

Rapporto delle attività del Tier1 CNAF Luglio-Agosto 2018

Run Coordinator: Marcelo Soares

28 settembre 2018

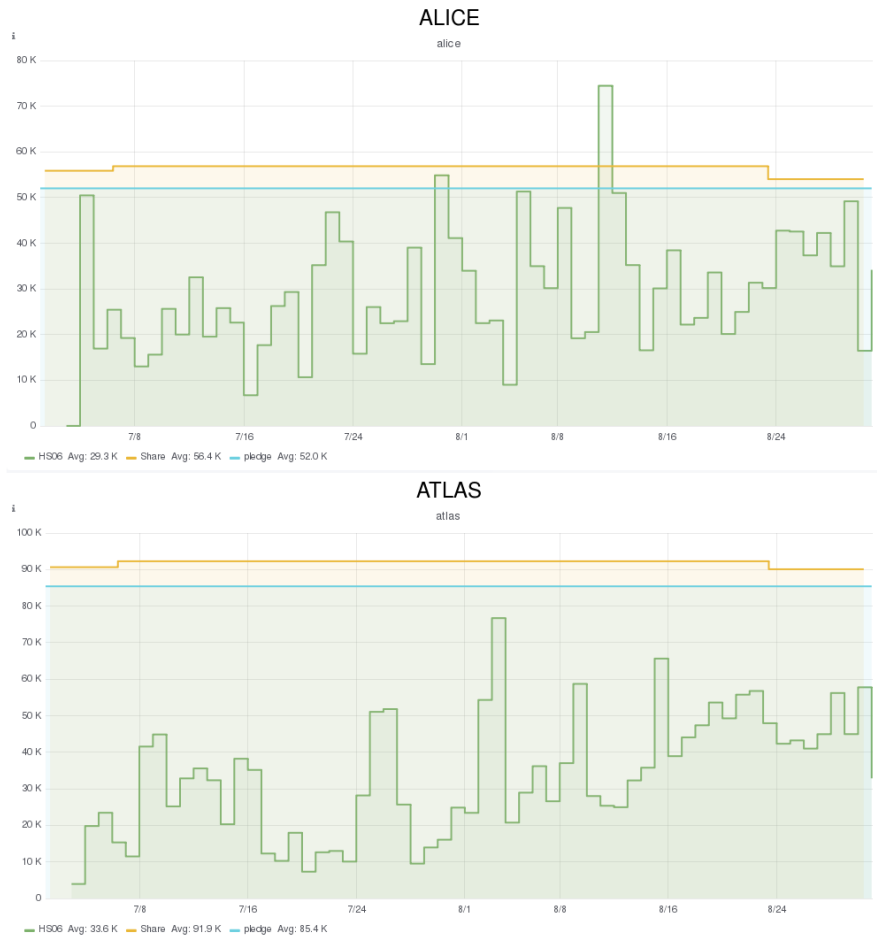
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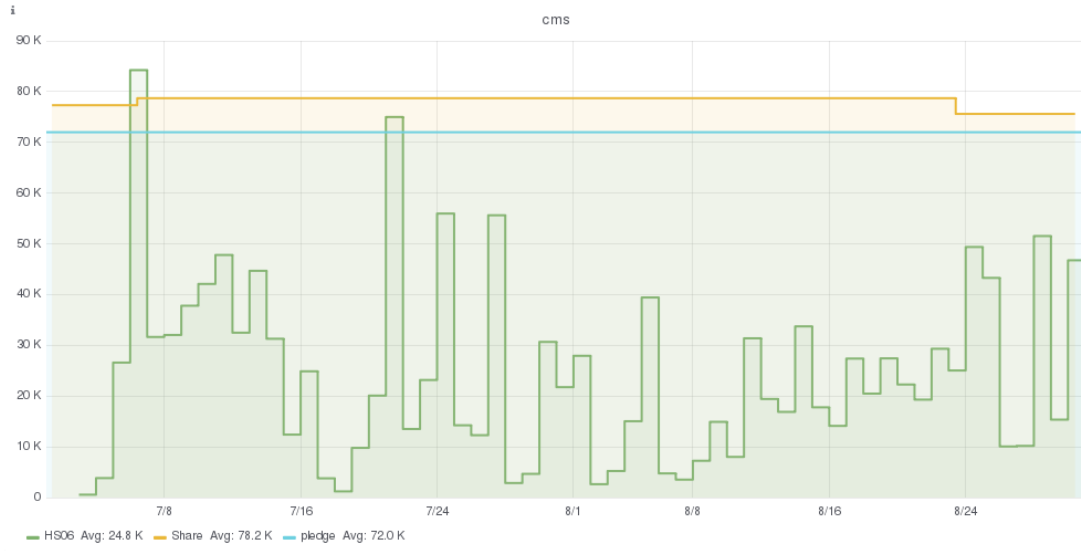
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1 Utilizzo delle risorse - Farming

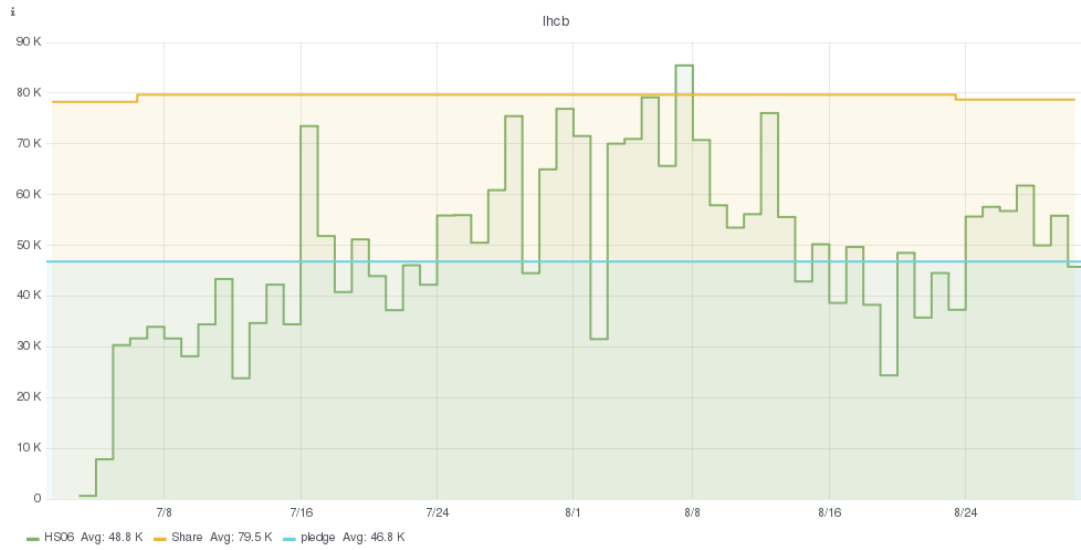
1.1 LHC usage



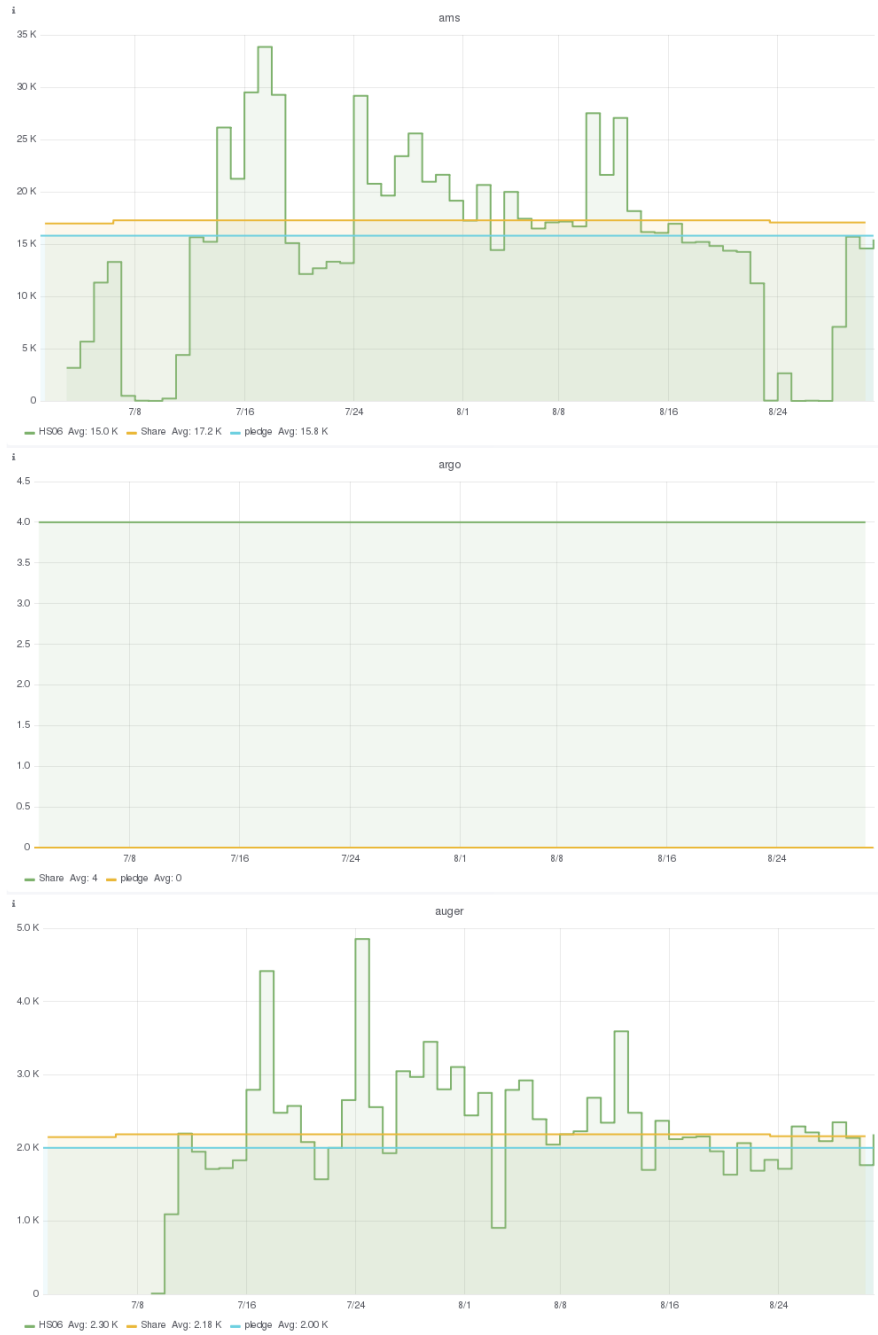
CMS

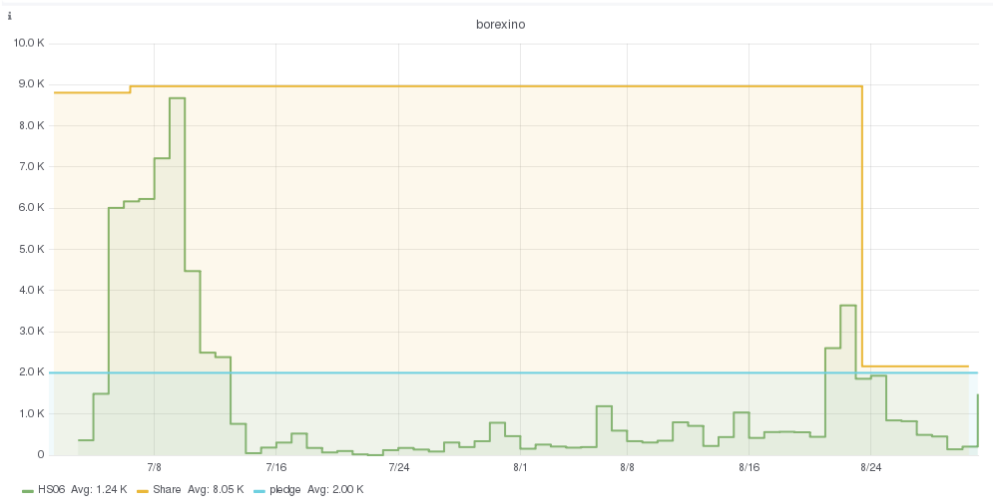
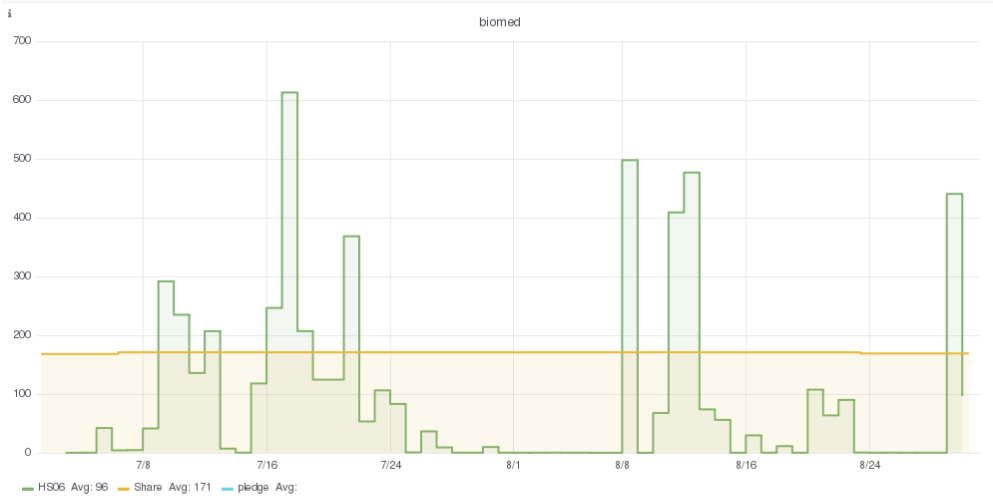
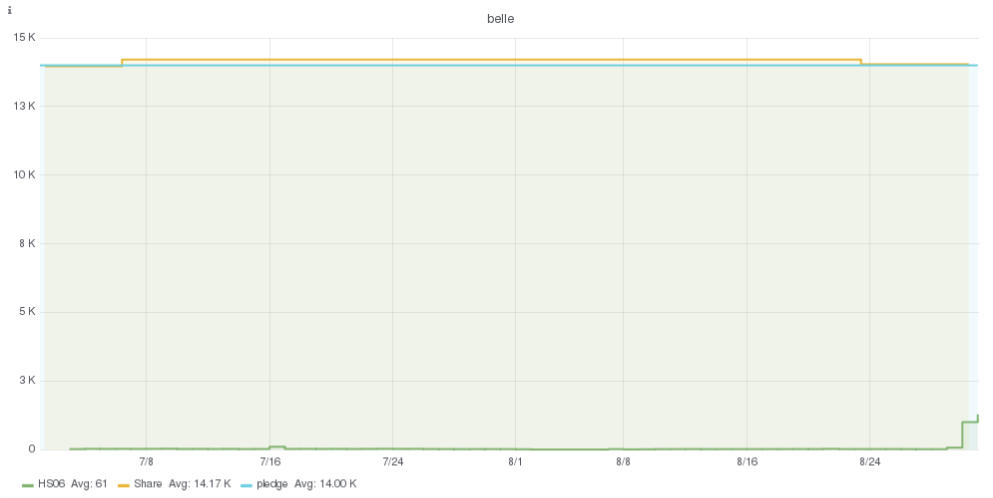


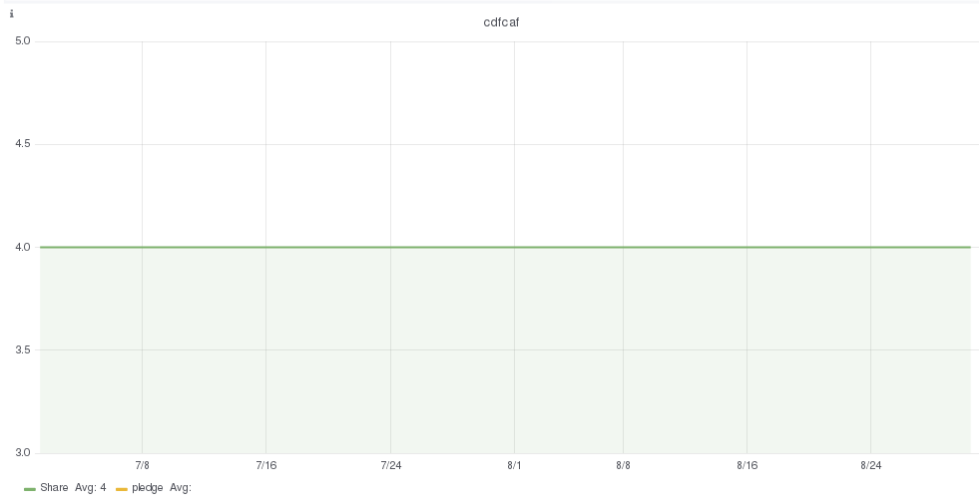
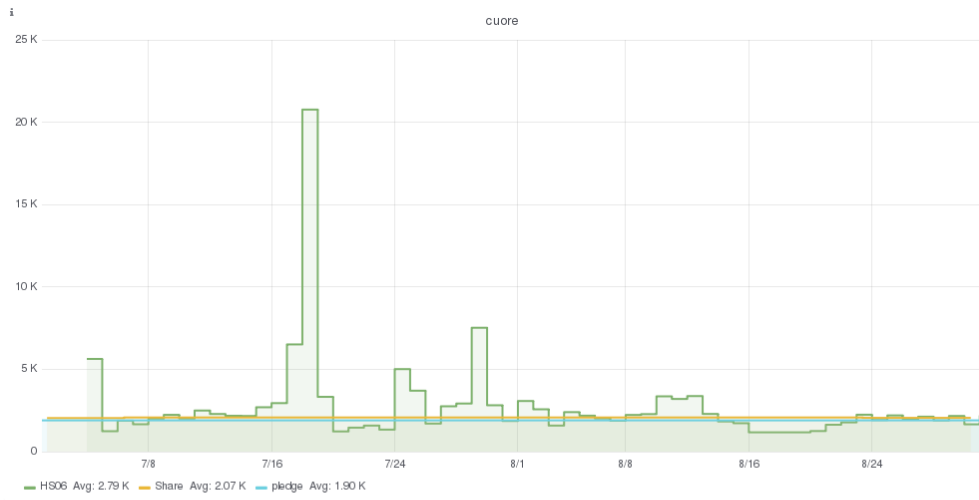
LHCB

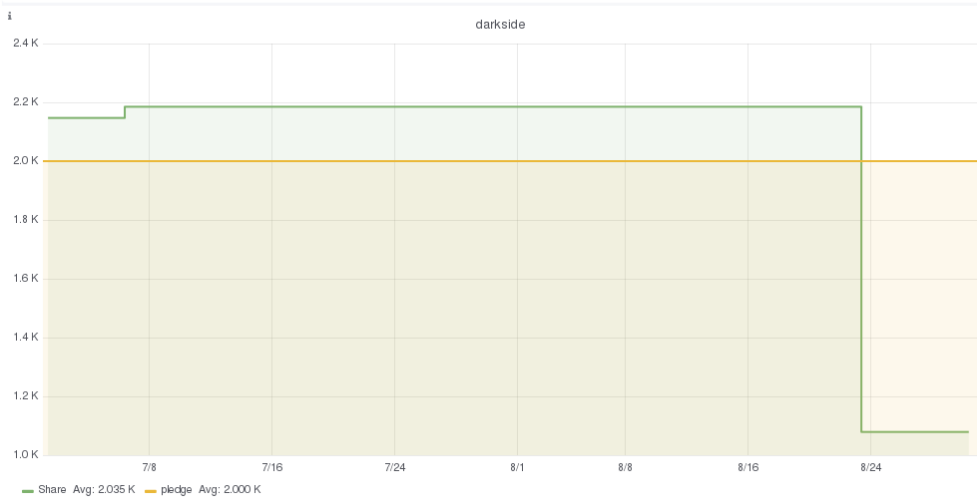
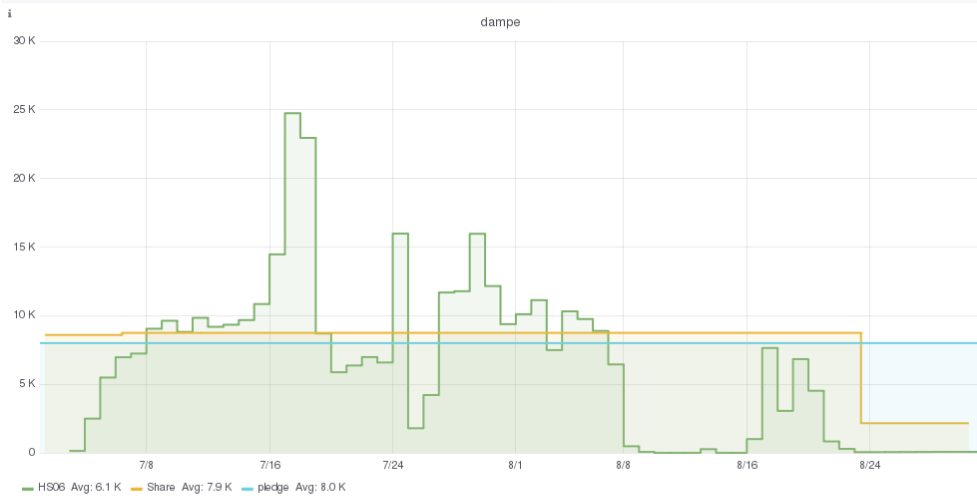
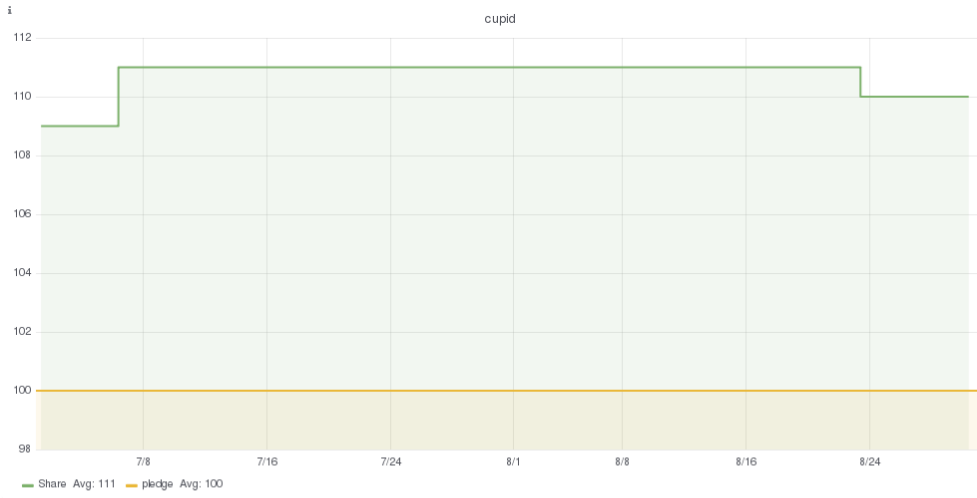


