# CC Monitoring : ATLAS needs

## Réunion monitoring

CC-IN2P3, 4 juillet 2011

- ATLAS distributed computing shift teams and monitoring
  - brief introduction
- Monitoring needs
  - p1 shifters => this talk
  - ADCoS and Squad => Luc
  - Summary of our requests => Éric

# ATLAS Distributed Computing shifts teams and monitoring

## Comp@Point-1: Shifts on Atlas Distributed Computing at Point-1

- Initial data merging and reconstruction at T0
- Data export from T0 to T1 and T2 calibration centers
- Data distribution (T1-T1)
- Central ATLAS Services (DDM, …)

## ADCoS: Shifts on Atlas Distributed Computing

- Official production (MC, Reprocessing) at T1 and T2
- Real and MC data distribution (T1-T1, T1-T2)

## Cloud Squad: main interface between ATLAS and sites of the cloud

- Ensure optimal functioning of sites (T1, T2, T3) in the cloud
- Cloud operation (pilot factory, FTS …)
- Interface between ATLAS and sites of the cloud

## DAST: Shifts on Distributed Analysis

- User Analysis on GRID
- User Data Access, User Data Replication

# Comp@p1 and T1s

Among other tasks, Comp@p1 shifters follow up the export of collision data (raw and processed) from Tier-0 at CERN to Tier-1s :

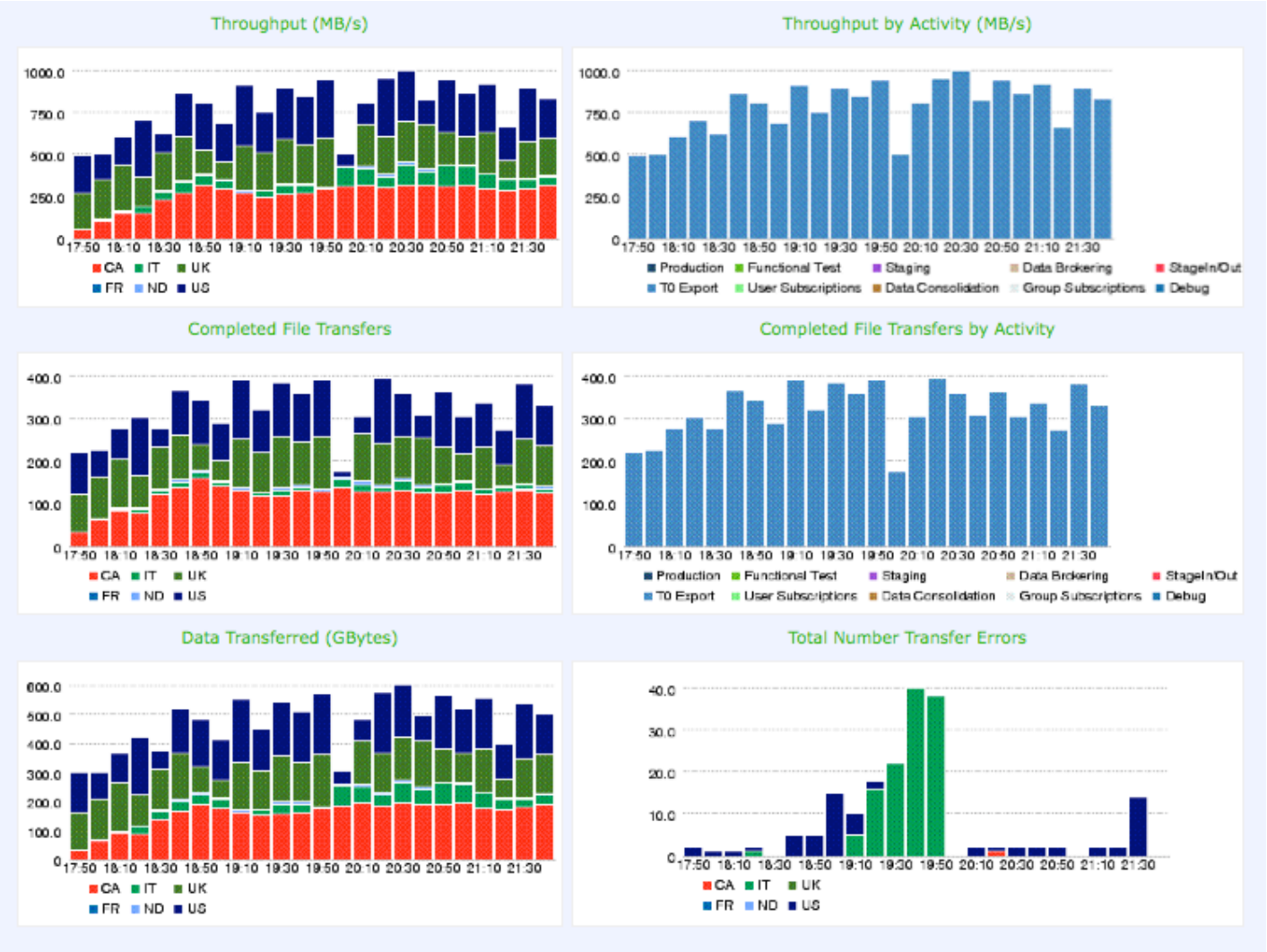
- Monitor the data distribution from Tier-0 to Tier-1s using the DDM Dashboard
- Monitor Functional Tests between sites to catch and resolve issues at the relevant sites pre-emptively
- Check the T1_DATATAPE buffer spaces
- Check the T1_DATADISK spaces

