

alexrg

Resource Review Meeting (2024 Q2)

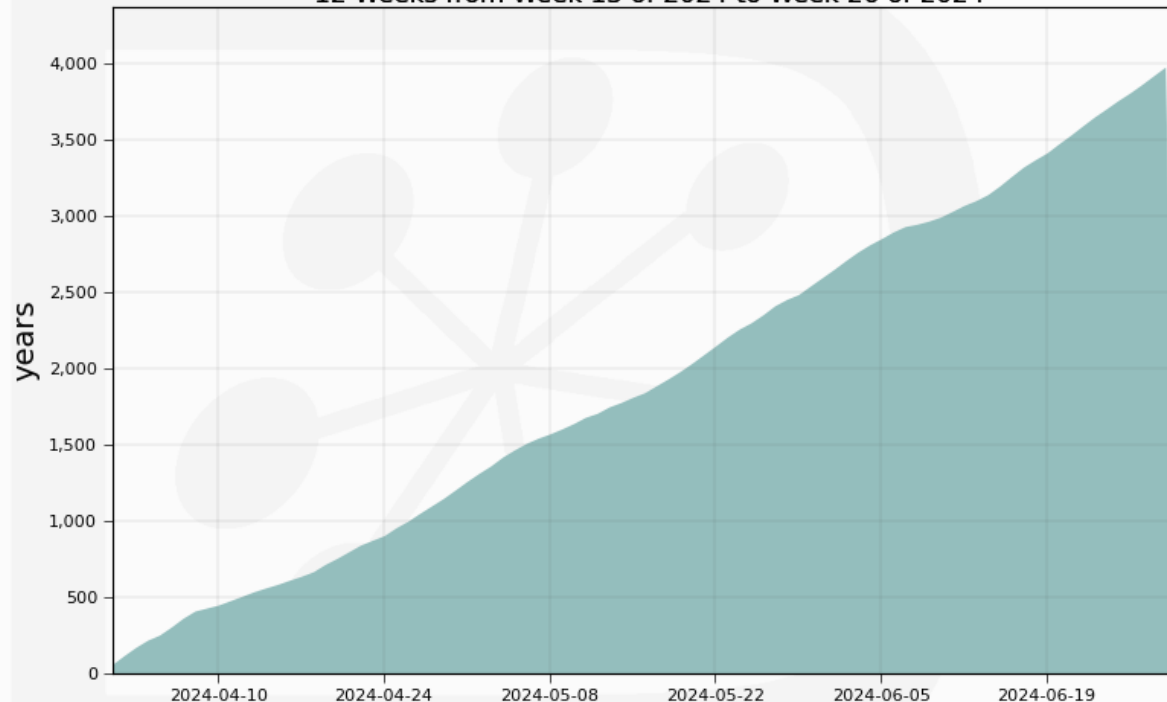
Highlights

- New set of LHCb ETF tests is now used in prod
 - Finally, we have storage tests
- Migration to EL[89]
 - Caused ECHO issues due to xrootd crashes on paged read requests
- Minor transfer issues
 - Xrootd bug causing transfer failures to CNAF
 - Network issue between RALPP and RAL

Computing resources

CPU used by Site

12 Weeks from Week 13 of 2024 to Week 26 of 2024



Max: 3,969, Min: 2.40, Average: 1,887, Current: 2.40

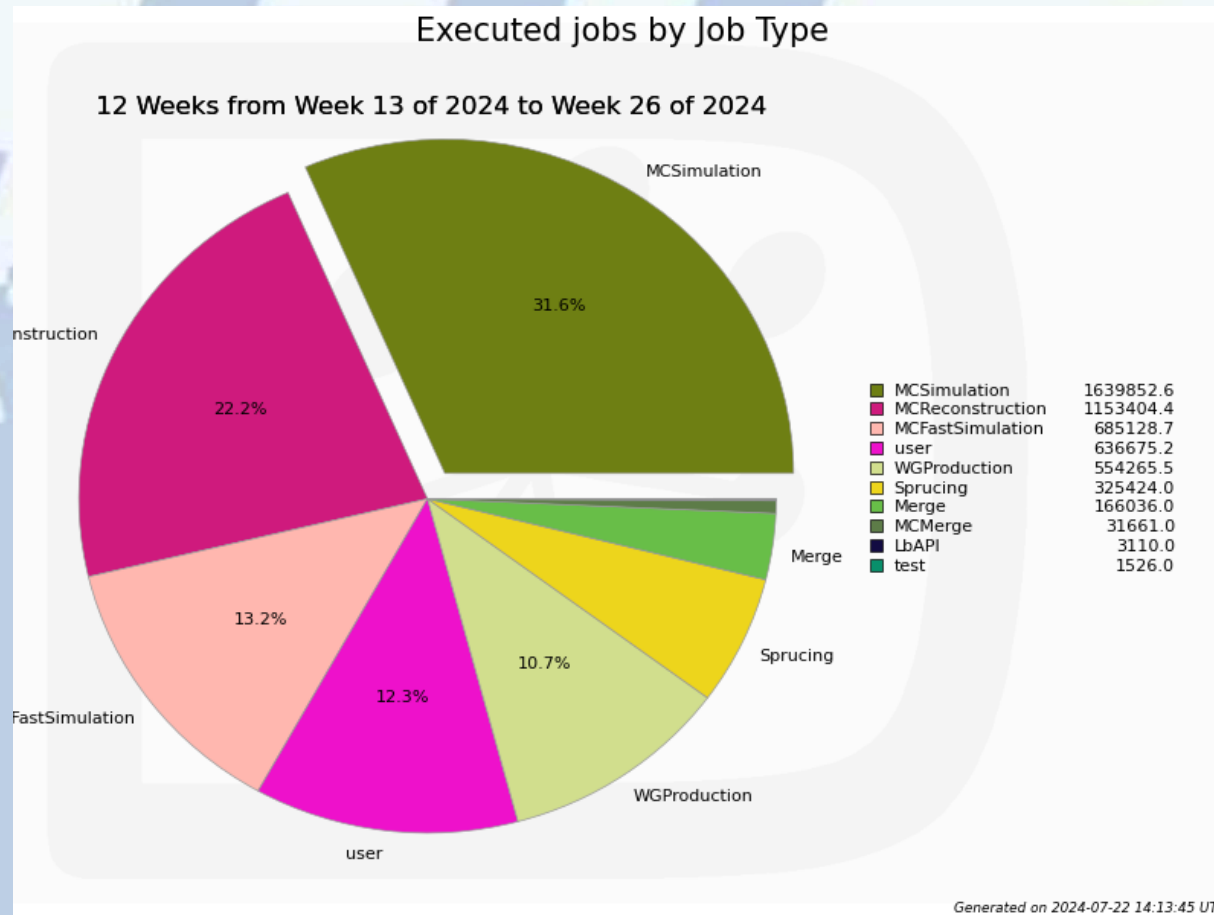
■ LCG.RAL.uk 3969.3

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- Normalized values from LHCb can not be trusted
- Using raw cputime, we have:
 $3969 * 365 * 12.7 / 91 = 202179.1\text{HS23}$
- Pledge is 180 (140)kHS23 < 202kHS23

Computing resources

LHCb was running Mostly MC jobs, with increased presence of Data Processing as well