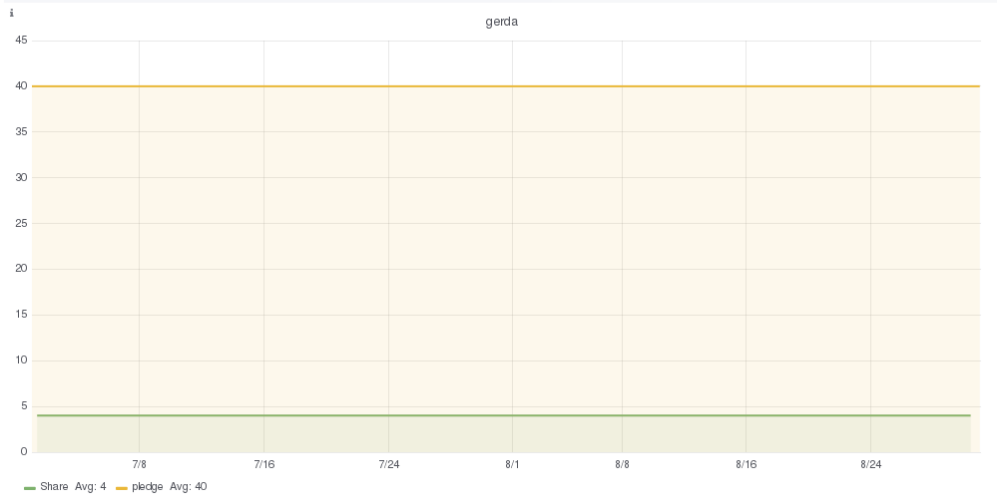
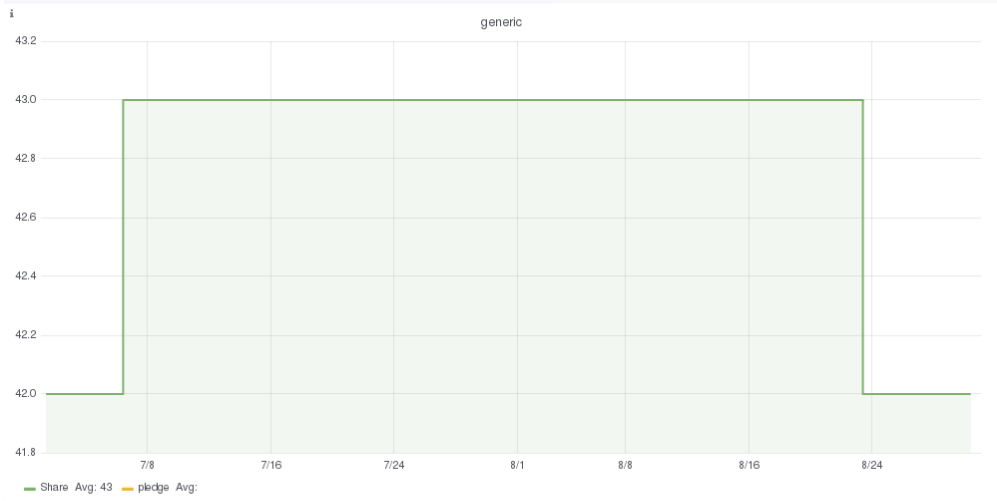
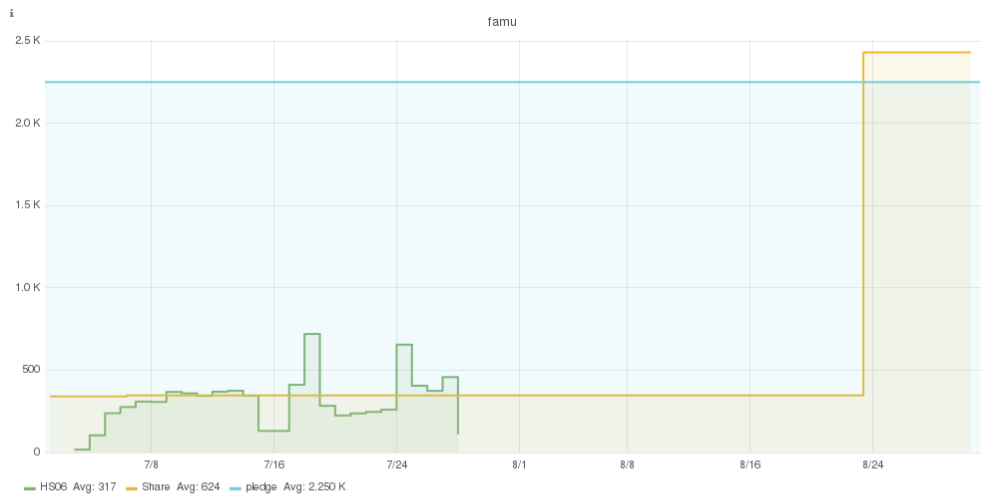
1.2 NO LHC usage

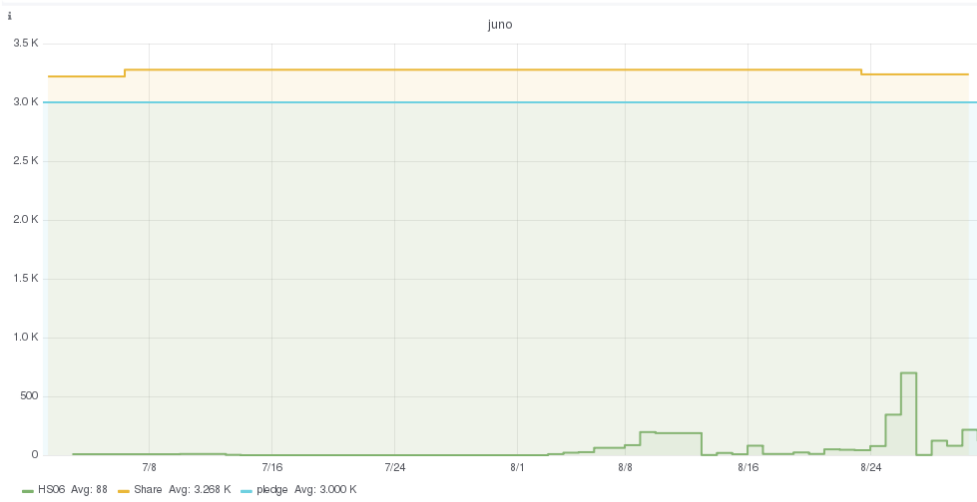
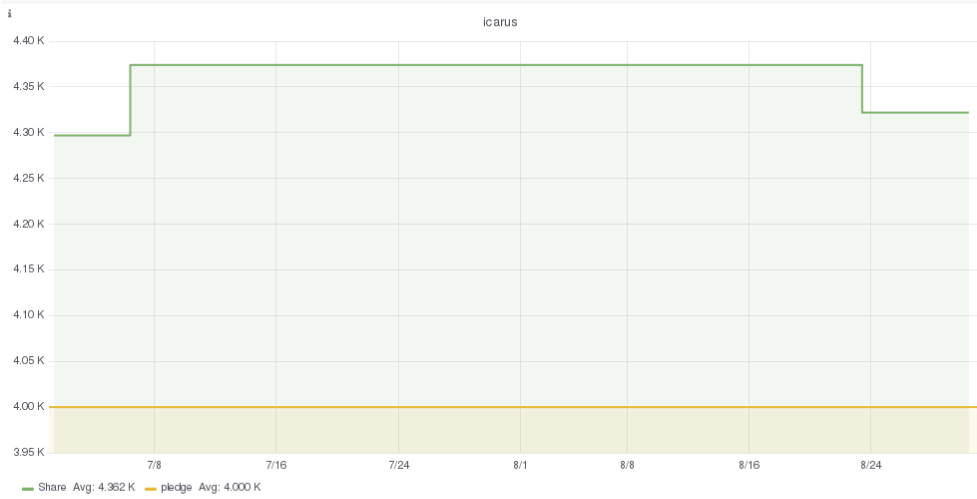
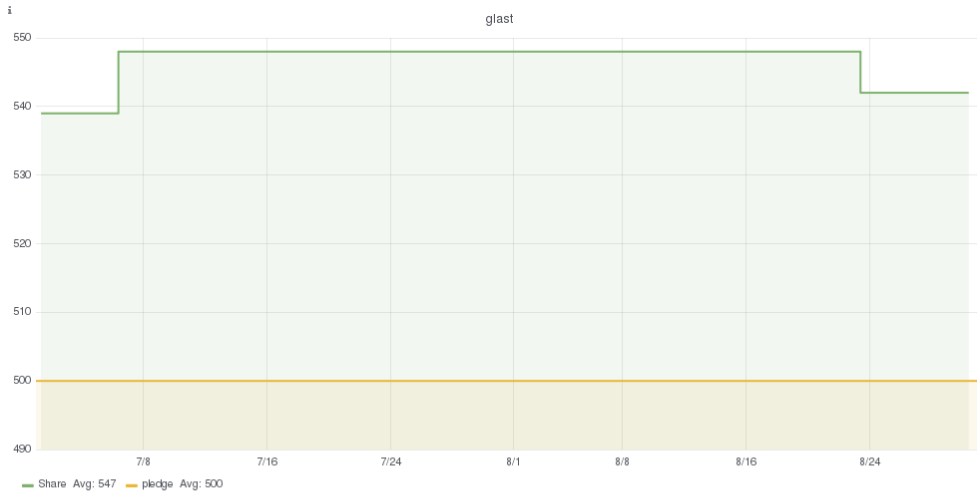


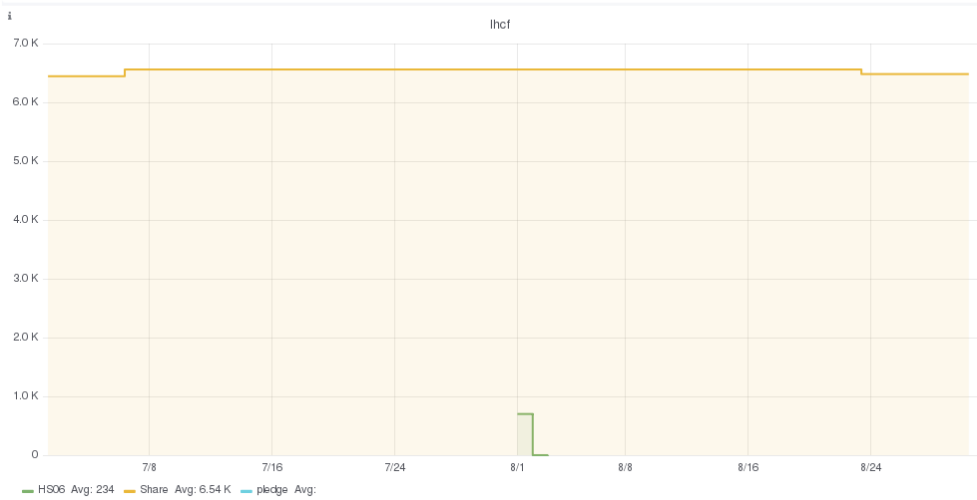
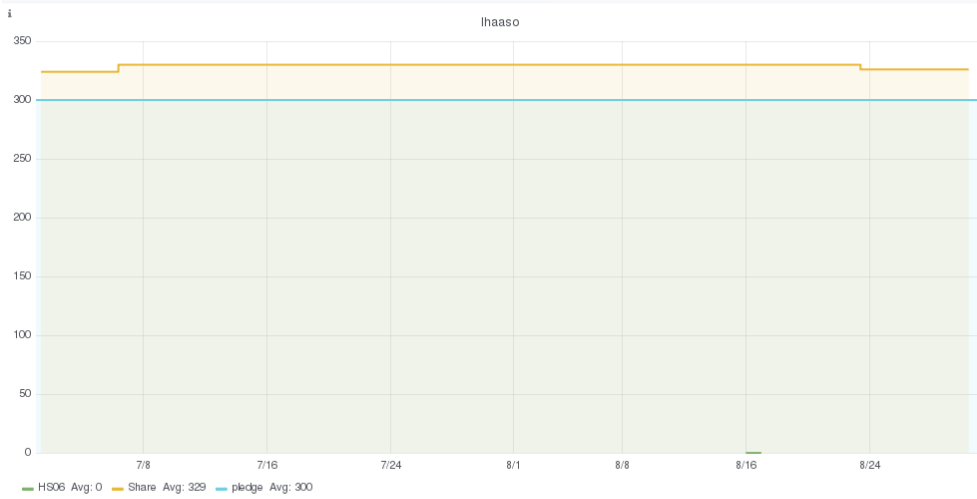
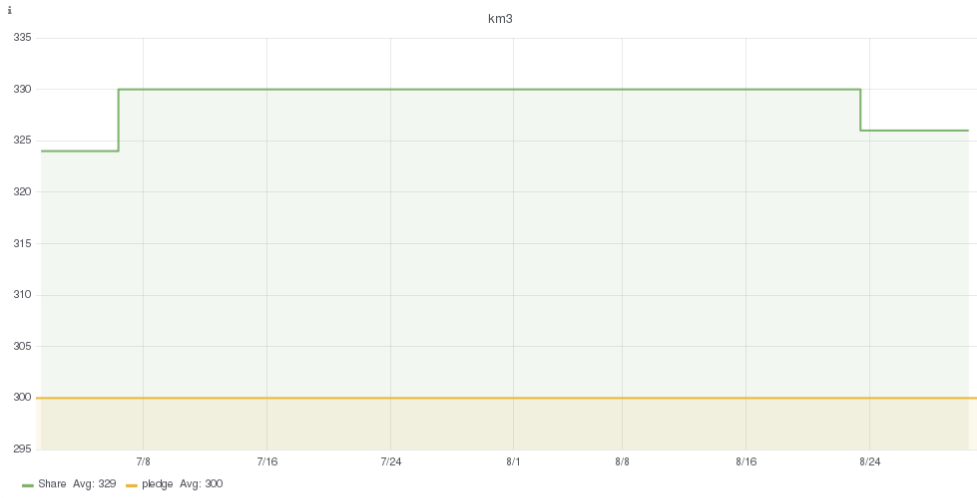


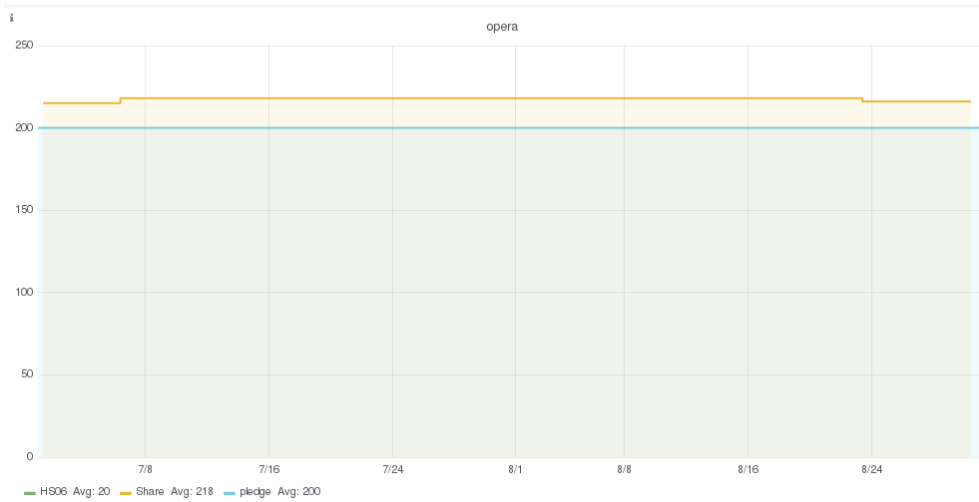
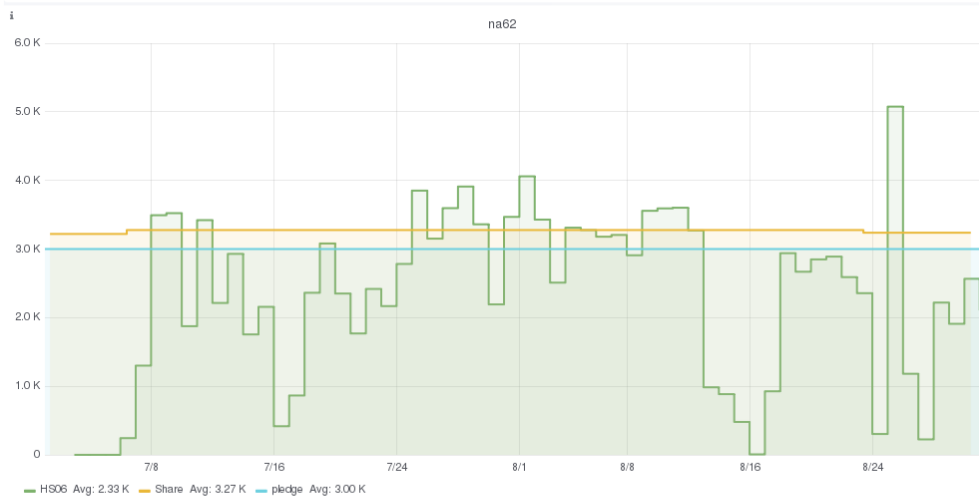
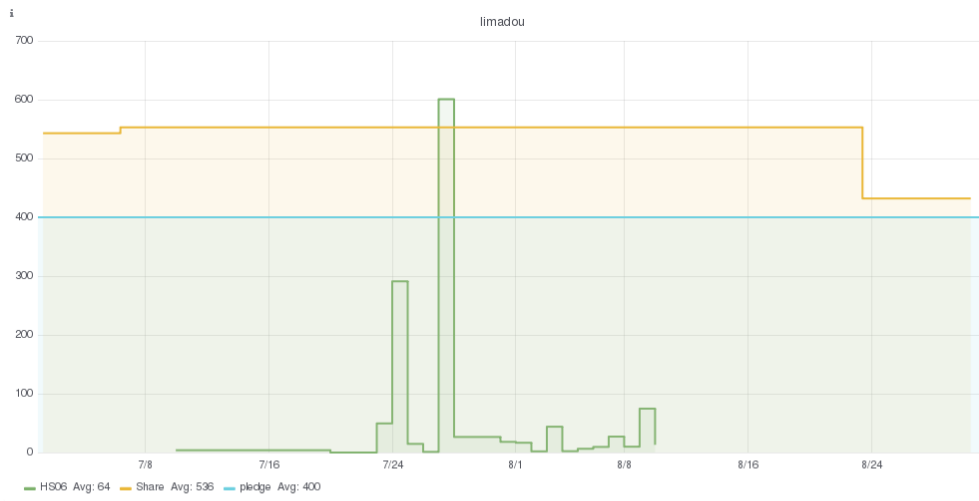


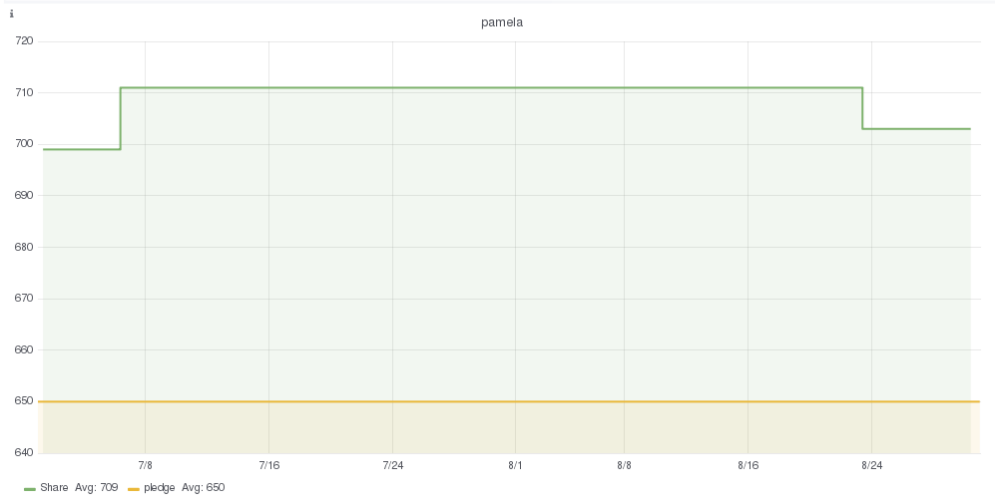
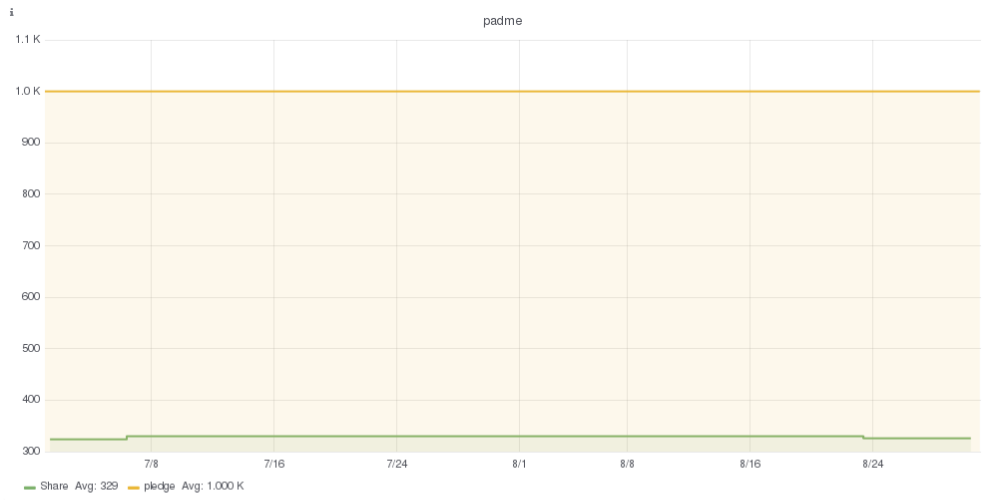