=> Understand the problems

=> Report Tier-0 to Tier-1/Tier-2 data distribution problems to sites

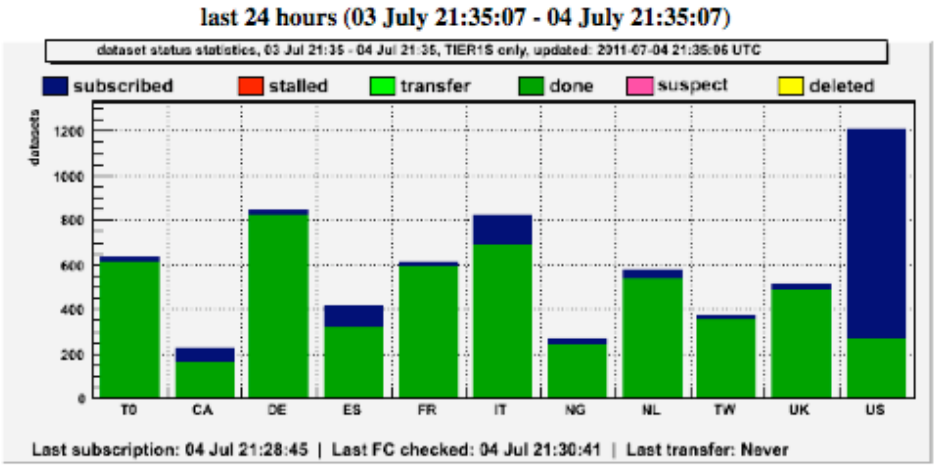
# Comp@p1 ATLAS tools I

## Data export : DDM

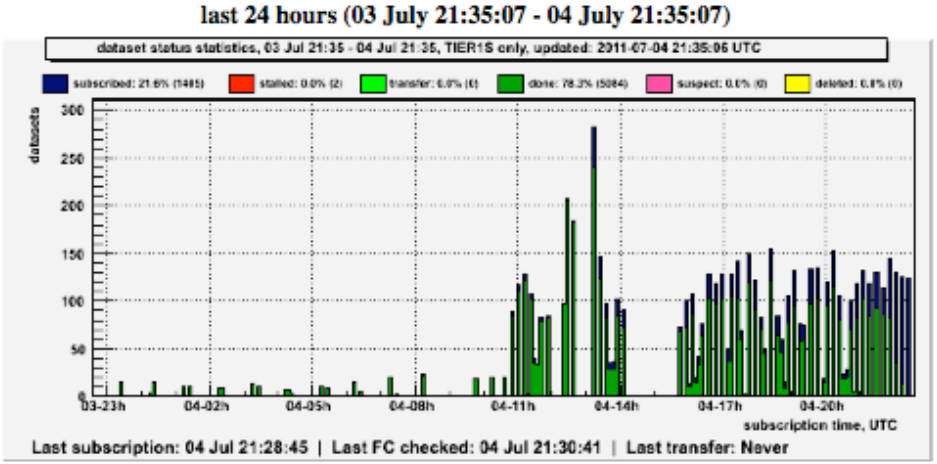


# Comp@p1 ATLAS tools II

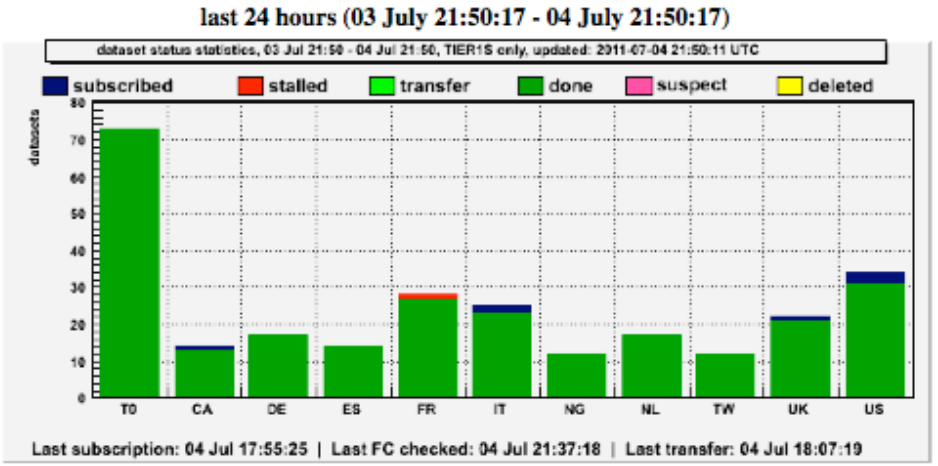
