

alexrg

Resource Review Meeting (2024 Q4)

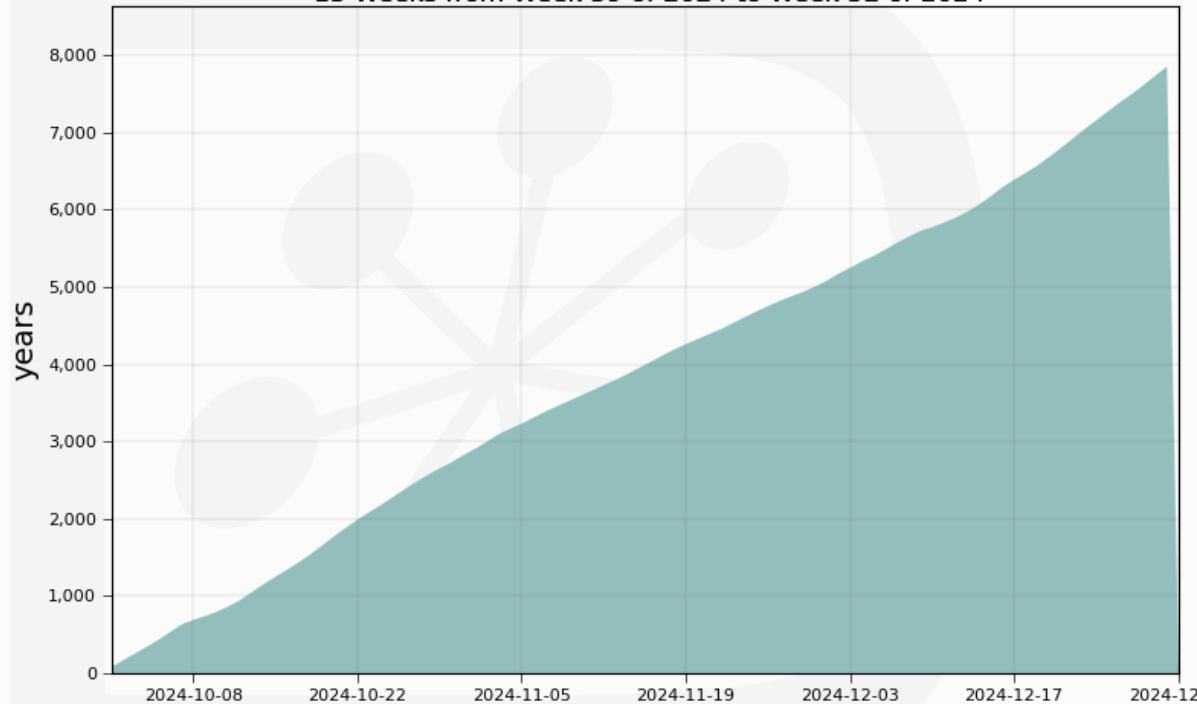
Highlights

- Smooth operations during most of the quarter
- Very high number of running jobs during the break
 - Very high failure rate as well, due to nproc limit issue

Computing resources

Cumulative wall time by Site

13 Weeks from Week 39 of 2024 to Week 52 of 2024



Max: 7,852, Min: 4.85, Average: 3,844, Current: 4.85

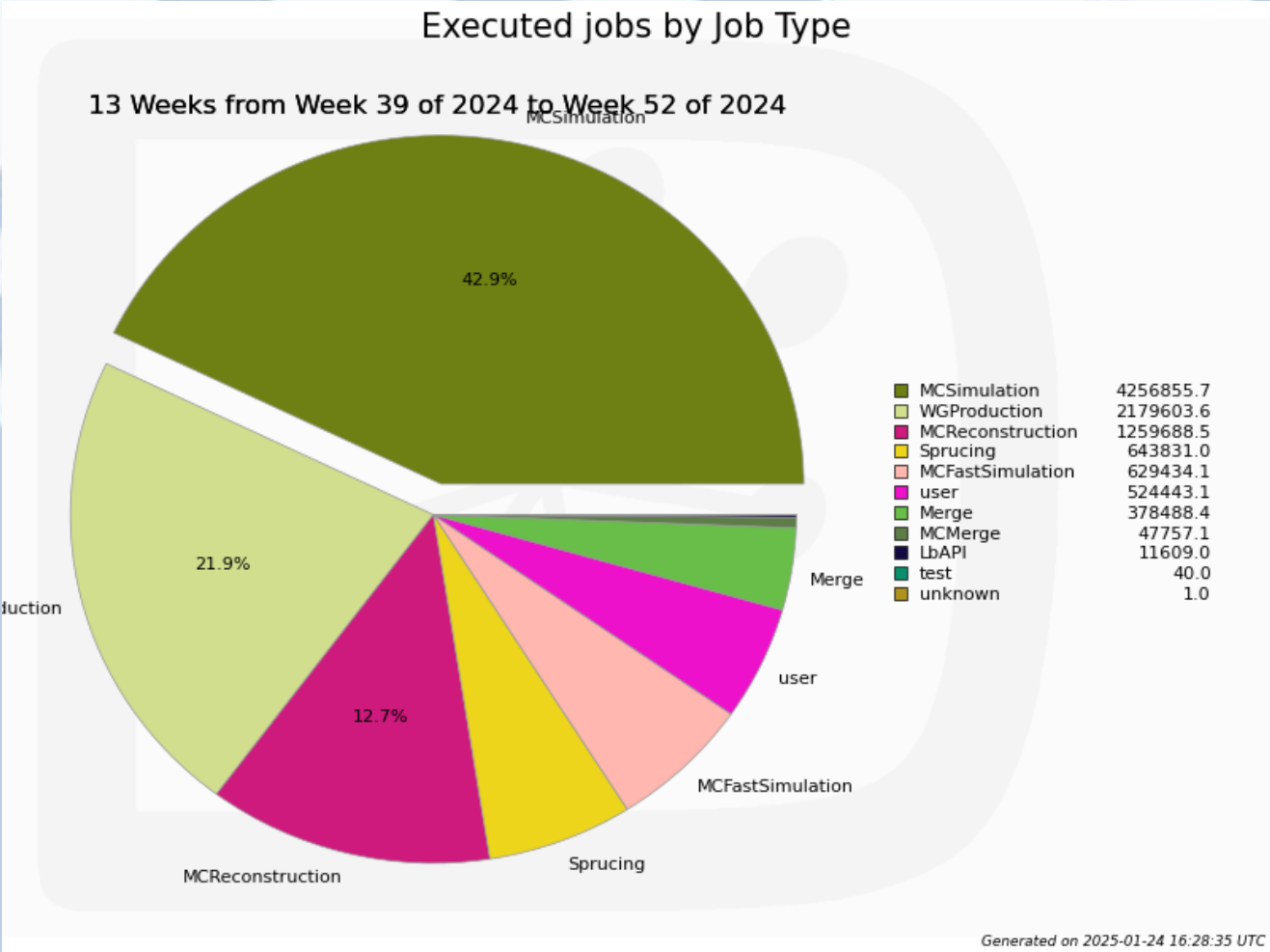
■ LCG.RAL.uk 7852.0

Generated on 2025-01-24 17:02:37 UTC

- Normalized values from LHCb can not be trusted
- Using raw walltime, we have:
 $7852 * 365 * 14.3 / 92 = 445473 \text{HS23}$
 - 14.3 is an updated normalization factor after the introduction of 2023 Gen
 - Pledge is $180 \text{kHS23} < 445 \text{kHS23}$

Computing resources

A lot of Sprucing and WGProd jobs, due to the data taking + reprocessing campaign.