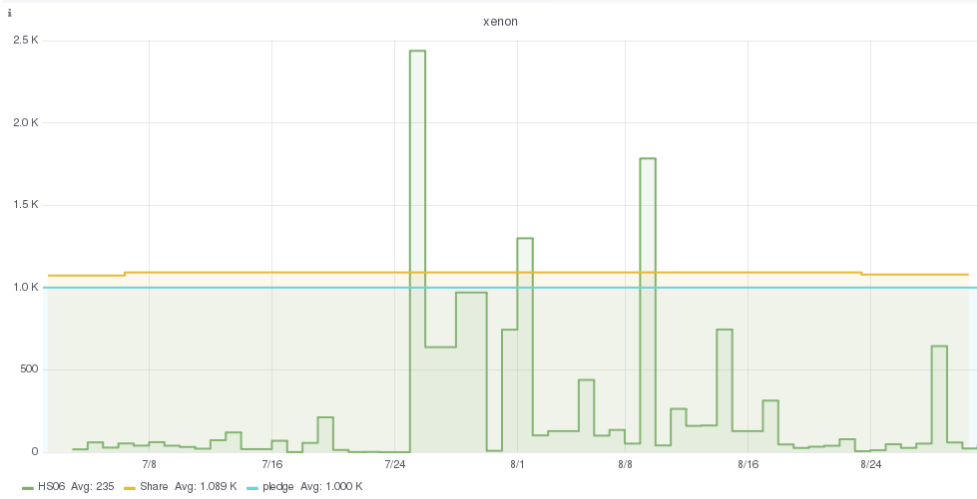
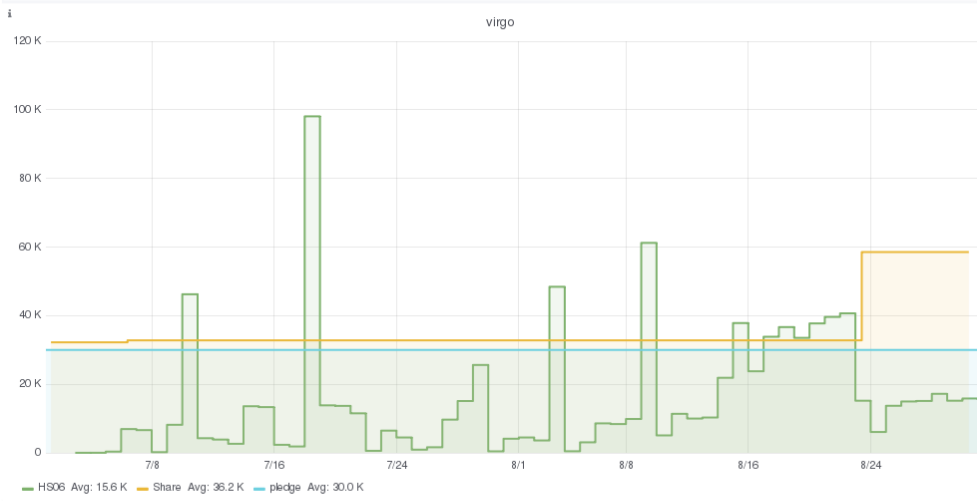
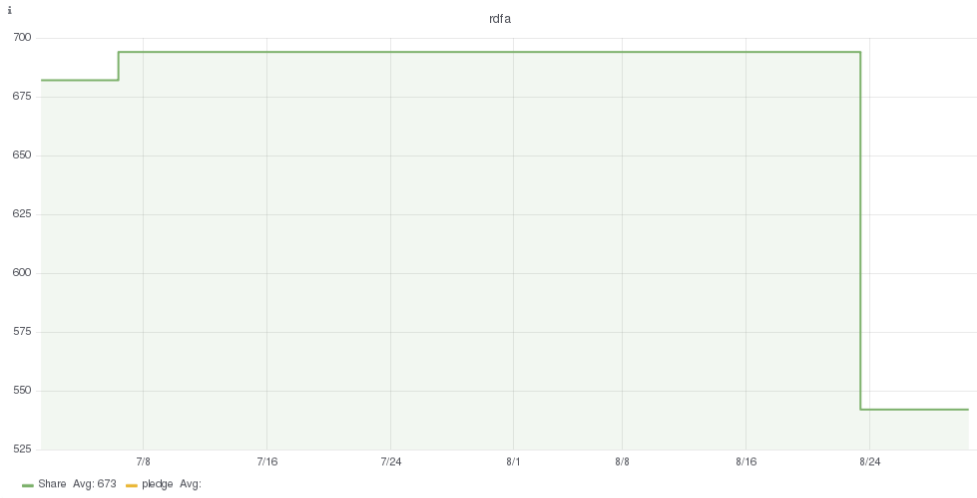












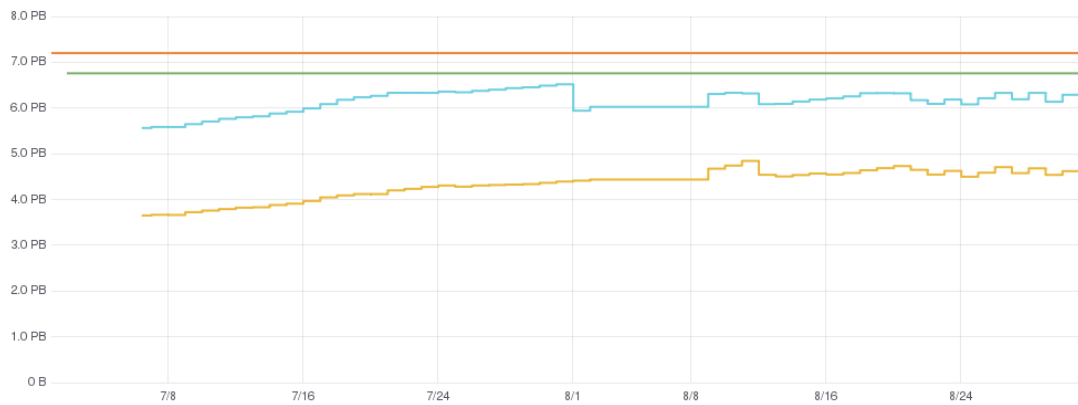
2 Utilizzo delle risorse - Storage

2.1 Disk usage - LHC



CMS

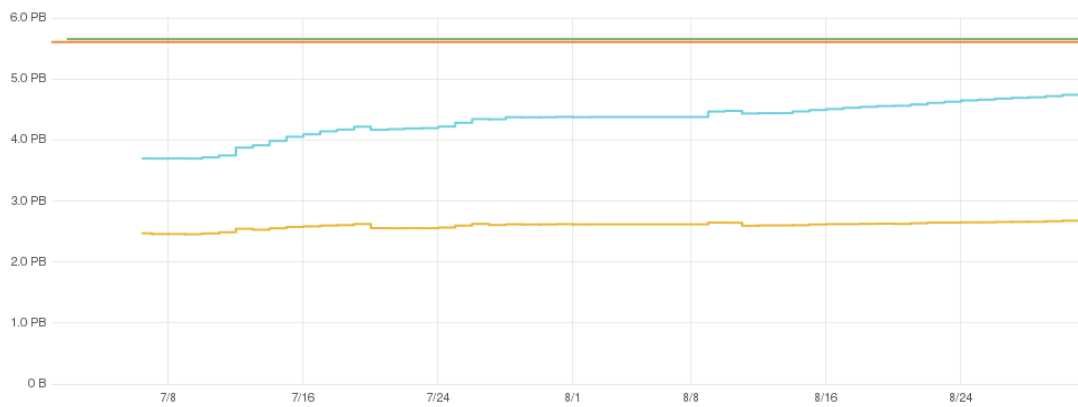
CMS



	min	max	avg	current
quota	6.759 PB	6.759 PB	6.759 PB	6.759 PB
used	3.650 PB	4.843 PB	4.325 PB	4.714 PB
used+buffer	5.563 PB	6.519 PB	6.149 PB	6.320 PB
pledge	7.200 PB	7.200 PB	7.200 PB	7.200 PB

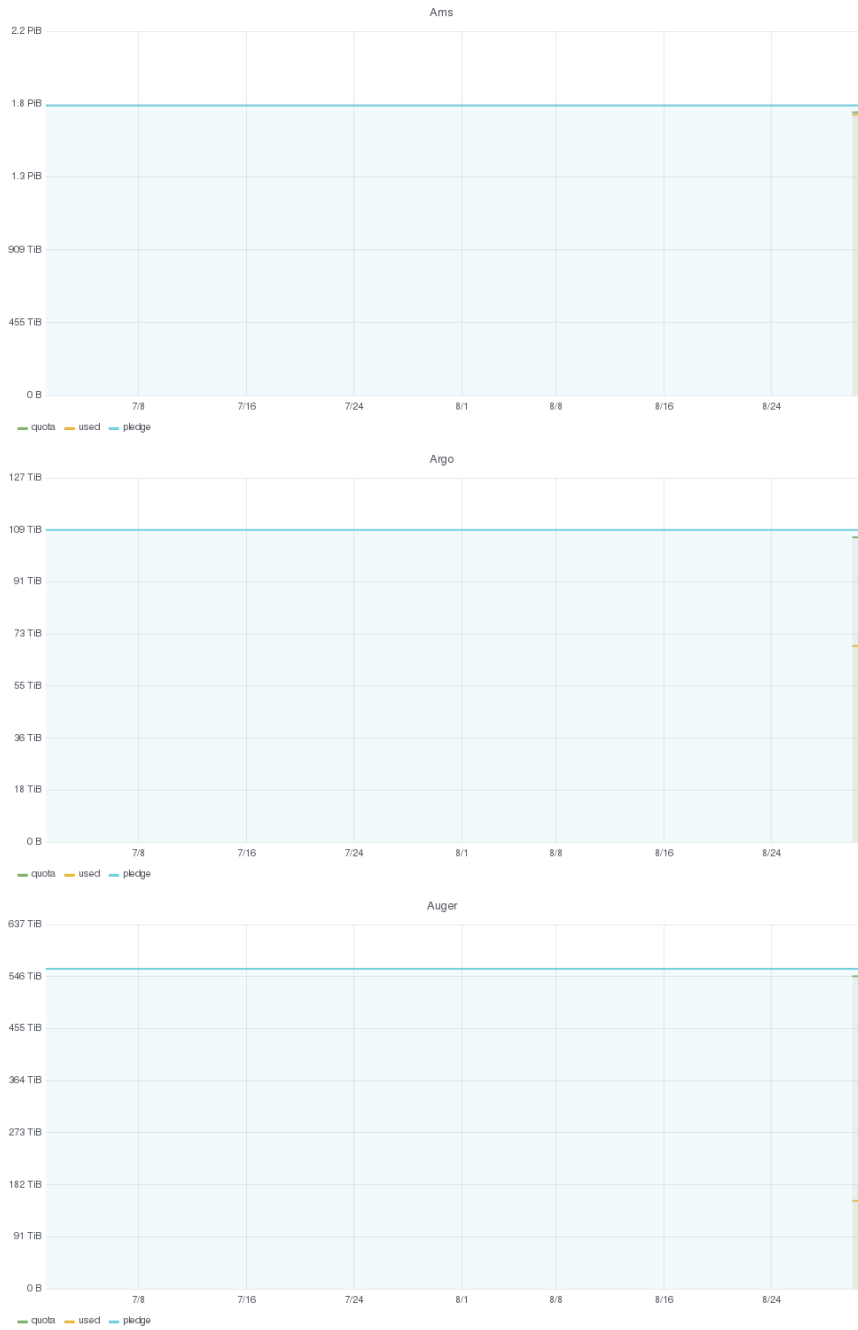
LHCB

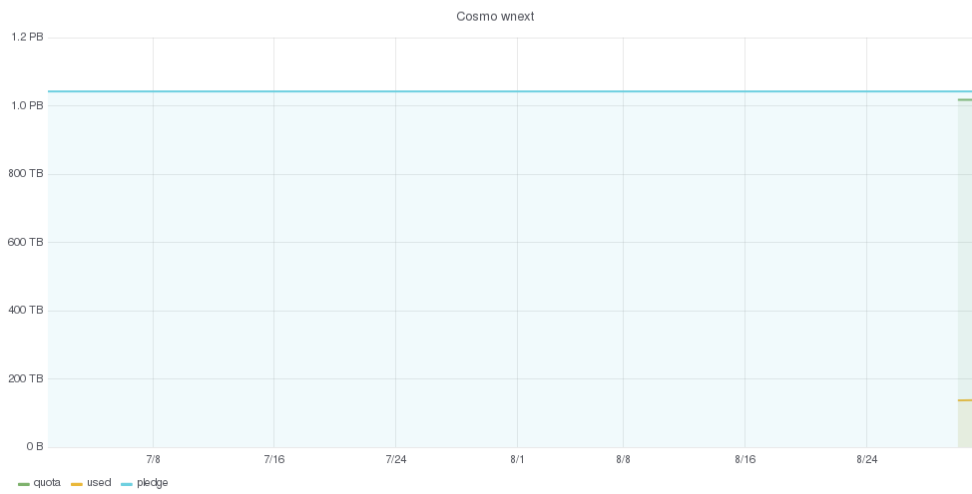
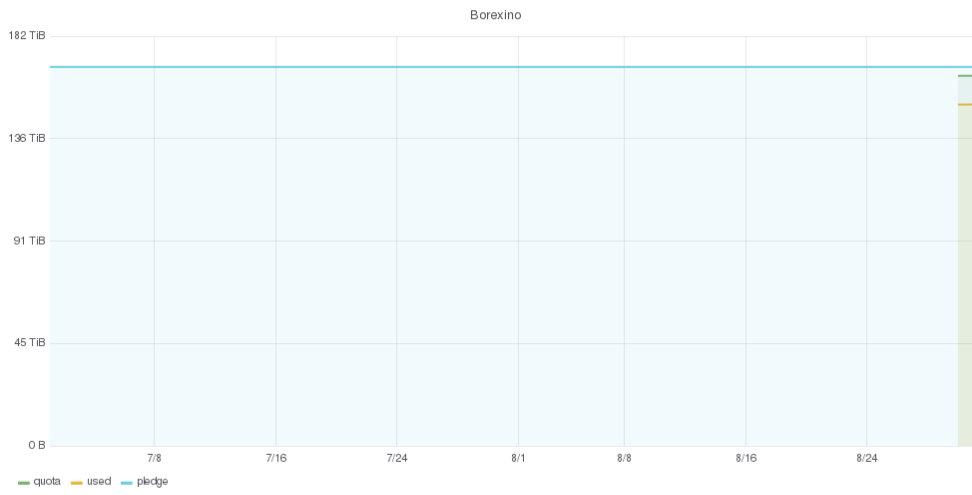
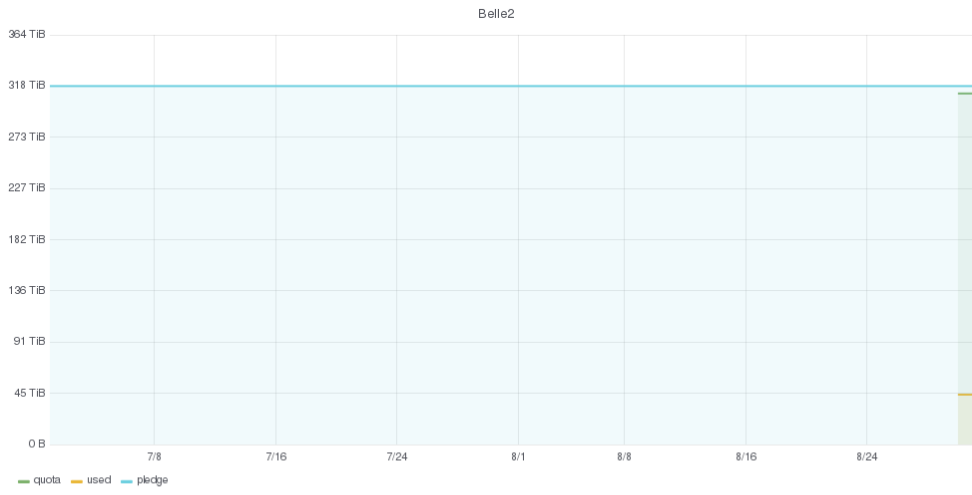
LHCB

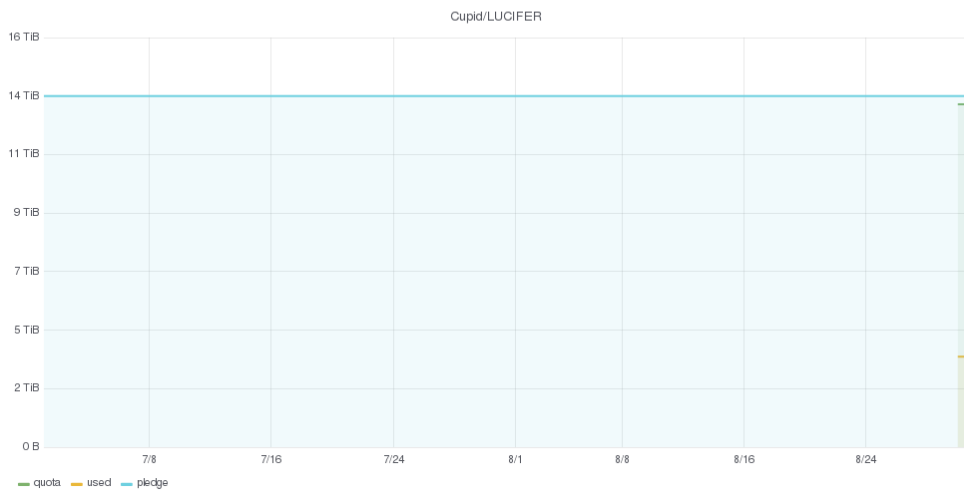
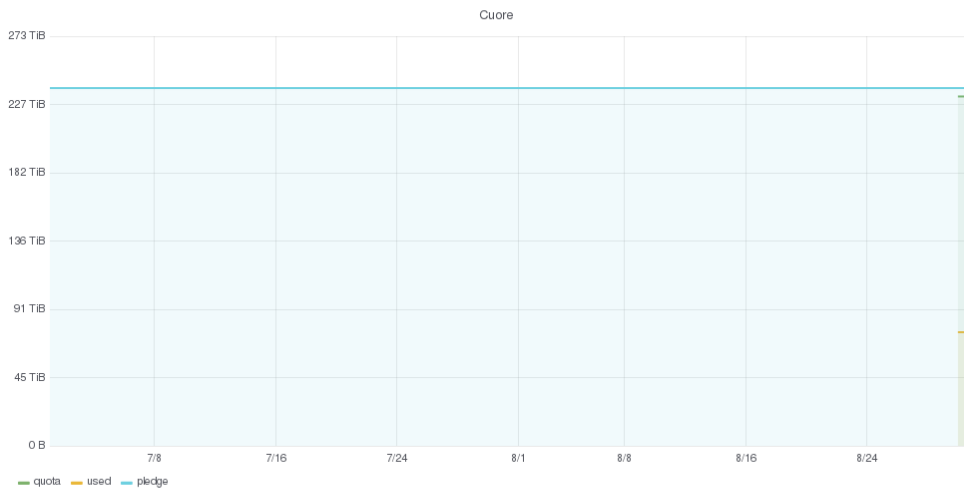
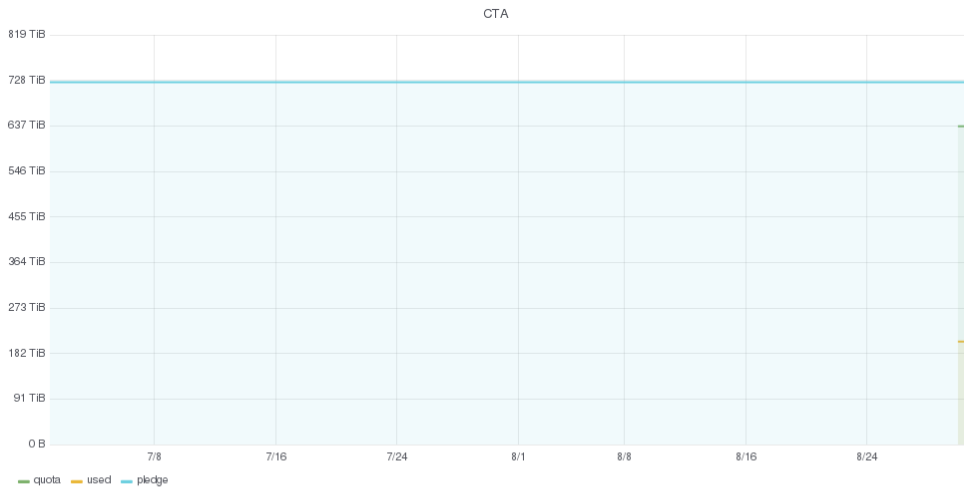


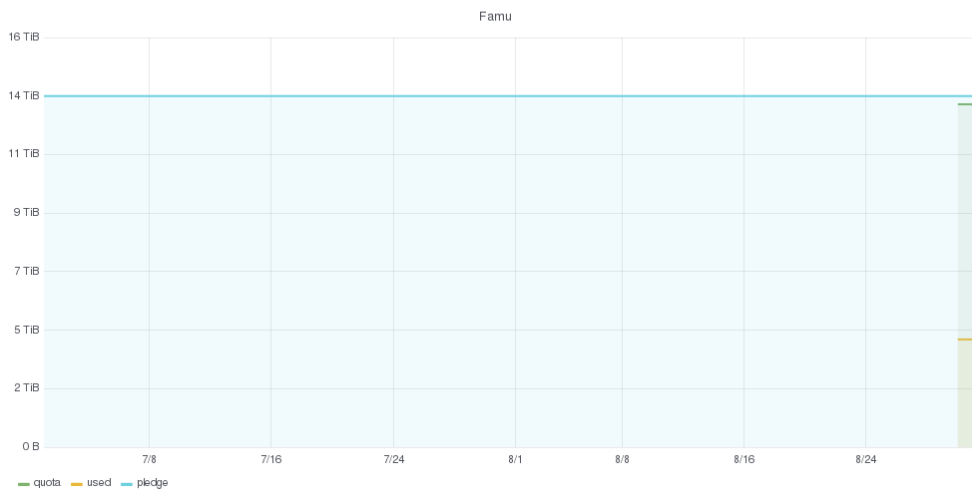
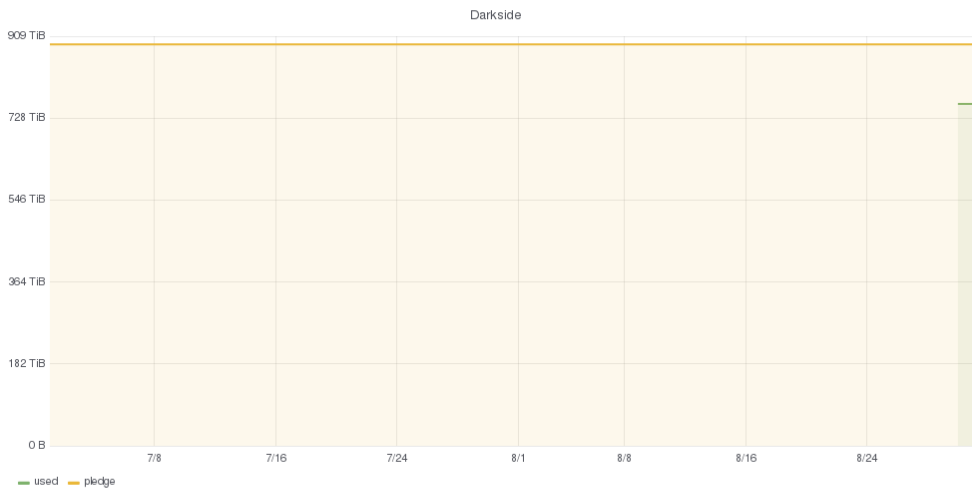
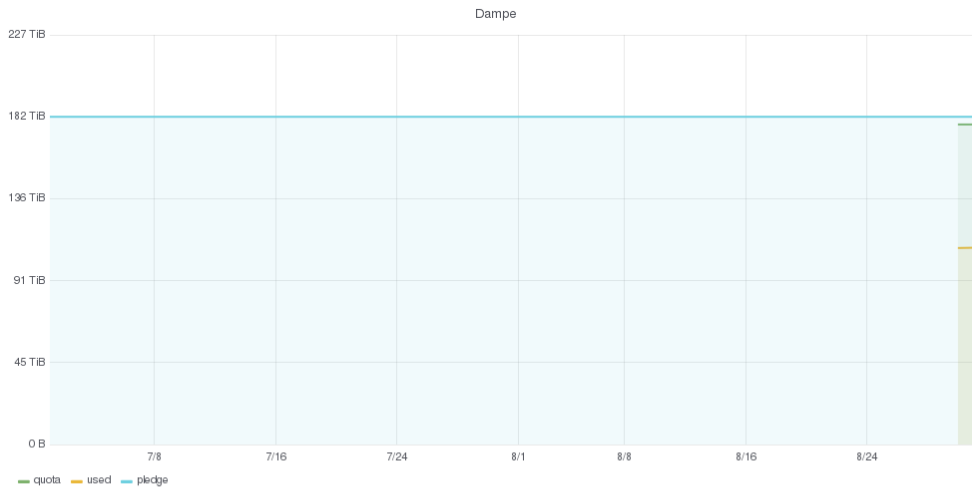
	min	max	avg	current
quota	5.655 PB	5.655 PB	5.655 PB	5.655 PB
used	2.456 PB	2.679 PB	2.596 PB	2.679 PB
used+buffer	3.695 PB	4.752 PB	4.318 PB	4.752 PB
pledge	5.606 PB	5.606 PB	5.606 PB	5.606 PB