## Functional tests



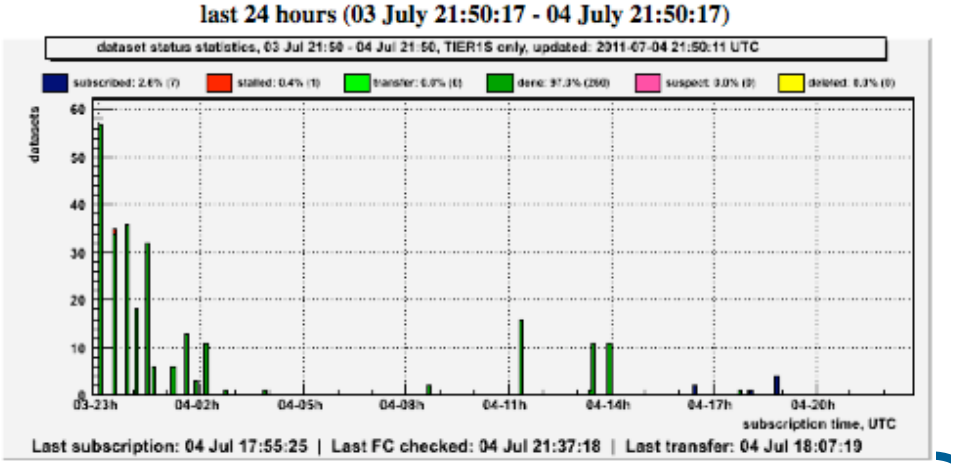

TIER1S




## Real transfers



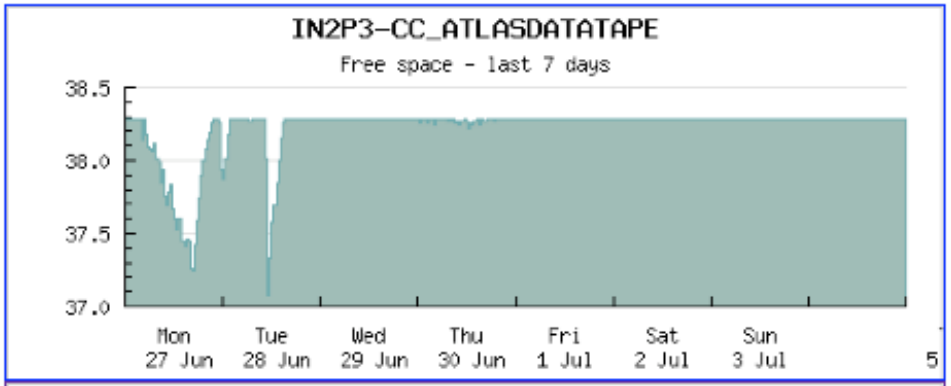

TIER1S

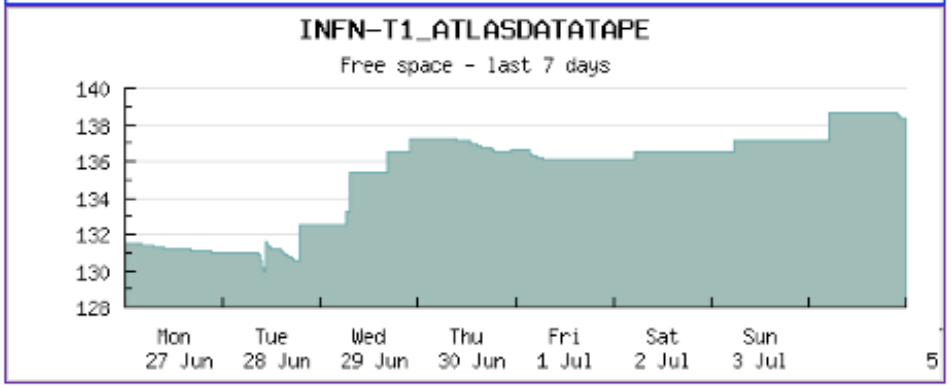


# Comp@p1 ATLAS tools III

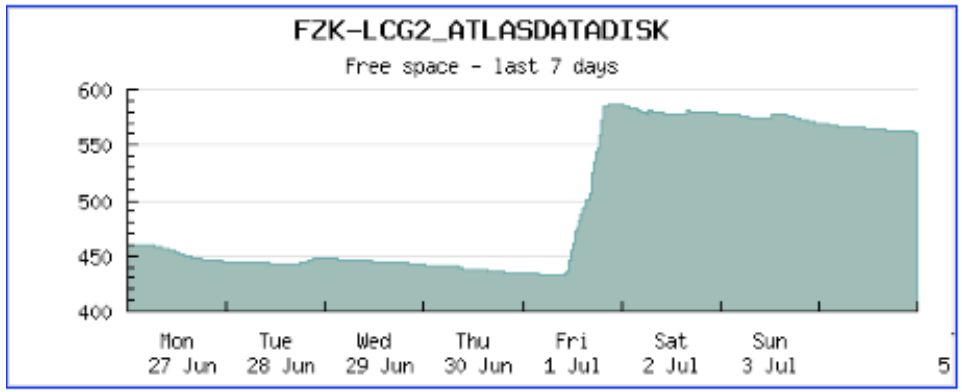
Free spaces at T1 are monitored :

