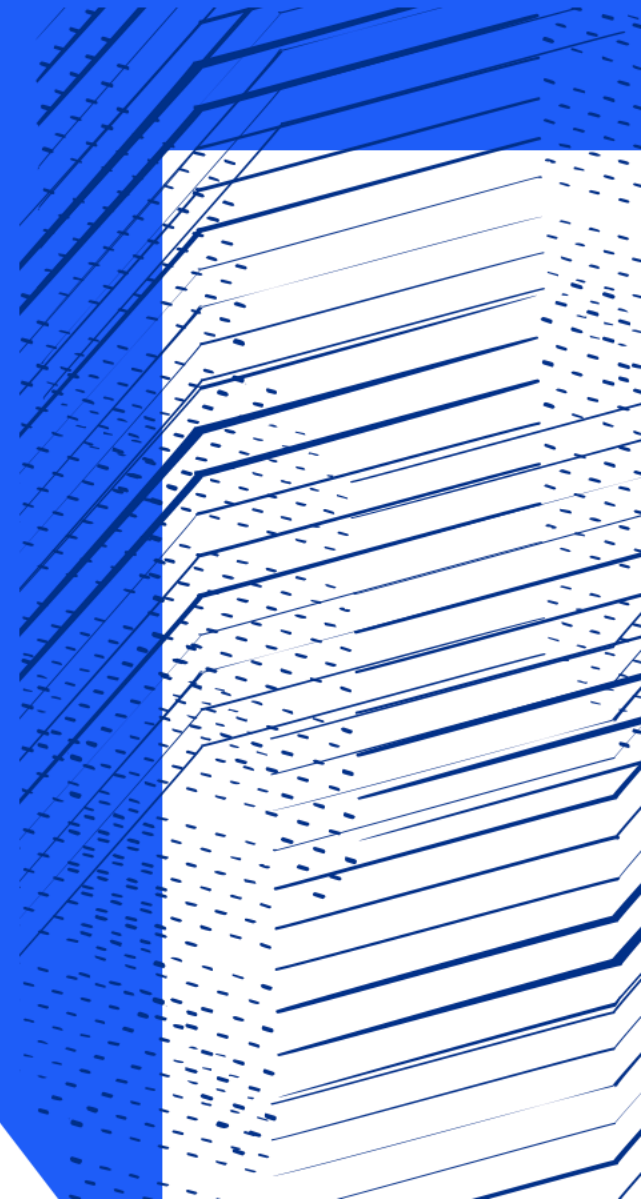




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