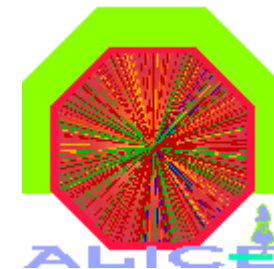


Production Activities and Results by ALICE

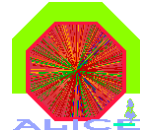
Patricia Méndez Lorenzo
(on behalf of the ALICE Collaboration)

Service Challenge Technical Meeting
CERN, 15th September 2006

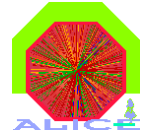




Outline



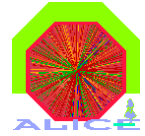
- PDC'06/SC4 goals and tasks
- 1st Phase: Principles of operation and results
- 2nd Phase: Principles of operation and results
- Conclusions and Plans



- Validation of the LCG/gLite workload management services
 - ❑ **Stability** of the services is fundamental for the entire duration of the exercise
- Validation of the data transfer and storage services
 - ❑ 2nd phase of the PDC'06 (***currently fundamental part***)
 - ❑ The **stability** and support of the services have to be assured beyond the throughput tests
- Validation of the ALICE distributed reconstruction and calibration model
- Integration of all Grid resources within one single – interfaces to different Grids (LCG, OSG, NDGF)
- End-user data analysis



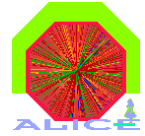
PDC'06 Phases



- First phase (ongoing):
 - ❑ Production of p+p and Pb+Pb MC events
 - ❑ Conditions and samples agreed with PWGs
 - ❑ Data migrated from all Tiers to CASTOR@CERN
- Second phase:
 - ❑ Scheduled data transfers T0-T1
 - ❑ Reconstruction of RAW data: 1st pass
reconstruction at CERN, 2nd pass at T1
 - ❑ Scheduled data transfers T2- (supporting)T1
- Third phase (end of the year)
 - ❑ End-user analysis on the GRID



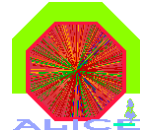
Principles of Operation: VO-box



- VO-boxes deployed at all T0-T1-T2 sites providing resources for ALICE
 - ☐ ***Mandatory requirement to enter the production***
 - ☐ Required in addition to all standard LCG Services
 - ☐ Entry door to the LCG Environment
 - ☐ Runs standard LCG components and ALICE specific ones
- Uniform deployment
 - ☐ Same behaviour for T1 and T2 in terms of production
 - ☐ Differences between T1 and T2 a matter of QoS only.
- Installation and maintenance entirely ALICE responsibility
 - ☐ Based on a regional principle
 - ☐ Set of ALICE experts matched to groups of sites
- Site related problems handled by site administrators
- LCG Service problems reported via GGUS
 - ☐ Not too much, ALICE has delivered experts in almost all sites