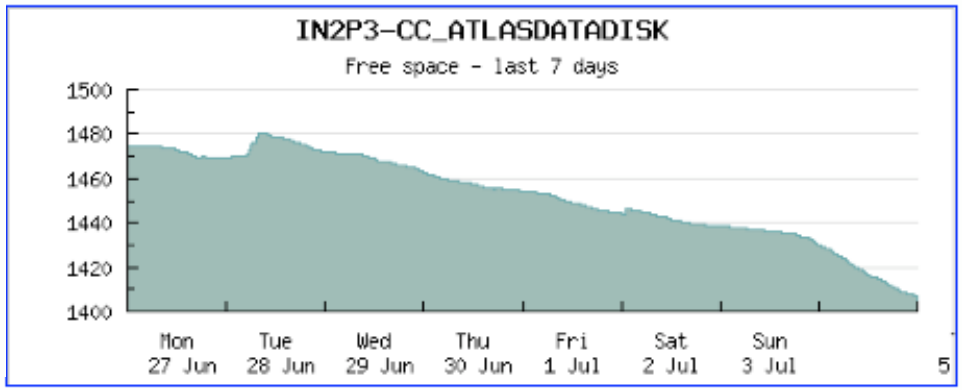
Datatape buffer




Datadisk



# How to understand the problems ?

Problems can be due to services at T1:

- LFC, SRM, FTS

=> Need to properly monitor these to understand what's goinig on …

FTS monitoring tools are listed for all clouds

| | | | |
|---|---|---|---|
| T1-T1 to BNL-OSG2 T1-T2 within BNL cloud | BNL-OSG2 | http://www.usatlas.bnl.gov/fts-monitor/ftsmon/index Also, links to FTS monitor available in the DQ2 log (search for lines with "FTS ID") http://www.usatlas.bnl.gov/dq2log/dq2log | |
| T1-T1 to FZK-LCG2 T1-T2 within FZK cloud | FZK-LCG2 | http://ftm-fzk.gridka.de/ftsmonitor/ | http://ftm-fzk.gridka.de/transfer-monitor-report/ |
| T1-T1 to IN2P3-CC T1-T2 within LYON cloud | IN2P3-CC | https://cctools2.in2p3.fr/stockage/fts/monitoring/ftsmonitor.php?vo=atlas×cale=12 FTS logs: http://cclcgftmli02.in2p3.fr/transferlogs/ | http://cclcgftmli02.in2p3.fr/ |
| T1-T1 to INFN-T1 T1-T2 within CNAF cloud | INFN-T1 | https://lemon.cr.cnaf.infn.it/ftsmonitor/ | http://tier1.cnaf.infn.it/ftmmonitor/transfer-monitor-report/ |
| T1-T1 to NDGF-T1 and T1-T2 within NDGF cloud | NDGF-T1 | Throughput rate: http://fts001.nsc.liu.se , Channel load: http://fts001.nsc.liu.se/transfer-monitor-report/channel/transfer/hour/index.html | http://fts001.nsc.liu.se/transfer-monitor-report/ |
| T1-T1 to PIC | pic | https://ftm.pic.es/ftsmonitor/ | https://ftm.pic.es/transfer-monitor- |

# FTS Monitoring

## And what we have

**Jobs statistics (submitted last 12 h)**

| CHANNEL | Ready | Active | Finished | FinishedDirty | Failed | Canceled |
|---|---|---|---|---|---|---|
| TOTAL | | | 2431 | | 998 | |
| ATLAST1-LAL | 3 | | | | 21 | |
| ATLAST1-LPNHE | | 1 | 6 | | | |
| ATLAST1-TOKYO | 9 | | 38 | | | |
| ATLAST2D-IN2P3 | | | 88 | | 38 | |
| BEIJING-IN2P3 | | | 69 | | | |
| BELGIUMUCL-IN2P3 | | | | | 24 | |
| BELGIUMULB-IN2P3 | | | 6 | | | 1 |
| BNL-IN2P3 | 9 | | 16 | 8 | | |
| CNAF-IN2P3 | | | 49 | | | |
| CPPM-IN2P3 | | | 66 | | | |
| FNAL-IN2P3 | | | 8 | | | |
| GRIDKA-IN2P3 | | | 66 | | | |
| IN2P3-BEIJING | | | 53 | | | |
| IN2P3-BELGIUMULB | | | 10 | | | |
| IN2P3CCT2-IN2P3 | | | 9 | | | |
| IN2P3-CPPM | | | 55 | | | |
| IN2P3-IN2P3 | | | 6 | | | |