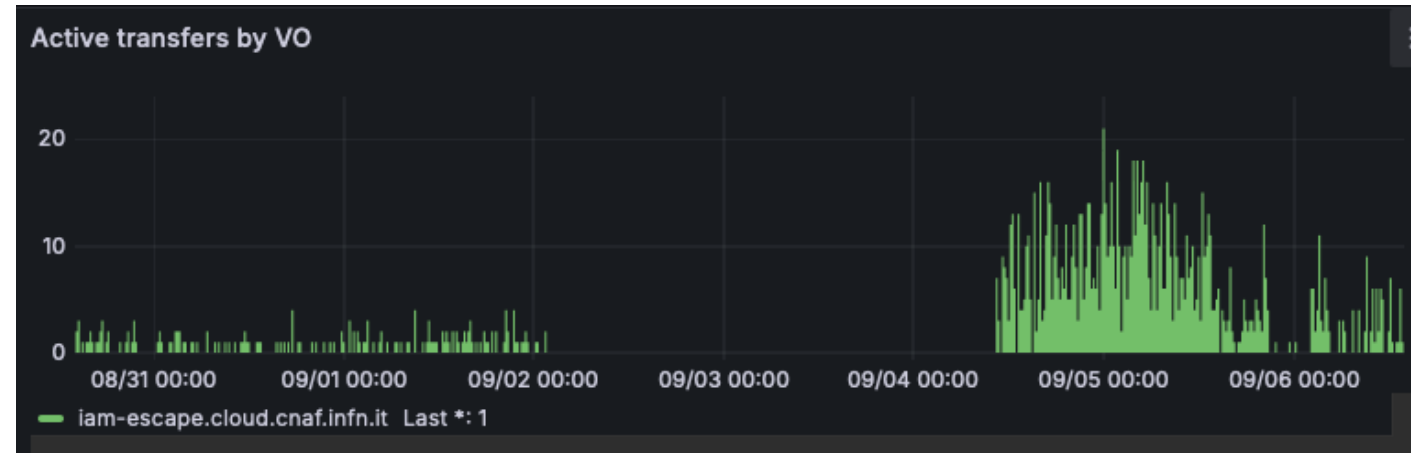
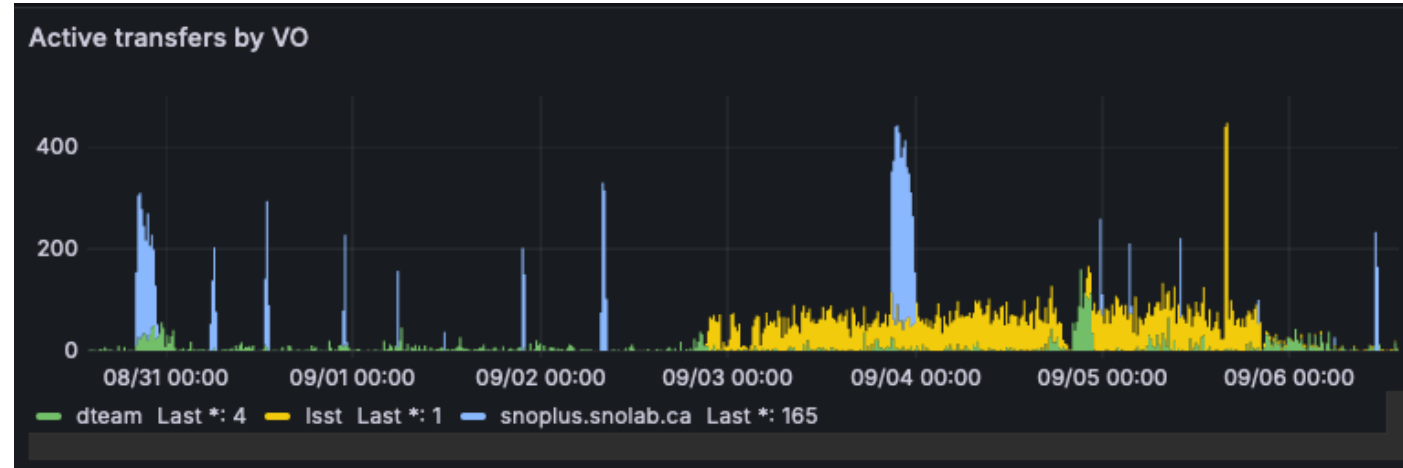
# FTS at RAL – site update

