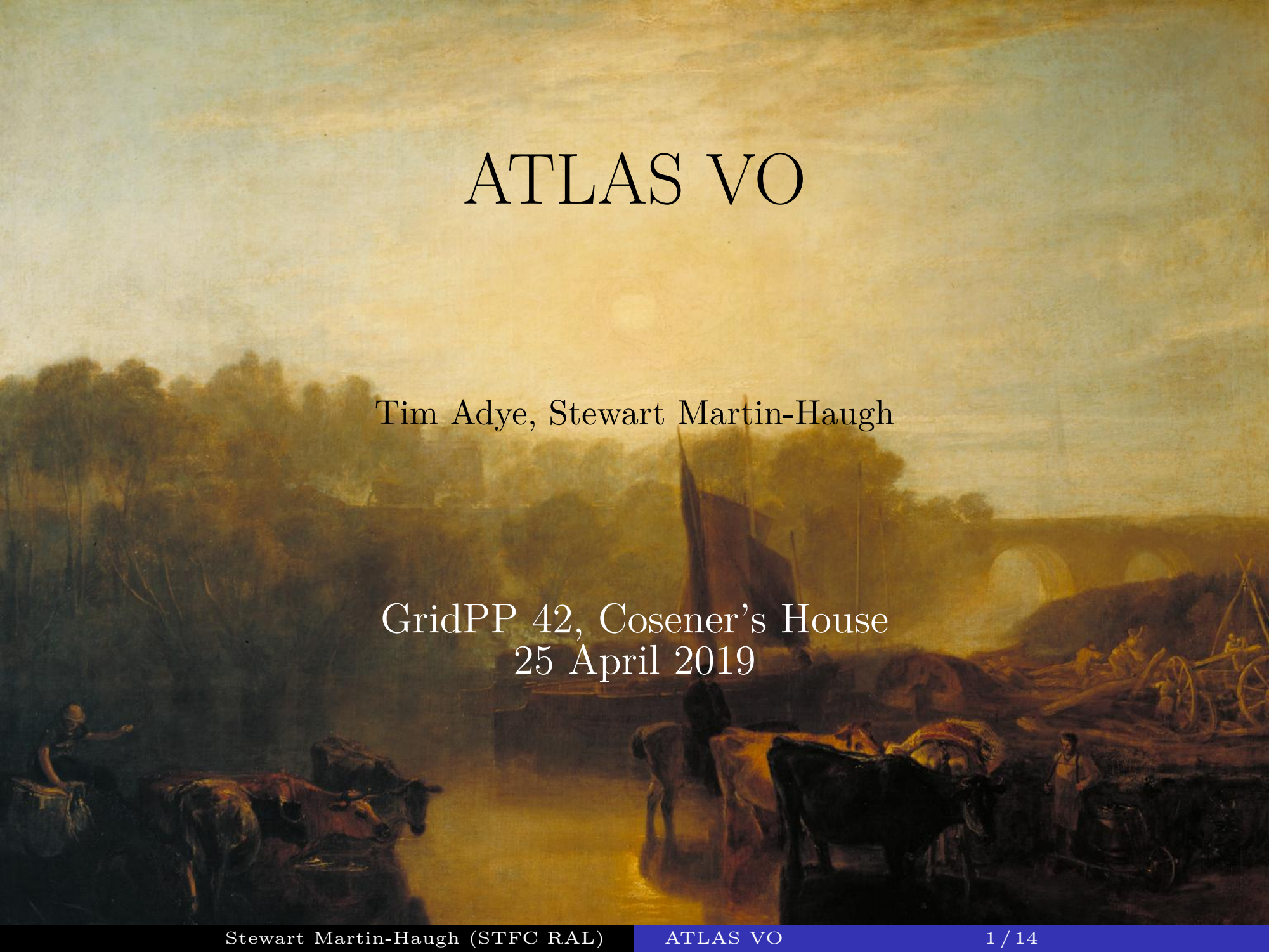


ATLAS VO

Tim Adye, Stewart Martin-Haugh

GridPP 42, Cosener's House
25 April 2019

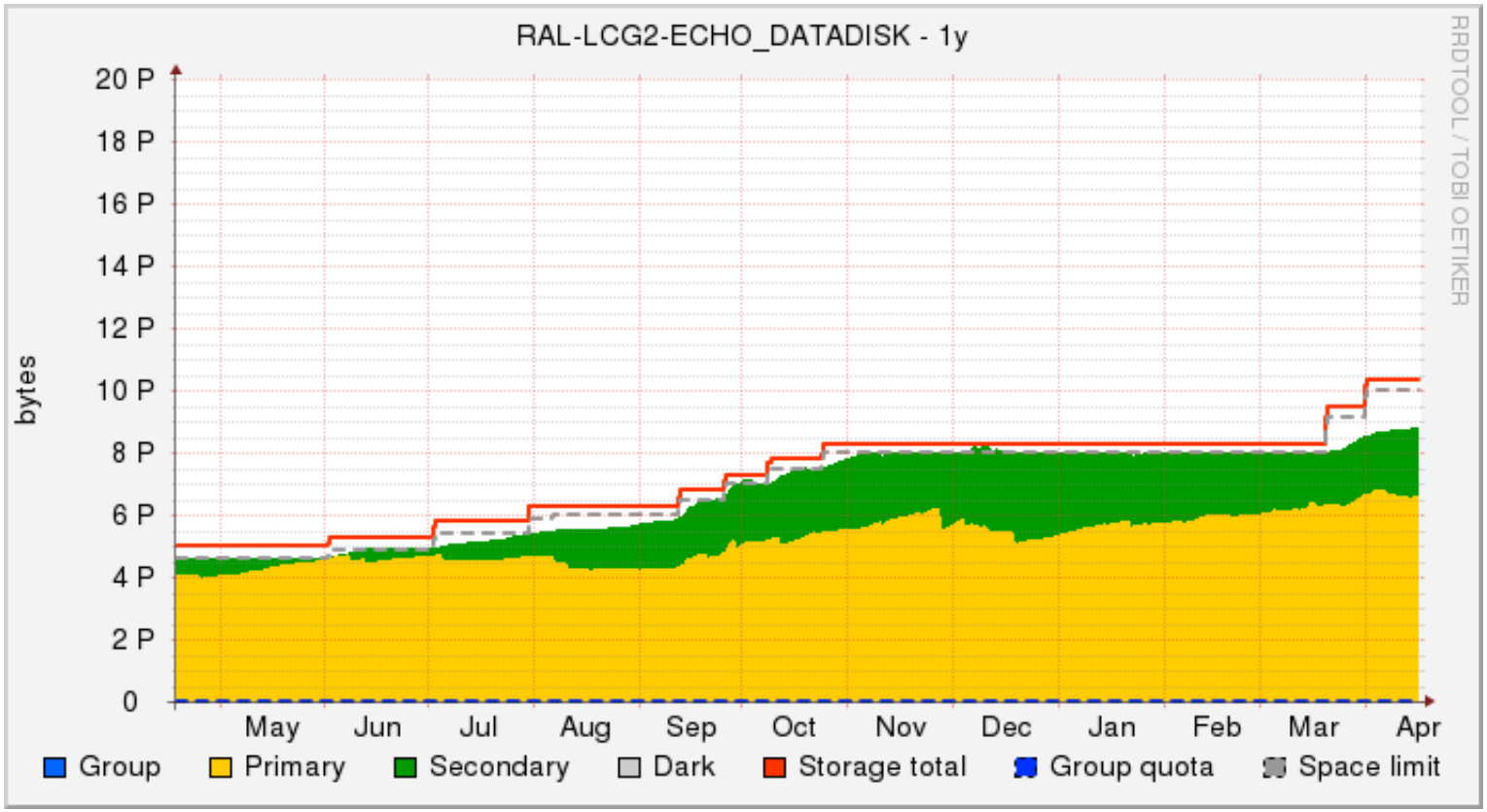
Self-introduction

Stewart Martin-Haugh

- 2009 - 2013: PhD, ATLAS SUSY (Sussex)
- 2013 - April 2019: ATLAS Trigger Software Developer (RAL)
  - Leading ATLAS trigger migration to multi-threaded framework
  - Strong interest in profiling and optimisation (e.g. workshop for PhD students)
- As of April 1st: 50% trigger, 50% Tier-1/UK cloud job-share with Tim Adye
- Act as an interchangeable team: contact either of us and your problem will be solved
- Benefit from different expertise and background
  - Tim: storage
  - Stewart: CPU/batch farm