## And what we need :

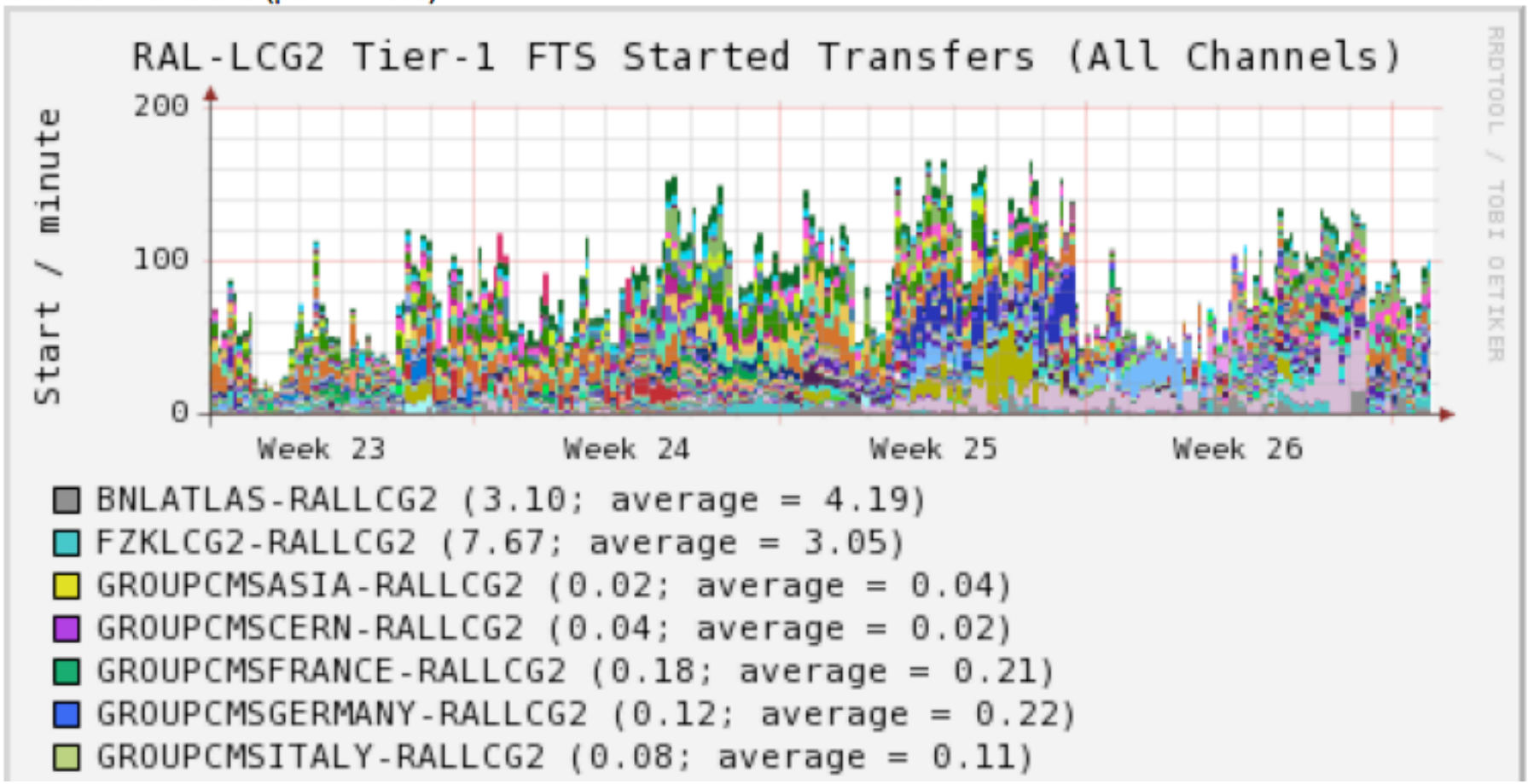
- Global view of transfers:
  - What are the started/running/waiting/done/failed transfers
  - What are the transfer rates ?
- Historical view