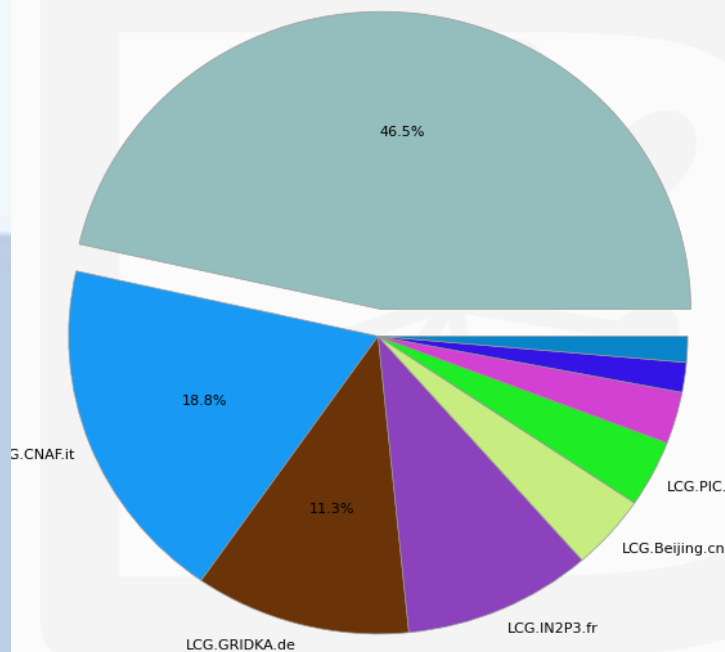


Comparison

RAL provided the most computing resources for LHCb among Tier-1 sites. Even more than the usual share (33%).

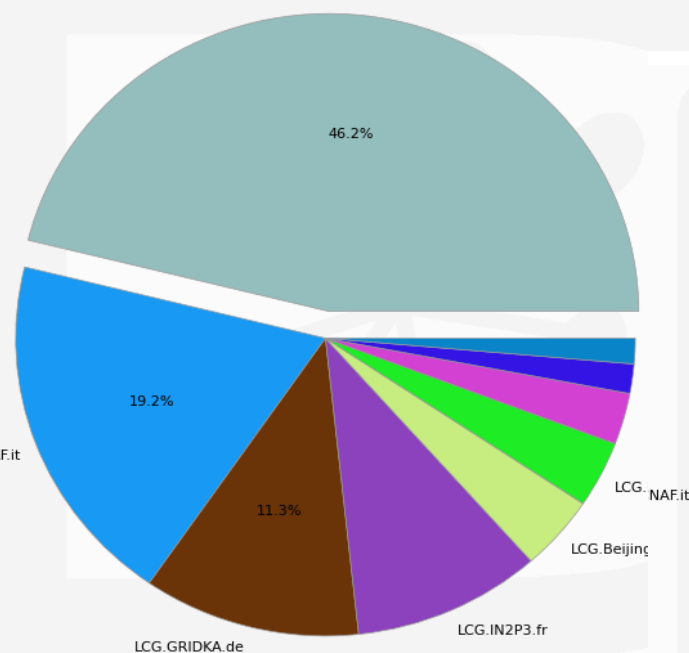
CPU time consumed by site

13 Weeks from Week 39 of 2024 to Week 52 of 2024



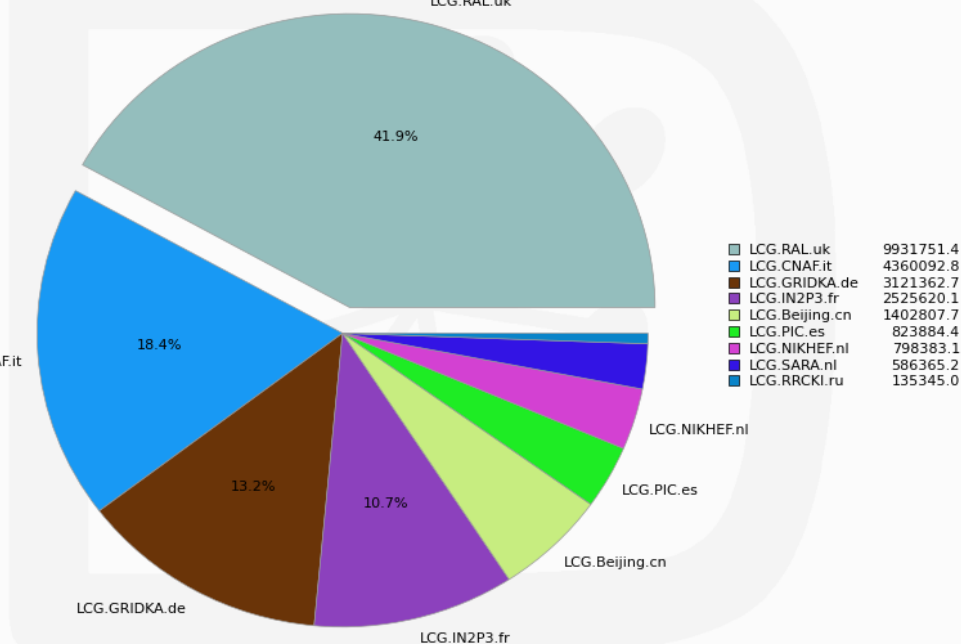
Wall time consumed by site

13 Weeks from Week 39 of 2024 to Week 52 of 2024



Executed jobs by Site

13 Weeks from Week 39 of 2024 to Week 52 of 2024



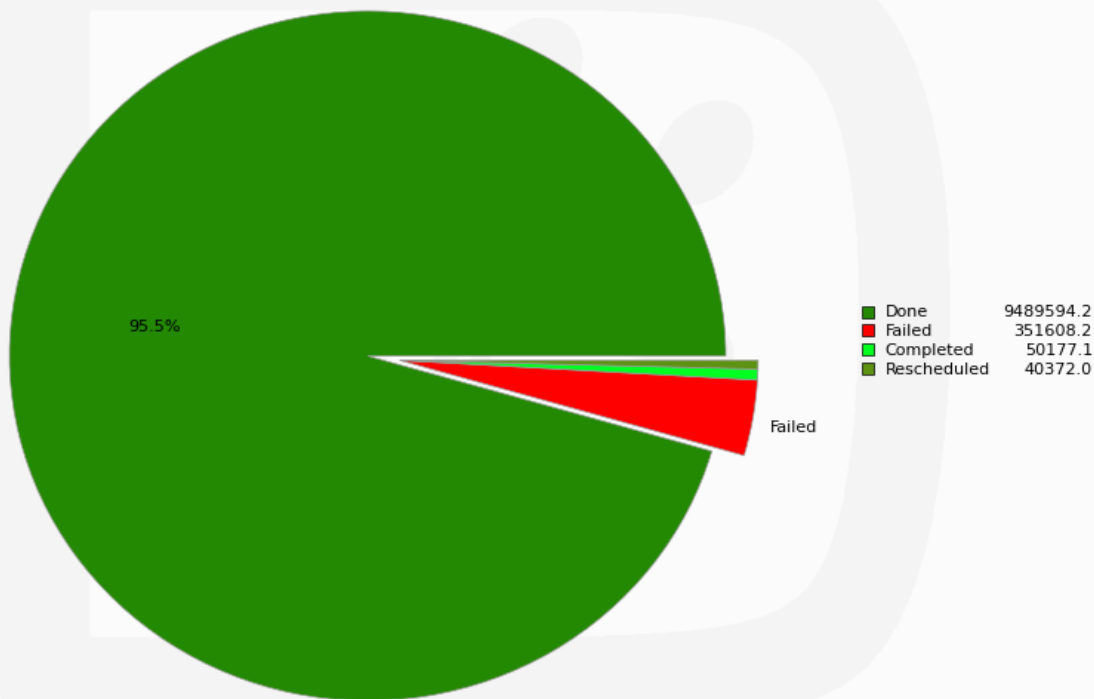
LCG.RAL.uk	9931751.4
LCG.CNAF.it	4360092.8
LCG.GRIDKA.de	3121362.7
LCG.IN2P3.fr	2525620.1
LCG.Beijing.cn	1402807.7
LCG.PIC.es	823884.4
LCG.NIKHEF.nl	798383.1
LCG.SARA.nl	586365.2
LCG.RRCKI.ru	135345.0

Comparison

- RAL Job failure rate is comparable to other T1s
 - Higher than usual due to nproc issue