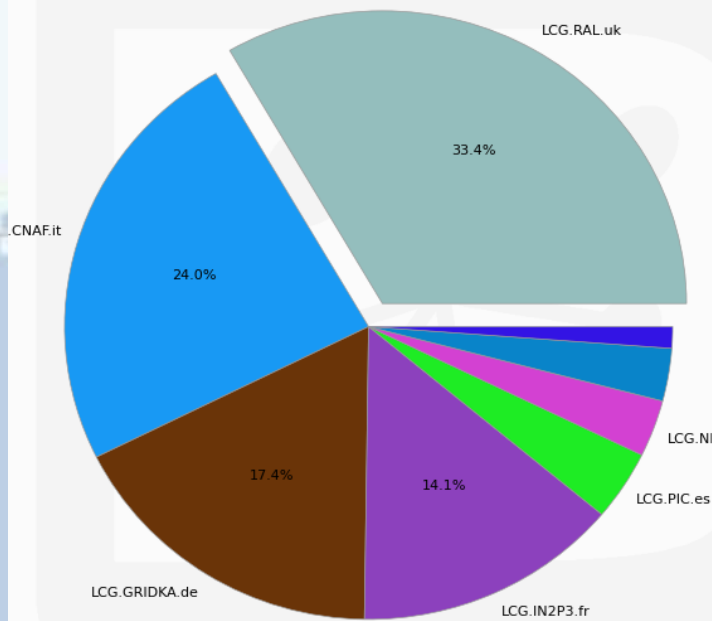


Comparison

RAL provided the most computing resources for LHCb among T1s (both in terms of Time [CPU/wall] and Number of Jobs), around 1/3 of all T1 contributions

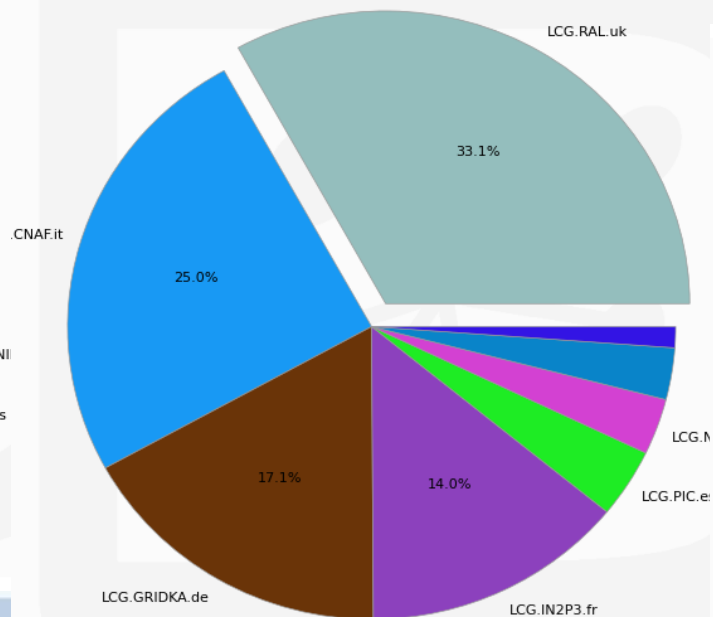
CPU time consumed by site

12 Weeks from Week 13 of 2024 to Week 26 of 2024



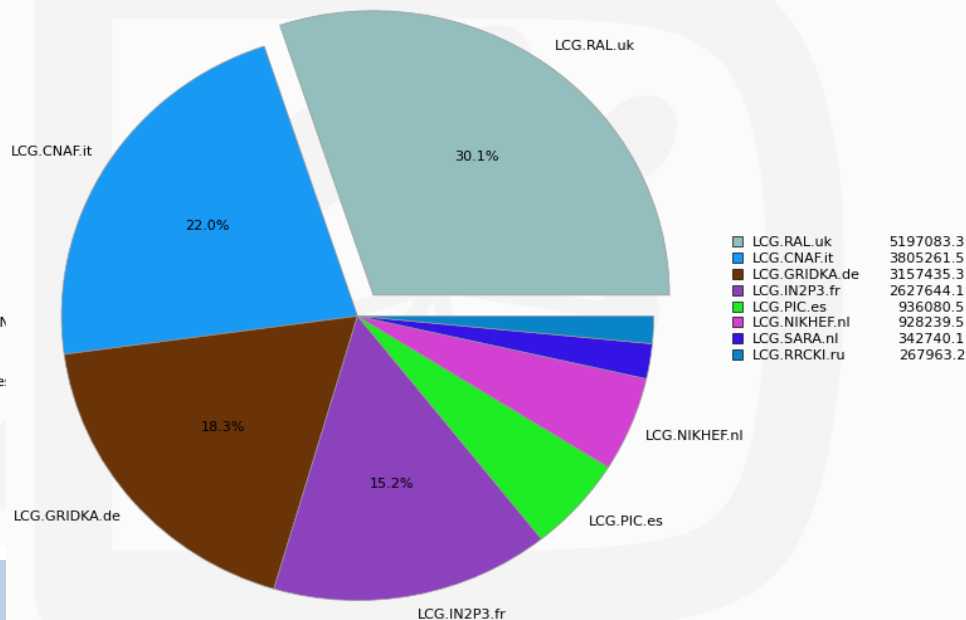
Wall time consumed by site

12 Weeks from Week 13 of 2024 to Week 26 of 2024



Executed jobs by Site

12 Weeks from Week 13 of 2024 to Week 26 of 2024



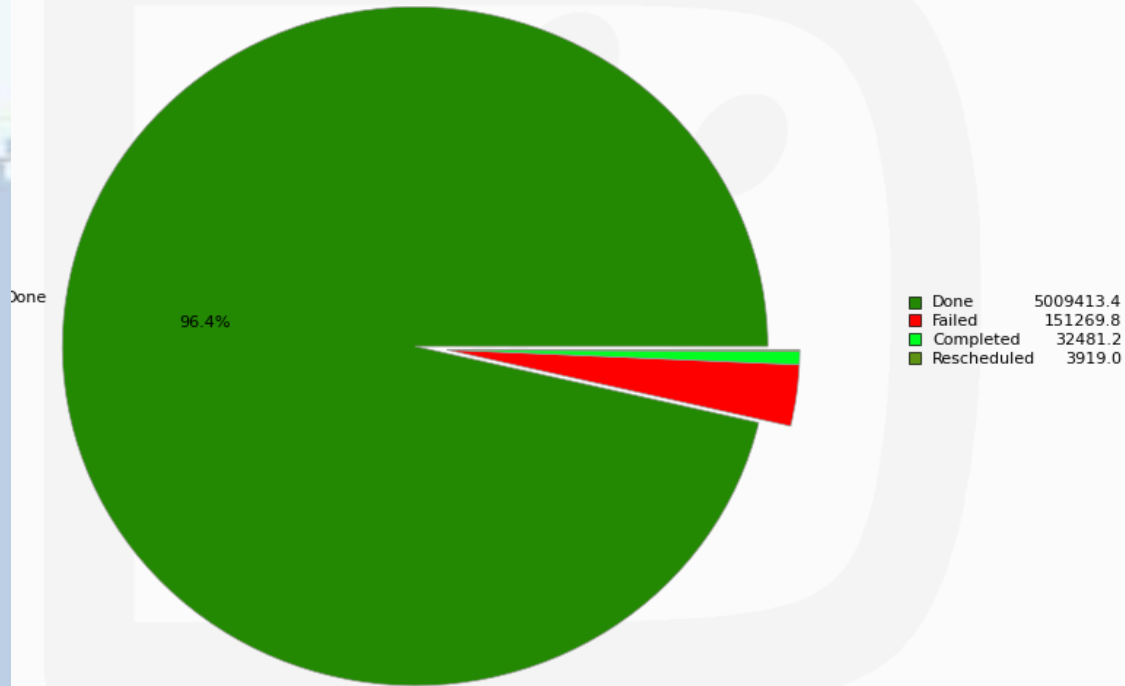
LCG.RAL.uk	5197083.3
LCG.CNAF.it	3805261.5
LCG.GRIDKA.de	3157435.3
LCG.IN2P3.fr	2627644.1
LCG.PIC.es	936080.5
LCG.NIKHEF.nl	928239.5
LCG.SARA.nl	342740.1
LCG.RRCKI.ru	267963.2