General Services Status

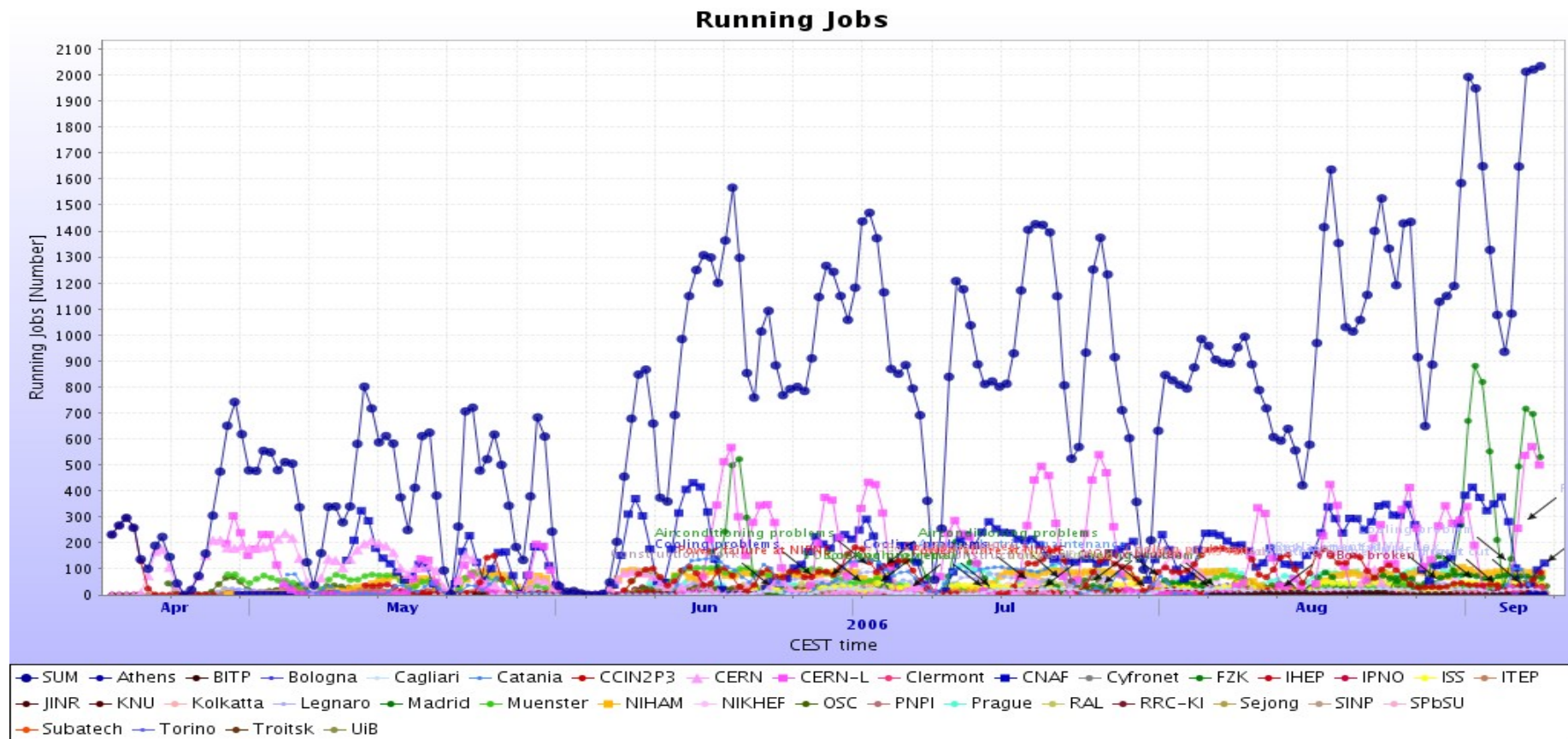


- For production ALICE requires (beyond VO-BOXES), dedicated ALICE queues and if existing access to the local RB
 - ❑ Good respond of sites, good level of performance
 - ❑ Established a quite well define system of SW installation/running/monitoring/support
 - ❑ Important number of T2 sites joining (almost) continuously the production
 - ❑ However production unstable in some sites
 - o Competition with other VOs
 - o Local RB problems
 - o Problems at the site (i.e space in local disk for each job, etc)
 - o The experts team is able to find and recover the problem in a relative short time