RAL jobs by Status

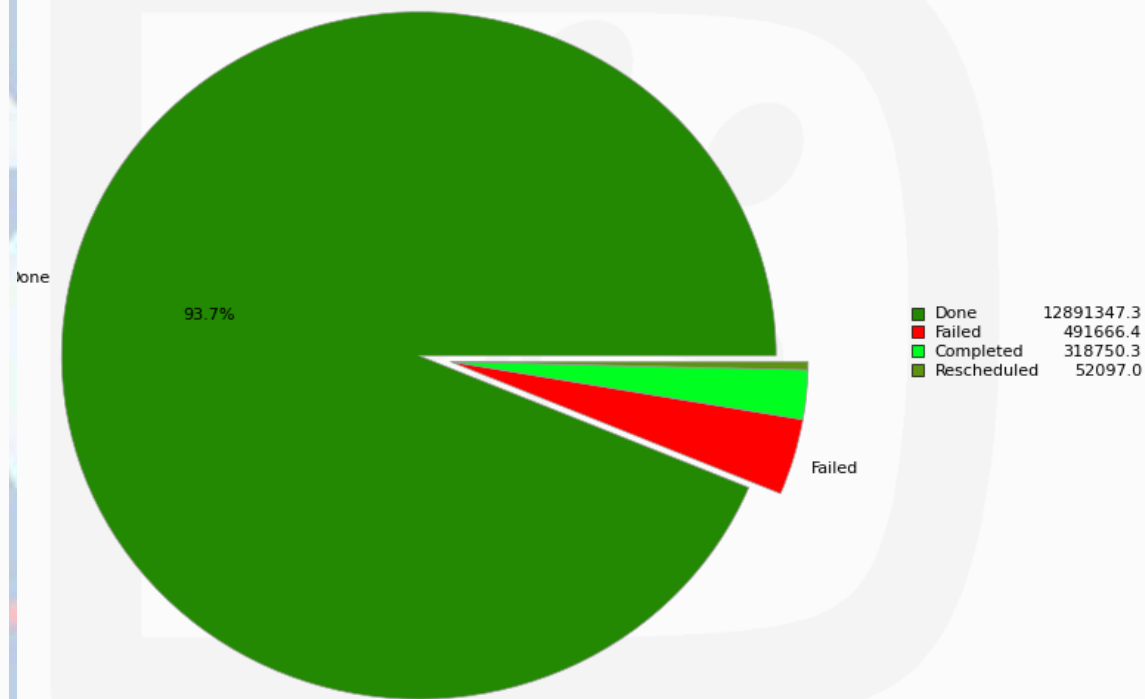
13 Weeks from Week 39 of 2024 to Week 52 of 2024



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Tier 1s except RAL jobs by Status

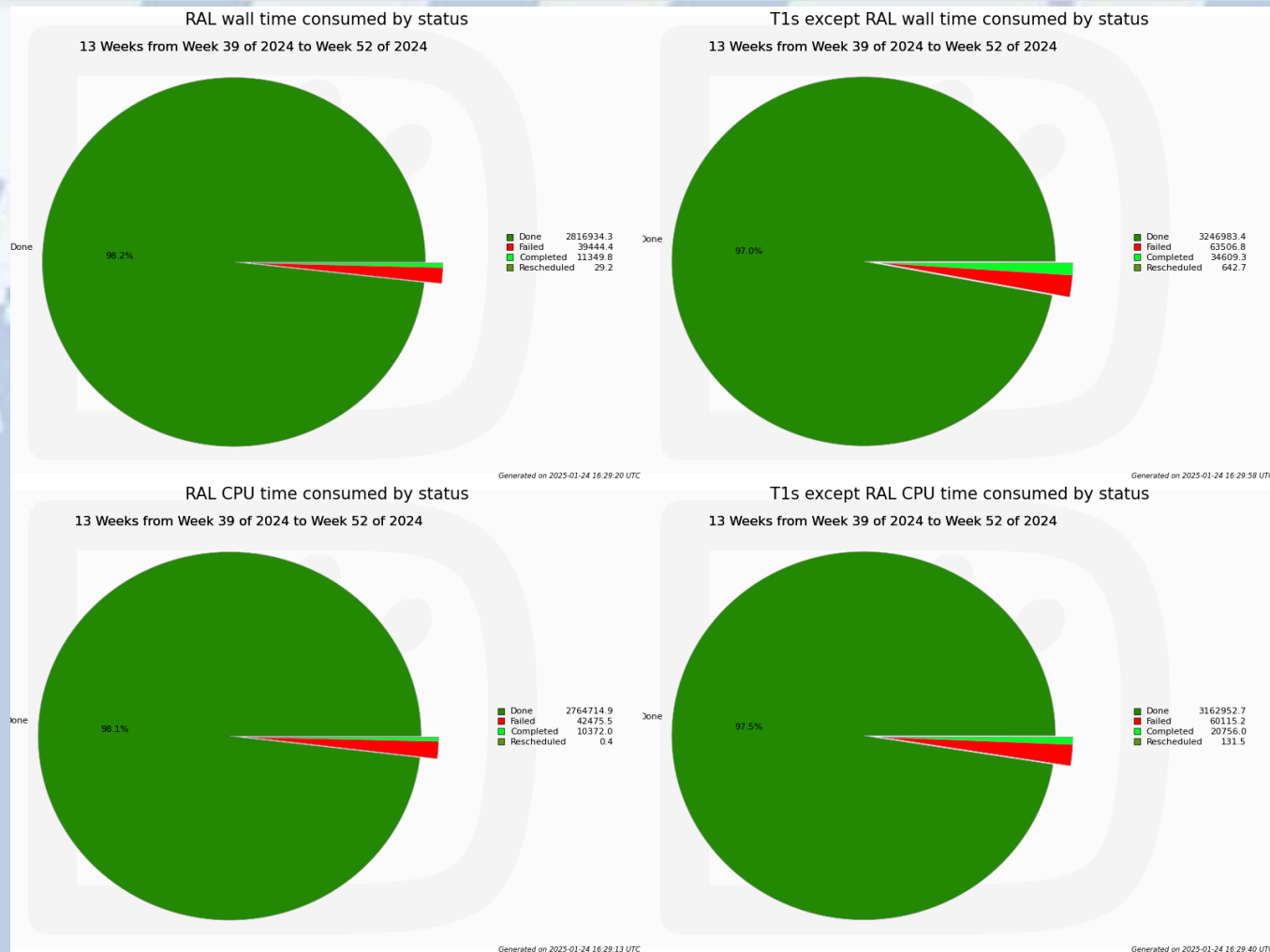
13 Weeks from Week 39 of 2024 to Week 52 of 2024



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Comparison

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

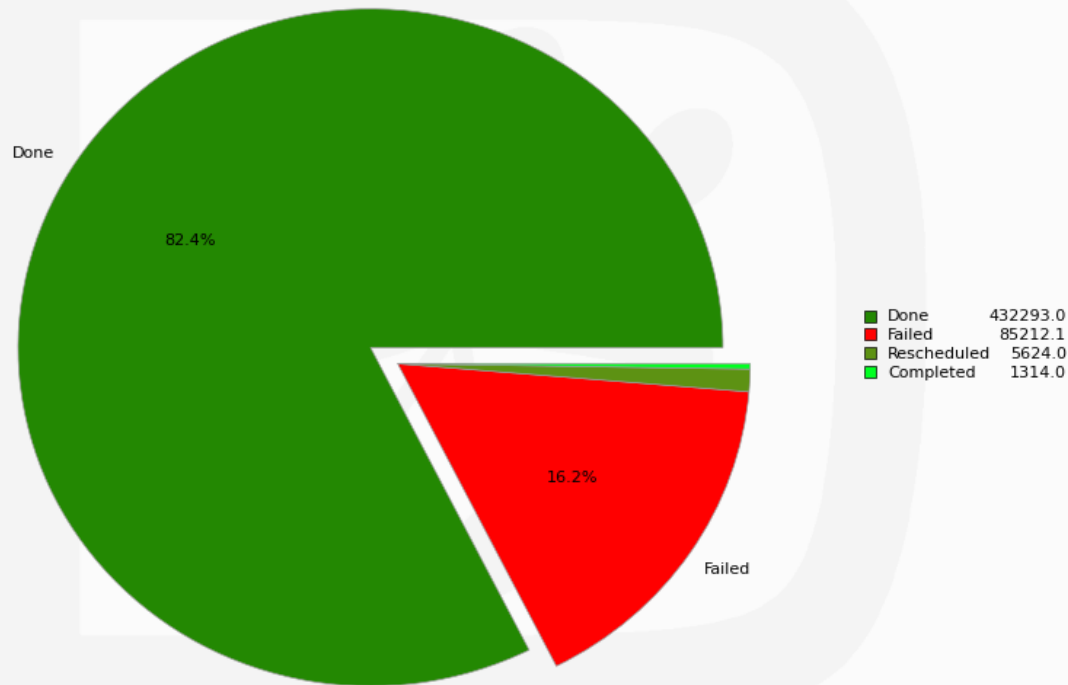


Comparison (User Jobs)