Comparison

- RAL Job failure rate is less than the one from other T1s

RAL jobs by Status

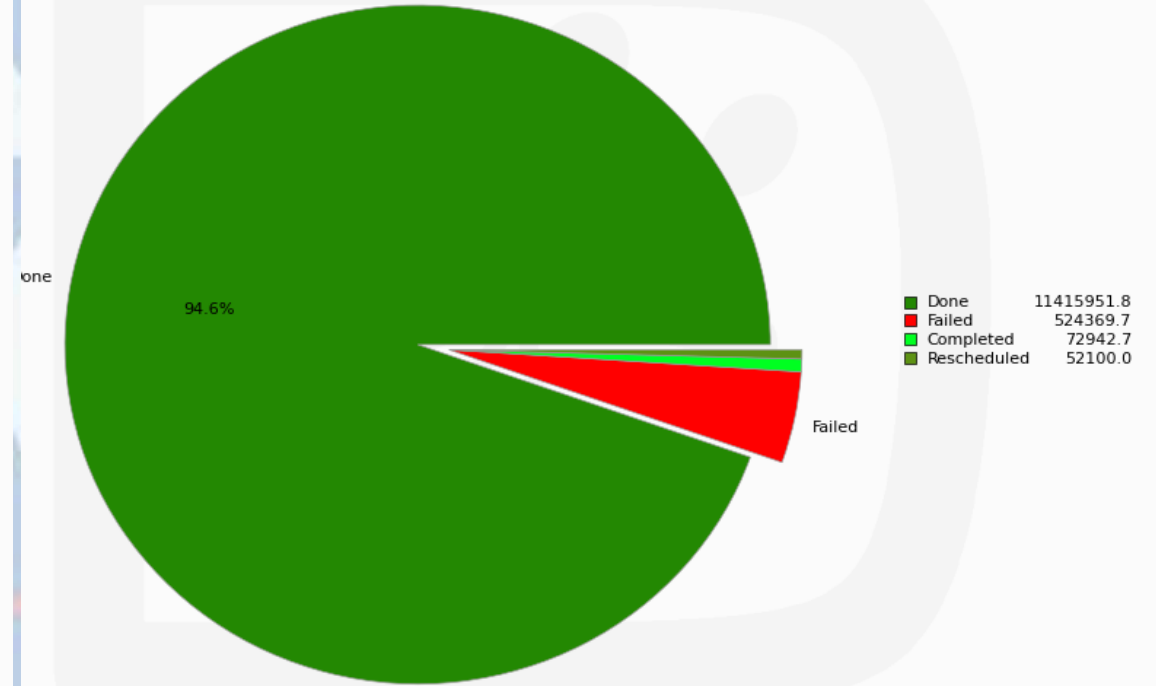
12 Weeks from Week 13 of 2024 to Week 26 of 2024



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Tier 1s except RAL jobs by Status

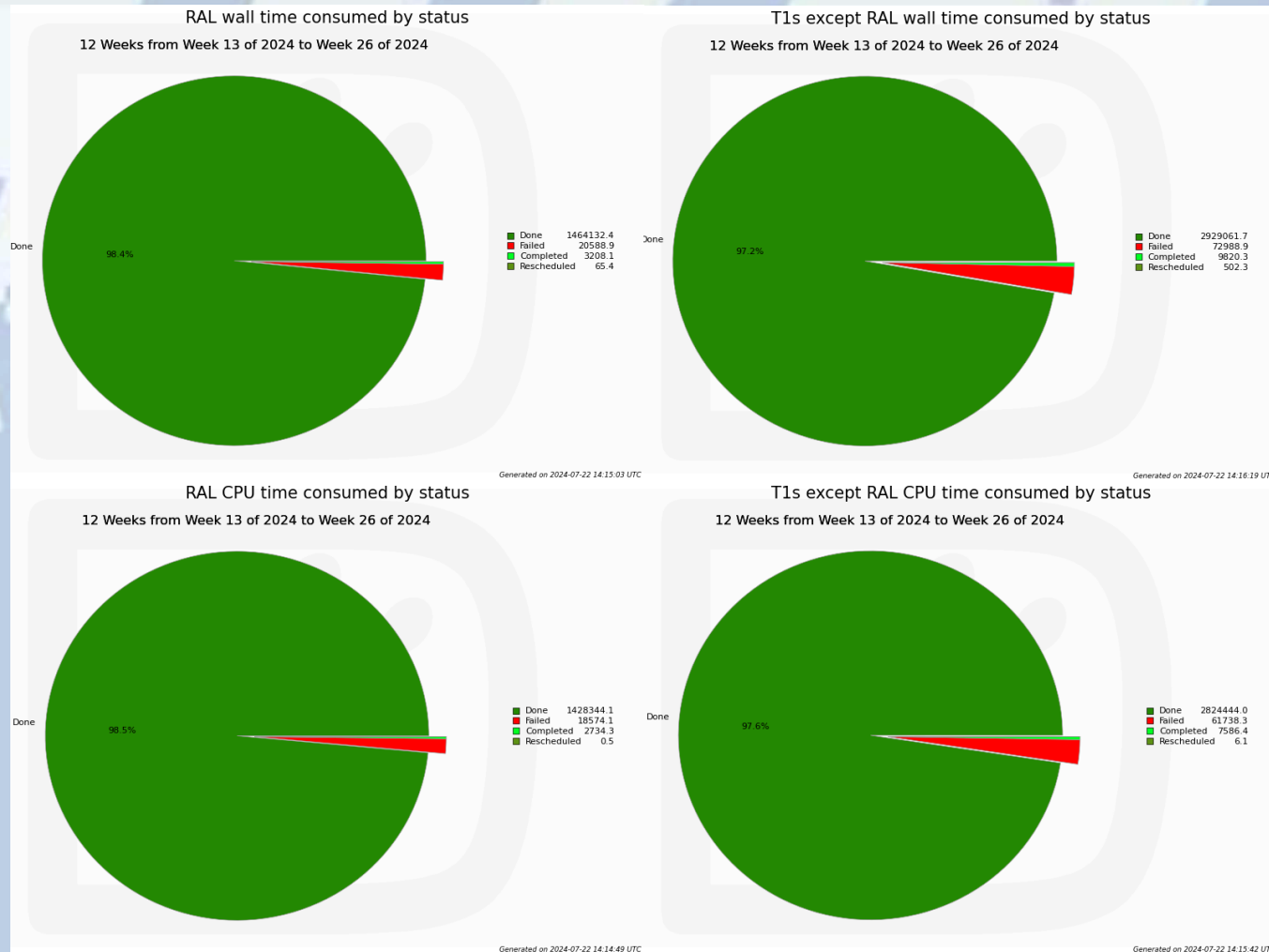
12 Weeks from Week 13 of 2024 to Week 26 of 2024



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Comparison

The same is true for “wasted” CPU Time/walltime

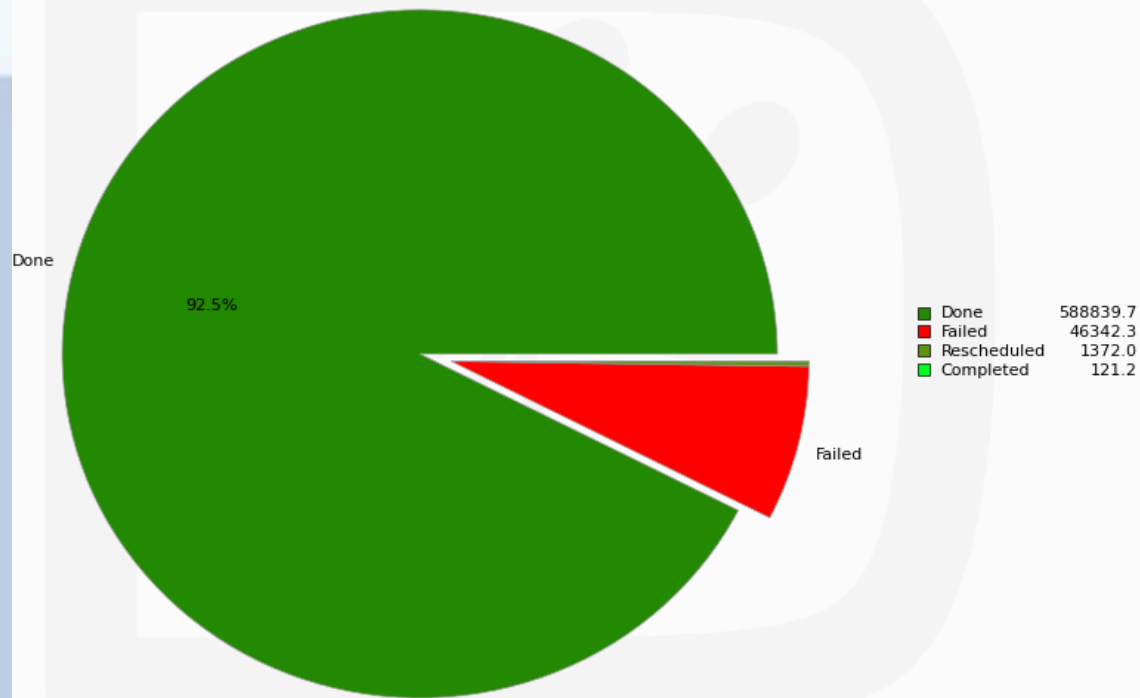


Comparison (User Jobs)