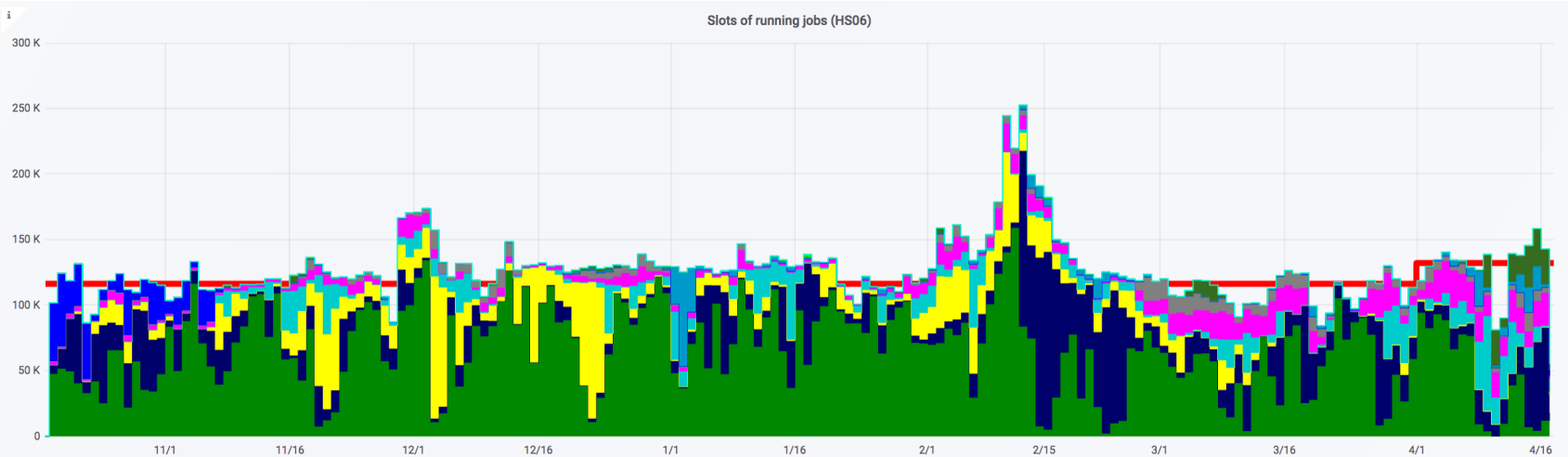
RAL Echo disk

- Met new ATLAS storage pledge (1st April onwards) - had already met 2018 pledge



CPU: Tier-1

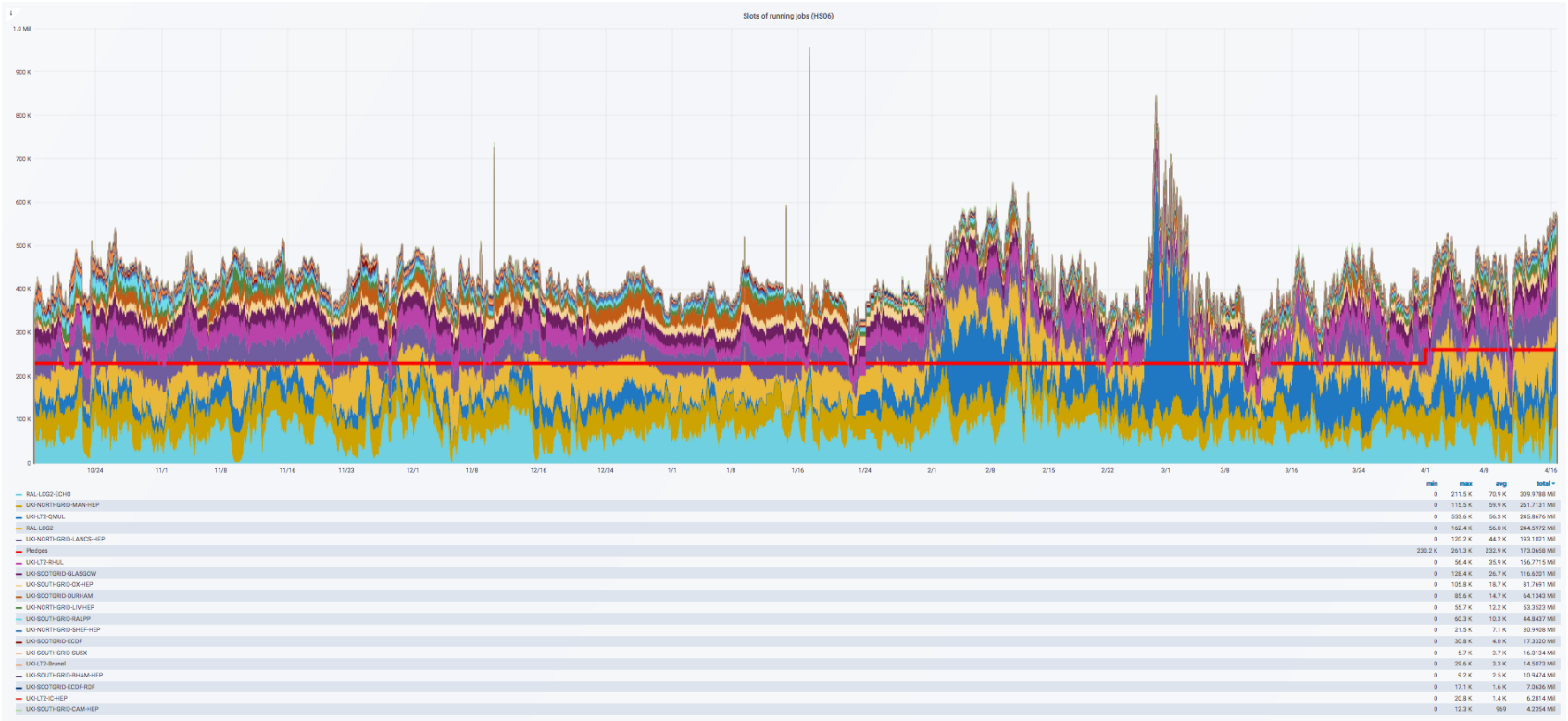
- RAL operating above ATLAS pledge over last 6 months
- Increased pledge on 1st April to meet new MoU (comes from LHC requirements + % of ATLAS members in UK)



	min	max	avg	total
Pledges	116.3 K	132.1 K	117.8 K	87.6350 Mil
Group Production	0	159.0 K	64.8 K	11.8610 Mil
MC Reconstruction	0	135.5 K	21.9 K	4.0094 Mil
Data Processing	0	108.3 K	13.4 K	2.4437 Mil
MC Simulation Full	0	72.2 K	8.4 K	1.5423 Mil
User Analysis	0	28.8 K	7.8 K	1.4260 Mil
Group Analysis	0	18.2 K	3.6 K	659.5 K
MC Simulation	0	55.8 K	2.5 K	459.2 K
MC Simulation Fast	0	71.3 K	2.1 K	386.6 K
MC Event Generation	0	31.9 K	1.5 K	272.6 K

CPU: Cloud

- Sum of all UK cloud sites also above ATLAS pledge
- Note: includes RAL as two sites, explained later on



Frontier

- Migrated ATLAS Frontier service from Hyper-V to VMWare (3 server VMs)
- Added essential monitoring: ATLAS can understand the impact of decommission in January, as part of phasing out Oracle at RAL.
- ATLAS should be OK with remaining servers at CERN + IN2P3 + TRIUMF
- See also ATLAS Jamboree slides

File Transfer Service (FTS)

- Long saga of lost files in RAL Echo (GridFTP) and Glasgow (SRM)
- Eventually tracked down to an FTS bug, which FTS developers fixed in version 3.8.3 (Feb 2019)
  - FTS started multiple simultaneous transfers for the same file
  - These interfered with each other, resulting in transferred file being deleted, but FTS reporting successful transfer
  - Only noticed when ATLAS requested file sometime later
- New version deployed on RAL FTS and elsewhere and problem not seen since
- Performing Rucio consistency checks for Tier-1 and Tier-2 disks to track down remaining "lost" files

Diskless sites

- ATLAS recommendation for Tier-2 sites:
  - "redirect funding from storage to CPUs for lightweight Grid sites", i.e. <520 TB in 2019 (Jamboree slides)
- No pressure from ATLAS: lightweight sites can remove local disk at their convenience
  - for UK, will be coordinated by UK cloud group
- Can use disk from a nearby site, either with
  - Direct access, running low-I/O jobs (eg. MC production); or
  - Via a buffer, eg. XCache (discussed yesterday)
- ATLAS first candidate is Birmingham
  - Running direct access to Manchester since October
  - Now have XCache setup and working on ATLAS configuration