- Among all job types, user jobs have one of the highest failure rates
- For RAL it is higher than for the other T1s
 - Most probably due to nrpoc limit issue

user jobs at LCG.RAL.uk

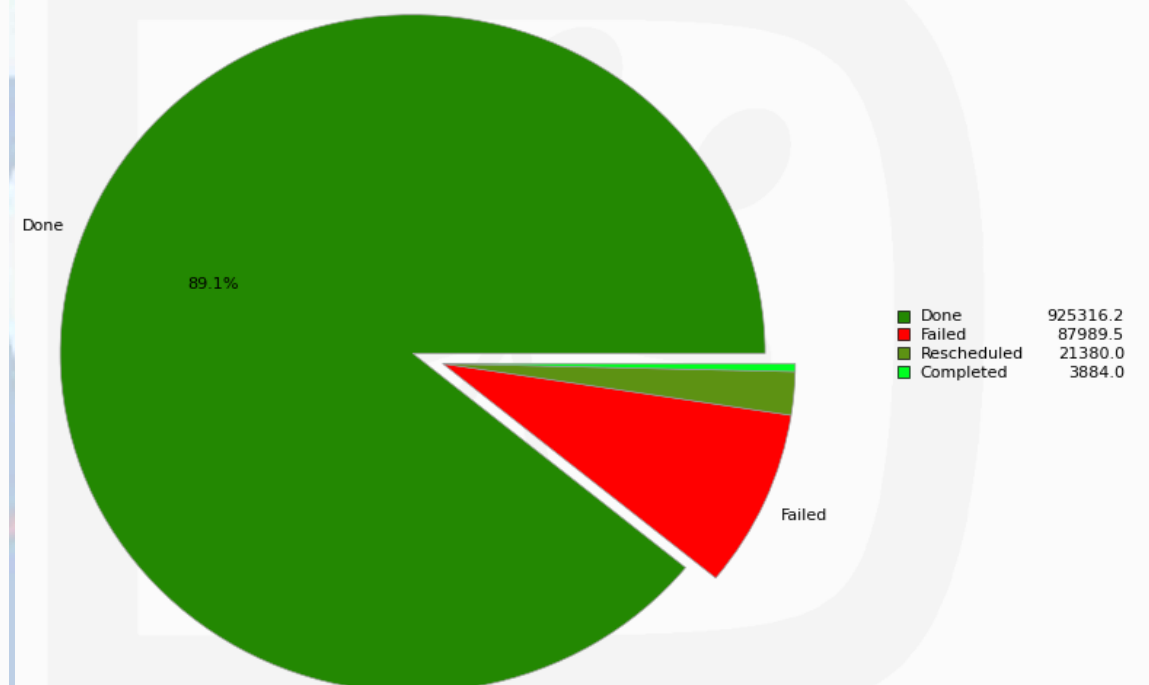
13 Weeks from Week 39 of 2024 to Week 52 of 2024



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user jobs at All T1s except LCG.RAL.uk

13 Weeks from Week 39 of 2024 to Week 52 of 2024



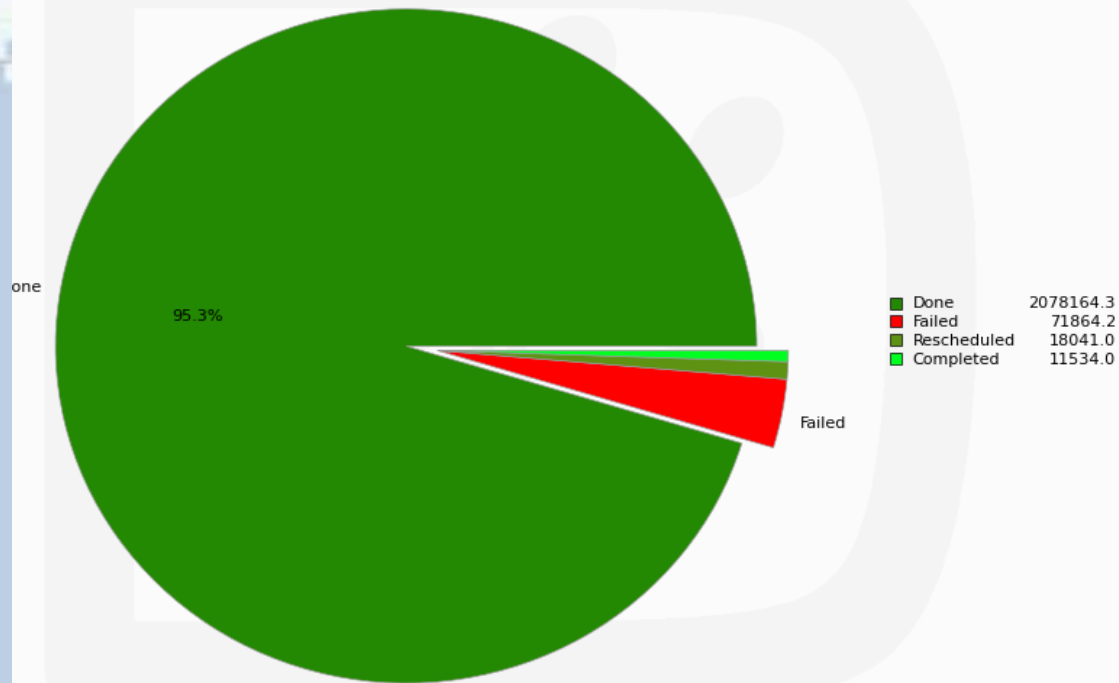
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Comparison (WG Prod)

- For WGProduction jobs, failure rate at RAL is lower than at the other Tier-1s

WGProduction jobs at LCG.RAL.uk

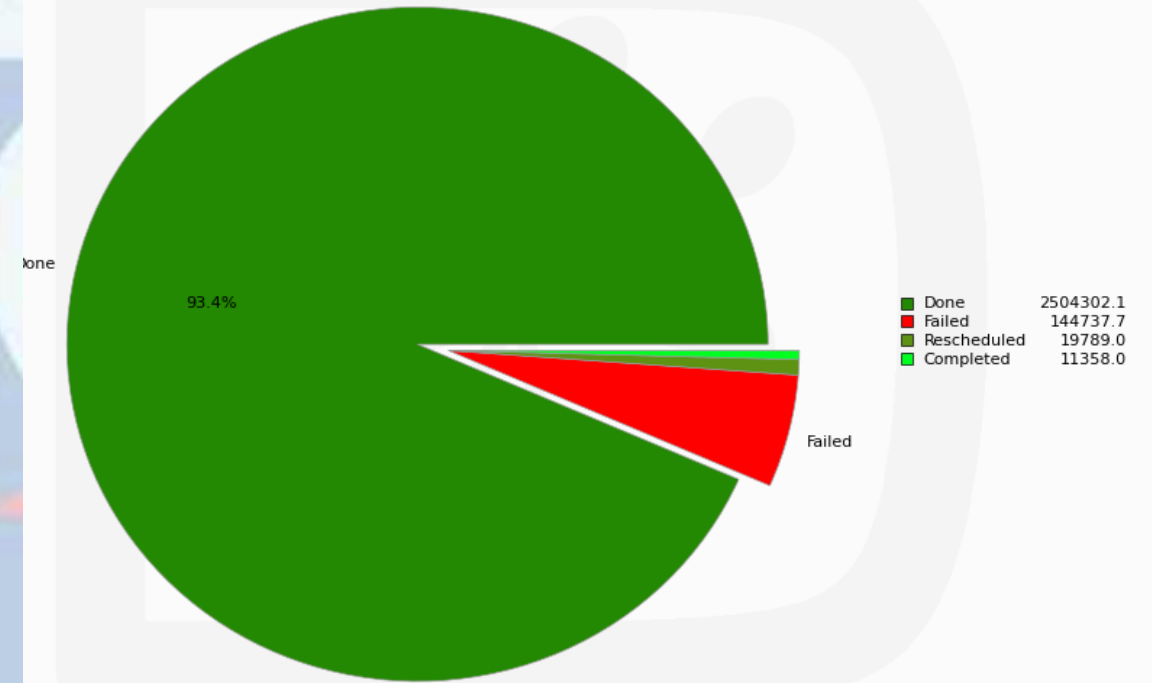
13 Weeks from Week 39 of 2024 to Week 52 of 2024