- Among all job types, user jobs have one of the highest failure rates
- For RAL it is lower than for the other T1s

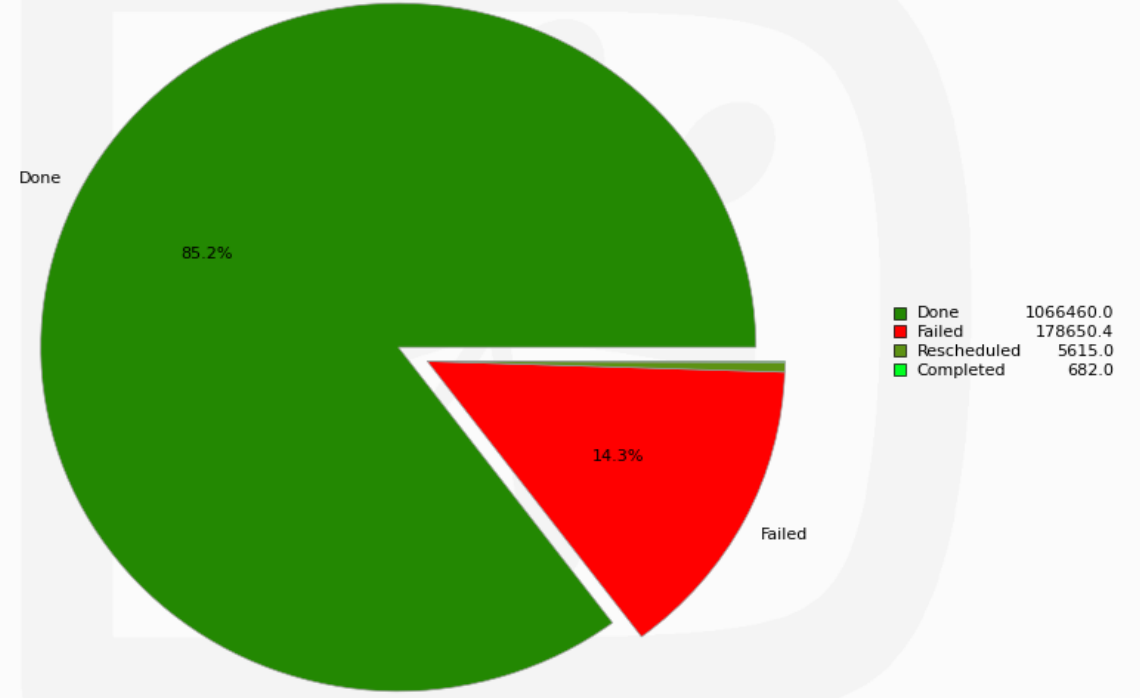
user jobs at LCG.RAL.uk

12 Weeks from Week 13 of 2024 to Week 26 of 2024



user jobs at All T1s except LCG.RAL.uk

12 Weeks from Week 13 of 2024 to Week 26 of 2024

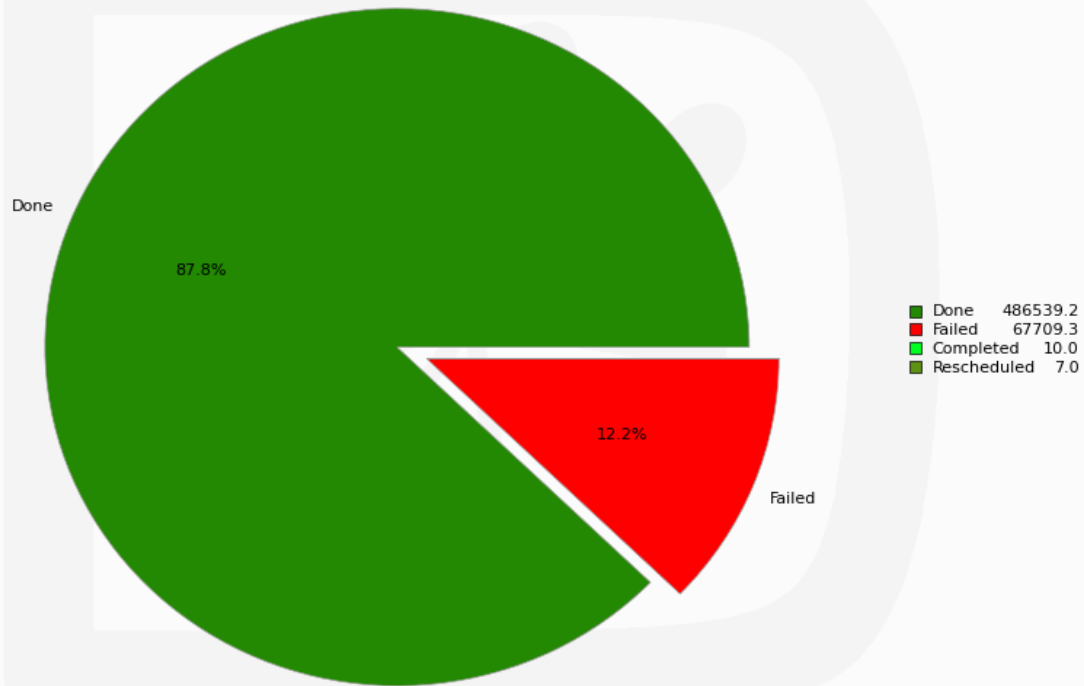


Comparison (WG Prod)