Rose Cooper  
*rose.cooper@stfc.ac.uk*



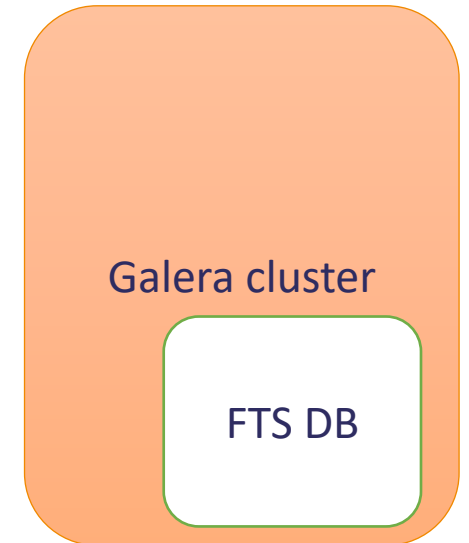
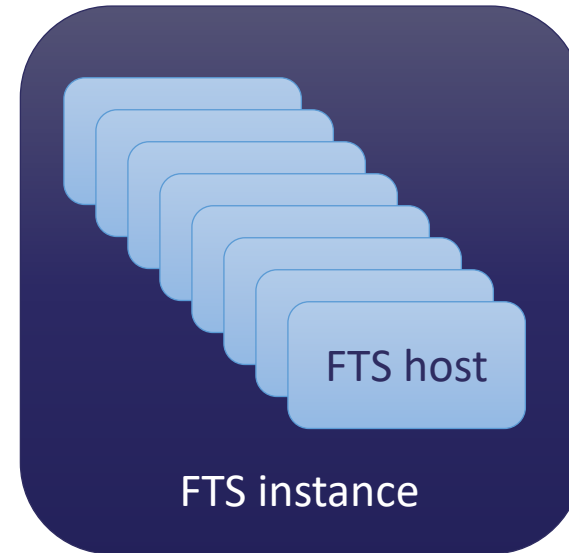
# Overview of FTS at RAL

- Primarily used by snoplus, dteam, CMS, LSST and SKA
  - Separate instance for SKA
- Average 1-1.5M files per week
- LSST submit large volumes of smaller jobs



# Current FTS configuration

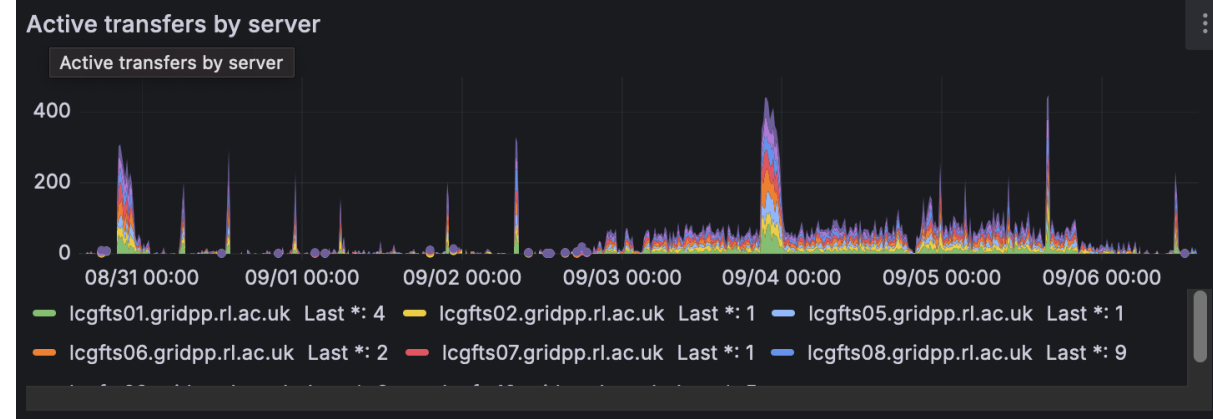
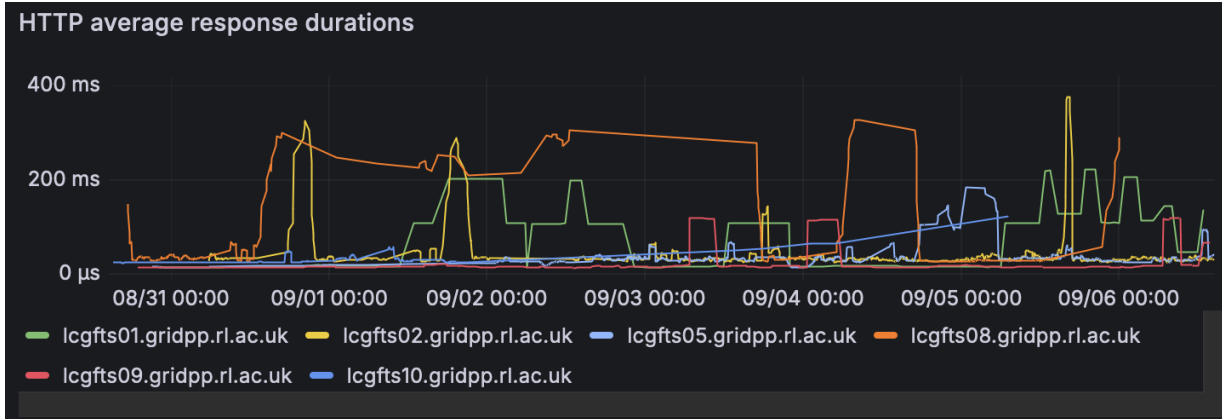
- 3 FTS instances comprising of 16 VM hosts
  - 8 hosts for WLCG instance
  - 4 for SKA instance
  - 4 for fts-test
- Main database cluster managed by SCD database team