ALICE in the World

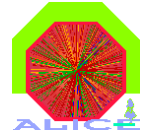


➤ Continuous running from April 2006



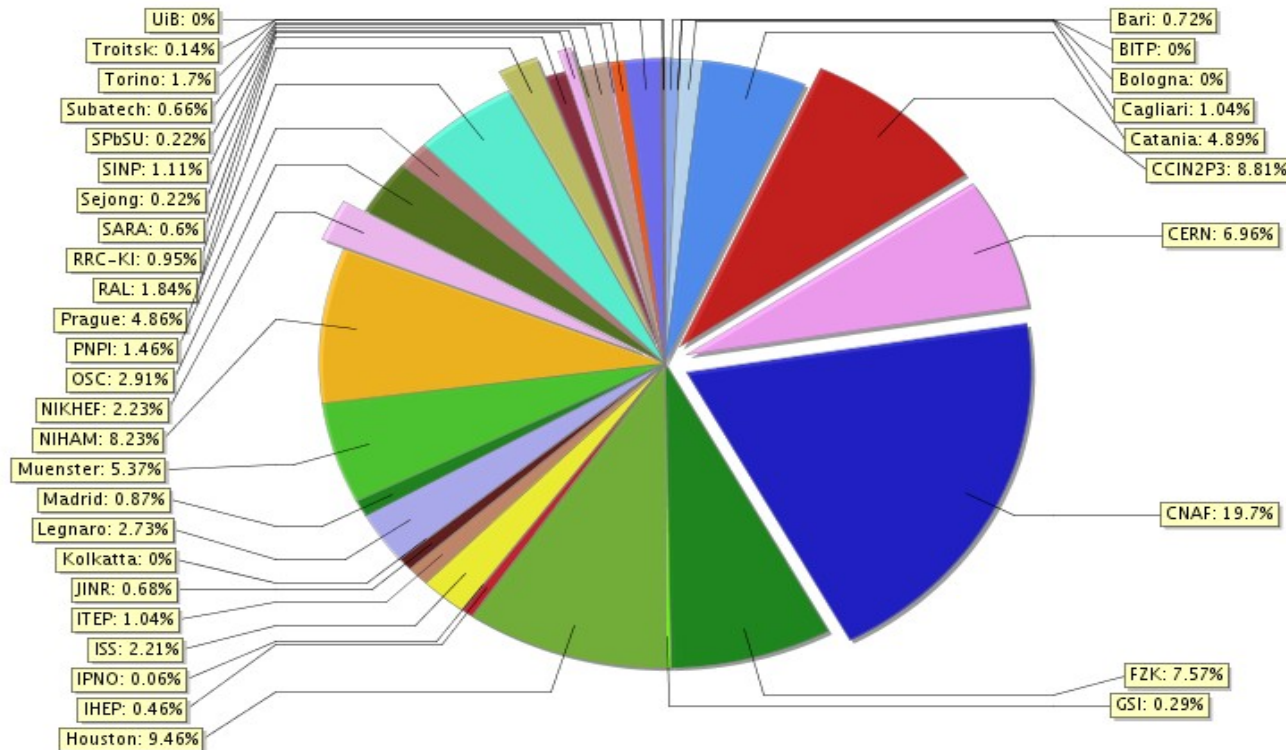


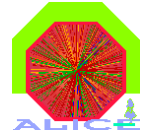
Results of the PDC`06 (2)



- Gradual inclusion of sites in the ALICE Grid - current status:
 - ❑ 6 T1s: CCIN2P3, CERN, CNAF, GridKA, NIKHEF, RAL
 - ❑ 30 T2s
- Currently available CPU power – 2000 CPUs for ALICE (expected ~4000)
 - ❑ Competing for resources with the other LHC experiments
 - ❑ Computing centres are waiting for the last moment to buy hardware – will get more for the same price
 - ❑ Expect additional resources from Nordic countries and from US (LBL and LLNL)

- Resources contribution (normalized Si2K units): 50% from T1s, 50% from T2s
 - The role of the T2 remains very high!





