LHCb signoff

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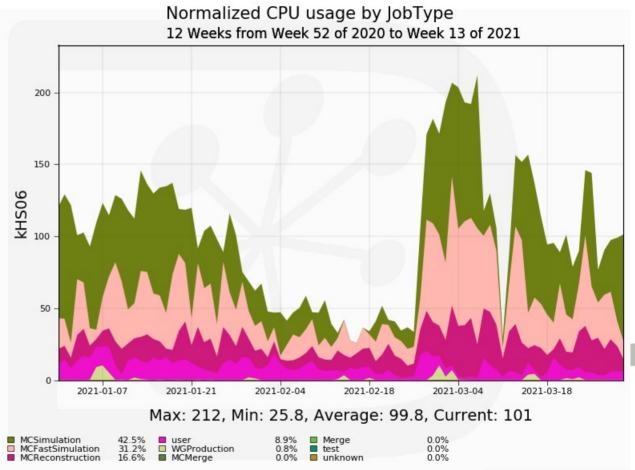
Introduction

- > Notes / information remain the same as from Jan 2020
 - Link to Andrew McNab's talk
 - → This talk essentially same as on 27 Jan, just with updated plots
- RAL is an essential part of LHCb activities
 - Known issues being tracked at high level
 - Streaming data out of ECHO
 - Affects user jobs (and WG productions)
 - Problem with xrootd checksums
 - Data corruption (seems rare)
 - Other topics
 - Occasional large fluctuations in running jobs (though overall we meet the LHCb quota)
 - Look forward to https / webdav becoming available



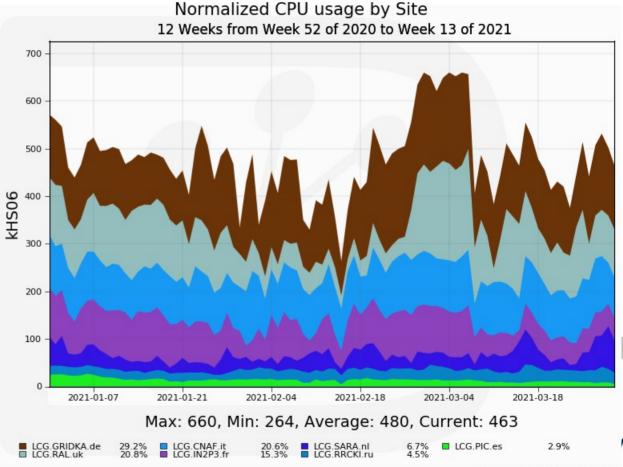
CPU used at RAL

- Dominated by MC Simulation
- Some dips in Feb 2021
 - Mixture of causes
 - Not fully understood



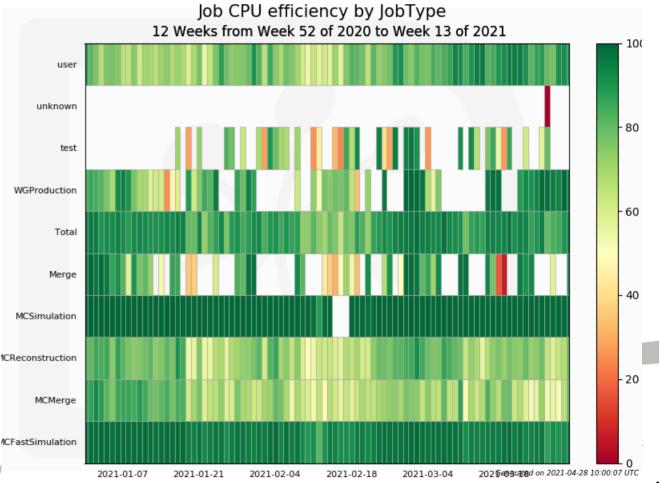
CPU used at all Tier-1 sites

- RAL broadly in line with other Tier-1s
 - Listing in order of contribution
 - Ignoring CERN, HLT farm