# Planned changes to FTS configuration at RAL

- Finish upgrade to FTS version 3.13!
  - Planned for later this month
- Complete migration to centrally managed database
- Test routine transfers using SKA-IAM

# FTS monitoring



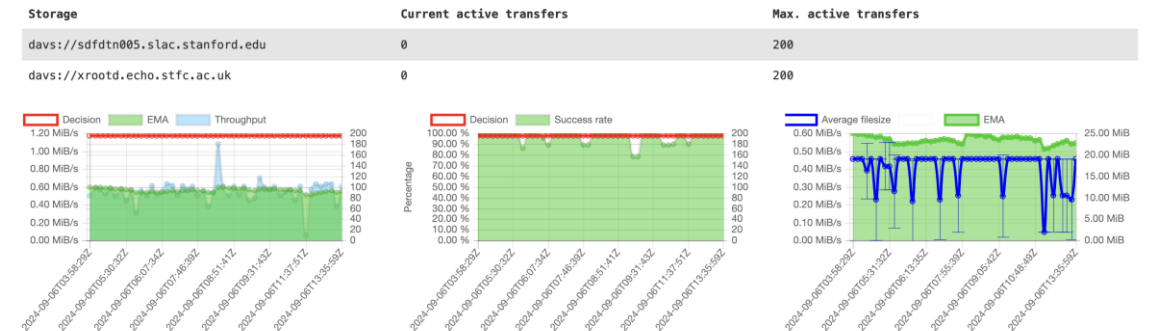
## Overview

Showing 1 to 24 out of 24 from the last 24 hours

First Previous 1 Next Last

Source	Destination	VO	Submitted	Active	Staging	S.Active	Archiving	Finished	Failed	Cancel	Rate (last 1h)	Thr.
+ davs://xgate.hec.lancs.ac.uk	davs://webdav.echo.stfc.ac.uk	dteam	5	-	-	-	-	15867	-	-	100.00 %	7.68 MiB/s
+ davs://sdfdt005.slac.stanford.edu	davs://xrootd.echo.stfc.ac.uk	lsst	-	4	-	-	-	2706	40	-	98.54 %	-
+ davs://sdfdt005.slac.stanford.edu	davs://xgate.hec.lancs.ac.uk	lsst	-	1	-	-	-	2709	6	-	99.78 %	-
+ davs://xgate.hec.lancs.ac.uk	davs://sdfdt005.slac.stanford.edu	lsst	-	-	-	-	-	2708	-	-	100.00 %	0.38 MiB/s
+ davs://xrootd.echo.stfc.ac.uk	davs://sdfdt005.slac.stanford.edu	lsst	-	-	-	-	-	2715	-	-	100.00 %	0.01 MiB/s
+ davs://gfe02.grid.hep.ph.ic.ac.uk	davs://webdav.echo.stfc.ac.uk	dteam	-	-	-	-	-	16619	-	-	100.00 %	7.06 MiB/s
+ davs://gfe02.grid.hep.ph.ic.ac.uk	davs://mover.pp.rl.ac.uk	dteam	-	-	-	-	-	16617	-	-	100.00 %	7.09 MiB/s
+ davs://	davs://	dteam	-	-	-	-	-	16620	-	-	100.00 %	7.06 MiB/s