➤ ***T0-T1 transfers: Methodology and Status***

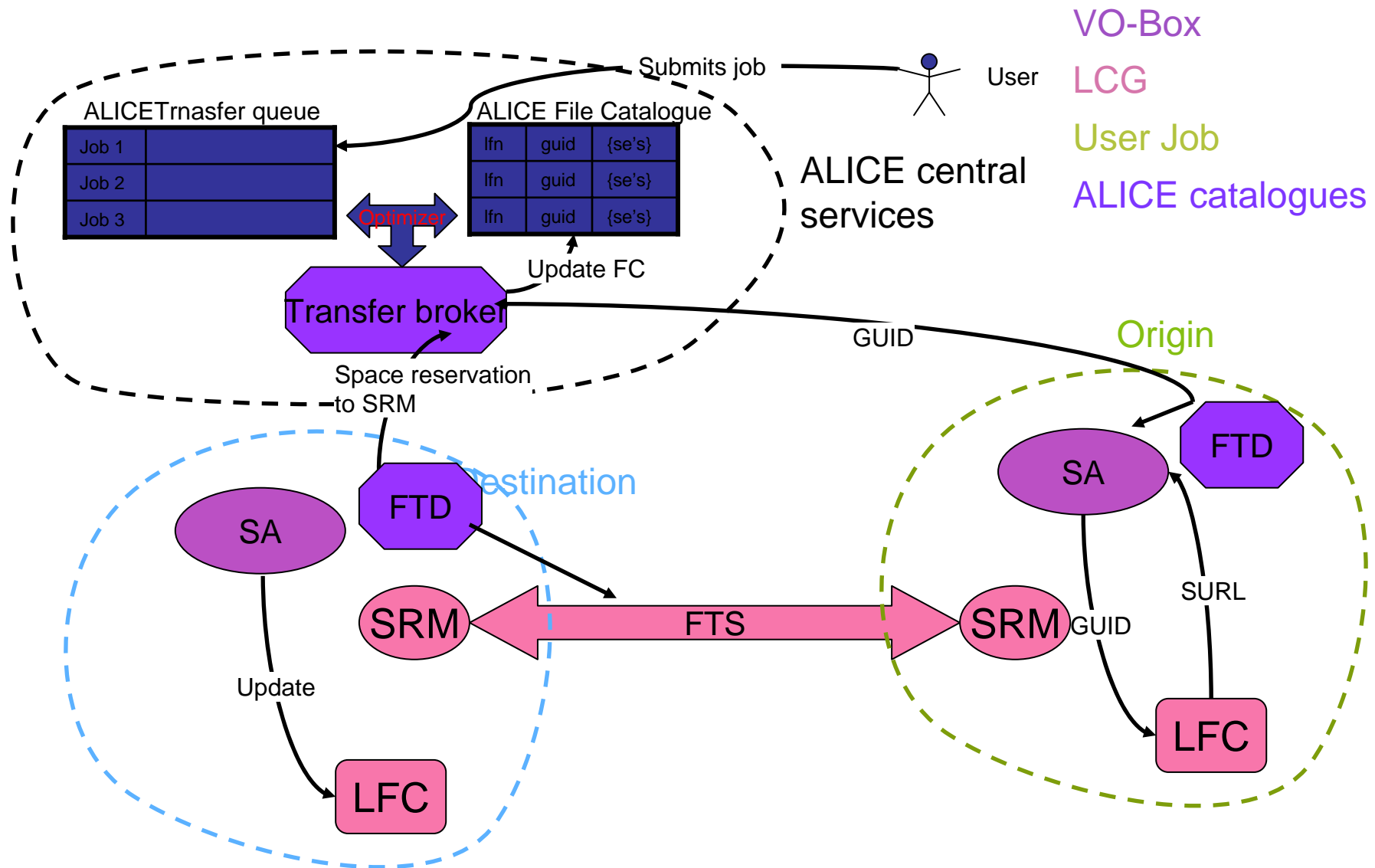
- Next Part of the talk

➤ Asynchronous to the Production (1st phase)

- Combining the production with this exercise

- FTS Service deployed at all sites
 - ❑ Used for scheduled replication of data between computing centers
 - ❑ Lower level tool that underlies the data placement
 - ❑ Used as plug-in in the AliEn File Transfer Daemon (FTD)
 - o FTS has been implemented through the FTS Perl APIs
 - o FTD running in the VO-box as one of the ALICE services
- LFC required at all sites
 - ❑ Used as a local catalogue for the site
- Access to the SRM SE at all sites also required