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WGProduction jobs at All T1s except LCG.RAL.uk

13 Weeks from Week 39 of 2024 to Week 52 of 2024



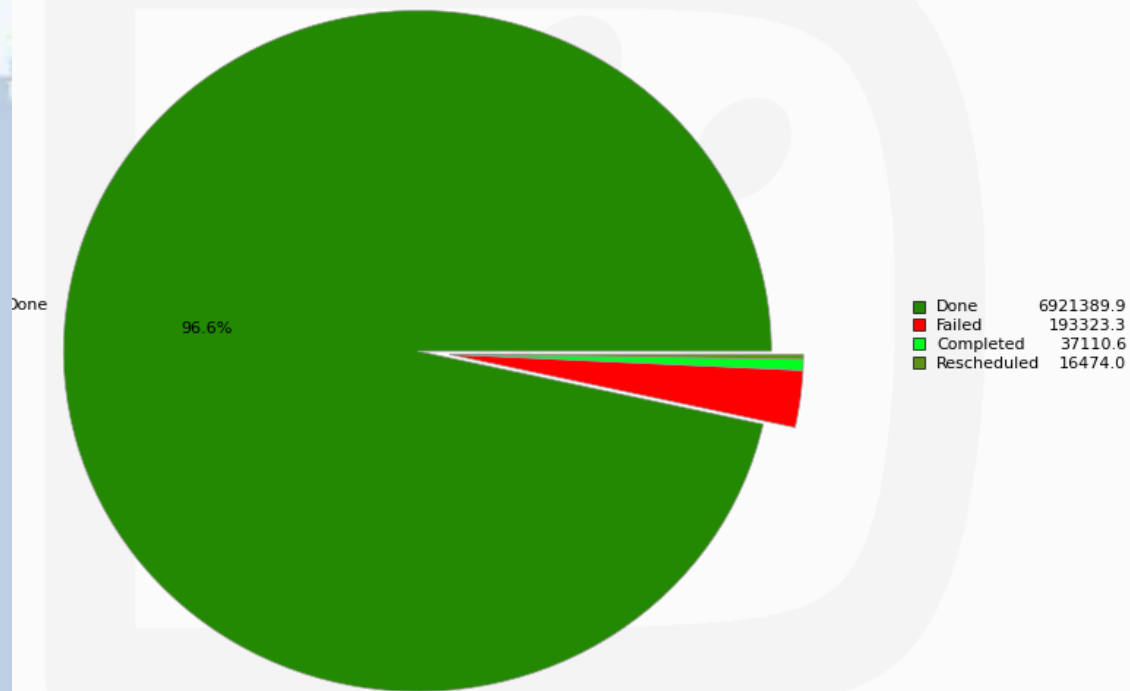
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Comparison (Sim+data proc)

- For prod jobs failure rate is higher than usual
- But comparable with others

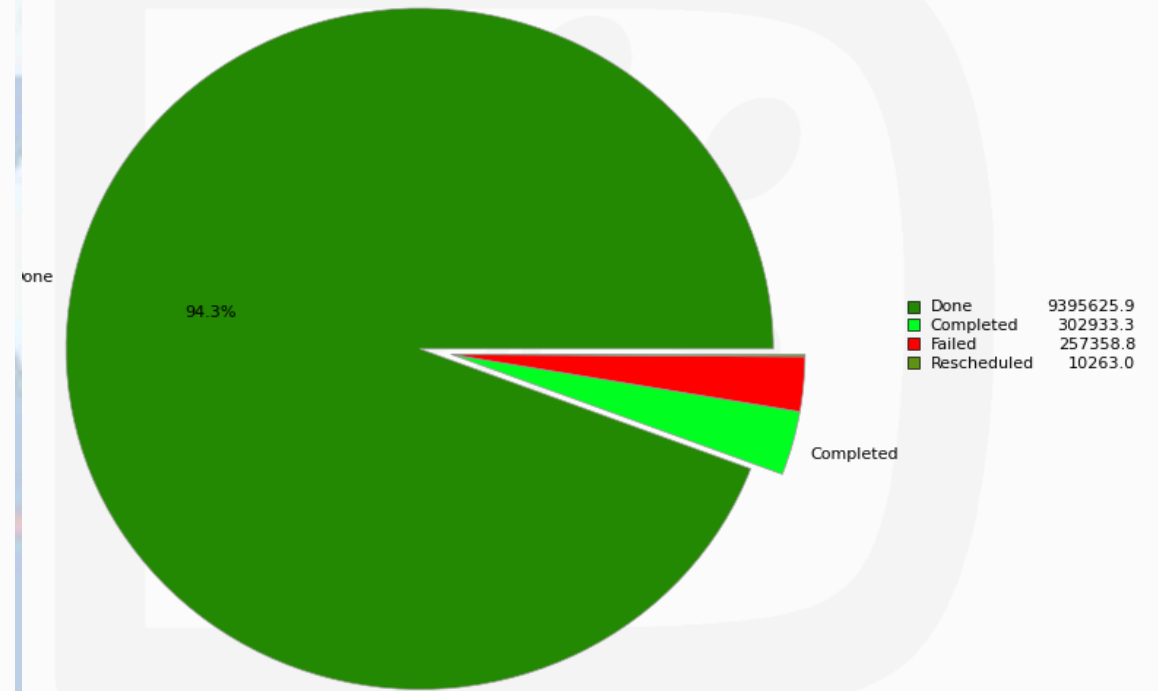
Prod jobs at LCG.RAL.uk

13 Weeks from Week 39 of 2024 to Week 52 of 2024



Prod jobs at All T1s except LCG.RAL.uk

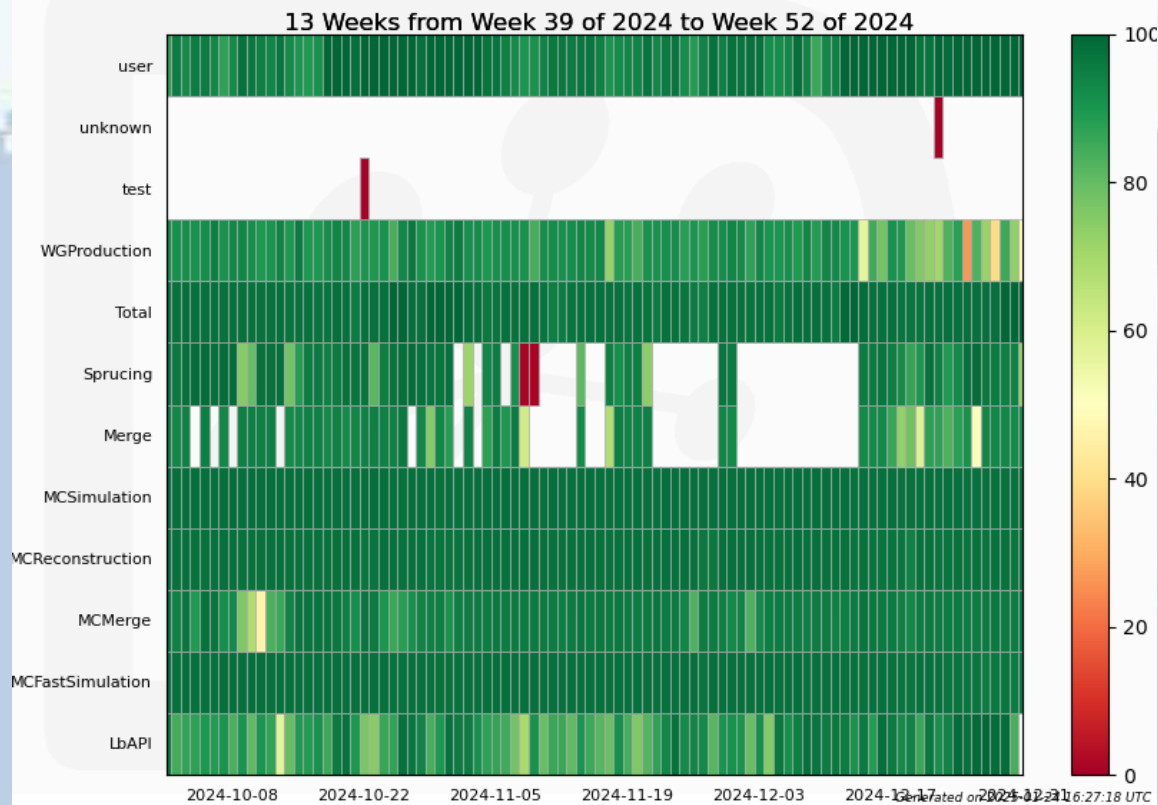
13 Weeks from Week 39 of 2024 to Week 52 of 2024