- Same is true for WG Production jobs

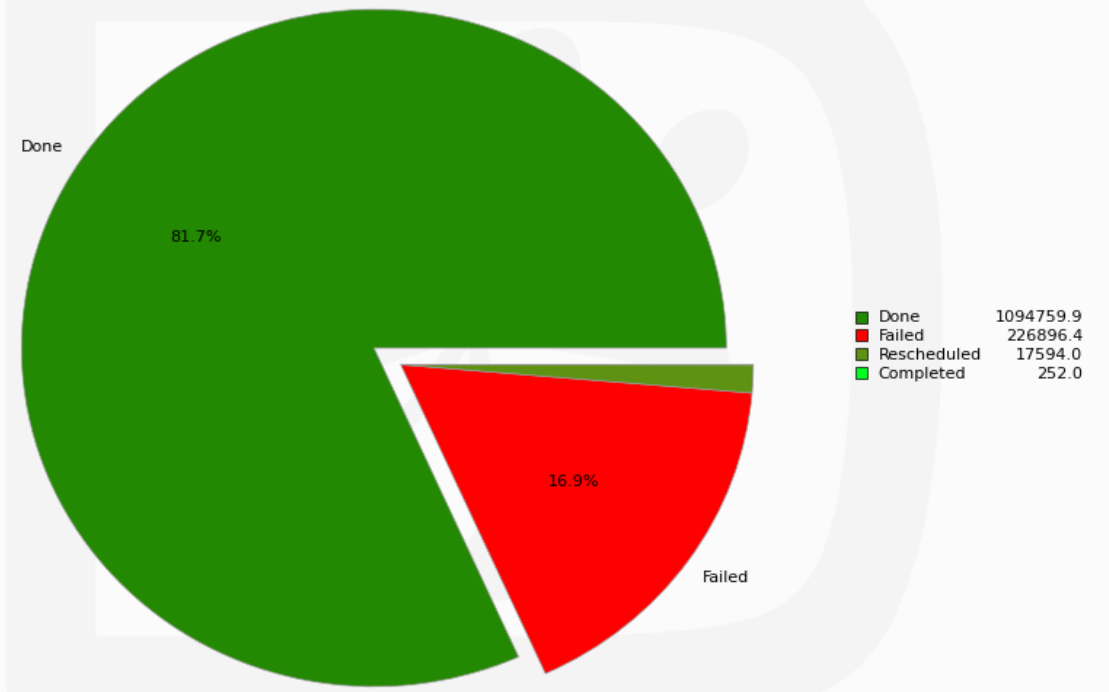
WGProduction jobs at LCG.RAL.uk

12 Weeks from Week 13 of 2024 to Week 26 of 2024



WGProduction jobs at All T1s except LCG.RAL.uk

12 Weeks from Week 13 of 2024 to Week 26 of 2024

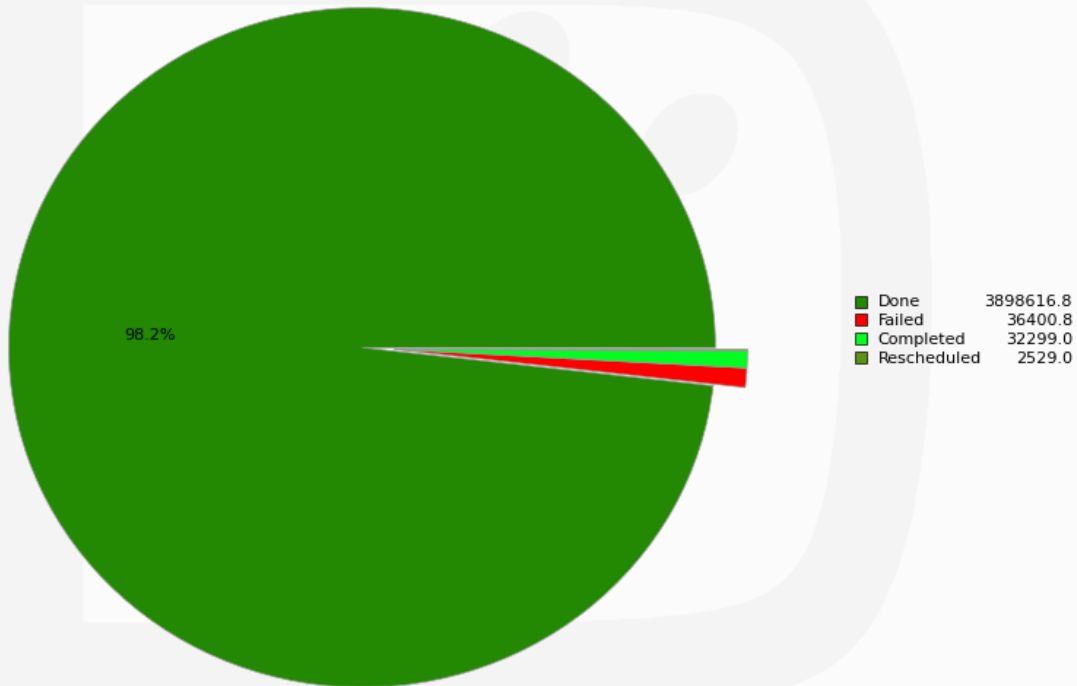


Comparison (Sim+data proc)

- For prod jobs failure rate is negligible

Prod jobs at LCG.RAL.uk

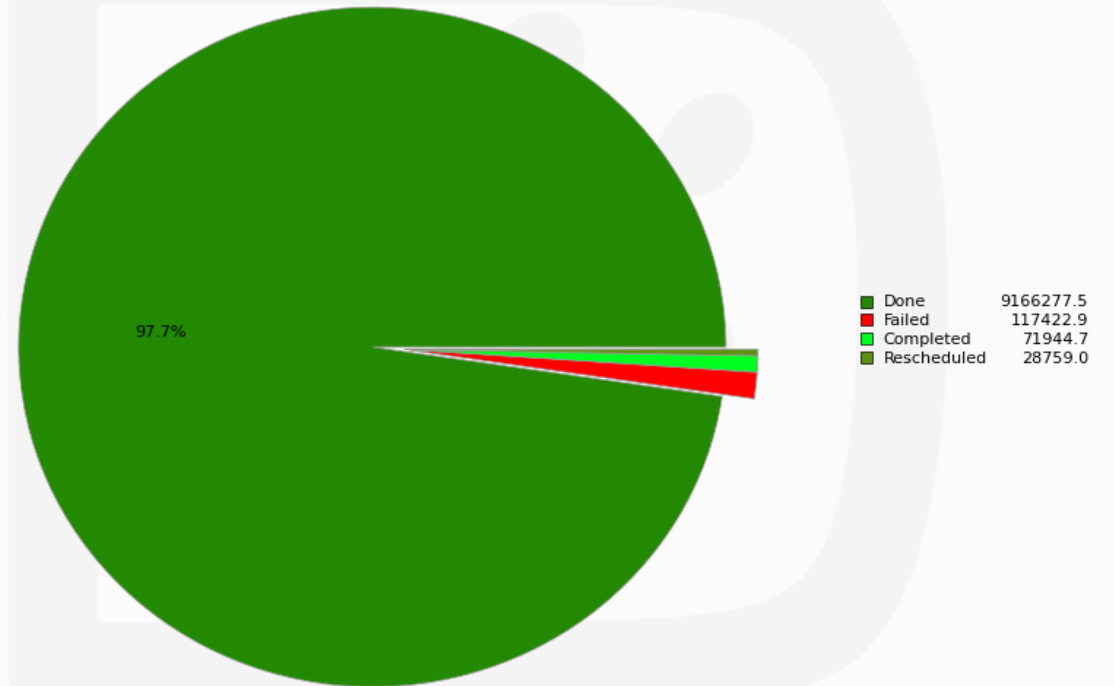
12 Weeks from Week 13 of 2024 to Week 26 of 2024



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Prod jobs at All T1s except LCG.RAL.uk