# FZK FTS Monitoring

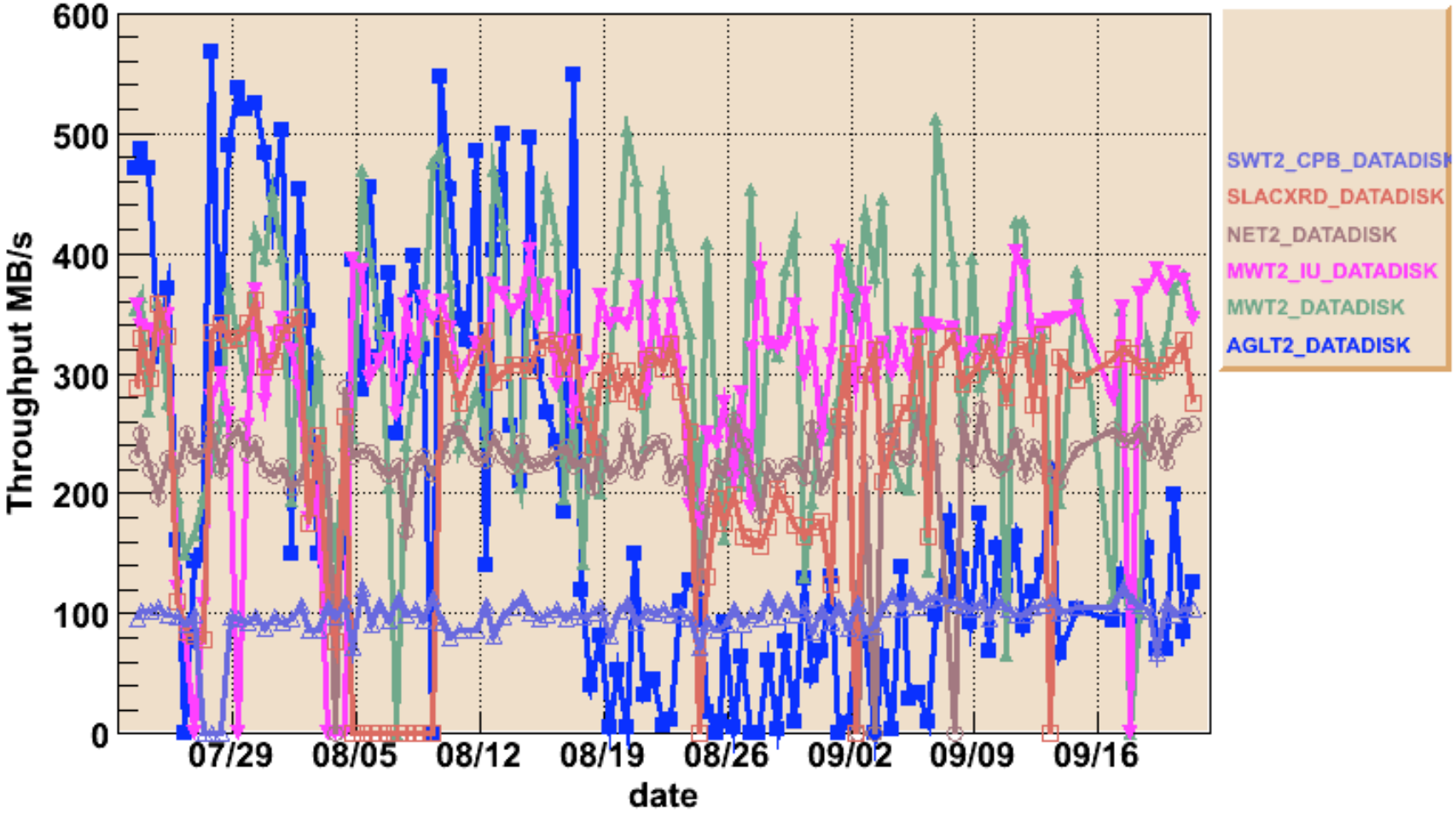
| Channel Name | VO Name | Total | % Failures | # Succ. | # Fail. | 1st Failure Reason | % 1st Failure Reason | 2nd Failure Reason | % 2nd Failure Reason | Avg. Size (GiB) | Avg. Duration (sec) | Avg. Tx Rate (MB/sec) | Eff. Tx Bytes (GiB) | Tx Bytes (GiB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATLT1-MPPMU | [All] | 26 | 100 | 0 | 26 | TRANSFER_TIMEOUT | 100 | | | 0 | 0 | 0 | 0 | 0 |
| WARSAW-FZK | [All] | 1 | 100 | 0 | 1 | GRIDFTP_ERROR | 100 | | | 0 | 0 | 0 | 0 | 0 |
| ATLT1-DESYZN | [All] | 7 | 86 | 1 | 6 | HTTP_TIMEOUT | 33 | INVALID_PATH | 33 | 0.05 | 427 | 0.13 | 0.05 | 0.6 |
| FZK-STAR | [All] | 21 | 81 | 4 | 17 | TRANSFER_TIMEOUT | 94 | GRIDFTP_ERROR | 6 | 2.5 | 3410 | 0.77 | 10 | 36.29 |
| FZK-DESYZN | [All] | 101 | 64 | 36 | 65 | GENERAL_FAILURE | 72 | GRIDFTP_ERROR | 26 | 0.01 | 112.67 | 0.14 | 0.18 | 0.27 |
| STAR-UNIFREIBURG | [All] | 94 | 48 | 49 | 45 | GRIDFTP_ERROR | 44 | TRANSFER_TIMEOUT | 16 | 1.34 | 138.41 | 23.11 | 65.76 | 66.03 |
| FZK-UNIFREIBURG | [All] | 9 | 22 | 7 | 2 | TRANSFER_TIMEOUT | 100 | | | 0.38 | 1563 | 0.58 | 2.65 | 2.65 |
| BNL-FZK | [All] | 344 | 16 | 288 | 56 | GENERAL_FAILURE | 39 | HTTP_TIMEOUT | 36 | 0.39 | 66.19 | 5.42 | 112.29 | 112.29 |