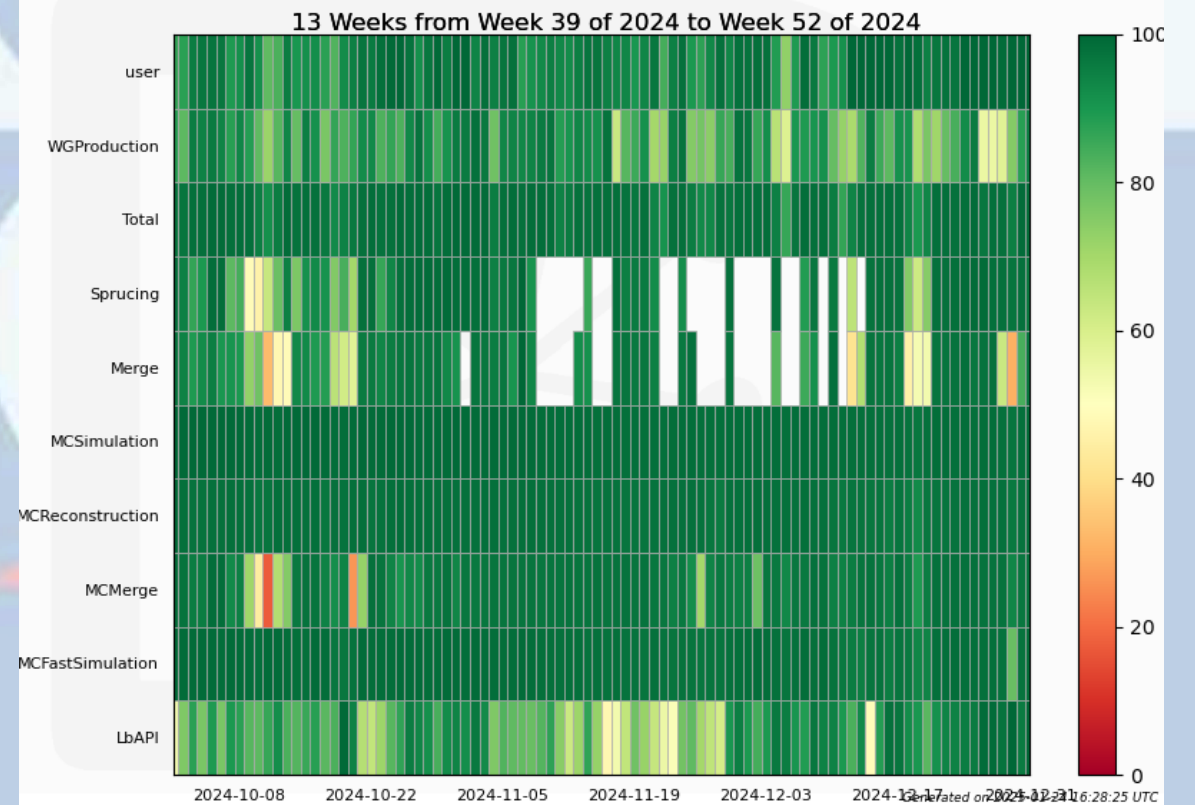
Efficiency

- Good efficiency for almost all job types

CPU efficiency (RAL)

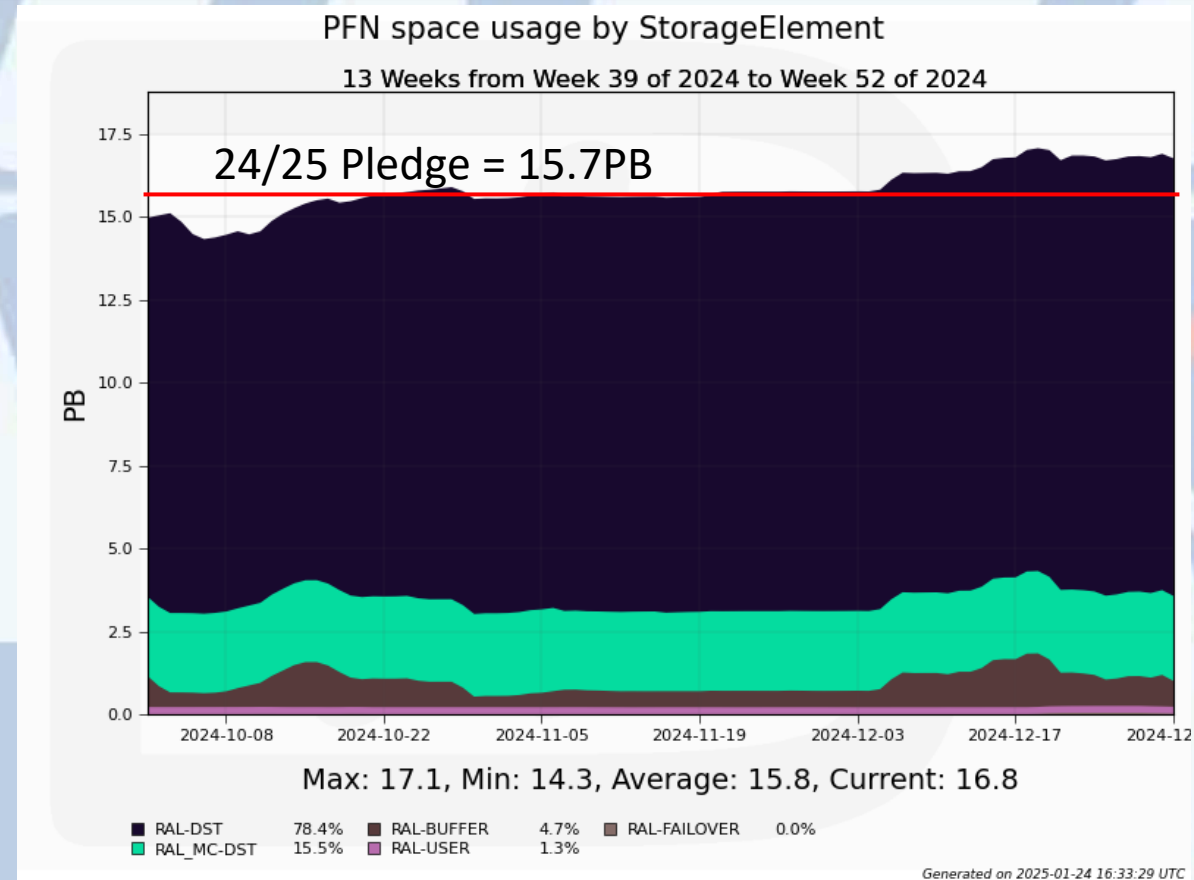


CPU efficiency (T1s except RAL)