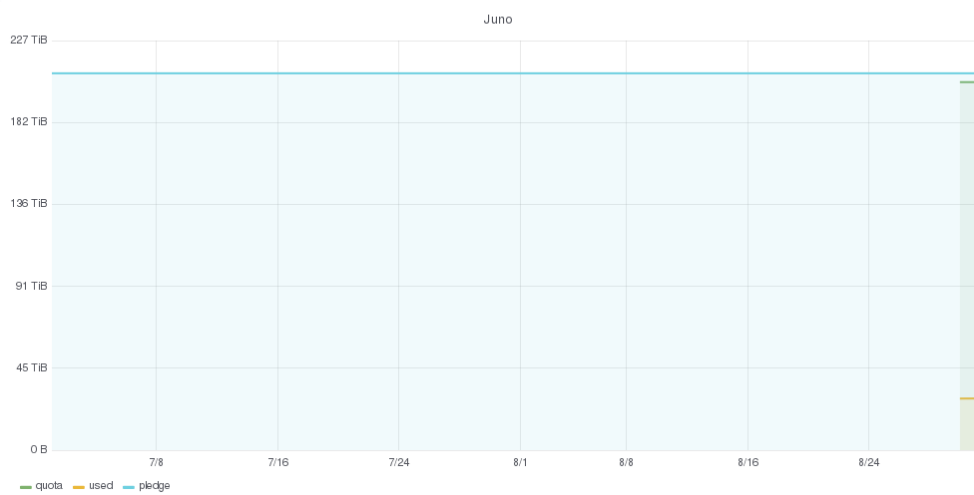
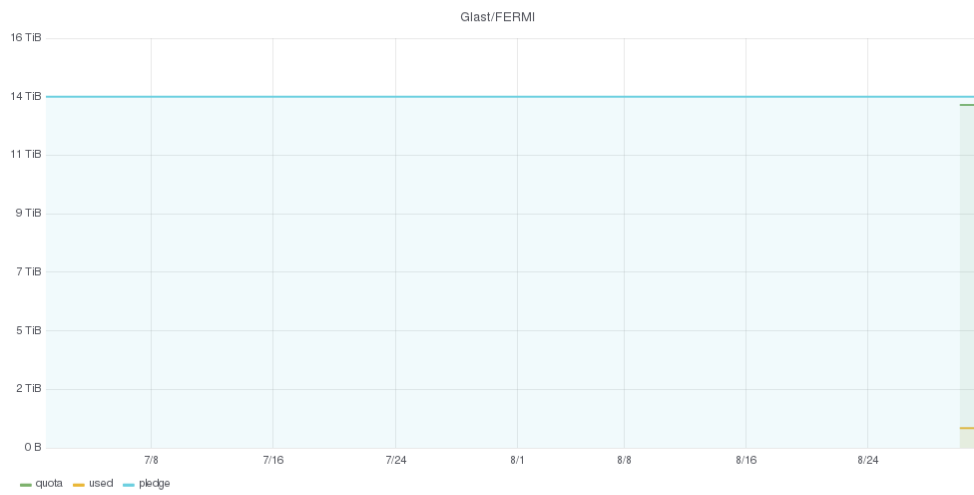
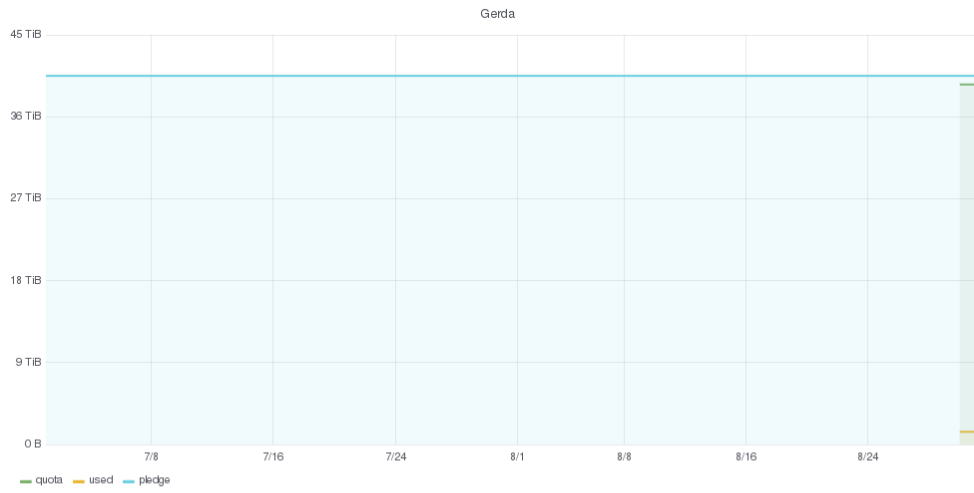
2.2 Disk usage - No LHC

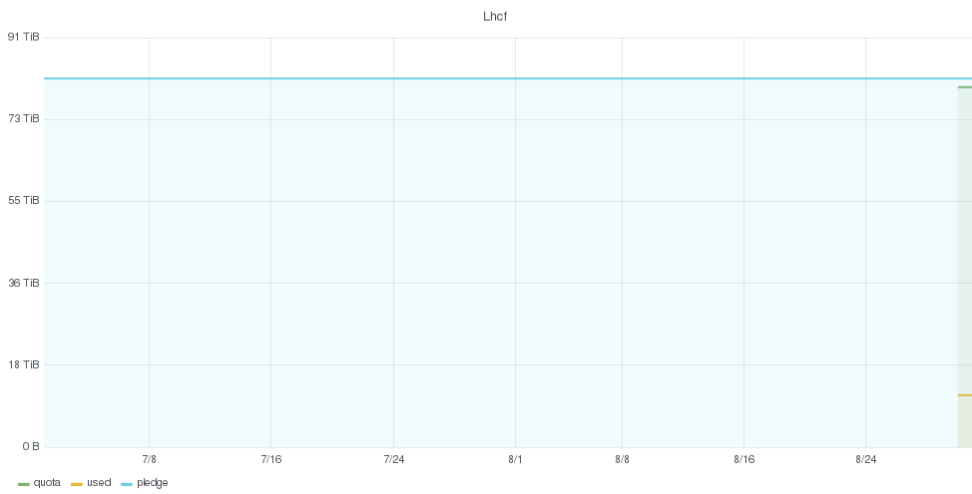
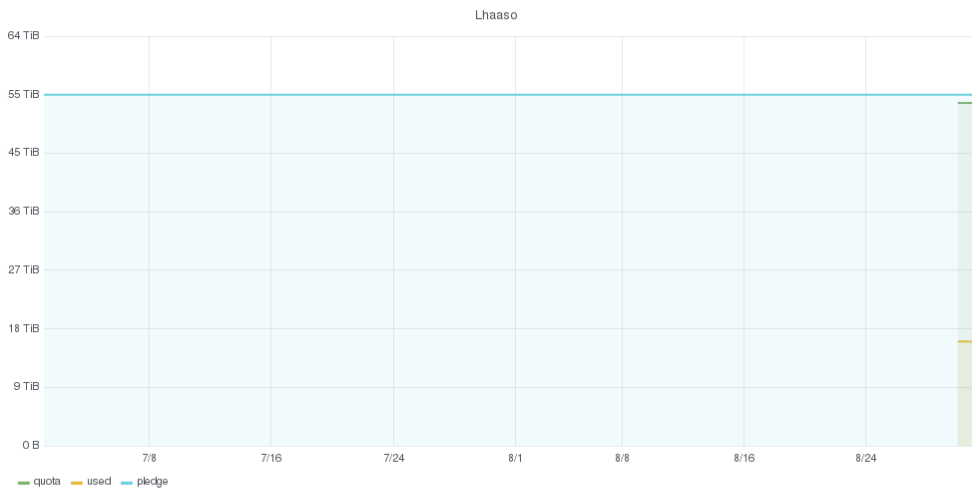
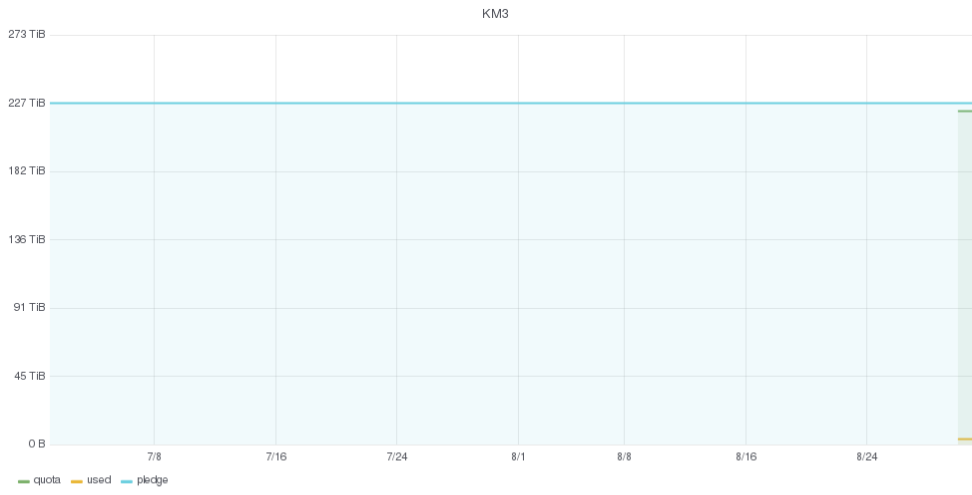


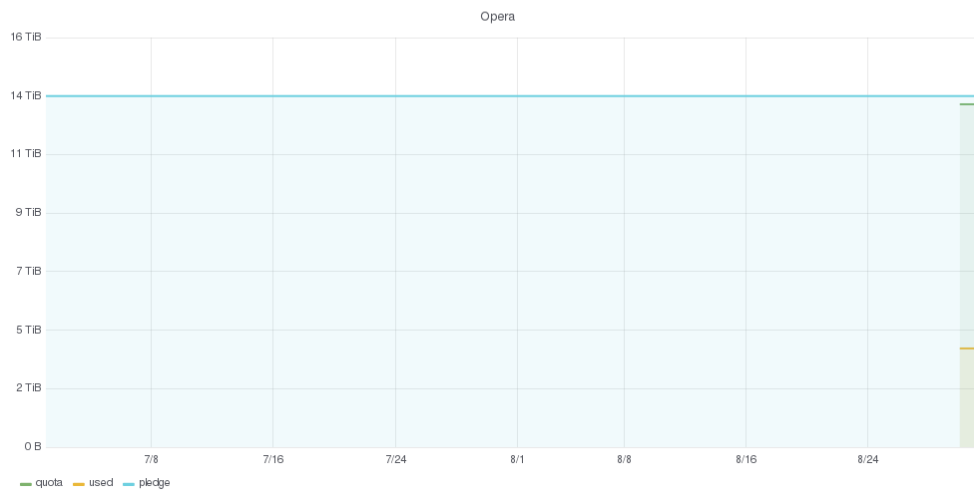
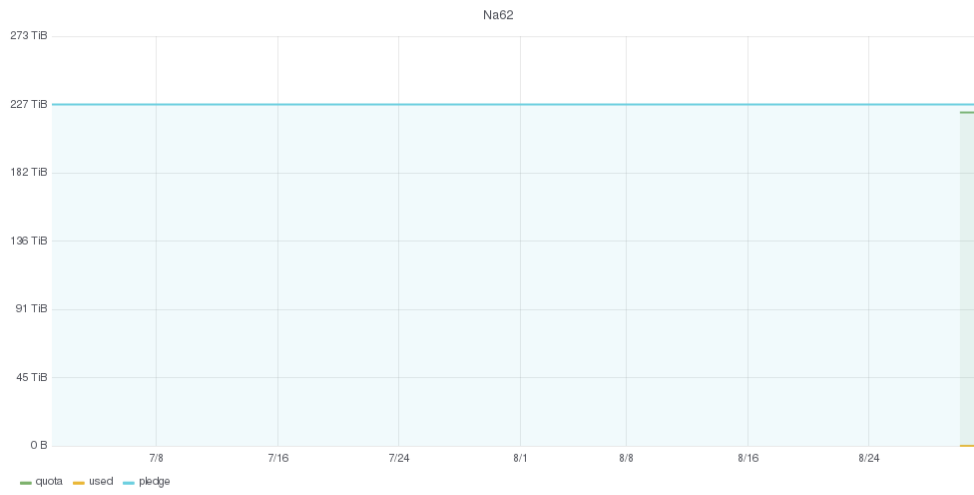
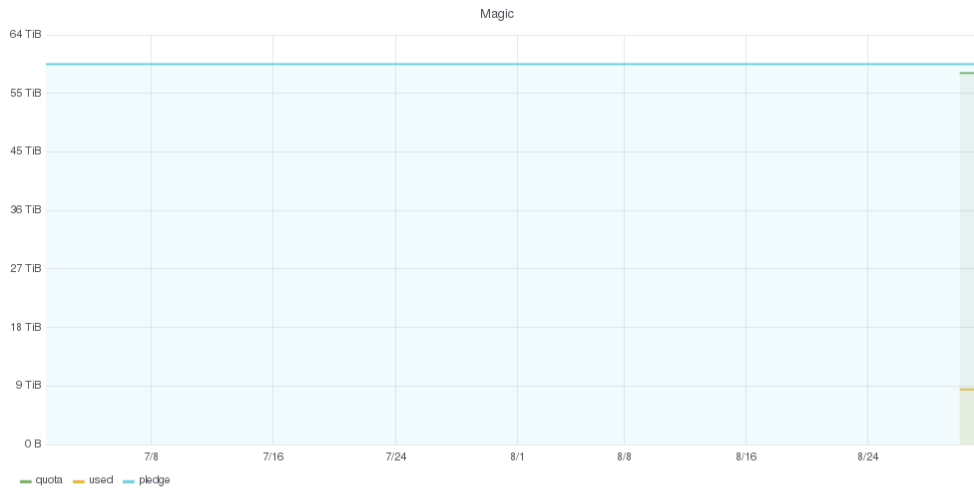


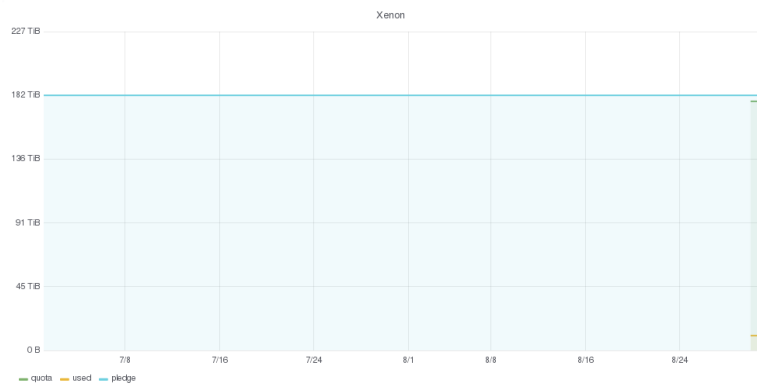
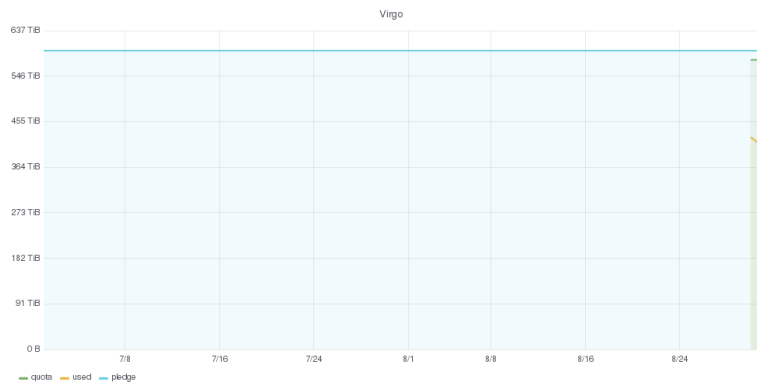
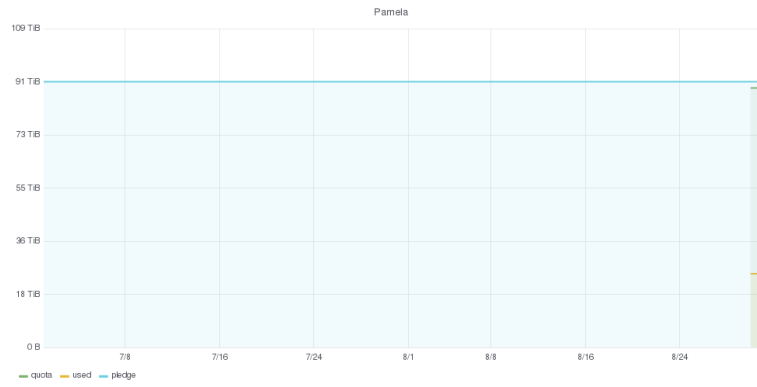












2.3 Consistenza fra accounting CNAF e cataloghi di esperimento nell'uso dello storage

ALICE		
	Catalogo	Accounting CNAF
Disco + Buffer (PB)	5.046	5.047
ATLAS		
	Catalogo	Accounting CNAF
Disco(PB)	-	-
Tape (PB)	-	-
CMS		
	Catalogo	Accounting CNAF
Disco(PB)	4.467	4.595
Nastro (PB)	14.07	13.48
LHCb		
	Catalogo	Accounting CNAF
Disco(TB)	5000	5.002
Nastro + Buffer (TB)	7.588	7.217

3 Tickets

3.1 Aperti

Ticket-ID	VO	Subject
<u>137060</u>	atlas	CINECA Lost Heartbeat
<u>134325</u>	cms	xroo xonfig at T1ITCNAF

3.2 Chiusi nell'ultimo mese

Ticket-ID	VO	Subject
<u>136378</u>	atlas	INFN-T1: DDM failures with ...
<u>135692</u>	atlas	INFN-T1MCORE almost all jobs fail with ...
<u>135946</u>	atlas	INFN-T1 OVERWRITE srm-ifce err: ...
<u>136484</u>	atlas	INFN-T1: SOURCE [70] srm-ifce err: ...
<u>136422</u>	atlas	INFN-T1: Transfer errors with ...
<u>136328</u>	atlas	INFN-T1: transfers failing with ...
<u>136602</u>	atlas	Many jobs failing at INFN-T1-CINECA-SL7
<u>136693</u>	atlas	Permission denied: 'homeatlasprd031'
<u>135986</u>	atlas	Pilots failing at INFN-T1
<u>136197</u>	atlas	Staging errors at INFN-T1
<u>136595</u>	atlas	transfers failures to INFN-T1MCTAPE ...
<u>136284</u>	cms	Fallback test failures from ...
<u>135886</u>	cms	file staging at CNAF
<u>135608</u>	cms	High pilot pressure to CNAF
<u>136321</u>	cms	Issues with file read at T1ITCNAF
<u>136006</u>	cms	missing files at CNAF tape
<u>136434</u>	cms	Phedex debug transfers to T2ATVienna ...
<u>136527</u>	cms	SAM3 SRM is critical at T1ITCNAF
<u>136024</u>	cms	stuck transfer at CNAFBuffer
<u>135897</u>	cms	T1ITCNAF JobSubmit SAM test failures
<u>135951</u>	cms	T1ITCNAF SE-xroo read failure
<u>136363</u>	cms	T2CNBeijing—ITEP - ...
<u>135949</u>	cms	Transfers failing from CNAF
<u>136168</u>	cms	Transfers failing from CNAF
<u>135937</u>	cms	Transfers from CNAF to IFCA failing - ...
<u>136123</u>	lhcb	Data transfers problem at INFN-T1
<u>135947</u>	lhcb	Duplicated or busy files
<u>135734</u>	lhcb	Pilots Failed at INFN-T1
<u>136120</u>	lhcb	Pilots Failed at INFN-T1
<u>136339</u>	none	This TEST ALARM has been raised for ...
<u>136380</u>	ops	[Rod Dashboard] Issues detected at ...

4 Stato migrazione a CentOS7 da parte degli esperimenti non LHC

Tabella 1: Readiness degli esperimenti alla migrazione.

Esperimento	Stato
AMS	OK
Auger	concesso accesso a coda per poter fare i test
Borexino	richiesta e ottemperata installazione pacchetti, fornita guida sull'uso di singularity. Test in corso.
DAMPE	concesso accesso alla coda di test
FAMU	OK
Juno	Test in corso
Virgo	OK

Data la “latitanza” degli altri esperimenti, vorremmo proporre noi una data per la migrazione tra **il 5 e il 16 novembre**.