| CYFRONET-FZK | [All] | 823 | 13 | 718 | 105 | INVALID_PATH | 69 | GRIDFTP_ERROR | 19 | 0.01 | 24.45 | 0.32 | 6.64 | 6.64 |
| STAR-FZK | [All] | 41 | 10 | 37 | 4 | GRIDFTP_ERROR | 100 | | | 2.5 | 1733.7 | 3.04 | 92.64 | 93.22 |
| UNIFREIBURG-FZK | [All] | 114 | 6 | 107 | 7 | TRANSFER_TIMEOUT | 100 | | | 0.04 | 14.24 | 2.74 | 4.13 | 4.13 |
| FZK-CYFRONET | [All] | 208 | 3 | 201 | 7 | GRIDFTP_ERROR | 71 | GENERAL_FAILURE | 14 | 0.08 | 54.38 | 0.68 | 15.15 | 15.16 |
| FZK-UNIWUPPERTAL | [All] | 195 | 1 | 194 | 1 | GRIDFTP_ERROR | 100 | | | 0.01 | 20.31 | 0.45 | 0.99 | 0.99 |
| ATLBIGT2-FZK | [All] | 492 | 0 | 490 | 2 | GRIDFTP_ERROR | 50 | TRANSFER_TIMEOUT | 50 | 0.12 | 142.92 | 1.28 | 56.71 | 56.71 |
| ATLT1-DESY | [All] | 444 | 0 | 442 | 2 | INVALID_PATH | 100 | | | 0.09 | 14.76 | 4.51 | 38 | 38 |
| CMSGROUPS-FZK | [All] | 3 | 0 | 3 | 0 | | | | | 2.5 | 4105.67 | 1.57 | 7.5 | 7.5 |
| CSCS-FZK | [All] | 13 | 0 | 13 | 0 | | | | | 0.2 | 86.15 | 1.29 | 2.63 | 2.63 |
| DESY-FZK | [All] | 25 | 0 | 25 | 0 | | | | | 0.04 | 11.64 | 3.61 | 1.08 | 1.08 |
| FNAL-FZK | [All] | 2 | 0 | 2 | 0 | | | | | 2.56 | 444 | 5.9 | 5.12 | 5.12 |
| FZK-CMSGROUPS | [All] | 7 | 0 | 7 | 0 | | | | | 2.5 | 2745.14 | 3.71 | 17.5 | 17.5 |
| FZK-CSCS | [All] | 195 | 0 | 195 | 0 | | | | | 0.01 | 51.31 | 0.28 | 1 | 1 |
| FZK-DESY | [All] | 796 | 0 | 796 | 0 | | | | | 0.01 | 38.17 | 0.68 | 8.96 | 8.96 |