File Replication

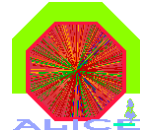


- The main goal is to test the stability of FTS as service and integration with FTD
 - ❑ T0-T1 (disk to tape): 7 days required of sustained transfer rates to all T1s
 - Exercise still continuing
 - ❑ T1-T2 (disk to disk) and T1-T1 (disk to disk): 2 days required of sustained transfers to T2
 - STILL TO BE FULLY PERFORMED
- Data types
 - ❑ T0-T1: Migration of raw and 1st pass reconstructed data
 - ❑ T1-T2 and T2-T1: Transfers of ESDs, AODs (T1-T2) and T2 MC production for custodial storage (T2-T1)
 - ❑ T1-T1: Replication of ESDs and AODs

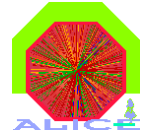
- T0-T1: disk-tape transfers at an aggregate rate of 300MB/s from CERN
 - ❑ Distributed according the MSS resources pledged by the sites in the LCG MoU:
 - CNAF: 20%
 - CCIN2P3: 20%
 - GridKA: 20%
 - SARA: 10%
 - RAL: 10%
 - US (one center): 20%
- T1-T2: Following the T1-T2 relation matrix
 - ❑ Test of the services performance, no specific target for transfer rates



FTS Tests Remarks



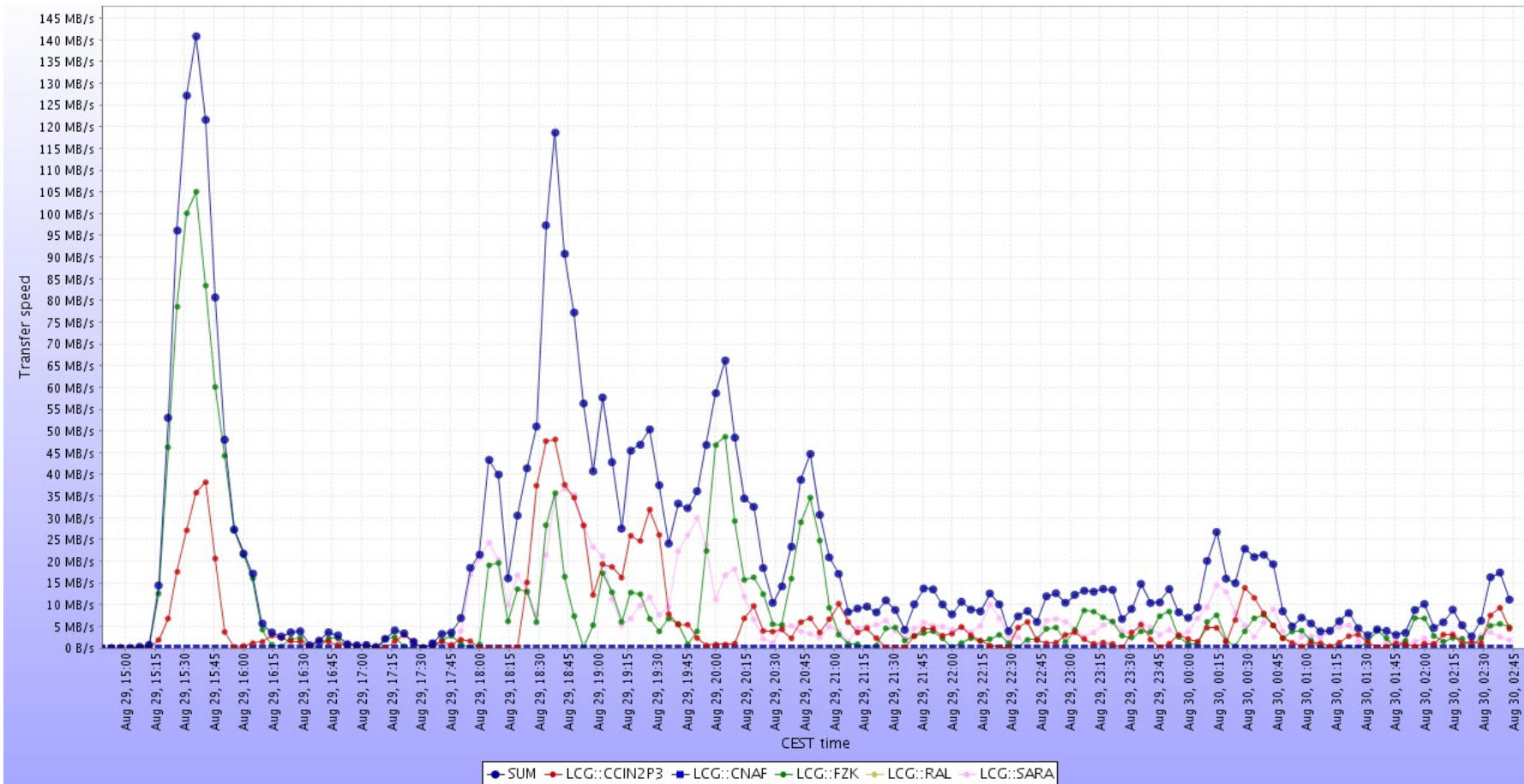
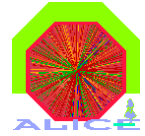
- The FTS transfers will not be synchronous with the data production
- The sites should provide mechanism for garbage collector
- Transfers based on LFN is not required
- The automatic update of the LFC catalogue is not required
 - ❑ ALICE will take care of the catalogues update
- Summary of requirements:
 - ❑ ALICE FTS Endpoints at the T0 and T1
 - ❑ SRM-enabled storage with automatic data deletion if needed
 - ❑ FTS service at all sites
 - ❑ ***Support during the whole tests (and beyond)***