5 Uso Tape @ CNAF 2019

Tabella 2: Tape: previsioni per il 2019

Esperimento	Utilizzo e throughput previsto
ALICE	
ATLAS	stress test, per misurare il throughput del tape sistem del T1, utiizzando però delle metriche basate sul sistema di trasferimento dati di atlas (rucio). Il test dura una settimana, va bene utilizzare il sistema di produzione. Si pensava settimana del 16 luglio.
CMS	
LHCb	In 2019, re-stripping campaign for the entire RUN 2, recalling all data from 2015 to 2018.
BELLE II	No tape; qualcosa nel 2020 e utilizzo significativo nel 2021
BOREXINO	46TB nel 2019, 51TB nel 2020
CTA	invariato, sempre 120TB
DAMPE	150TB in cui spostare in 3 – 4 volte decine di TB
DARKSIDE	invariato, trasferiranno altri dati nei 300TB di adesso
FAMU	una decina di TB
FERMI	massimo 15TB
JUNO	No tape
LIMADOU	1TB per dati raw
NEWCHIM	Nel 2018 dovrebbero occupare 150TB dei 300 previsti. Nel 2019 stimano una crescita fino a 500TB.
PADME	La presa dati inizia ora, $10MB/s$ a regime. Per il 2019, flusso dati analogo.
PAMELA	Invariato.
VIRGO	Throughput minimo continuo Cascina-CNAF di $100MB/s$ (picchi di $200MB/s$), rate di scrittura $50MB/s$)
XENON	No aggiunte al PB del 2018

6 Prossimi Downtime

NTR

7 ALICE

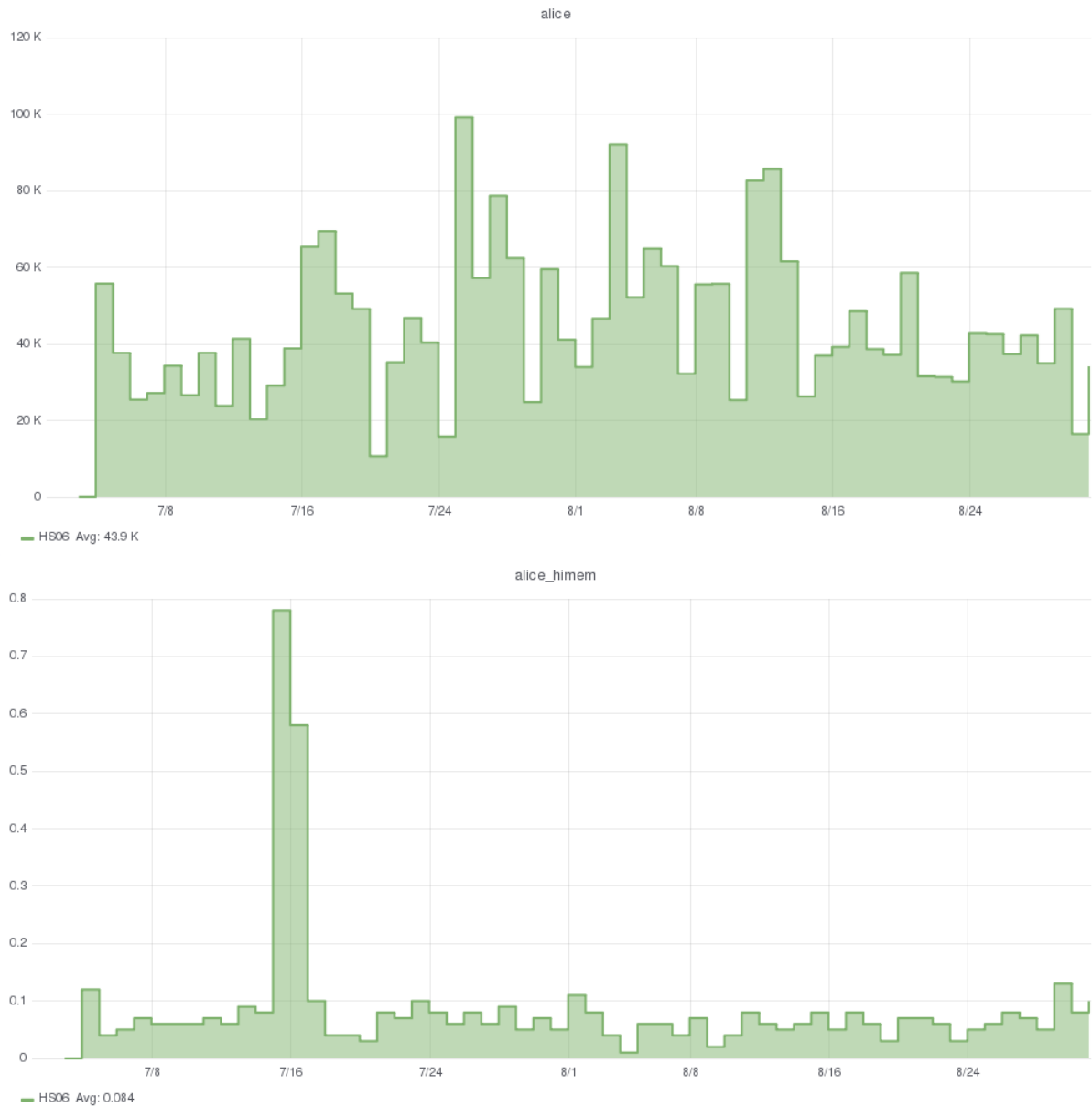


Figura 1: Number of jobs and CPU efficiency - **Alice** (pledge 29045 HS06)

- Site Availability using ALICE_CRITICAL

[Link to data](#)

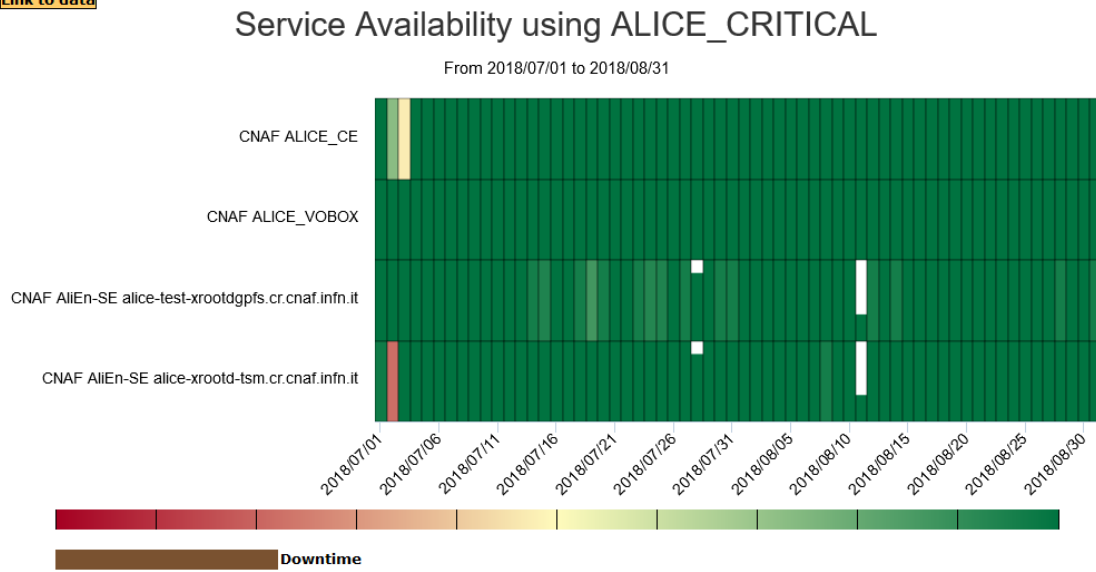


Figura 2: Availability

8 ATLAS

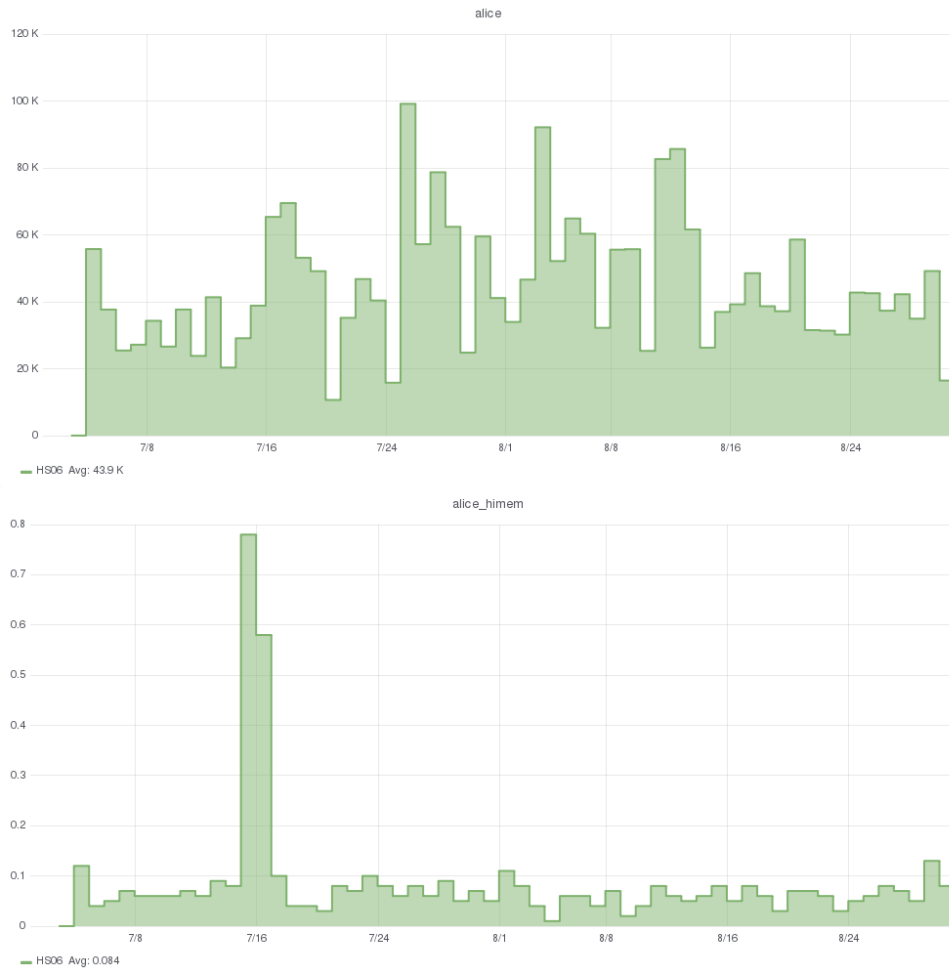


Figure 1: Number of jobs and CPU efficiency - **Atlas** (pledge 46800 HS06)

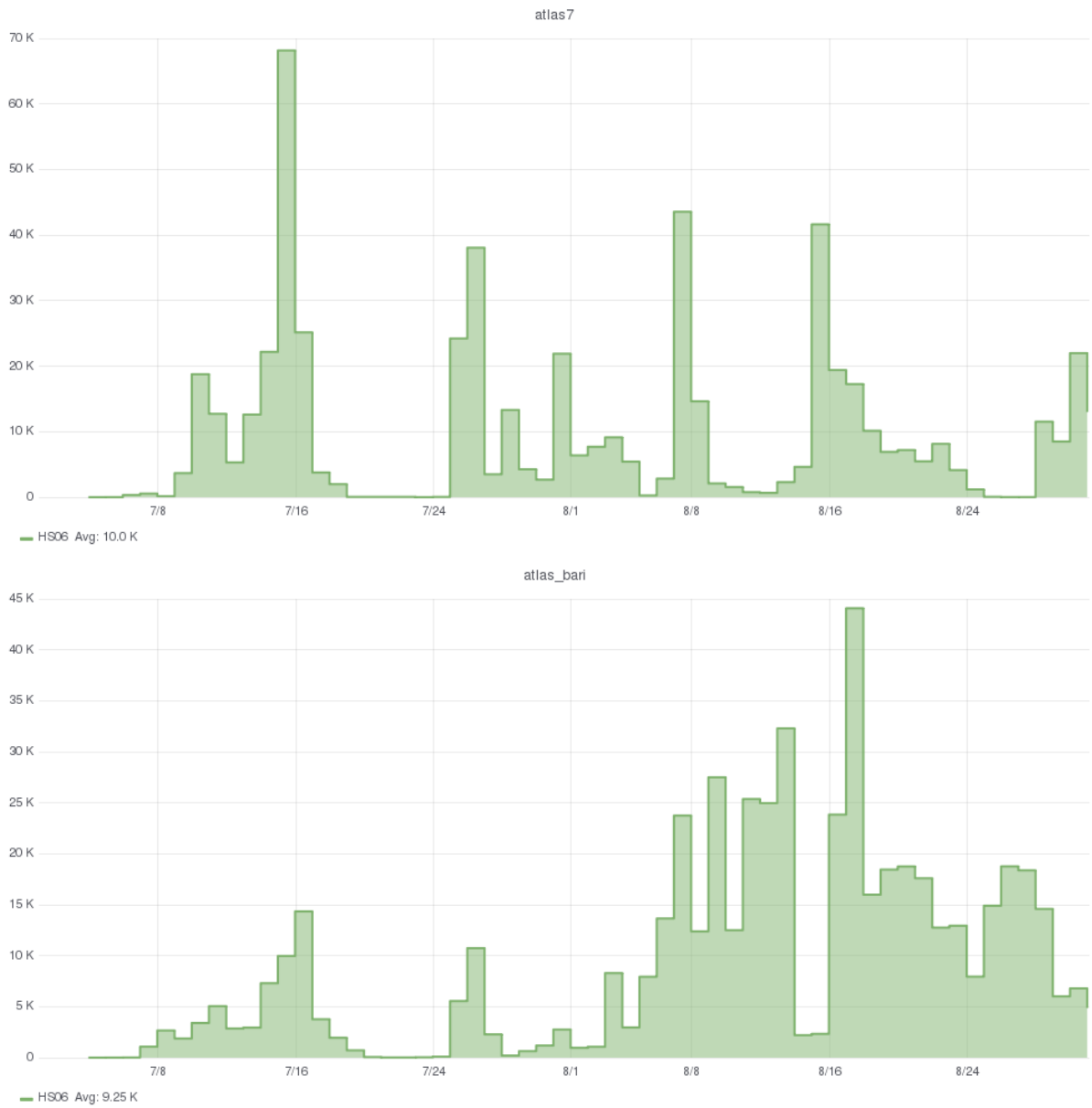


Figure 2: Number of jobs and CPU efficiency - **Atlas_himem** (pledge 46800 HS06)

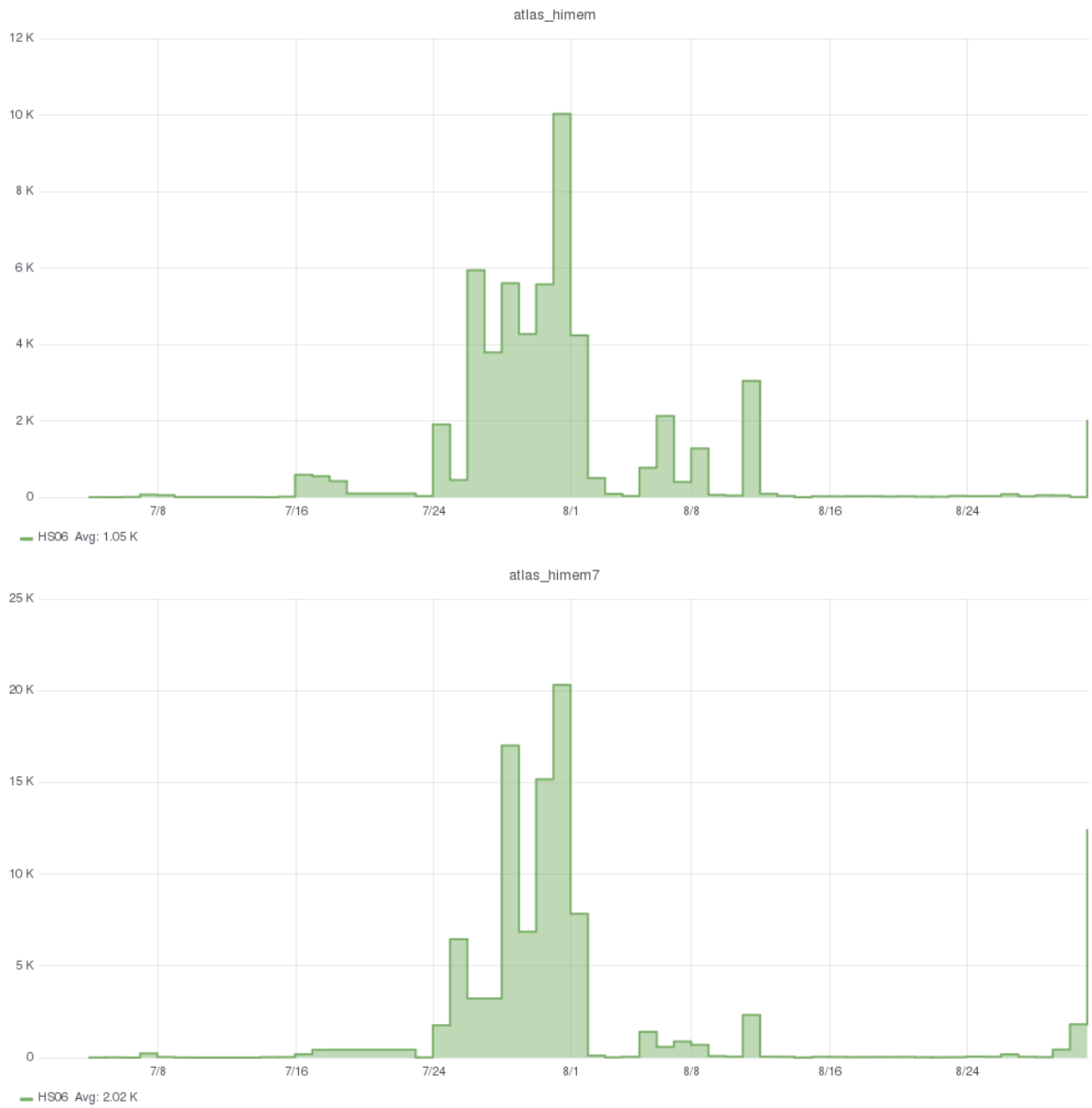


Figure 3: Number of jobs and CPU efficiency - **Mcore** (pledge 46800 HS06)

- Site Availability using ATLAS_CRITICAL

[Link to data](#)