12 Weeks from Week 13 of 2024 to Week 26 of 2024



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Efficiency

- Good efficiency for all but test jobs

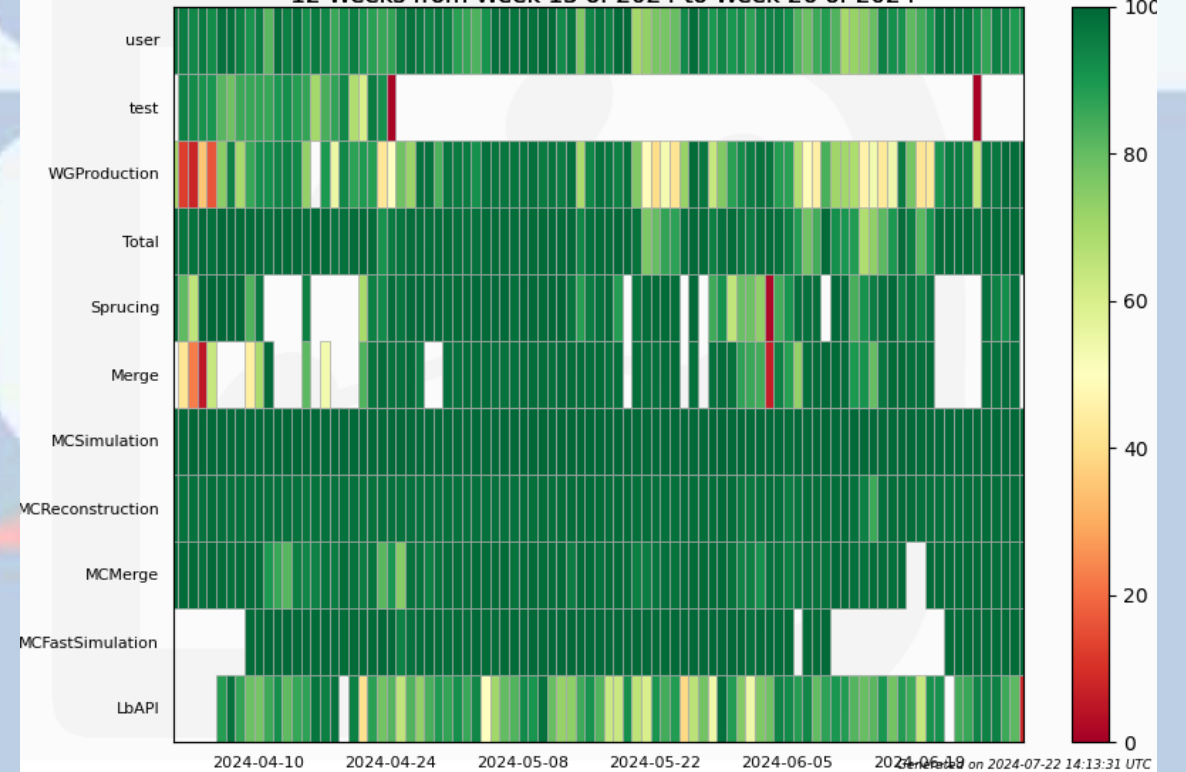
CPU efficiency (RAL)

12 Weeks from Week 13 of 2024 to Week 26 of 2024



CPU efficiency (T1s except RAL)

12 Weeks from Week 13 of 2024 to Week 26 of 2024

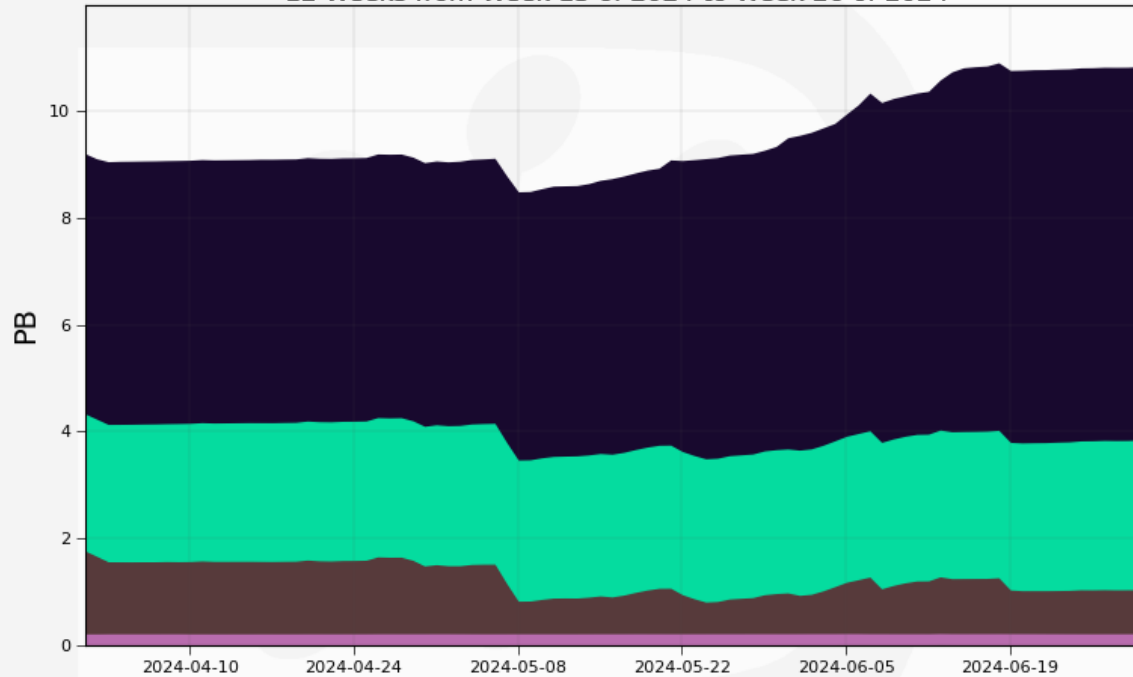


Disk Usage

- Increased usage due to Data Taking
- Discrepancy with CRIC, but the other way around..
 - CRIC's value < DIRAC's value
 - Does CRIC reports one TB as a Billion of KiB?

PFN space usage by StorageElement

12 Weeks from Week 13 of 2024 to Week 26 of 2024



Max: 10.9, Min: 8.48, Average: 9.50, Current: **10.8**

■ RAL-DST 58.9% ■ RAL-BUFFER 10.8% ■ RAL-FAILOVER 0.0%
■ RAL_MC-DST 28.1% ■ RAL-USER 2.2%

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Disk Space - TBytes

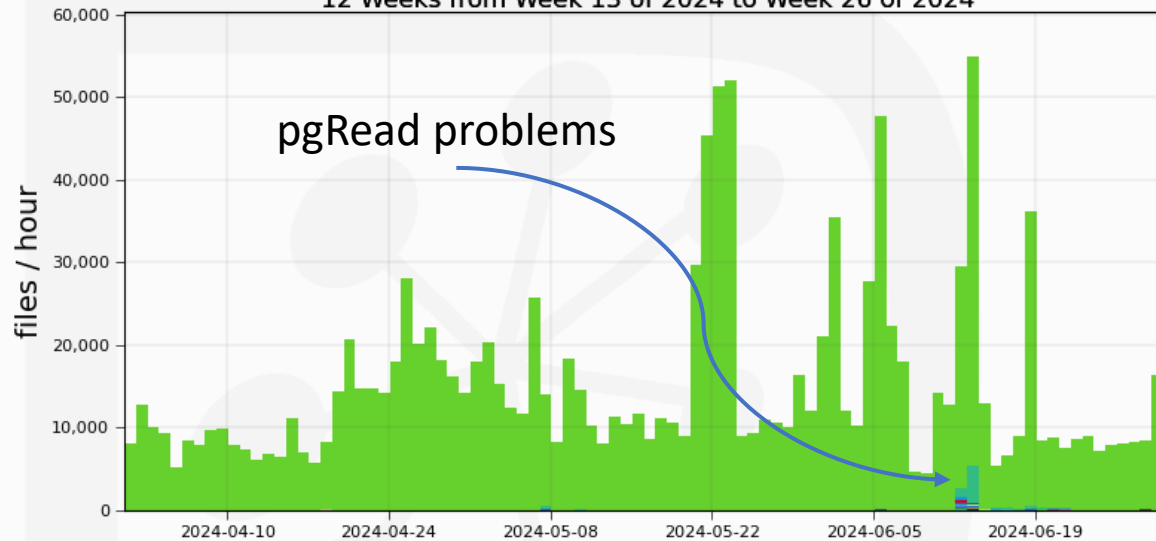
Disk Space - TBytes							Search: <input type="text"/>
Disk Space - TBytes	Apr 2024	May 2024	Jun 2024	Total	% MoU		
LHCB allocated	15,720	15,720	15,720	47,160			
LHCB used	9,169	8,950	10,498	28,617			
Total allocated	15,720	15,720	15,720	47,160	100%		
Total used	9,169	8,950	10,498	28,617	61%		
installed capacity	0	0	0	0			
MoU pledge	15,724	15,724	15,724	47,172			

Disk transfers

- Good transfer efficiency, with with some known issues
- Auth issue on RAL->CNAF channel due to xrootd bug