- We are controlling the status of the transfers with different tools
 - ❑ MonaLisa controls all FTD status
 - ❑ Dashboard follows the FTS errors
 - ❑ The status of the transfers are fully monitored also in the VO-BOXES through the FTD logs
- All problems have been reported immediately using GGUS
- Good support of the SC Experts

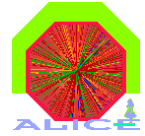


Data Movement: MonaLisa





Data Movement:DashBoard



File New Bookmarks Desktop Windows Help

FTS Efficiency - Mozilla

File Edit View Go Bookmarks Tools Window Help

Back Forward Reload Stop http://dboard-gr.cern.ch:8888/dashboard/data/fts/14-Sep-06.html Search Print

Home Bookmarks WebMail Radio People Yellow Pages Download Calendar Channels Members WebMail Connections

FTS EFFICIENCY

Click on any Site, and you will have a breakdown according to the errors trasnferring files to that site

This table presents the transfers that have been done from CERN to the ALICE T1

Transfers done on: Thu 14 Sep 2006

Site (click on any site)	Successful transfers	Failed transfers	Efficiency												
ALICE::LCG::SARA	151	180	45.62 %												
ALICE::LCG::CNAF	506	599	45.79 %												
ALICE::LCG::FZK	80	76	51.28 %												
<table border="1"><thead><tr><th>Error message</th><th>Counter</th></tr></thead><tbody><tr><td>The FTS transfer _transferid_ failed (Failed on SRM get: Failed SRM get on http://castorgridsc.cern.ch:8443/srm/managerv1</td><td>24</td></tr><tr><td>adding the file to the LVM at /grid/fzk.de/mounts/hfs/software/alice/lcg2/alien2/lib/perl5/site_perl/5.8.7/AliEn/Service/SE.pm line 1119.</td><td>19</td></tr><tr><td>The FTS transfer _transferid_ failed (Failed on SRM get: SRM getRequestStatus timed out on get)</td><td>18</td></tr><tr><td>The FTS transfer _transferid_ failed (Failed to get proxy certificate from myproxy-fts.cern.ch . Reason is ERROR from server: invalid pass phrase)</td><td>14</td></tr><tr><td>The FTS transfer _transferid_ failed (Failed to get proxy certificate from myproxy-fts.cern.ch . Reason is Error in bind())</td><td>1</td></tr></tbody></table>				Error message	Counter	The FTS transfer _transferid_ failed (Failed on SRM get: Failed SRM get on http://castorgridsc.cern.ch:8443/srm/managerv1	24	adding the file to the LVM at /grid/fzk.de/mounts/hfs/software/alice/lcg2/alien2/lib/perl5/site_perl/5.8.7/AliEn/Service/SE.pm line 1119.	19	The FTS transfer _transferid_ failed (Failed on SRM get: SRM getRequestStatus timed out on get)	18	The FTS transfer _transferid_ failed (Failed to get proxy certificate from myproxy-fts.cern.ch . Reason is ERROR from server: invalid pass phrase)	14	The FTS transfer _transferid_ failed (Failed to get proxy certificate from myproxy-fts.cern.ch . Reason is Error in bind())	1
Error message	Counter														
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The FTS transfer _transferid_ failed (Failed to get proxy certificate from myproxy-fts.cern.ch . Reason is Error in bind())	1														
ALICE::LCG::CCIN2P3	155	143	52.01 %												
ALICE::LCG::RAL	272	1	99.63 %												