## Details for davs://sdfdt005.slac.stanford.edu → davs://xrootd.echo.stfc.ac.uk



# FTS and SKA

- Rucio & FTS have been selected as one of the data movement tools for SKA alongside Rucio
- Currently run a prototyping/preproduction FTS instance at RAL for SKA
  - Will transition to production
- Exclusively using tokens, not X.509 certificates

# FTS & SKA & tokens

Source	Destination	VO	Submitted	Active	Staging	S.Active	Archiving	Finished	Failed	Cancel	Rate (last 1h)	Thr.	
+ davs://storm.srcdev.skao.int	davs://humpback.rcs.uvic.ca	iam-escape.c	-	-	-	-	-	4	5	-	44.44 %	0.00 MiB/s	📶 👁
+ davs://spsrc14.iaa.csic.es	davs://humpback.rcs.uvic.ca	iam-escape.c	-	-	-	-	-	5	5	-	50.00 %	0.00 MiB/s	📶 👁
+ davs://amnesiac.cloud.cnaf.i	davs://humpback.rcs.uvic.ca	iam-escape.c	-	-	-	-	-	4	5	-	44.44 %	0.00 MiB/s	📶 👁
+ davs://xrootd01.uksrc.rl.ac.	davs://humpback.rcs.uvic.ca	iam-escape.c	-	-	-	-	-	5	-	-	100.00 %	-	📶 👁

```
$ fts-rest-transfer-submit --access-token=$token -s https://fts3-ska.scd.rl.ac.uk:8446/ https://storm.srcdev.skao.int/sa/test https://xrootd01.uksrc.rl.ac.uk:1094/denebdev/testbed/test
```

Job successfully submitted.

Job id: 2a83d78a-58a6-11ef-8c8f-001dd8b71d81

```
$ fts-rest-transfer-status --access-token=$token -s https://fts3-ska.scd.rl.ac.uk:8446/ 2a83d78a-58a6-11ef-8c8f-001dd8b71d81
```

Request ID: 2a83d78a-58a6-11ef-8c8f-001dd8b71d81

Status: FINISHED

# Data movement challenges for SKA

- Starting to prepare for future data challenges
  - In the process of defining test campaigns
- Focusing on operational interaction of multiple components
- Will increase in scale with future data challenges
  - Higher data volume
  - Tuning link configurations
  - Additional components & interactions



# Future plans for FTS at RAL

- Testing transfers with SKA
  - Switch to using SKA-IAM tokens
  - Allow access to web monitoring & transfer logs with SKA-IAM
  - Will likely need to configure & test S3 endpoints
  - Can start looking at setting up link config for storage endpoints
- Scale back Icgfts
  - Not getting rid of it!!!!
- Deploy separate databases for each instance

# Summary

- FTS at RAL is running well
- Starting running transfers for SKA
  - Will begin tuning transfers & participating in data challenges in the future
  - Beginning to provide operational support for SKA
- Looking to improve architecture of the service at RAL
  - reduce number of hosts service WLCG
  - Improve resilience of service at RAL



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# Thank you



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@STFC\_matters



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# Page divider – **Arial Bold 48 point**

Subheading - Arial Regular 24 point

# FTS & SKA & tokens

```
$ fts-rest-transfer-submit --access-token=$token -s https://fts3-ska.scd.rl.ac.uk:8446/ https://storm.srcdev.skao.int/sa/test https://xrootd01.uksrc.rl.ac.uk:1094/denebdev/testbed/test
```

Job successfully submitted.

Job id: 2a83d78a-58a6-11ef-8c8f-001dd8b71d81

```
$ fts-rest-transfer-status --access-token=$token -s https://fts3-ska.scd.rl.ac.uk:8446/ 2a83d78a-58a6-11ef-8c8f-001dd8b71d81
```

Request ID: 2a83d78a-58a6-11ef-8c8f-001dd8b71d81

Status: FINISHED