Disk Usage

- Increased usage due to reprocessing campaign
- 24/25 pledge was exceeded

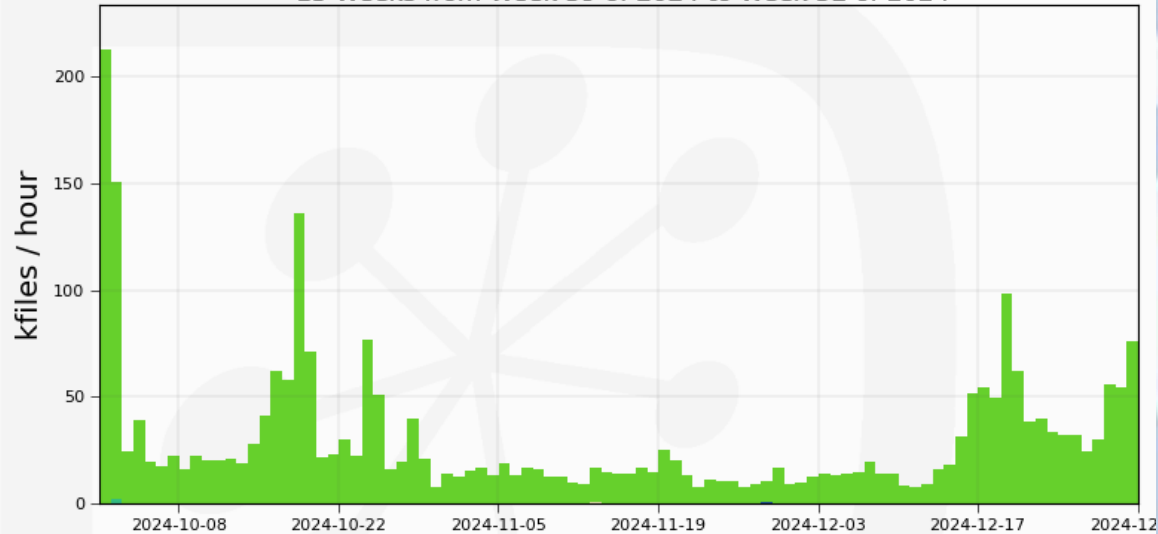


Disk transfers

Good transfer efficiency, no significant problems

Transfers to ECHO

13 Weeks from Week 39 of 2024 to Week 52 of 2024



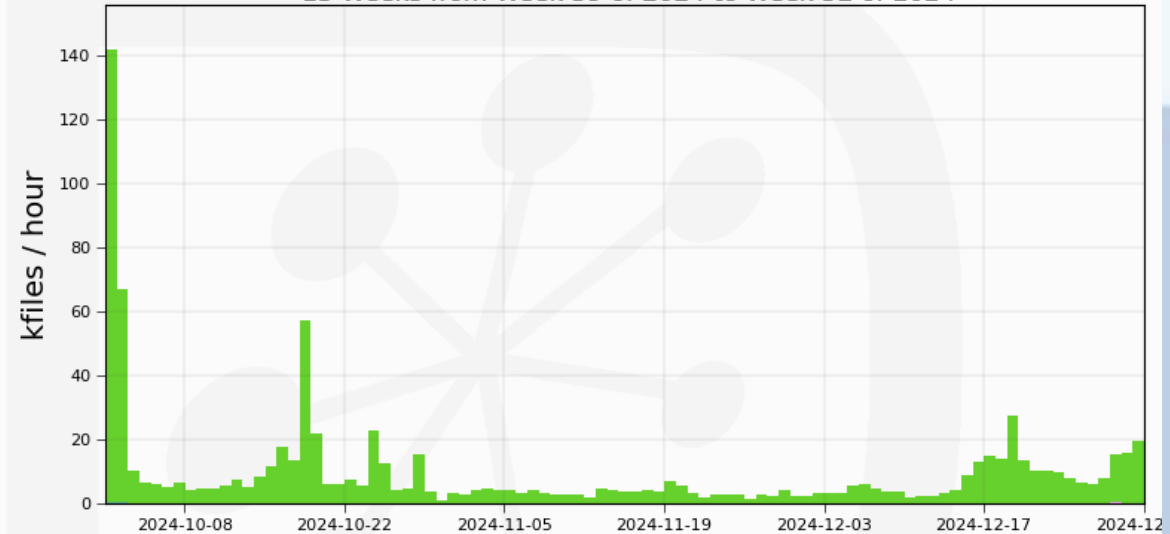
Max: 213, Min: 7.35, Average: 30.1, Current: 68.9

■ Succeeded	99.7%	■ Beijing_MC-DST -> RAL_MC-DST	0.0%
■ LCG.RAL.uk -> RAL-BUFFER	0.1%	■ LCG.NIPNE-07.ro -> RAL-BUFFER	0.0%
■ DIRAC.HLTFarm.Ihcb -> RAL-USER	0.1%	■ LCG.UKI-LT2-RHUL.uk -> RAL-BUFFER	0.0%
■ DIRAC.HLTFarm.Ihcb -> RAL-BUFFER	0.0%	■ LCG.Manchester.uk -> RAL-BUFFER	0.0%
■ DIRAC.Client.ch -> RAL-USER	0.0%	■ lbvobox309.cern.ch -> RAL-BUFFER	0.0%
■ DIRAC.MareNostrum.es -> RAL-FAILOVER	0.0%	■ LCG.RAL.uk -> RAL-FAILOVER	0.0%
■ CNAF-ARCHIVE -> RAL_MC-DST	0.0%	■ LCG.LAPP.fr -> RAL-BUFFER	0.0%
■ LCG.CPPM.fr -> RAL-BUFFER	0.0%	■ LCG.Glasgow.uk -> RAL-BUFFER	0.0%
■ DIRAC.MareNostrum.es -> RAL-BUFFER	0.0%	... plus 244 more	

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Transfers from ECHO

13 Weeks from Week 39 of 2024 to Week 52 of 2024



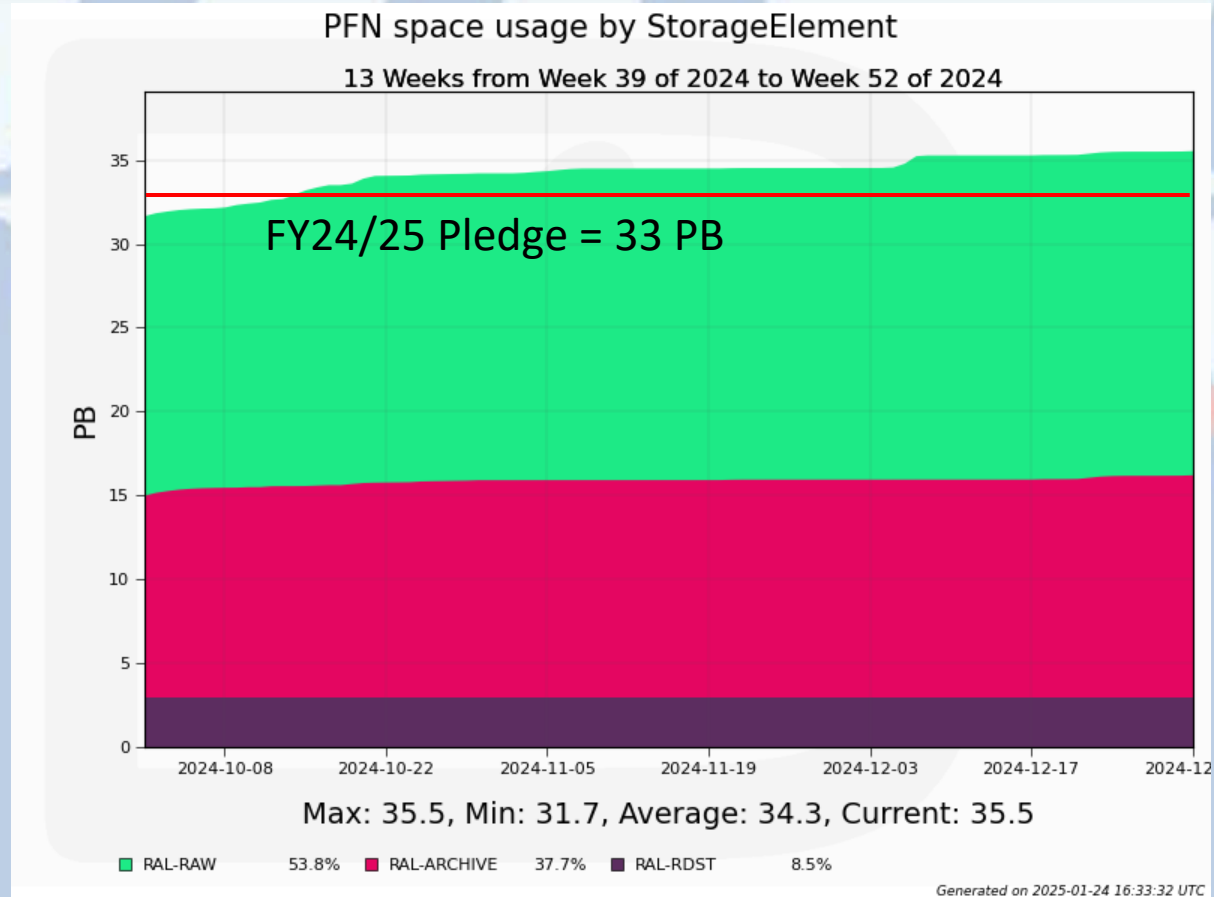
Max: 141, Min: 0.99, Average: 9.46, Current: 18.8