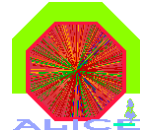
For more information, see the [MonALISA information](#)

Done

FTS Efficiency - M KSnapshot Konsole 2006-09-14

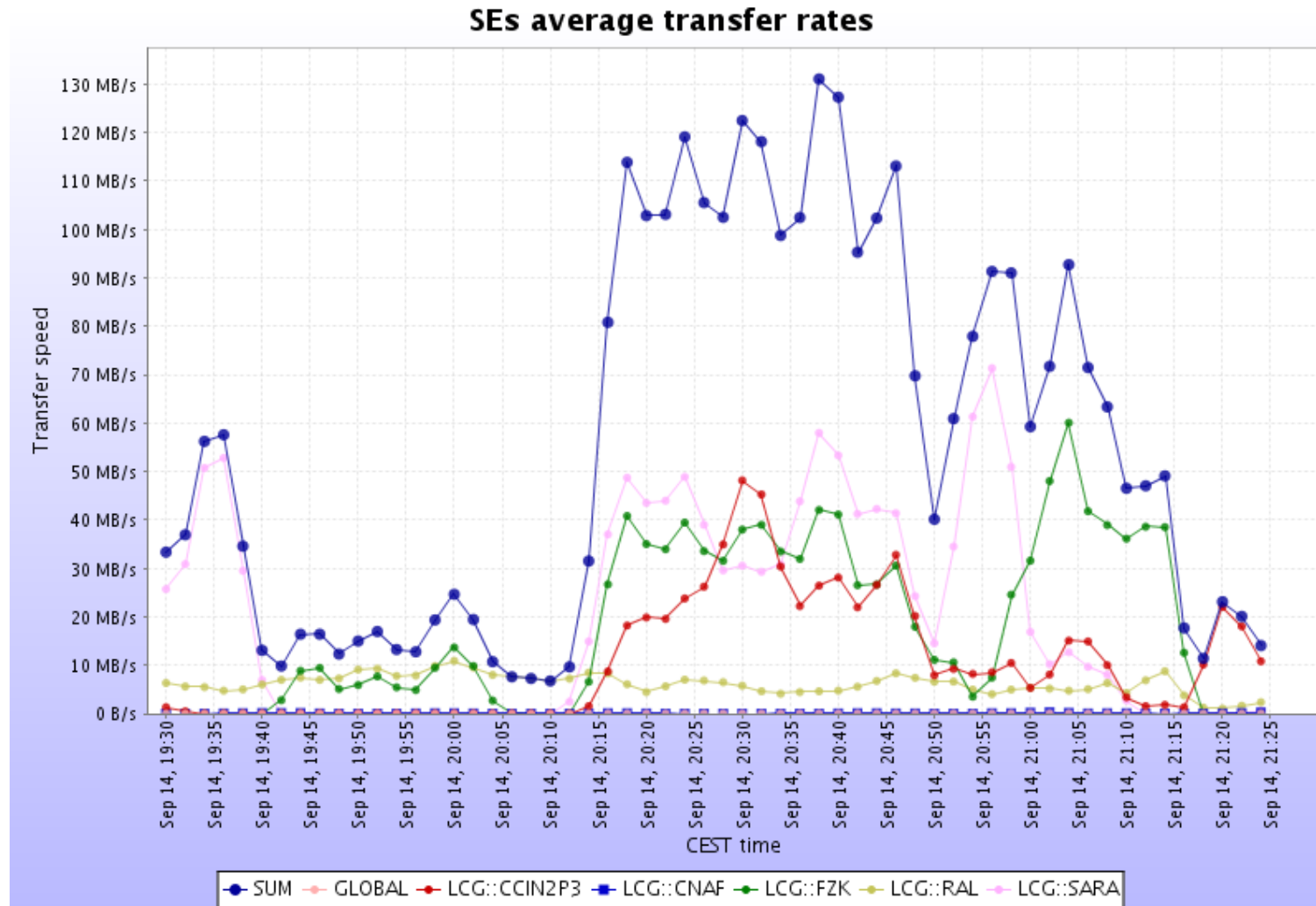


Status of FTS Transfers



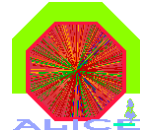
- These are the problems we are facing at this moment
 - ❑ Problems with Castor at the origin (CERN) and the destination (CNAF)
 - ❑ FTS server at CERN hanging
 - ❑ Problems with the access to the catalogue in all sites
 - o Setcomment API may be having problems
 - ❑ Certain instabilities found in the VOBOXES
 - o CERN (substituted by a new VOBOX) and SARA
 - ❑ Recovering now the transfers
- From the ALICE site
 - ❑ Increase the size of the transferred files
 - o Done
 - ❑ Increase the number of simultaneous transfers per site
 - o Done, increased to 100 simultaneous transfers to all sites

After ALICE actions





Proposed ALICE T1-T2 Connections



- CCIN2P3
 - ❑ French T2s, Sejong (Korea), Lyon T2, Madrid (Spain)
 - CERN
 - ❑ Cape Town (South Africa), Kolkatta (India), T2 Federation (Romania), RMKI (Hungary), Athens (Greece), Slovakia, T2 Federation (Poland), Wuhan (China)
 - FZK
 - ❑ FZU (Czech Republic), RDIG (Russia), GSI and Muenster (Germany)
 - CNAF
 - ❑ ItalianT2s
 - RAL
 - ❑ Birmingham
 - SARA/NIKHEF
 - NDGF
 - PDSF
 - ❑ Houston
- a) Still to be decided if this proposal is approved
- b) Status of FTS services at T2 to be checked
- c) ALICE T2 sites aware of the requirements

➤ The ALICE PDC`06

- ☐ Complete test of the ALICE computing model and Grid services readiness for data taking in 2007
- ☐ Production of data ongoing, integration of LCG and ALICE specific services through the VO-box framework progressing extremely well
- ☐ Building of support infrastructure and relations with ALICE sites is on track

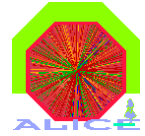
➤ The 2nd Phase of PDC'06 is a fundamental issue

- ☐ Stability
- ☐ Efficiency in the tickets response
- ☐ Still to establish certain strategy points for the T1-T2 transfers

➤ The 3rd phase (end-user analysis) at the end of the year



Plans for Next Year



- Continue with MC production for physics performance and detector studies
 - ❑ List of events/conditions from ALICE PWGs is growing
- Continue the tests of the storage facilities at the sites and file replication of RAW data (CERN>>T1) and ESD/AOD (T1<<>>T2) through the FTS service
- Continue and improve the user analysis of the Grid (starting October 2006) and the CAF
- Include all detectors commissioning exercises and test data
- Continue the build-up of ALICE related experts support at the computing centers providing ALICE resources