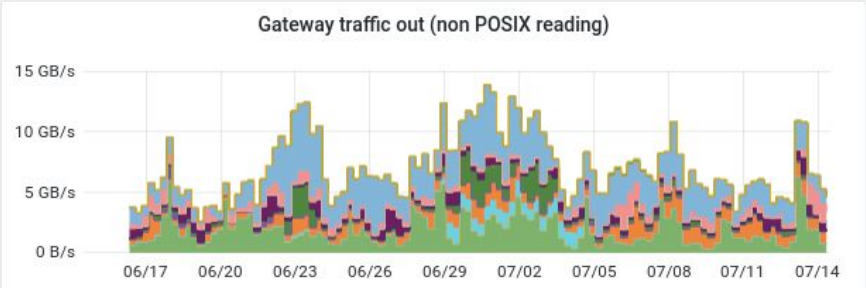
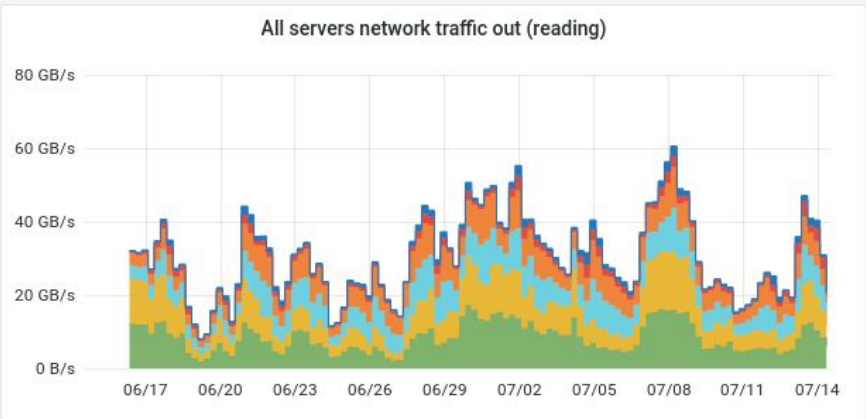
CdG 15 giugno, 2022



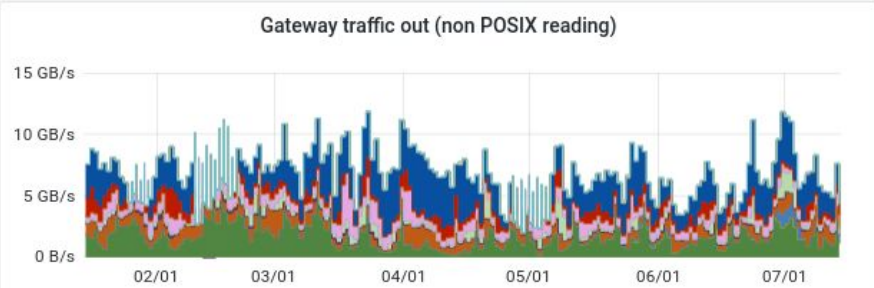
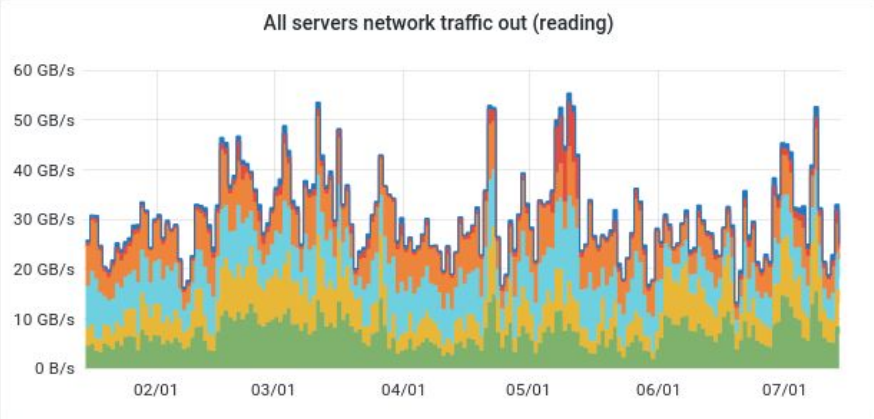
# Business as usual



### Last month



### Last 6 months



# Disk storage in produzione

Installed: **50.07 PB**, Pledge 2022: **59.1 PB**, Used: **41.4 PB**

Sistema	Modello	Capacita' netta, TB	Esperimenti	Scadenza
ddn-10, ddn-11	DDN SFA12k	10752	ALICE, AMS	03/2021→ 06/2023
os6k8	Huawei OS6800v3	3400	GR2, Virgo	06/2022
md-1,md-2,md-3,md-4	Dell MD3860f	2308	DS, Virgo, Archive	11/2021 → 12/2022
md-5, md-6, md-7	Dell MD3820f	28	metadati, home, SW	12/2022
os18k1, os18k2	Huawei OS18000v5	7800	LHCb	2023
os18k3, os18k5, os18k5	Huawei OS18000v5	11700	CMS	2024
<b>ddn-12, ddn-13</b>	<b>DDN SFA 7990</b>	<b>5060+870</b>	<b>GR2,GR3</b>	<b>2025</b>
ddn-14, ddn-15	DDN SFA 2000NV	24	metadati	2025
os5k8-1,os5k8-2	Huawei OS5800v5	8999	<b>ATLAS</b>	2027
Cluster CEPH	12xSupermicro SS6029	3400	<b>ALICE, cloud, etc</b>	2027

# Prossimi acquisti

- Gara storage 2022 (14PB netti)
  - Gara pubblicata il 13/06/2022, oggi (15/07) scade il termine per le offerte.
  - Installazione e messa in PROD verso fine dell'anno
- RDO per acquisto tape (14PB per arrivare a pledge 2022) in pubblicazione oggi

# Current SW in PROD

- GPFS 5.0.5-13 (to be updated soon to 5.1.2-5)
- StoRM BackEnd 1.11.21 (latest)
- StoRM FrontEnd 1.8.15 (latest)
- StoRM WebDAV 1.4.1 (latest)
- StoRM globus gridftp 1.2.4
- XrootD 4.11.2
  - updated to 4.12.4 in the 4 CMS servers
  - 5.3.1-1 on CMS redirectors (local and EU/IT/FR)
- Ceph 16.2.6 (Pacific)

# Stato tape

16 May 2022 - 14 Jul 2022

MSS bytes in/out (per day)



	min	max	avg	current	total
— out traffic (recalls)	55.7 GB	117 TB	20.1 TB	58.4 TB	1.20 PB
— in traffic (migrations)	1.17 TB	129 TB	56.3 TB	36.0 TB	3.38 PB

# Stato tape

- Liberi 12 PB (su cassette vuote, complessivamente sulle 2 librerie).  
Usati 90 PB.
  - Pledge 2022: 130.5 PB
  - Installato attuale: 116.5 PB
  - Recente cancellazione CMS: 8.4 PB
    - Già liberato circa 1 PB, circa 5.5 PB facilmente liberabili, space reclamation in corso
    - Lo spazio liberato ci consente di far partire a breve repack su nuova libreria
  - ATLAS ha solo 680 TB liberi

Library	Tape drives	Max data rate/drive, MB/s	Max slots	Max tape capacity, TB	Installed cartridges	Used capacity, PB
SL8500 (Oracle)	16*T10KD	250	10000	8.4	~10000	67.3
TS4500 (IBM)	19*TS1160	400	6198	20	1750	22.8