Site Availability using ATLAS_CRITICAL

From 2018/07/01 to 2018/08/31

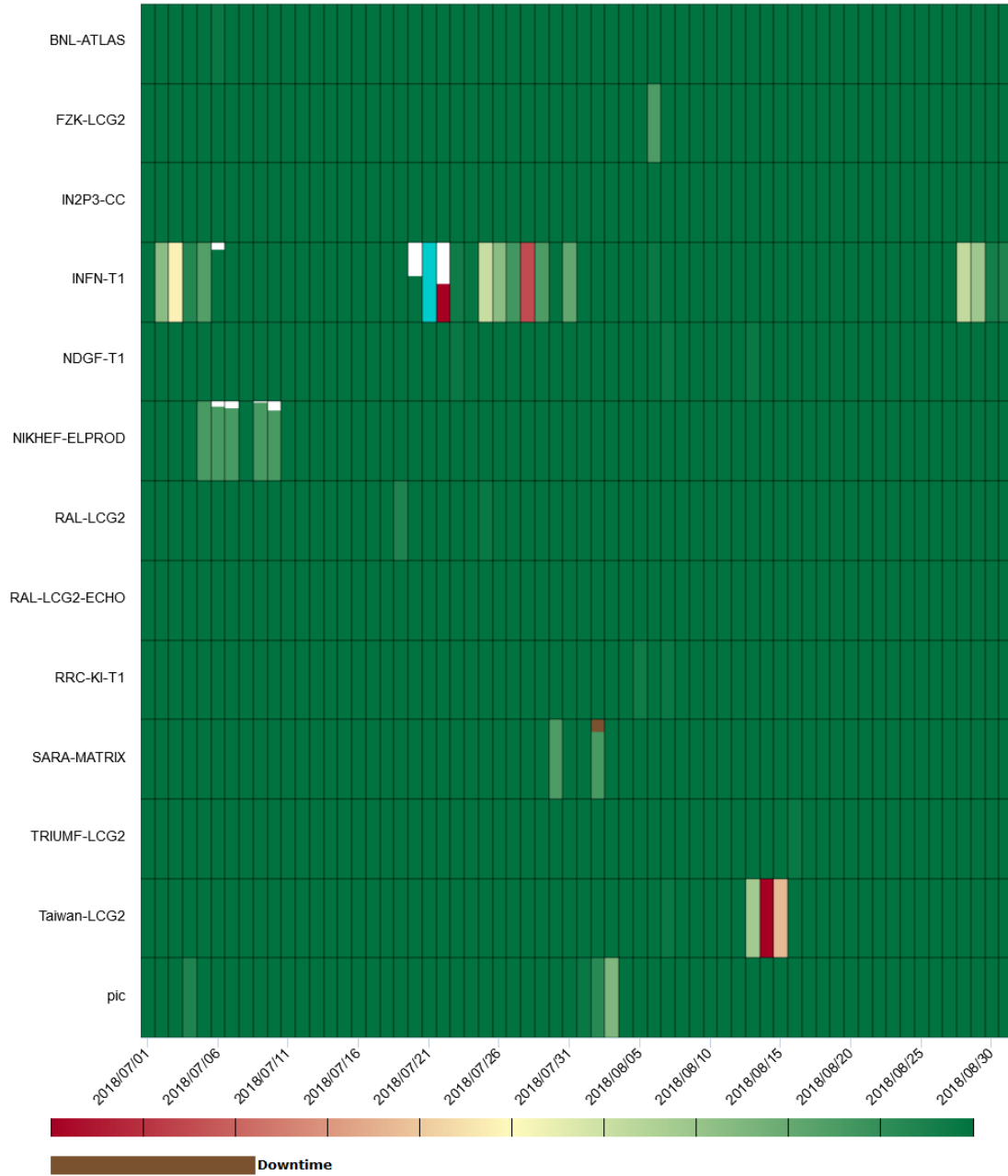
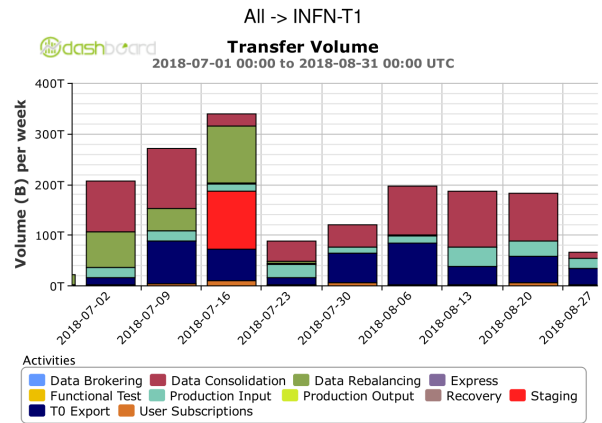
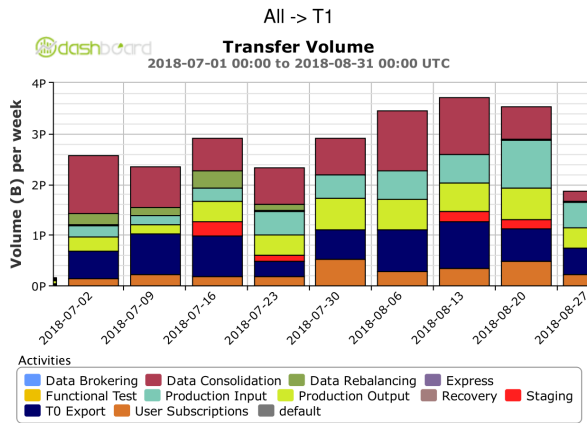
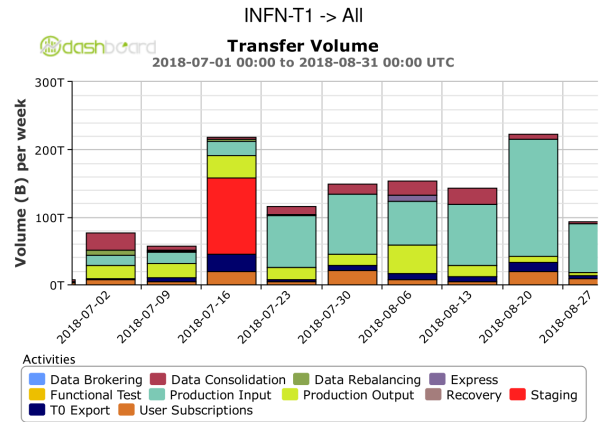
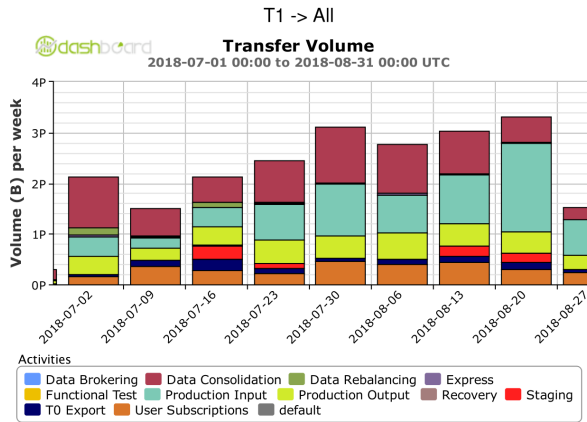
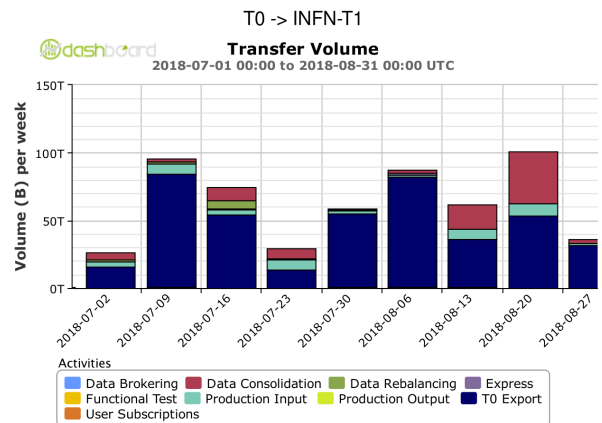
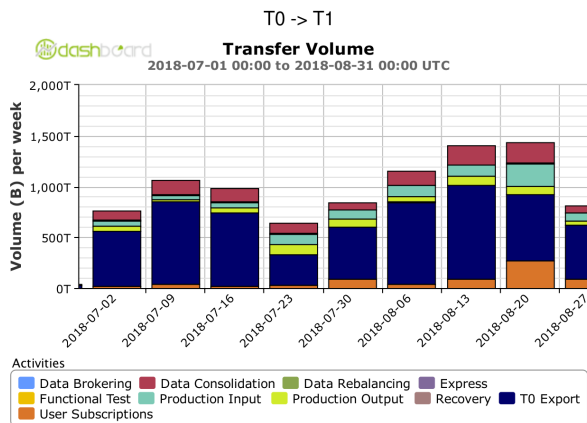


Figura 3: Availability

• ATLAS Throughput



• T0 Export



9 CMS

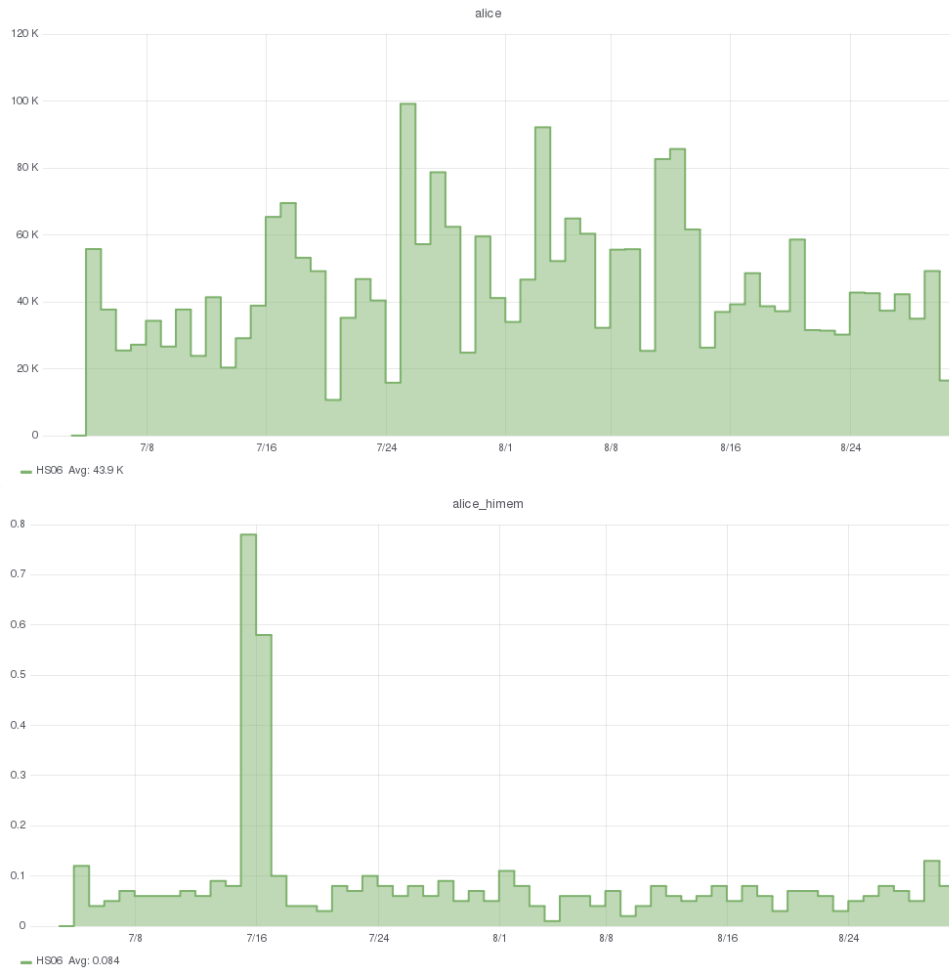


Figure 1: Number of jobs and CPU efficiency - CMS **Single Core** (pledge 48000 HS06)

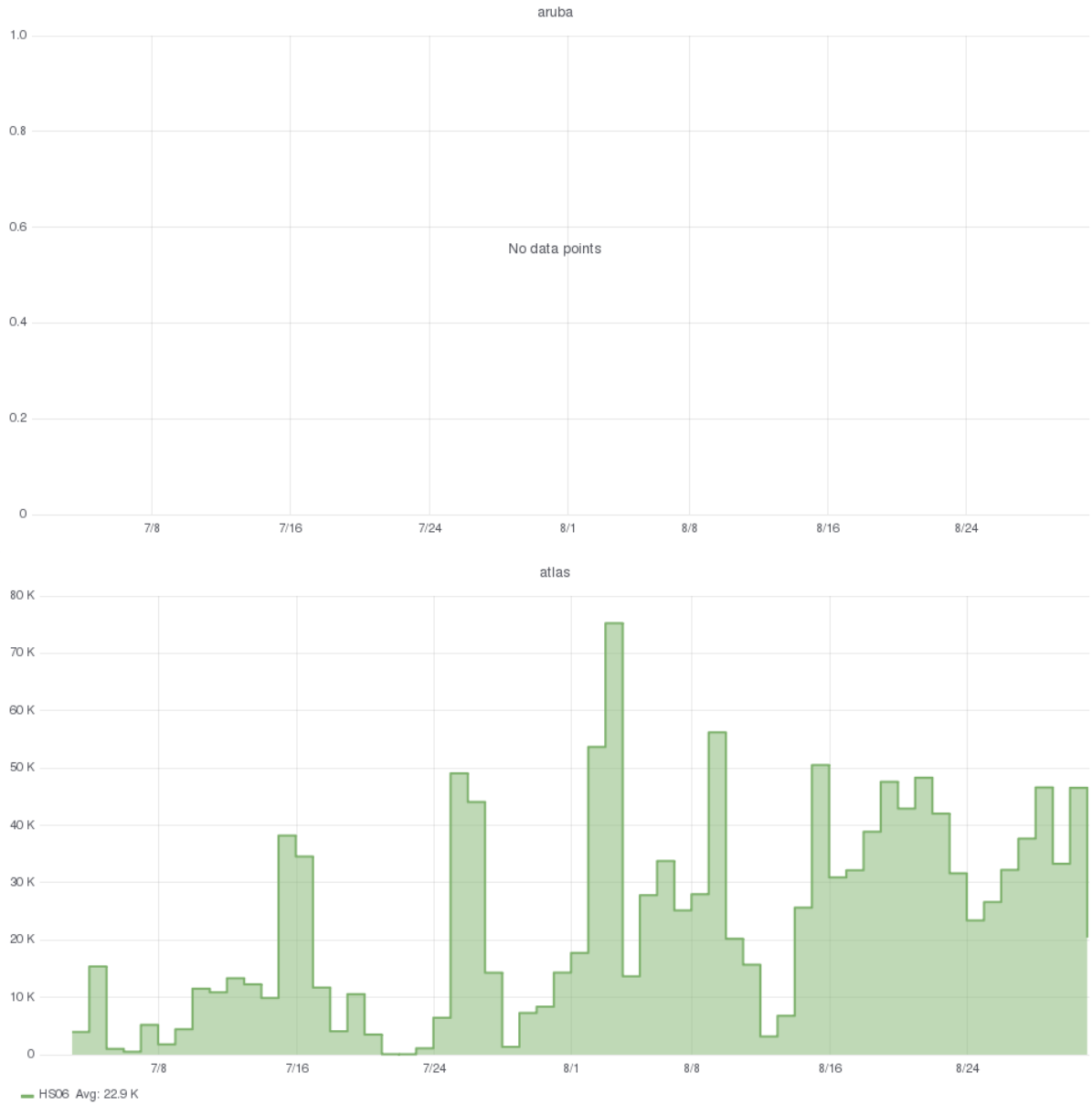


Figure 2: Number of jobs and CPU efficiency - CMS **Multi Core** (pledge 48000 HS06)

- Site Availability using CMS_CRITICAL_FULL

[Link to data](#)

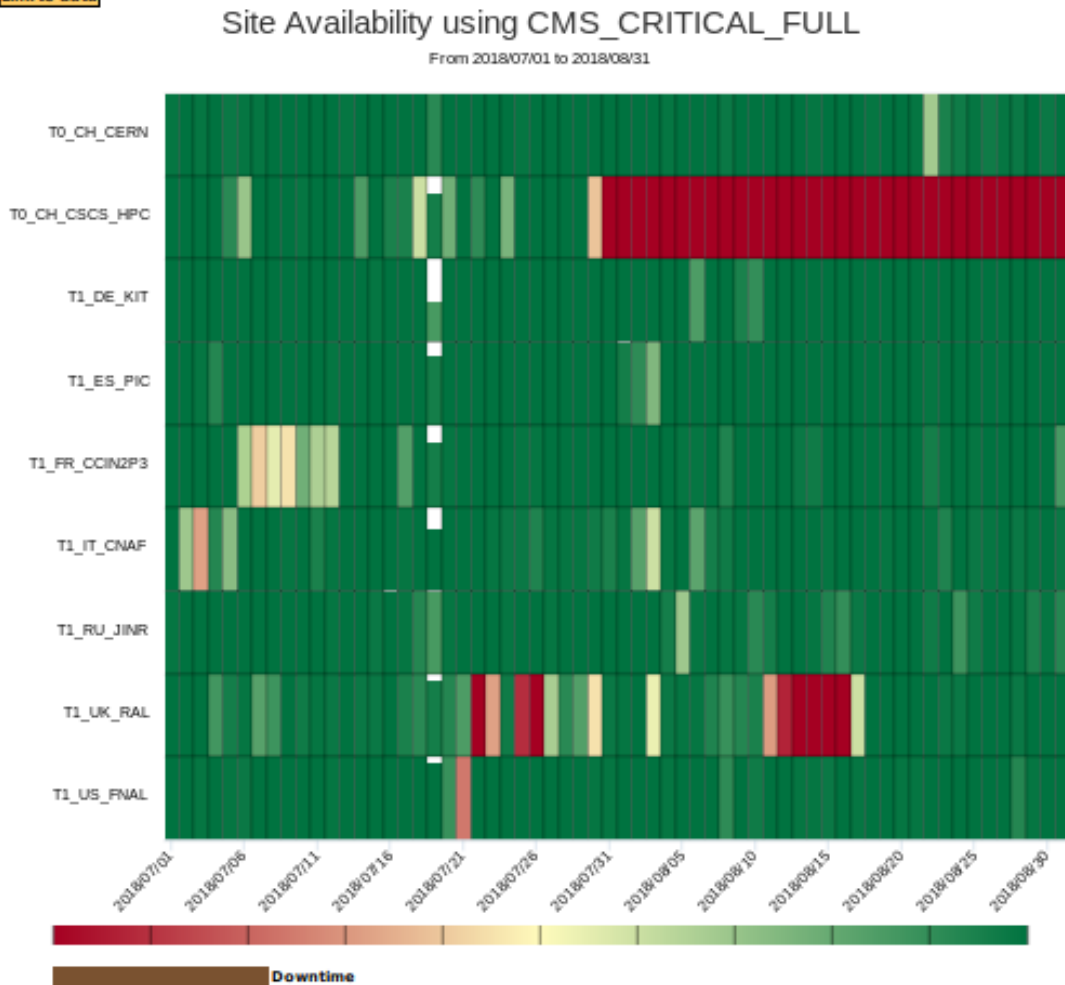
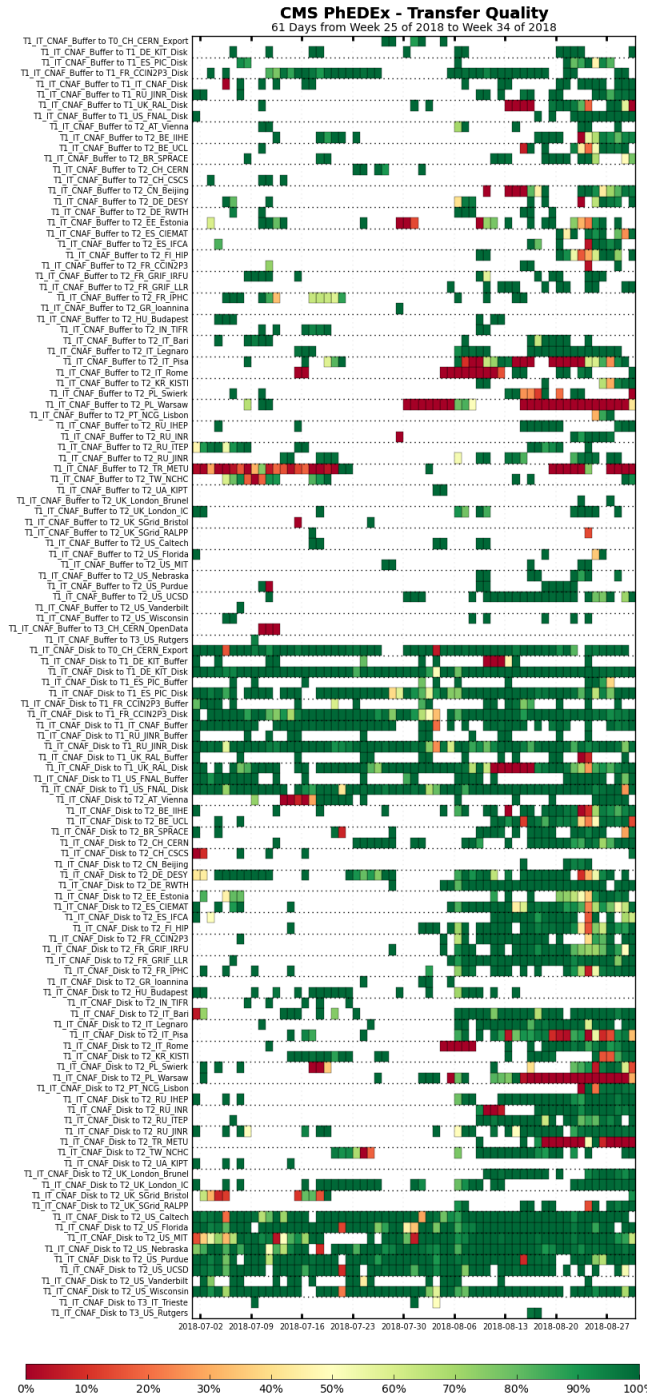


Figure 4: Availability

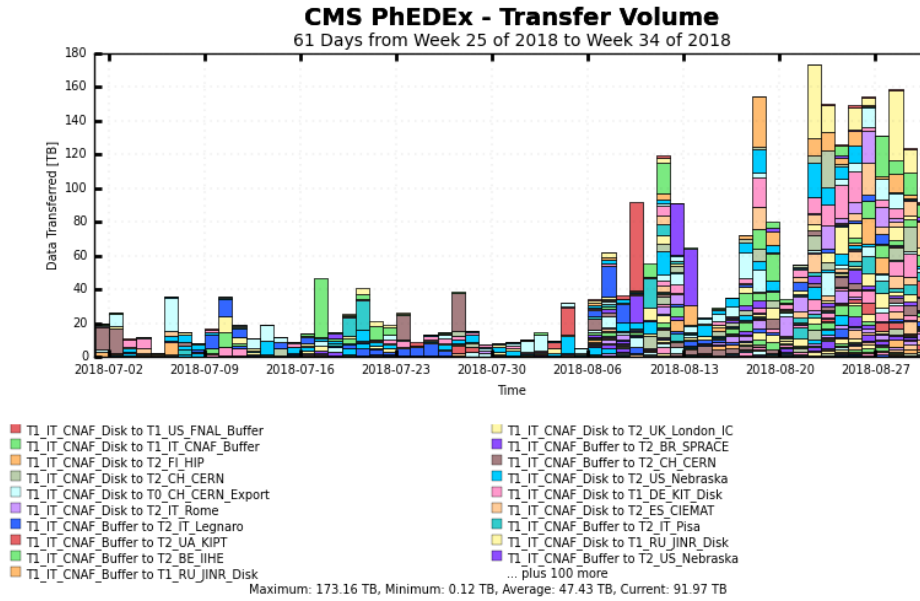
- Phedex Transfers Quality (CNAF → All)



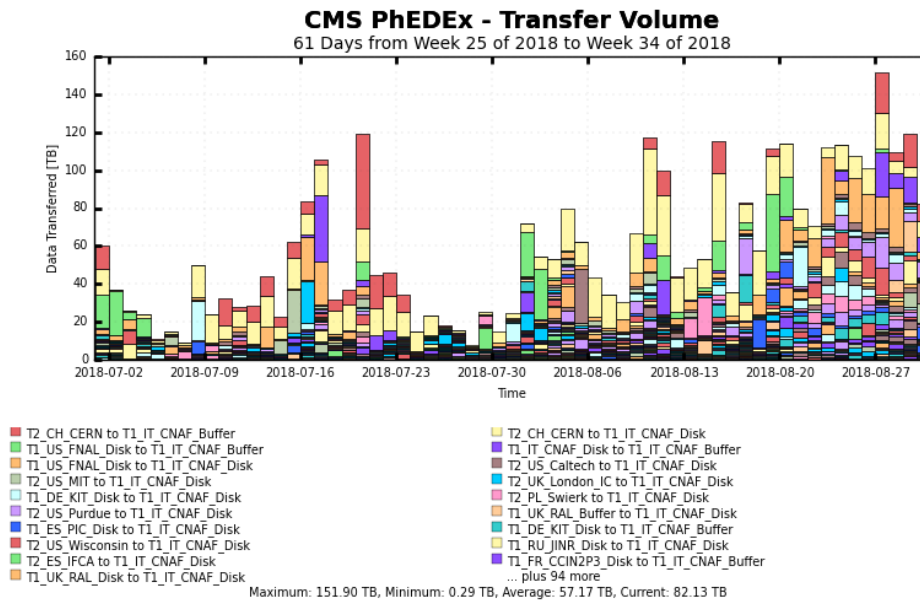
• Phedex Transfers Quality (All → CNAF)