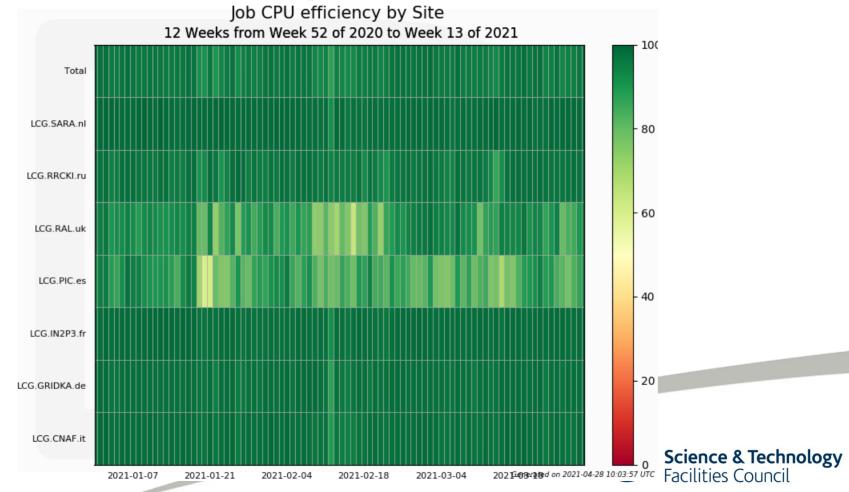


Job efficiency at RAL

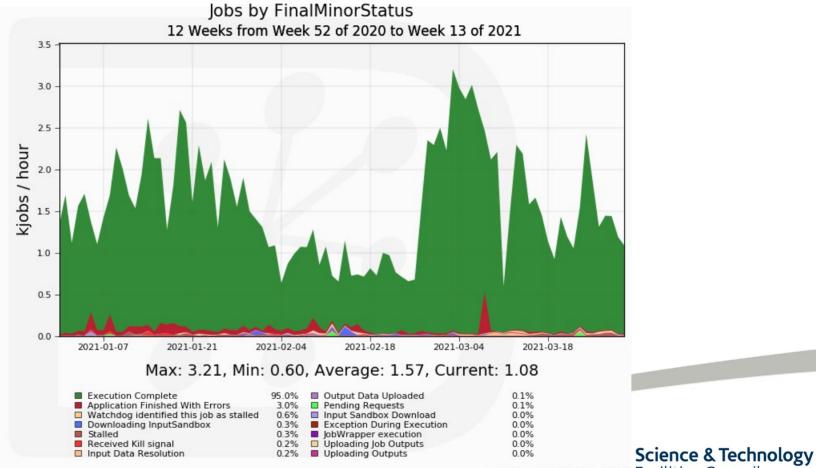
- WG productions and user jobs are affected by the ECHO streaming issue
 - Partial workaround : limiting number of input files to alleviate job failure rate
 - Problem with old versions of LHCb applications (from Jan 2021)
 - Authentication issue / old versions of xrootd client - thanks @Tom Byrne
 - (Partial) fix on LHCb end in Jan 2021
 - Some remaining edge cases
 - e.g. Some of the new xrootd binaries not available for sl6
- Simulation is obviously the best

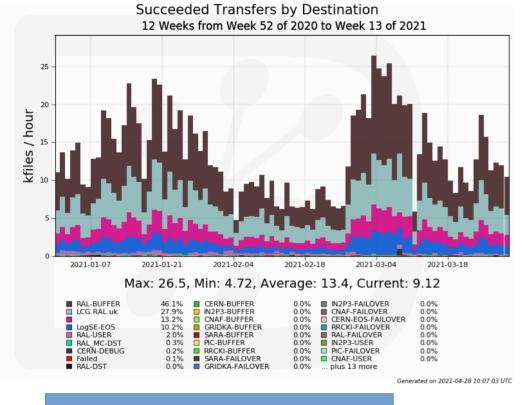


Job efficiency at Tier-1 sites



Jobs by outcome

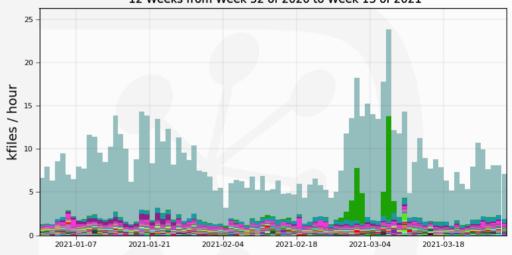




Transfers out of RAL WNs

Transfers into RAL SEs by source

Succeeded Transfers by Source 12 Weeks from Week 52 of 2020 to Week 13 of 2021



Max: 23.9, Min: 3.21, Average: 8.75, Current: 6.22

LCG.RAL.uk	74.3%	LCG.UKI-LT2-QMUL.uk	0.7%	DIRAC.UZH.ch	0.3%	LCG.Bristol.uk	0.2%
lbvobox309.cern.ch	4.3%	CERN MC-DST-EOS	0.4%	LCG.LAPP.fr	0.3%	LCG.ECDF.uk	0.2%
LCG.UKI-LT2-IC-HEP.uk	4.2%	LCG.Beijing.cn	0.4%	LCG.Durham.uk	0.2%	LCG.IHEP.ru	0.2%
LCG.RAL-HEP.uk	2.0%	LCG.JINR.ru	0.4%	LCG.CPPM.fr	0.2%	LCG.Liverpool.uk	0.2%
DIRAC.Client.ch	1.5%	LCG.BEER.cern	0.3%	LCG.Lancaster.uk	0.2%	DIRAC.Client.local	0.2%
LCG.MIT.us	1.4%	LCG.UKI-LT2-RHUL.uk	0.3%	LCG.LPNHE.fr	0.2%	LCG.NCBJ.pl	0.1%
LCG.NIKHEF.nl	1.3%	LCG.NIPNE-07.ro	0.3%	LCG.CBPF.br	0.2%	LCG.USC.es	0.1%
LCG.CSCS.ch	1.0%	LCG.Manchester.uk	0.3%	LCG.LPC.fr	0.2%	RAL-RDST	0.1%
LCG.LAL.fr	0.7%	Failed	0.3%	DIRAC.Client.uk	0.2%	plus 90 more	

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Streaming out of ECHO

- https://ggus.eu/?mode=ticket_info&ticket_id=142350
- Lots of work on it with Tom Byrne
 - https://wiki.e-science.cclrc.ac.uk/web1/bin/view/EScienceInternal/LHCbJobFailure
 - And support from xrootd developers
 - https://github.com/xrootd/xrootd/issues/1259
 - Problem identified in xrootd-ceph interface
- > Development of fix to xrootd-ceph interface
 - Work ongoing by George Patargias and Ian Johnson
 - Ongoing testing of the fixes whenever available
- > Other methods of alleviation
 - Some retuning of blocksizes in production already
 - Has helped some ATLAS workflows
 - Main help for now from reducing the number of input files in a job
 - And resubmission of jobs on failure



Summary

- Many thanks to Tier-1 team!
 - RAL a critical part of LHCb computing
 - Ongoing issue with streaming (slide 8)
 - Among others
- Looking forward from LHCb
 - Also another round of reprocessing
 - Later this year
 - Migration to CTA at RAL



Backup – Jobs by final status : CNAF

- ~ similar size to RAL
 - up to a point (slide 4)
- Note : Application finished with errors = 1.5%
 - 3% at RAL

(slide 7)