Transfers to ECHO

12 Weeks from Week 13 of 2024 to Week 26 of 2024

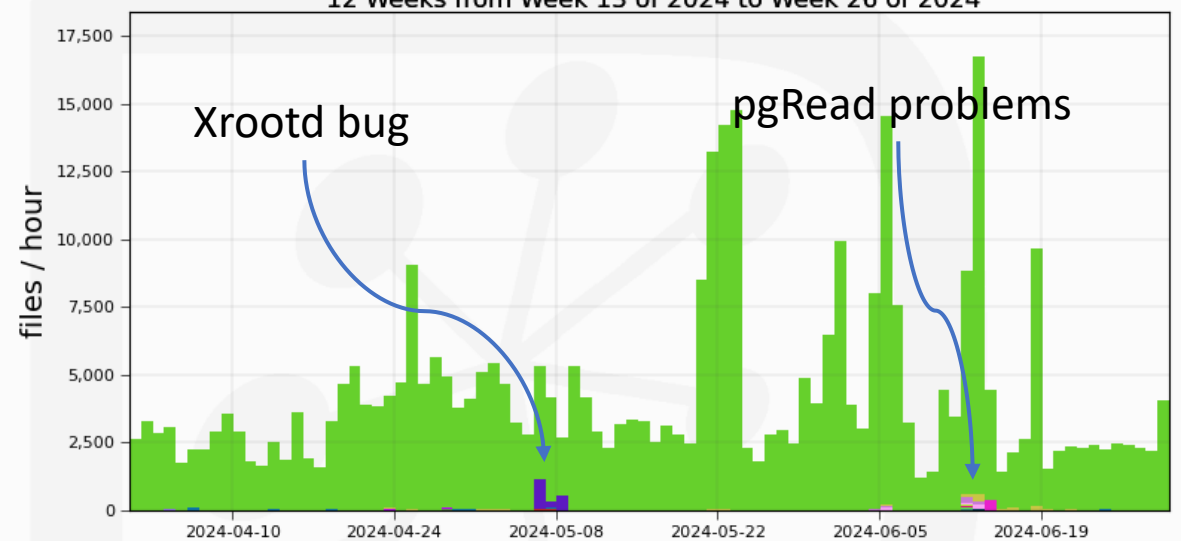


Max: 54,810, Min: 421, Average: 14,906, Current: 421

■ Succeeded	99.1%	■ GRIDKA-DST -> RAL-DST	0.0%
■ LCG.RAL.uk -> RAL-BUFFER	0.6%	■ LCG.Lancaster.uk -> RAL-BUFFER	0.0%
■ LCG.RAL.uk -> RAL-USER	0.0%	■ LCG.RAL-HEP.uk -> RAL-BUFFER	0.0%
■ SARA-DST -> RAL-DST	0.0%	■ CNAF-DST -> RAL-DST	0.0%
■ LCG Glasgow.uk -> RAL-BUFFER	0.0%	■ IN2P3-DST -> RAL-DST	0.0%
■ CERN-DST-EOS -> RAL-DST	0.0%	■ LCG.RAL.uk -> RAL_MC-DST	0.0%
■ CERN-DAQ-EXPORT -> RAL-BUFFER	0.0%	■ LCG.CBPF.br -> RAL-BUFFER	0.0%
■ LCG.RAL.uk -> RAL-DST	0.0%	■ LCG.MIT.us -> RAL-FAILOVER	0.0%
■ LCG.RAL.uk -> RAL-FAILOVER	0.0%	... plus 237 more	

Transfers from ECHO

12 Weeks from Week 13 of 2024 to Week 26 of 2024

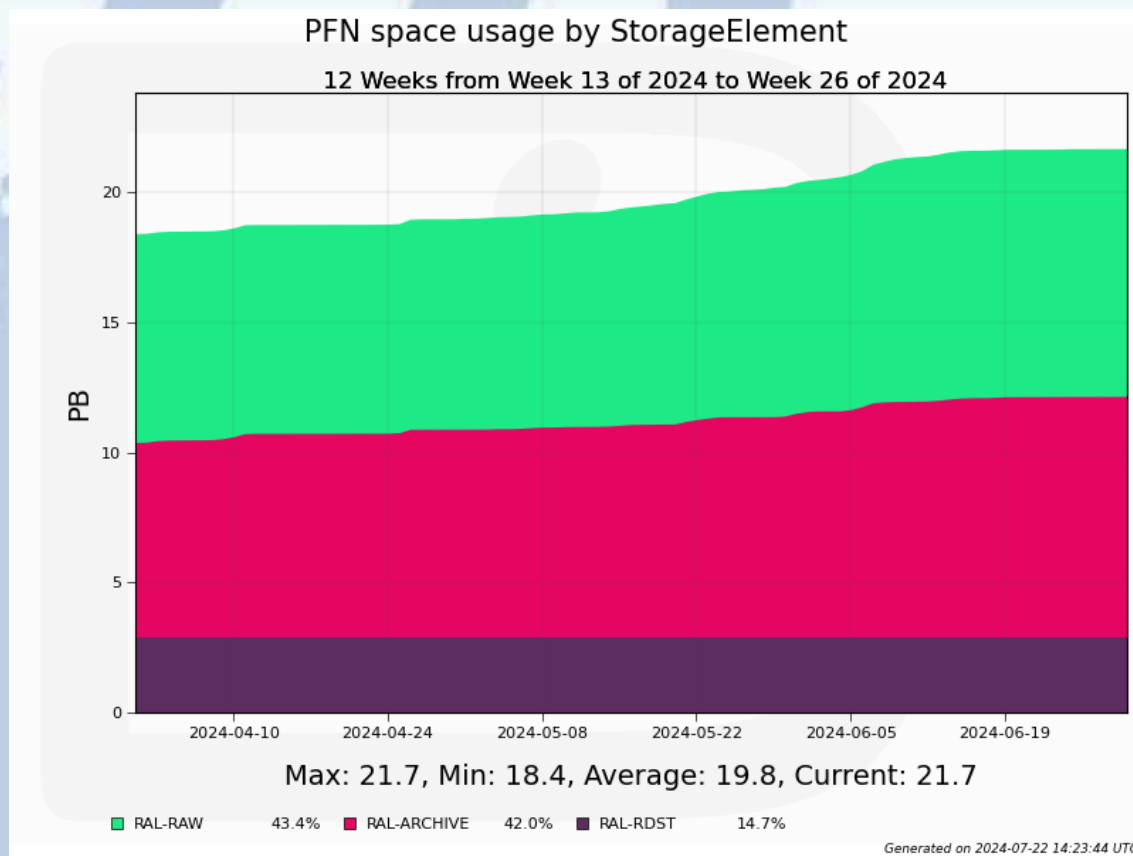


Max: 16,731, Min: 108, Average: 4,235, Current: 108

■ Succeeded	98.5%	■ RAL-USER -> LCG.CERN.cern	0.0%
■ RAL-DST -> CNAF-DST	0.5%	■ RAL-DST -> CERN-DST-EOS	0.0%
■ RAL-BUFFER -> LCG.RAL.uk	0.3%	■ RAL-DST -> UKI-LT2-IC-HEP-DST	0.0%
■ RAL-DST -> CNAF-ARCHIVE	0.1%	■ RAL-DST -> CERN-ARCHIVE	0.0%
■ RAL-USER -> DIRAC.Client.ch	0.1%	■ RAL-FAILOVER -> GRIDKA-BUFFER	0.0%
■ RAL-DST -> IN2P3-ARCHIVE	0.1%	■ RAL-USER -> LCG.RAL.uk	0.0%
■ RAL-FAILOVER -> CNAF-BUFFER	0.1%	■ RAL_MC-DST -> UKI-LT2-QMUL_MC-DST	0.0%
■ RAL_MC-DST -> Beijing_MC-DST	0.0%	■ RAL-FAILOVER -> RAL-BUFFER	0.0%
■ RAL_MC-DST -> CNAF_MC-DST	0.0%	... plus 173 more	