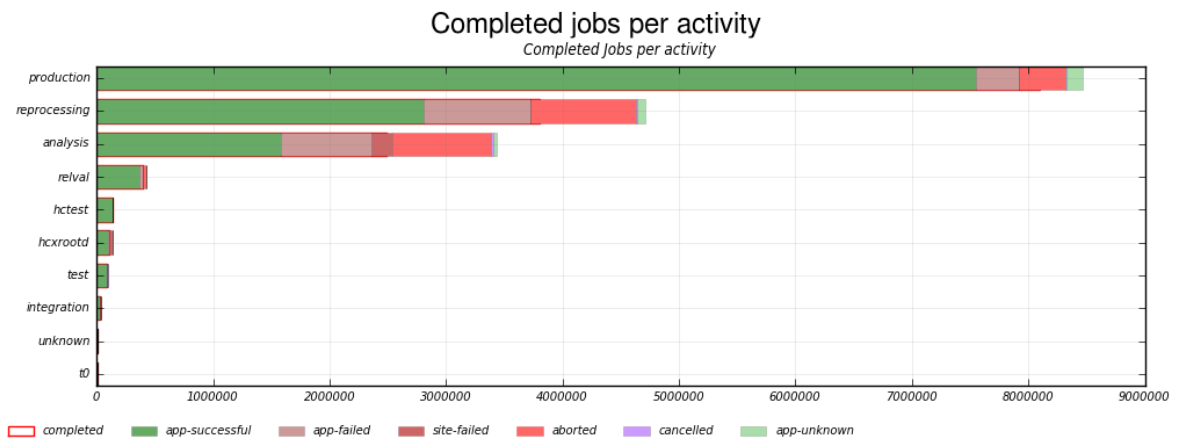
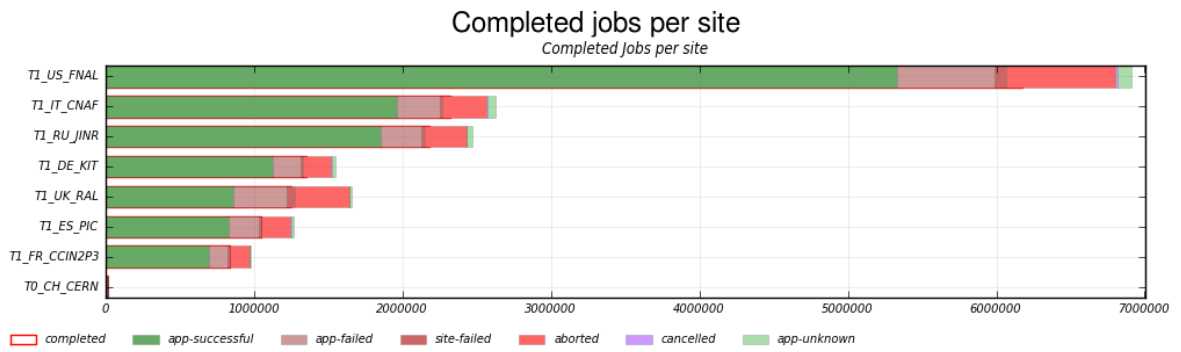
- Phedex Transfers Volume(CNAF → All)



- Phedex Transfers Volume (All → CNAF)



- Completed jobs status @ T1



- Site Readiness

T1_IT_CNAF																							
LifeStatus:	O																						
Site Readiness:	O	E	E	O	E	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Maintenance:	-																						
HammerCloud:	100%																						
SAM Availability:	49%	49%	49%	73%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Good T1 links from T0:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links from T1s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links from T2s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links to T1s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links to T2s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Active T1 links from T0:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Active T1 links from/to T1s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Active T1 links to T2s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Report made on 2018-07-22 22:38:05 (UTC)																							

T1_IT_CNAF																							
LifeStatus:	O																						
Site Readiness:	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	E	E	O	O	E	O
Maintenance:	-																						
HammerCloud:	100%																						
SAM Availability:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	43%	49%	100%	100%	45%	100%
Good T1 links from T0:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links from T1s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links from T2s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links to T1s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links to T2s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Active T1 links from T0:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Active T1 links from/to T1s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Active T1 links to T2s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Report made on 2018-07-22 22:38:05 (UTC)																							

T1_IT_CNAF																							
LifeStatus:	O																						
Site Readiness:	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Maintenance:	-																						
HammerCloud:	100%																						
SAM Availability:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Good T1 links from T0:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links from T1s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links from T2s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links to T1s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Good T1 links to T2s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Active T1 links from T0:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Active T1 links from/to T1s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Active T1 links to T2s:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Report made on 2018-09-01 22:38:05 (UTC)																							

Report:

- 02/07: scheduled downtime on tape library for upgrade of tape back-end server
- 03/07: unscheduled downtime on shared fs due to I/O error
- 05/07: transfer errors due to filesystem overload
- 03/08: problem with storm-cms, resolved after reboot of FE, BE and GPFS.

10 LHCb

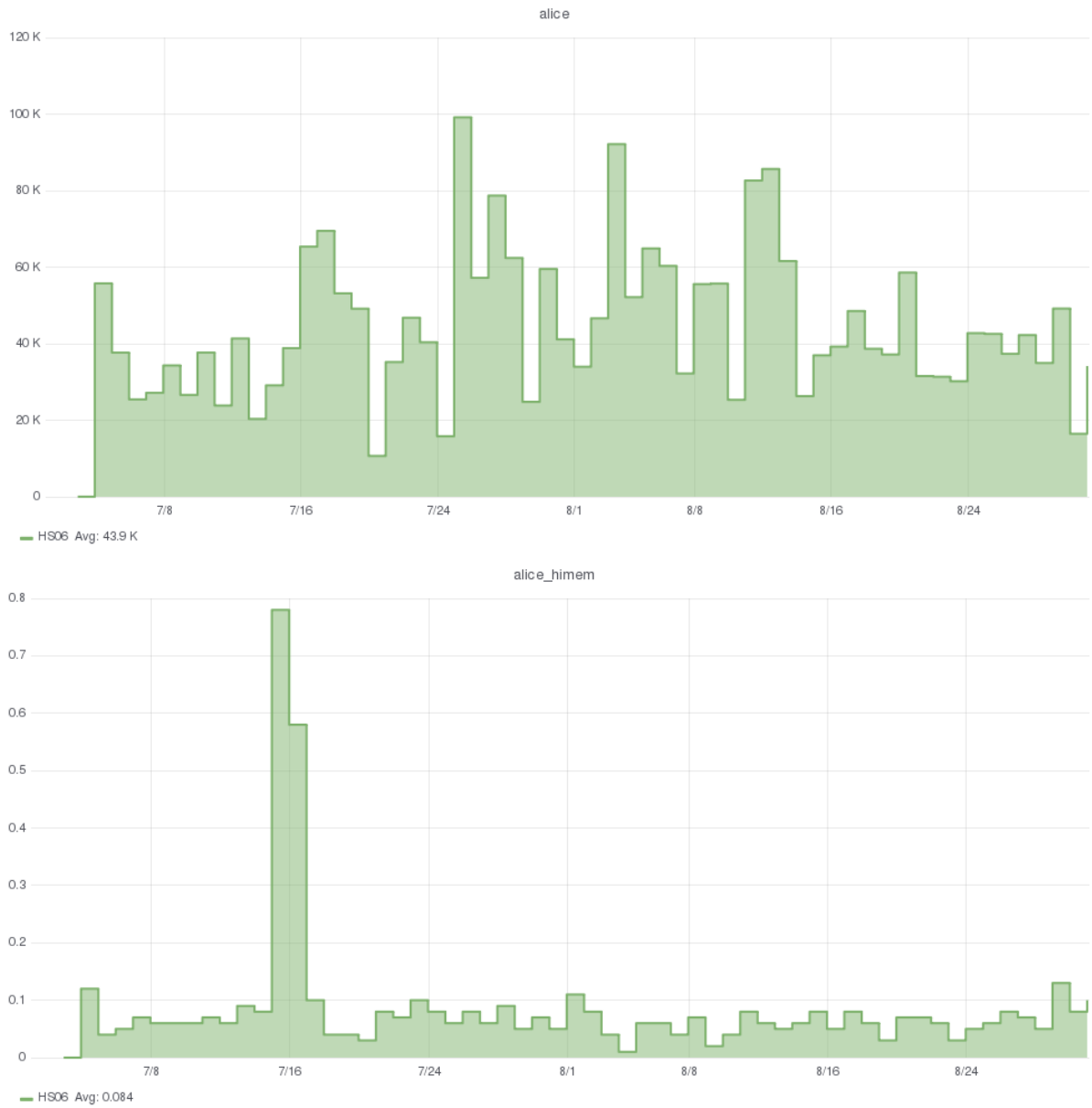
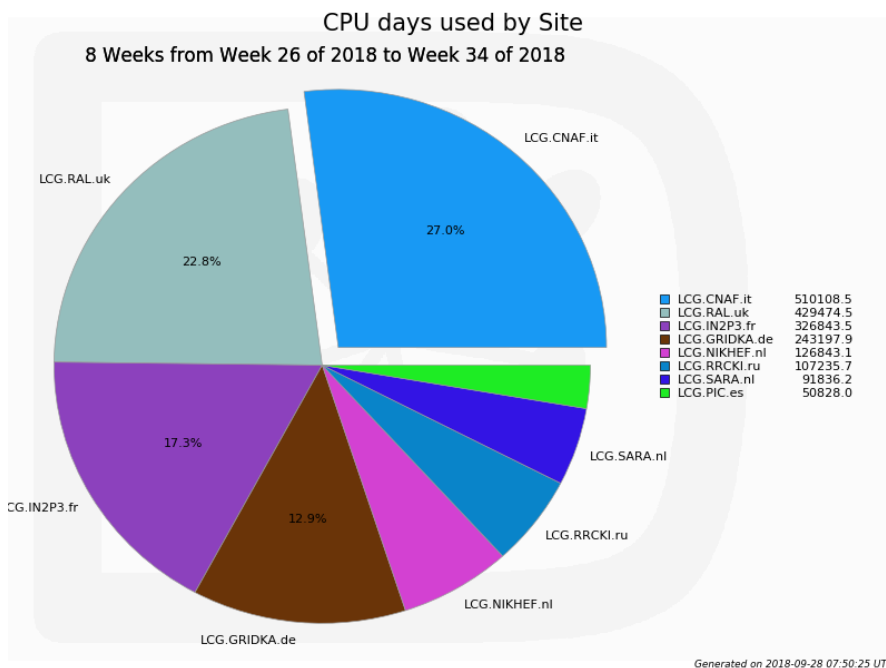
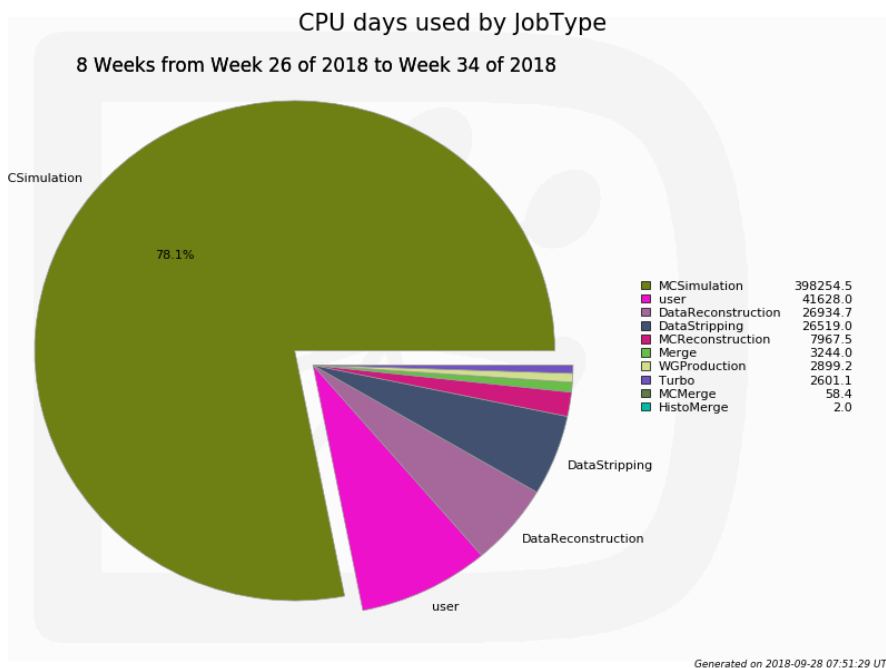
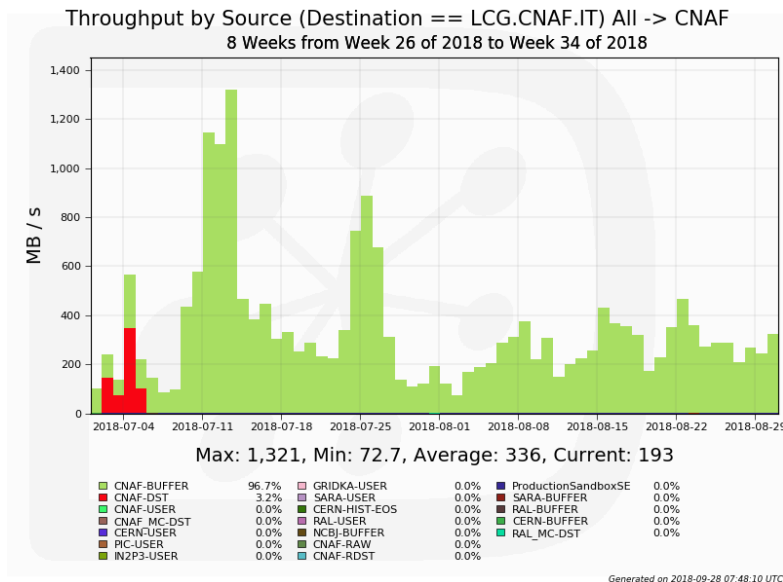
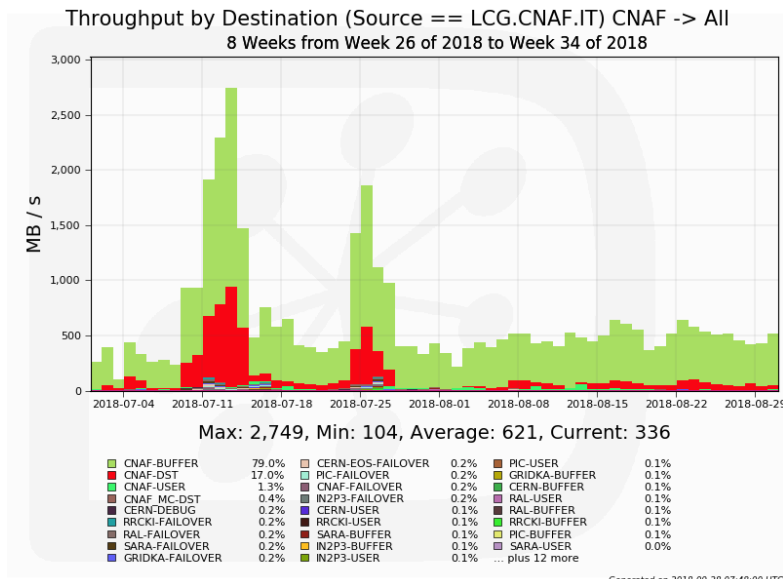


Figura 5: Number of jobs and CPU efficiency - LHCb + LHCb TIER2 (pledge 28080 HS06)





11 Esperimenti di Gruppo 2

- AMS-O2 - Number of jobs and CPU efficiency (pledge 12800 HS06)

Report:

- Problemi con `ls` e `del` nel passaggio da `lcg` a `gfal`, dovuti a limitazioni sul numero di file per directory per `gfal` e a opzioni mancanti nei

comandi lcg usati, oltre ad un bug di storm risolto con aggiornamento di settembre.

- **ARGO-YBJ - Number of jobs and CPU efficiency (pledge 200 HS06)**

Report:

- NTR

- **Auger - Number of jobs and CPU efficiency (pledge 3090 HS06)**

Open Actions:

- Job in running per tempi troppo lunghi con runtime di 7 gg, con durata media di 18h e scarto quadratico 27h, proposta di portare limite runtime a 60h.
- In attesa di risultati test per migrazione a CentOS7 dopo accesso garantito alle code.

- **Borexino - Number of jobs and CPU efficiency (pledge 1500 HS06)**

Report:

- Requirements software acquisiti in vista di migrazione a CentOS7, proposta creazione immagine SL6 con singularity fornita di tutto il necessario; proceduto con alcuni test, in attesa di feedback più dettagliati.
- Overpledge terminato in agosto.

- **COSMO_WNEXT - Number of jobs and CPU efficiency (pledge 2500 HS06)**

Report:

- Trasferimento dati (circa 400TB, da 2 utenti) da Cineca a CNAF (disco).
- Problemi con job trasferimento a Cineca, dump file usati male, risolto.
- ~ 144 TB già trasferiti (48 TB Baldi + ~ 96 TB Carbone).
- Richiesta di migrare su tape parte di dati già trasferiti su disco (Baldi) come da accordi.

- **CTA - Number of jobs and CPU efficiency (pledge 4000 HS06)**

Report:

- NTR

- **CUORE - Pledge 1400 HS06**

Open Actions:

- Problemi con trasferimento dati (13 TB) via dataclient, workaround provvisorio con rsync, necessità di passaggio a gridftp ma problemi con certificati (ulteriori sviluppi?).

Report:

- NTR

- **CUPID-0 - Number of jobs and CPU efficiency (pledge 100 HS06)**

Open Actions:

- Estensione autorizzazione account cremonesi (CUORE) alle code/aree di CUPID (settembre).

Report:

- NTR

- **DarkSide-50 - Pledge 4000 HS06**

Open Actions:

- NTR

Report:

- Problemi con certificati/permessi e dimensione file in trasferimento dati, risolti (settembre).

- **Fermi-LAT - Number of jobs and CPU efficiency (pledge 900 HS06)**

Report:

- NTR

- **Gerda - Pledge 40 HS06**

Report:

- NTR

- **ICARUS - Pledge 0 HS06**

Report:

- Problemi accesso a macchina Cloud@CNAF per test CentOS7, risolti.

- **Juno - Pledge 1000 HS06**

Open Actions:

- NONE

Report:

- Problemi con certificati e quota di file nella home ui-tier1, risolti.

- **LHAASO - Number of jobs and CPU efficiency (pledge 300 HS06)**

Open Actions:

- NONE

Report:

- NTR

- **MAGIC - Number of jobs and CPU efficiency (pledge 296 HS06)**

Report:

- NTR

- **OPERA - Number of jobs and CPU efficiency (pledge 200 HS06)**

Report:

- NTR

- **PAMELA - Number of jobs and CPU efficiency (pledge 650 HS06)**

Report:

- NTR

- **Virgo - Number of jobs and CPU efficiency (pledge 30000 HS06)**

Open Actions:

- Disponibilità di uno stratum 1 pubblico a cui accedere col proprio laptop.
- Verificare col CERN la distribuzione delle chiavi.
- Verificare possibilità del cambiamento del nome del repository.
- Richiesta per monitoraggio del data transfer in maniera permanente o quasi permanente, tipo iperf tool.
- Cancellazione dati illeggibili dopo allagamento (?).

Report:

- Problemi con quota occupata su filesystem interno, spazio liberato su filesystem esterno.
- Correzione permessi di cartelle settati a 777 (portati a 750) secondo policy di sicurezza.

• **XENON - Number of jobs and CPU efficiency (pledge 700 HS06)**

Report:

- NTR

12 Altri esperimenti

- **AGATA - Pledge 0 HS06**

Report:

Minute skype-call 11/10:

- Macchina con mac address fisso su cui installare la licenza.
- Specifiche macchina:
 - * SO: Linux
 - * accesso interattivo e grafico (x2go, per CAD)
 - * almeno una GPU NVIDIA (aumenterebbe la velocità di calcolo fino a 7 volte)
 - * compilatore CUDA ultima versione dovrebbe andare bene
 - * RAM: 64 GB
 - * Disk: 1-2 TB
 - * mac address fisso per legarci la licenza
- due o più utenti
- previsto un anno di lavoro e poi non dovrebbe più essere necessario
- Licenza non compatibile con cloud, da capire con macchine virtuali.

- **BELLEII - Number of jobs and CPU efficiency (pledge 10000 HS06)**

Report:

- Fatte sessioni di Data Challenge andate molto bene saturando anche il link Internazionale Tokyo-Londra con un throughput superiore ai 19 Gbps

- **CDF - Number of jobs and CPU efficiency (pledge 1300 HS06)**

Report:

- NTR.

- **COMPASS - Pledge 0 HS06**

Report:

- NTR

- **COSINUS - Number of jobs and CPU efficiency (pledge 0 HS06)**

Report:

- NTR

Open Action:

- NTR

• **CSES-Limadou - Pledge 400 HS06**

Report:

- NTR

Open Action:

- NTR

• **DAMPE - Pledge 3000 HS06**

Report:

- NTR

Open Action:

- Richiesta di installazione di DB mysql su ui-dampe.