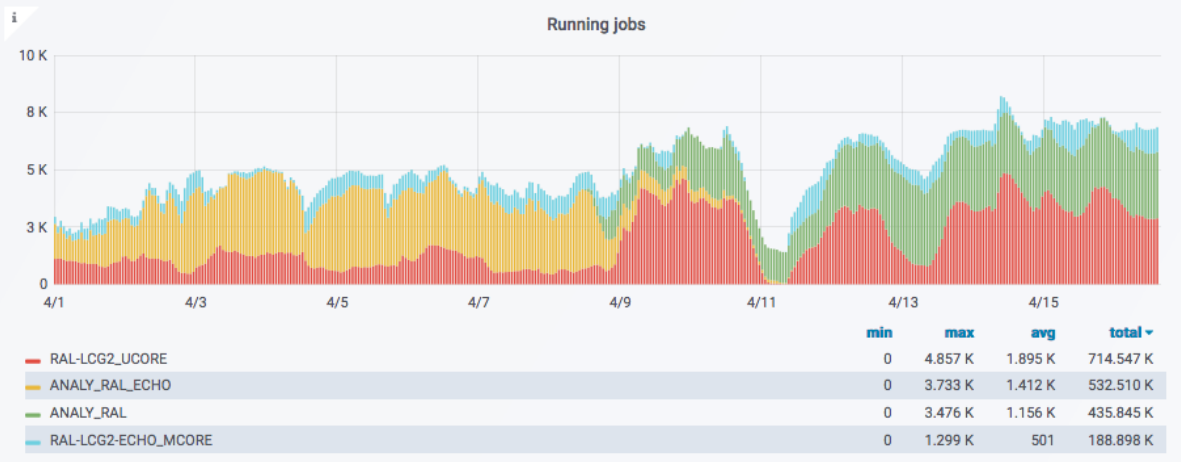
Harvester

- Move from ATLAS Pilot Factory to new Harvester system
- Migration completed at all clouds except US
- Strong preference for unified queue - this means single/multi-core jobs may be submitted
  - Leads to potential difficulty with global share, if ATLAS e.g. prioritises single-core workloads

Not to be confused with the threshing machine or Mass Effect monster

RAL Echo migration/site merging

- During the migration to Echo, two PanDA “sites” started:
  - RAL-LCG2
  - RAL-LCG2-ECHO
- Now that ATLAS has stopped using CASTOR for disk, fold RAL-LCG2-ECHO queues back into RAL-LCG2
- Analysis queue migrated (ANALY_RAL)
- Production queue migration in progress (RAL-LCG2_MCORE_TEMP, _TEMP needed since we already have RAL-LCG2_MCORE)

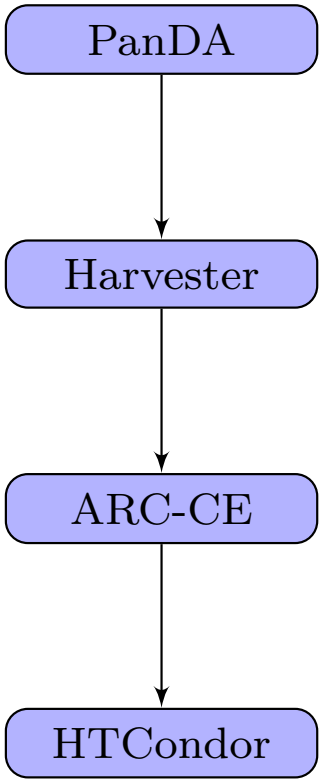


RHEL 7 migration

- Must migrate to RHEL7 or equivalent (e.g. CentOS 7) by 1st June 2019
- Led by Alessandra Forti (Manchester) for all grid sites
- Nearly 50% complete for UK cloud
- Also require Singularity to be installed, with additional requirements for some sites (e.g. underlay/overlay enabled)

RAL CE migration

- Plan to investigate moving from ARC-CE to HTCondor-CE for submission to HTCondor
- Multi-stage process (requires fix for APEL accounting, see Steve Jones' talk at this meeting)



Conclusions

- Excellent operation since GridPP 41
- Finishing migrations and working on upgrades

Title image

- Abingdon by Turner, Tate
- Impossible composite view of Abingdon and Dorchester