■ Succeeded	99.6%	■ RAL-DST -> NCBJ-DST	0.0%
■ RAL-DST -> NCBJ-ARCHIVE	0.1%	■ RAL_MC-DST -> Beijing-ARCHIVE	0.0%
■ RAL-FAILOVER -> CNAF-BUFFER	0.1%	■ RAL-FAILOVER -> CNAF-DST	0.0%
■ RAL-USER -> DIRAC.Client.ch	0.1%	■ RAL-BUFFER -> DIRAC.HLTFarm.Ihcb	0.0%
■ RAL-BUFFER -> LCG.RAL.uk	0.0%	■ RAL-USER -> DIRAC.Client.de	0.0%
■ RAL-BUFFER -> RAL-RAW	0.0%	■ RAL-FAILOVER -> Beijing-BUFFER	0.0%
■ RAL-DST -> CNAF-DST	0.0%	■ RAL-USER -> DIRAC.Client.cn	0.0%
■ RAL-DST -> CNAF-ARCHIVE	0.0%	■ RAL_MC-DST -> CSCS_MC-DST	0.0%
■ RAL-DST -> Glasgow-DST	0.0%	... plus 169 more	

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Tape usage

- Full 24/25 pledge is used

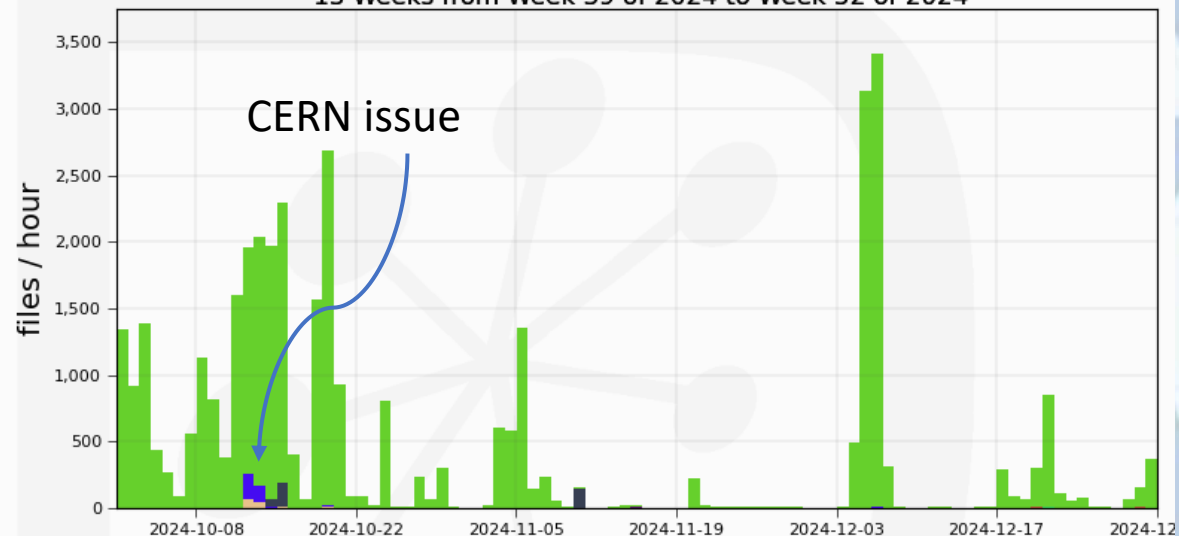


Tape transfers

- Good transfer efficiency, with a few known issues

Transfers to Antares

13 Weeks from Week 39 of 2024 to Week 52 of 2024



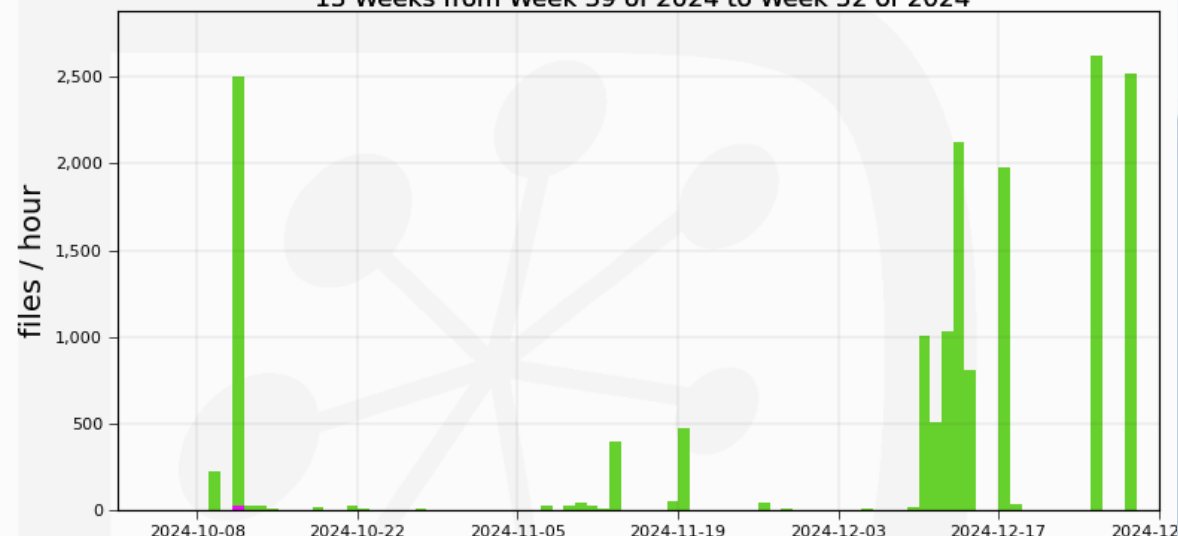
Max: 3,407, Average: 415, Current: 276

Succeeded	97.5%	GRIDKA-DST -> RAL-ARCHIVE	0.0%
ibvobox310.cern.ch -> RAL-ARCHIVE	1.1%	NCBJ-DST -> RAL-ARCHIVE	0.0%
RAL-BUFFER -> RAL-RAW	0.9%	Beijing-DST -> RAL-ARCHIVE	0.0%
CERN-DAQ-EXPORT -> RAL-RAW	0.4%	SARA-DST -> RAL-ARCHIVE	0.0%
CNAF-DST -> RAL-ARCHIVE	0.1%	IN2P3-DST -> RAL-ARCHIVE	0.0%
Beijing_MC-DST -> RAL-ARCHIVE	0.1%	RRCKI-DST -> RAL-ARCHIVE	0.0%
RAL-DST -> RAL-ARCHIVE	0.0%	CNAF_MC-DST -> RAL-ARCHIVE	0.0%
CERN-DST-EOS -> RAL-ARCHIVE	0.0%	GRIDKA_MC-DST -> RAL-ARCHIVE	0.0%
ibvobox309.cern.ch -> RAL-ARCHIVE	0.0%	... plus 13 more	

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Transfers from Antares

13 Weeks from Week 39 of 2024 to Week 52 of 2024



Max: 2,619, Average: 181, Current: 0.08

Succeeded	99.8%	RAL-ARCHIVE -> DIRAC.Client.uk	0.0%
RAL-ARCHIVE -> CNAF_MC-DST	0.2%	RAL-ARCHIVE -> Manchester_MC-DST	0.0%
RAL-ARCHIVE -> DIRAC.Client.ch	0.0%	RAL-ARCHIVE -> GRIF-DST	0.0%
RAL-ARCHIVE -> DIRAC.Client.de	0.0%	RAL-ARCHIVE -> CERN_MC-DST-EOS	0.0%
RAL-RAW -> LCG.RAL.uk	0.0%	RAL-ARCHIVE -> CSCS_MC-DST	0.0%
RAL-RAW -> DIRAC.Client.ch	0.0%	RAL-ARCHIVE -> GRIDKA_MC-DST	0.0%
RAL-ARCHIVE -> CSCS-DST	0.0%	RAL-ARCHIVE -> IN2P3_MC-DST	0.0%
RAL-ARCHIVE -> DIRAC.Client.cn	0.0%	RAL-ARCHIVE -> NIPNE-07_MC-DST	0.0%
RAL-RAW -> RAL-BUFFER	0.0%	... plus 8 more	

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ETF tests

- Overall A&R looks good
- Migration to EL9 container (and newer arc client version) for test infrastructure reduced noise in CE tests
- Some minor fixes in tests (e.g. profile refactoring)





Summary

- Good performance during the fourth quarter of 2024
- No significant RAL issues