• **FAMU - Pledge 250 HS06**

Report:

- NTR

• **FAZIA - Pledge 0 HS06**

Report:

- Le macchine sono nuovamente usate dall'esperimento

• **Gruppi Fisica Teorica - Number of jobs and CPU efficiency**

Report:

- NTR

• **KLOE - Pledge 0 HS06**

Report:

- NTR

Open Action:

- In corso organizzazione di una phone per ridiscutere del sistema di trasferimento che vogliono utilizzare

- **KM3Net - Pledge 0 HS06**

- Open Actions:**

- è stata installata una user interface: ui-km3.cr.cnaf.infn.it per l'installazione di un servizio web per supporto all'integrazione dell'hardware:
 - * high availability
 - * poche risorse di calcolo (CPU/ RAM 4 core/8 GB)
 - * server LAMP (linux, apache, mysql/mariadb, php)
 - Operazioni mancanti:
 - * autenticazione al servizio web tramite IAM, esteso a INFN, CNRS, NIKHEF ed eventualmente altri enti di ricerca europei)
 - * Esigenza ancora aperta, ma il codice non è ancora pronto da parte dell'esperimento

- Report:**

- NTR

- **LHCf - Number of jobs and CPU efficiency (pledge 4000 HS06)**

- Report:**

- NTR

- **NEWS - Pledge 0 HS06**

- Report:**

- Report phone:
 - * Emulsioni nucleari prodotte in italia e giappone
 - * storage: richiesta 60TB disk + 60TB tape
 - * cpu: 200HS
 - * 3.5GB RAM ok per simulazione, forse pochi per analisi
 - * SL6/7 OK
 - * proposto CVMFS per software
 - * FLUKA+Geant simulazione
 - * ROOT per analisi, pyhton
 - * i job devono accedere ai 60 TB di dati su disco, quindi bisogna montare sui wn questi 60 TB con accesso POSIX

- * configurare area storage e tape per accedere sia via WebDav con certificato sia con gridftp con e senza certificato (una soluzione potrebbe essere dataclient)
- * Mandare istruzioni per accesso al CNAF e creazione account bastion

- **NEWCHIM - Pledge 0 HS06**

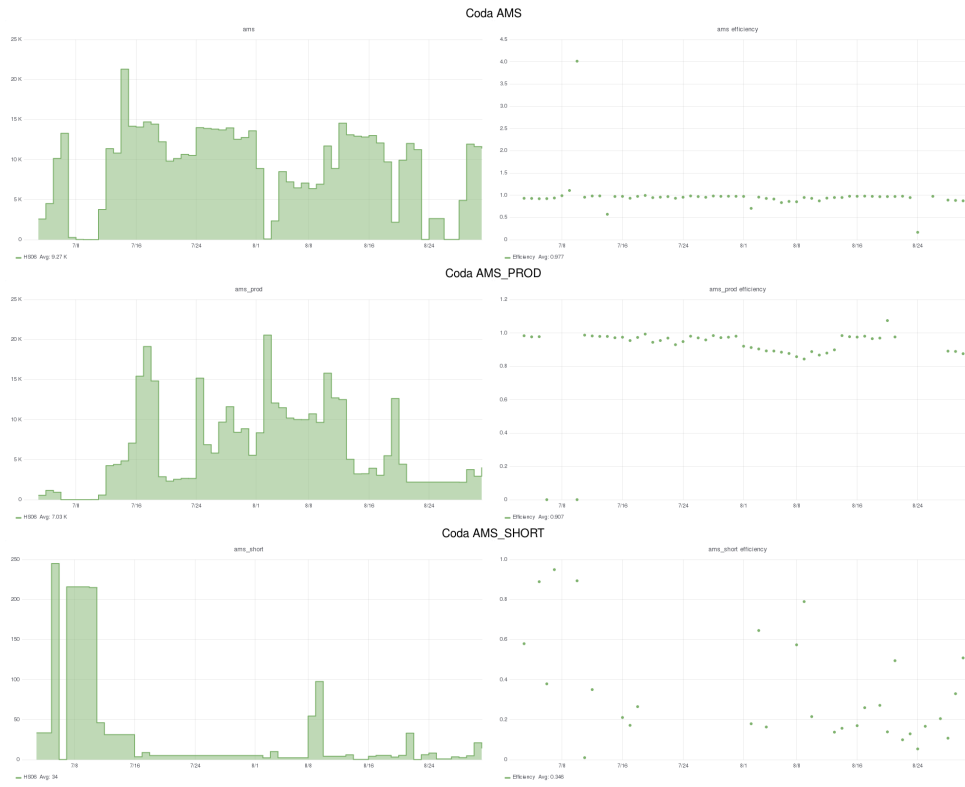
Report:

- Problemi con dataclient dovuti a una versione vecchia utilizzata dall'utente, da verificare se riesce a fare le copie

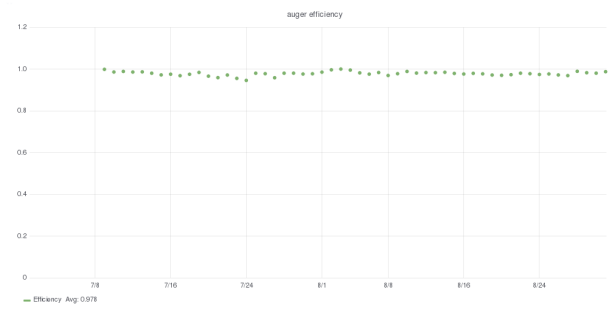
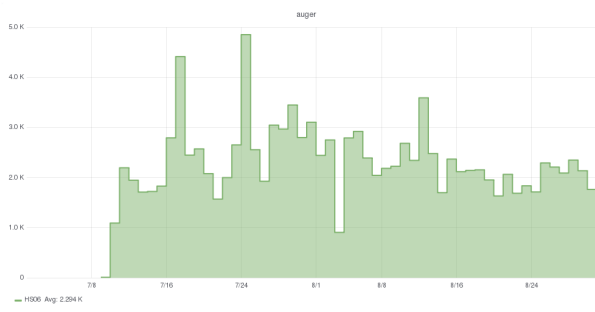
- **PADME - Pledge 0 HS06**

Report:

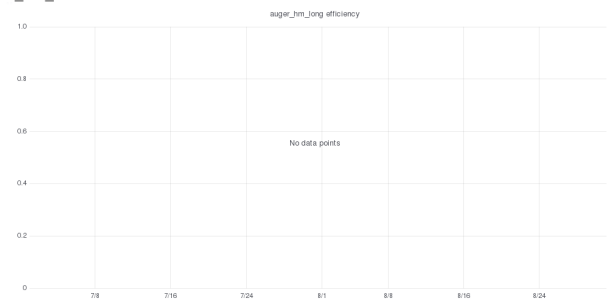
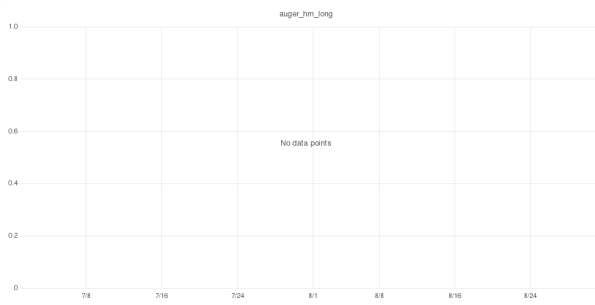
- NTR



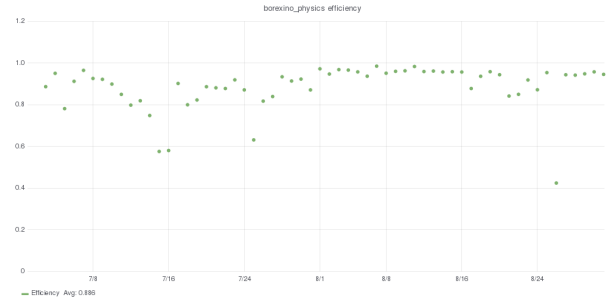
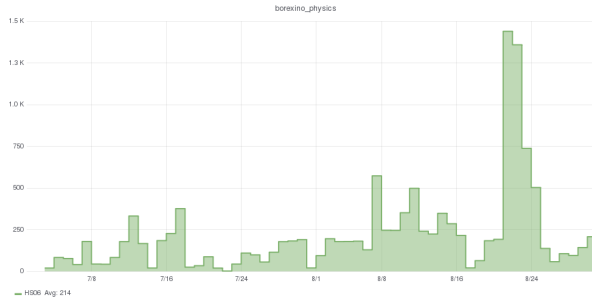
Coda AUGER



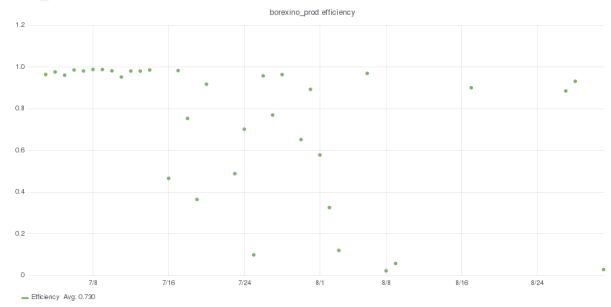
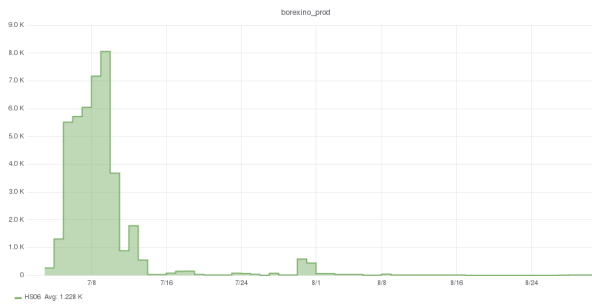
Coda AUGER_HM_LONG



Coda BOREXINO_PHYSICS



Coda BOREXINO_PROD



Coda BOREXINO_RUN

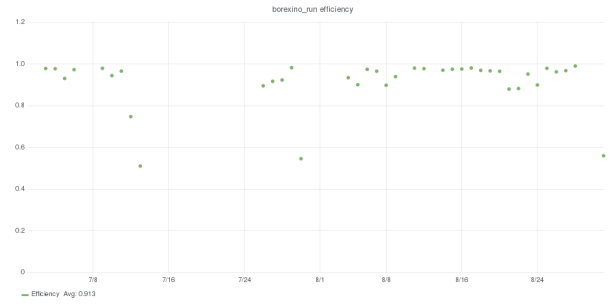
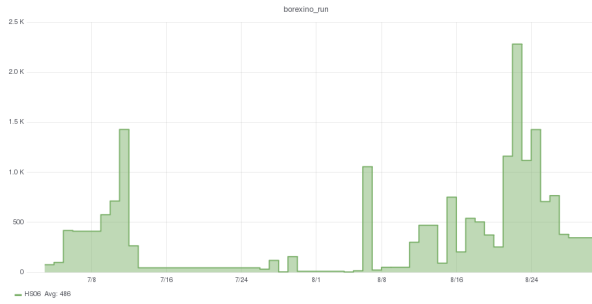




Figure 1

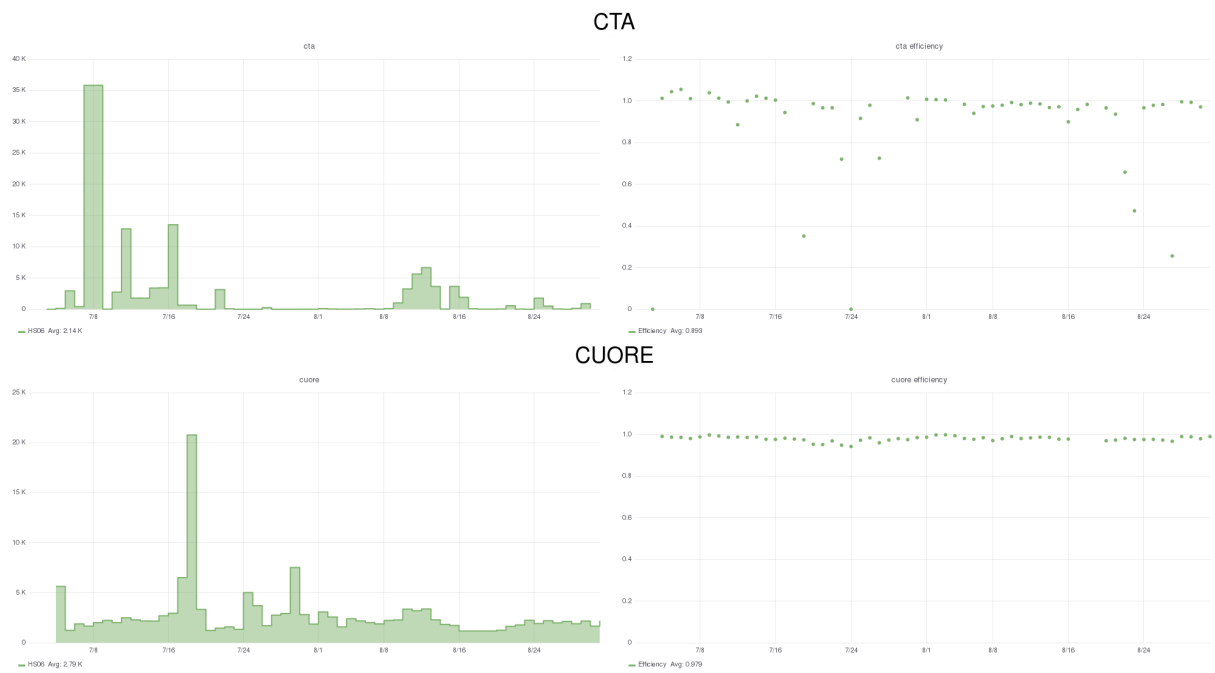


Figure 2

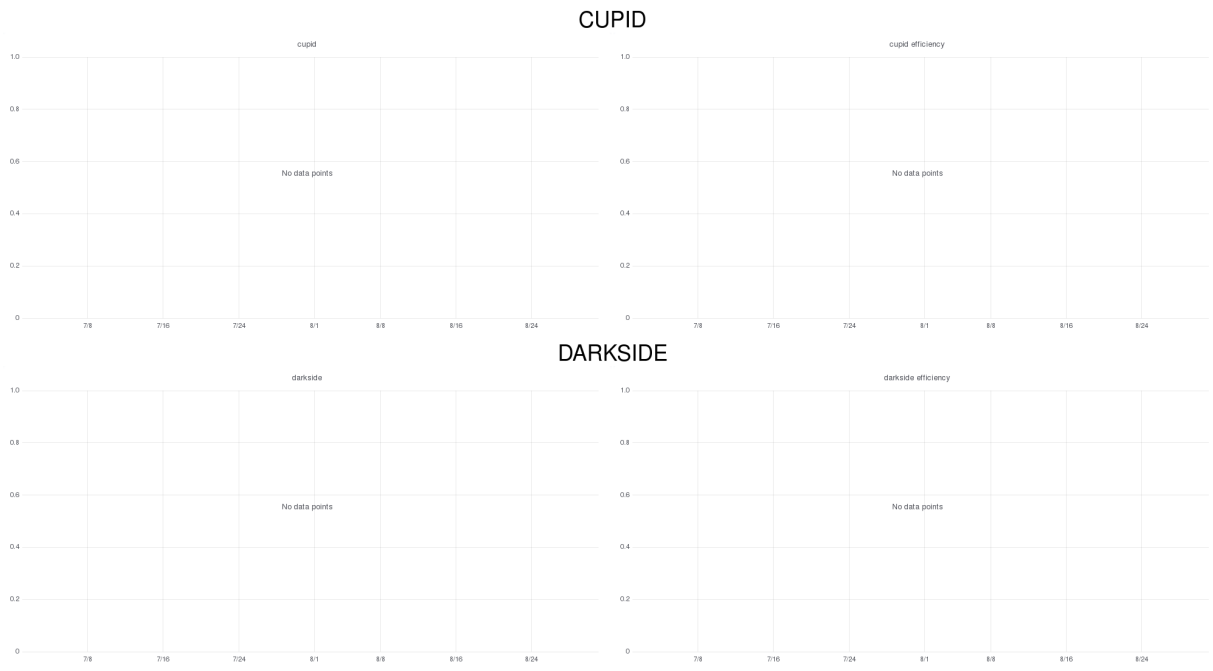


Figure 3

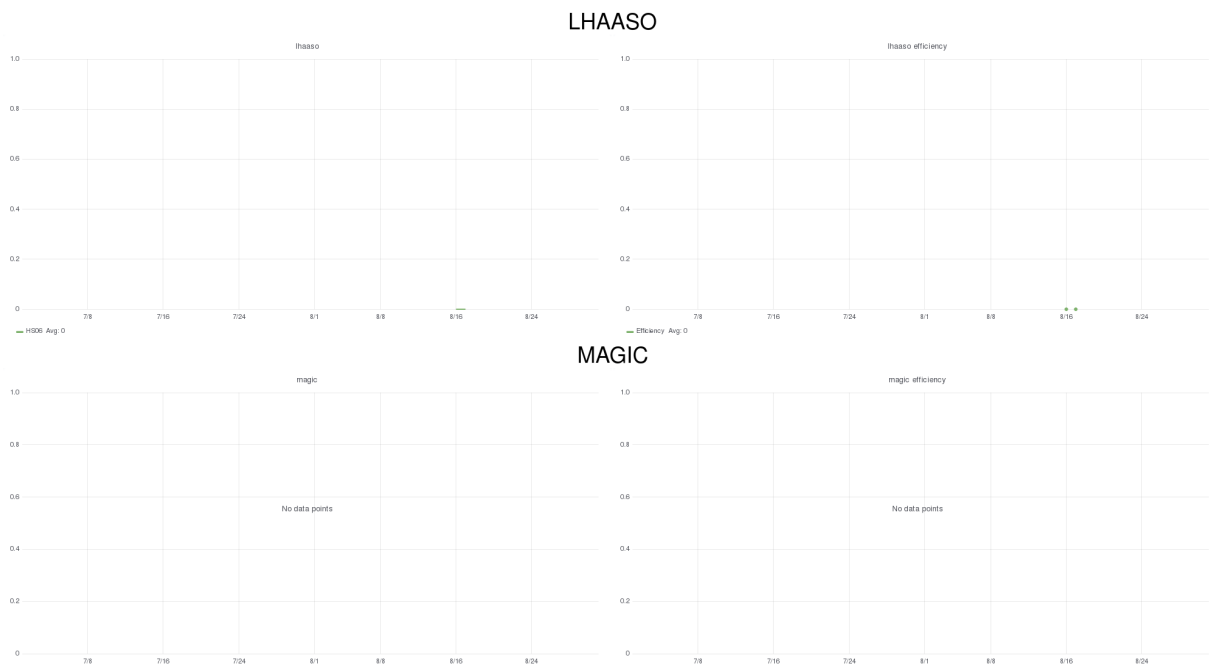


Figure 4

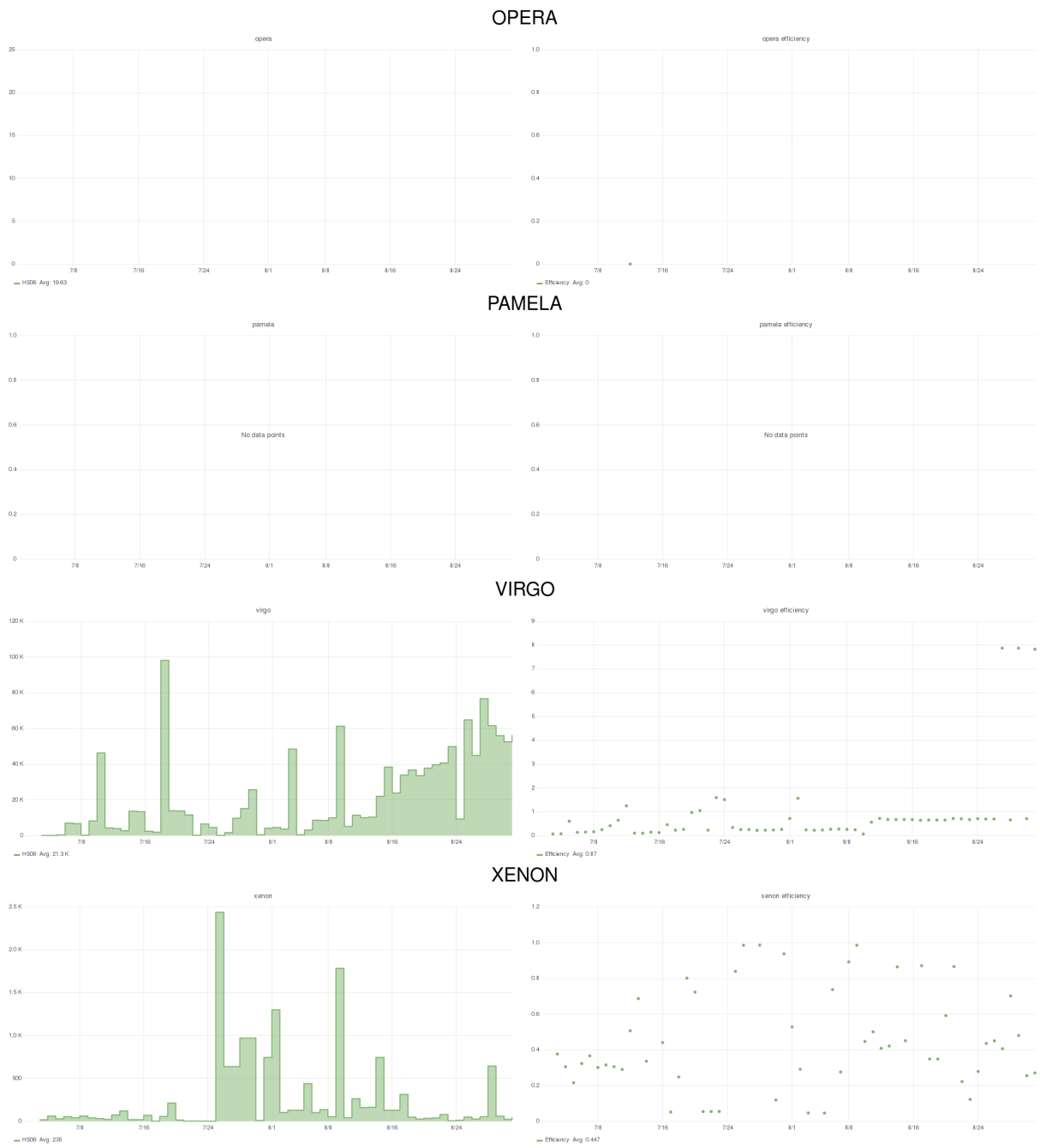


Figure 5

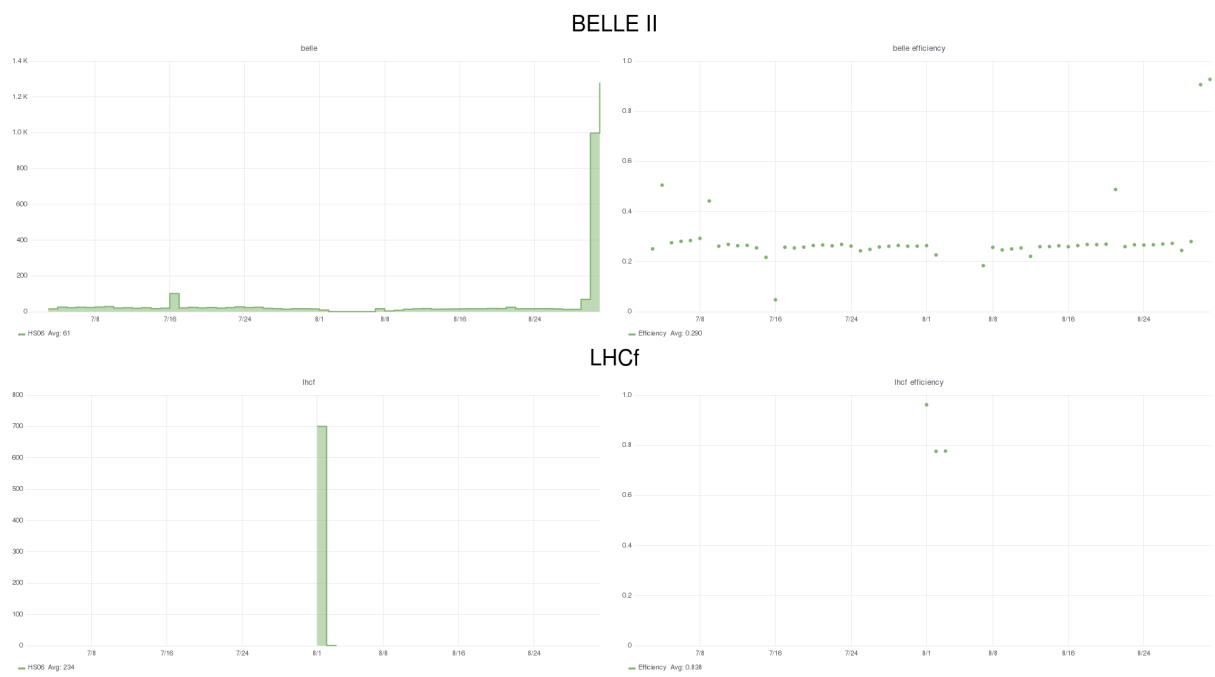


Figure 6