Tape usage

- Usage increased by more than 3PB
 - Due to Data Taking

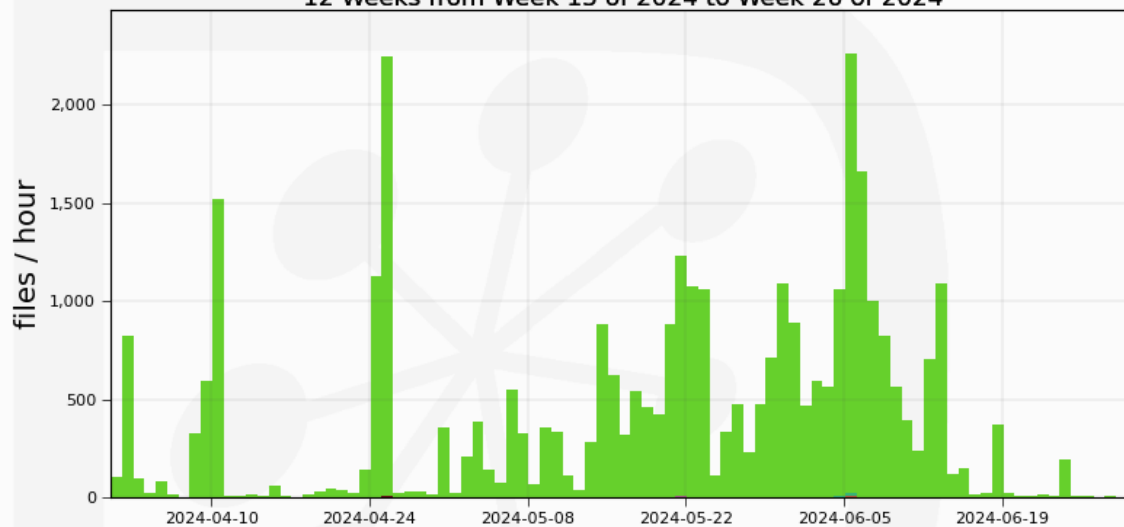


Tape transfers

- Good transfer efficiency
- Almost no tape recalls (expected)

Transfers to Antares

12 Weeks from Week 13 of 2024 to Week 26 of 2024



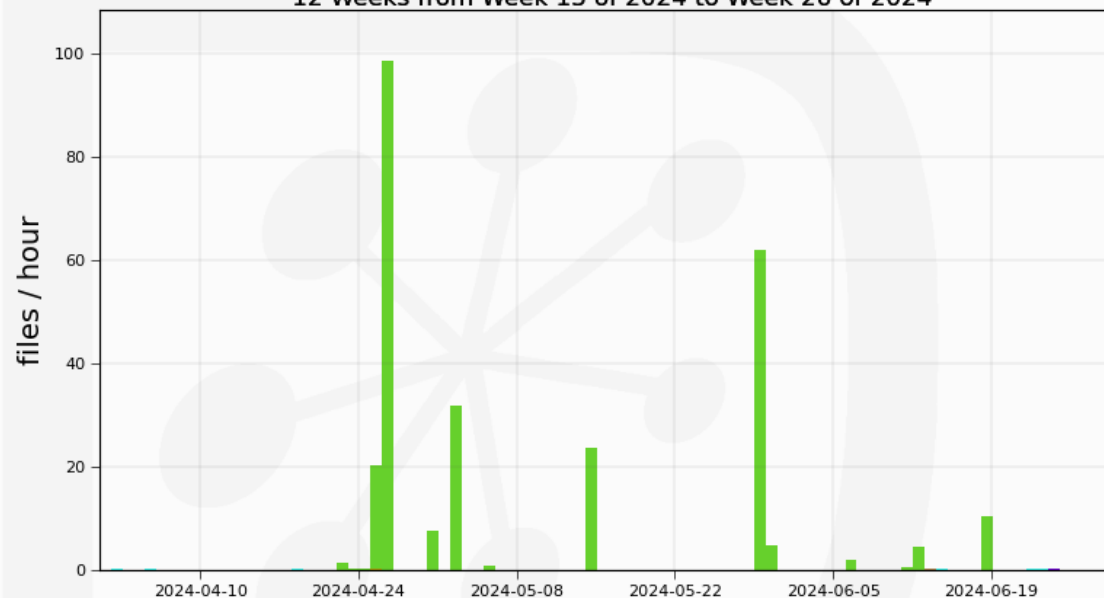
Max: 2,258, Average: 383, Current: 0.07

■ Succeeded	99.9%	■ CERN-DAQ-EXPORT -> RAL-RAW	0.0%
■ CERN-DST-EOS -> RAL-ARCHIVE	0.0%	■ RAL-DST -> RAL-ARCHIVE	0.0%
■ NCBJ-DST -> RAL-ARCHIVE	0.0%	■ SARA-DST -> RAL-ARCHIVE	0.0%
■ GRIF-DST -> RAL-ARCHIVE	0.0%	■ RAL_MC-DST -> RAL-ARCHIVE	0.0%
■ RAL-BUFFER -> RAL-RAW	0.0%	■ RAL-BUFFER -> RAL-ARCHIVE	0.0%
■ CNAF-DST -> RAL-ARCHIVE	0.0%	■ NCBJ_MC-DST -> RAL-ARCHIVE	0.0%
■ IN2P3-DST -> RAL-ARCHIVE	0.0%	■ CNAF_MC-DST -> RAL-ARCHIVE	0.0%
■ PIC-DST -> RAL-ARCHIVE	0.0%	■ GRIF_MC-DST -> RAL-ARCHIVE	0.0%
■ GRIDKA-DST -> RAL-ARCHIVE	0.0%	... plus 28 more	0.0%

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Transfers from Antares

12 Weeks from Week 13 of 2024 to Week 26 of 2024



Max: 98.6, Average: 3.02, Current: 0.25

■ Succeeded	98.9%	■ RAL-ARCHIVE -> CERN_MC-DST-EOS	0.0%
■ RAL-ARCHIVE -> DIRAC.Client.ch	0.8%	■ RAL-ARCHIVE -> RAL-ARCHIVE	0.0%
■ RAL-RAW -> DIRAC.Client.ch	0.2%	■ RAL-RAW -> RAL-BUFFER	0.0%
■ RAL-ARCHIVE -> DIRAC.Jenkins.ch	0.1%	■ RAL-RDST -> RAL-BUFFER	0.0%
■ RAL-ARCHIVE -> DIRAC.Client.cn	0.1%		

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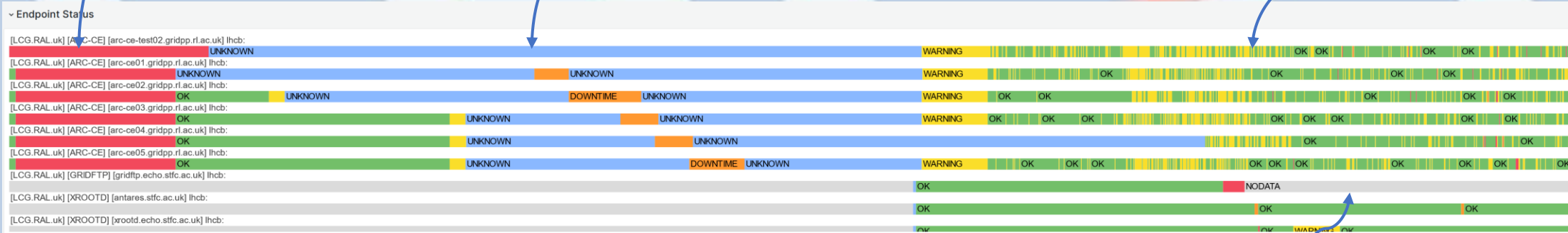
ETF tests

- We have storage tests now (finally!)
 - They were added to the new set of tests
- There were some issues during the migration to this new set of tests, some remained afterwards

Proxy expiration

Python interpreter issue

Lack of openssl in EL7 containers



Storage tests appeared

Gridftp Decommissioned

The background features the word 'WHOLE' in a large, blue, serif font, repeated twice. A diagonal orange line crosses the bottom right portion of the image. A light blue rectangular box is positioned in the upper left, containing the word 'Summary' and a vertical line. An orange vertical bar is on the far left edge.

Summary

- Good performance during the second quarter of 2024
- Issues addressed in a timely manner