# RAL FTS monitoring

Started Transfers (per minute):



# BNL dq2 throughput



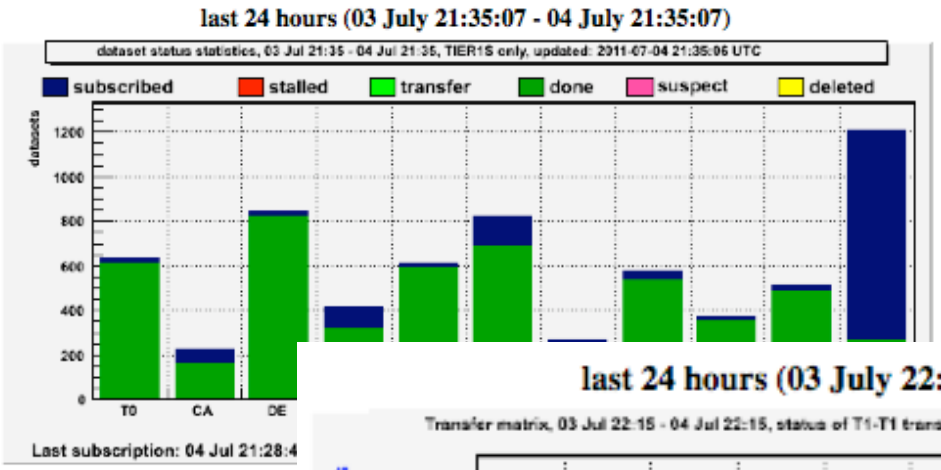
# Other needs

To understand eventual data distribution problems to T1s one need

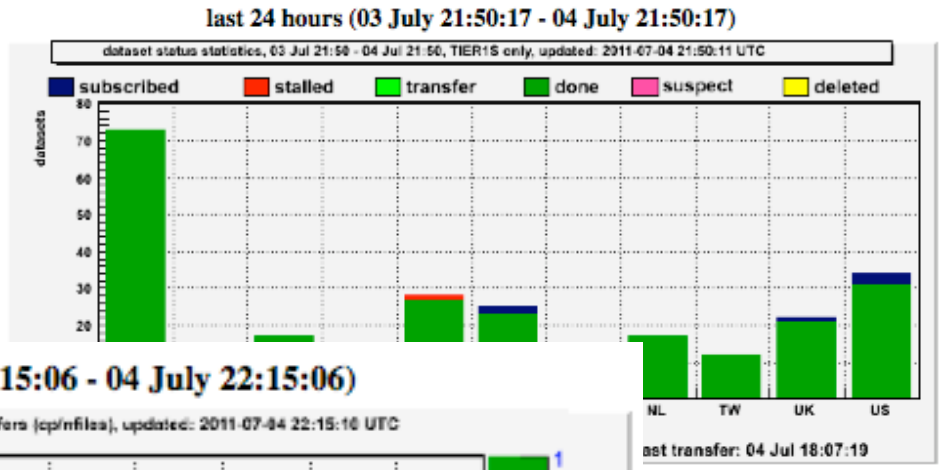
- Status of LFC
- Status of Storage

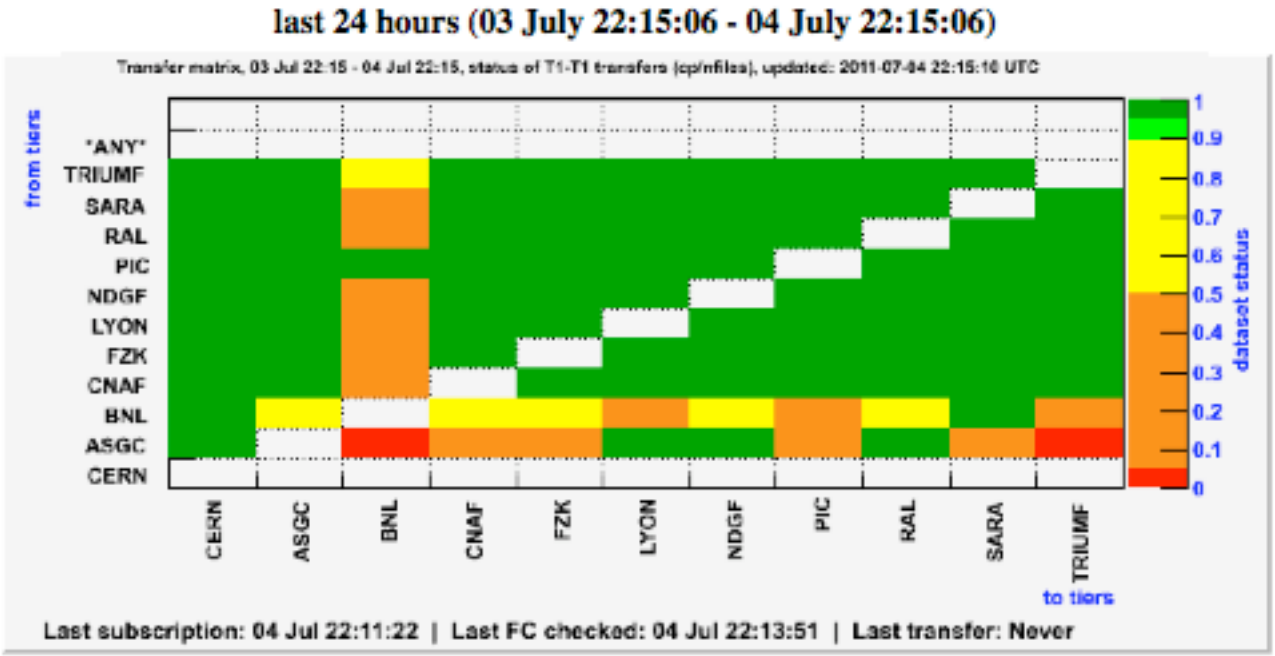
# Comp@p1 ATLAS tools II

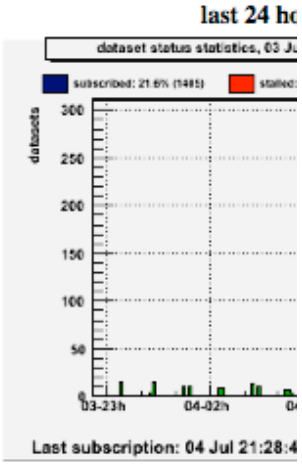
## Functional tests

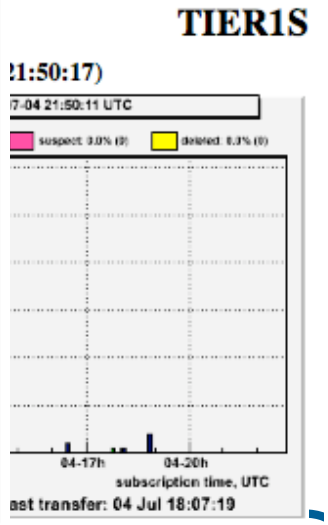



## Real transfers



# ATLAS Distributed Computing shifts teams and monitoring

## ADC Central Operations Team

- A group of experts of various components of ADC
- ADC Expert On-Call (from the operations team)
  - Main responsible for the intervention
  - Interface between shifters and the experts

## ADC Shifts

- Watch the monitors (and do some instructed intervention)
- report to the expert
- notify the sites (ggus) and the cloud squad (email, savannah)

## Cloud Squad or cloud support

- Treat cloud issues and ATLAS-specific issues at the sites
- Interface between the sites and the central operations

## Sites

- Treat site issues, may consult cloud squad for ATLAS-specific issues