



LHCb SC3 Status

GDB 12/Oct/2005 Bologna

R. Graciani

-
- **Setup phase (July-September):**
 - **Service phase (October):**
 - CERN \Rightarrow Tier1's
 - **Summary**

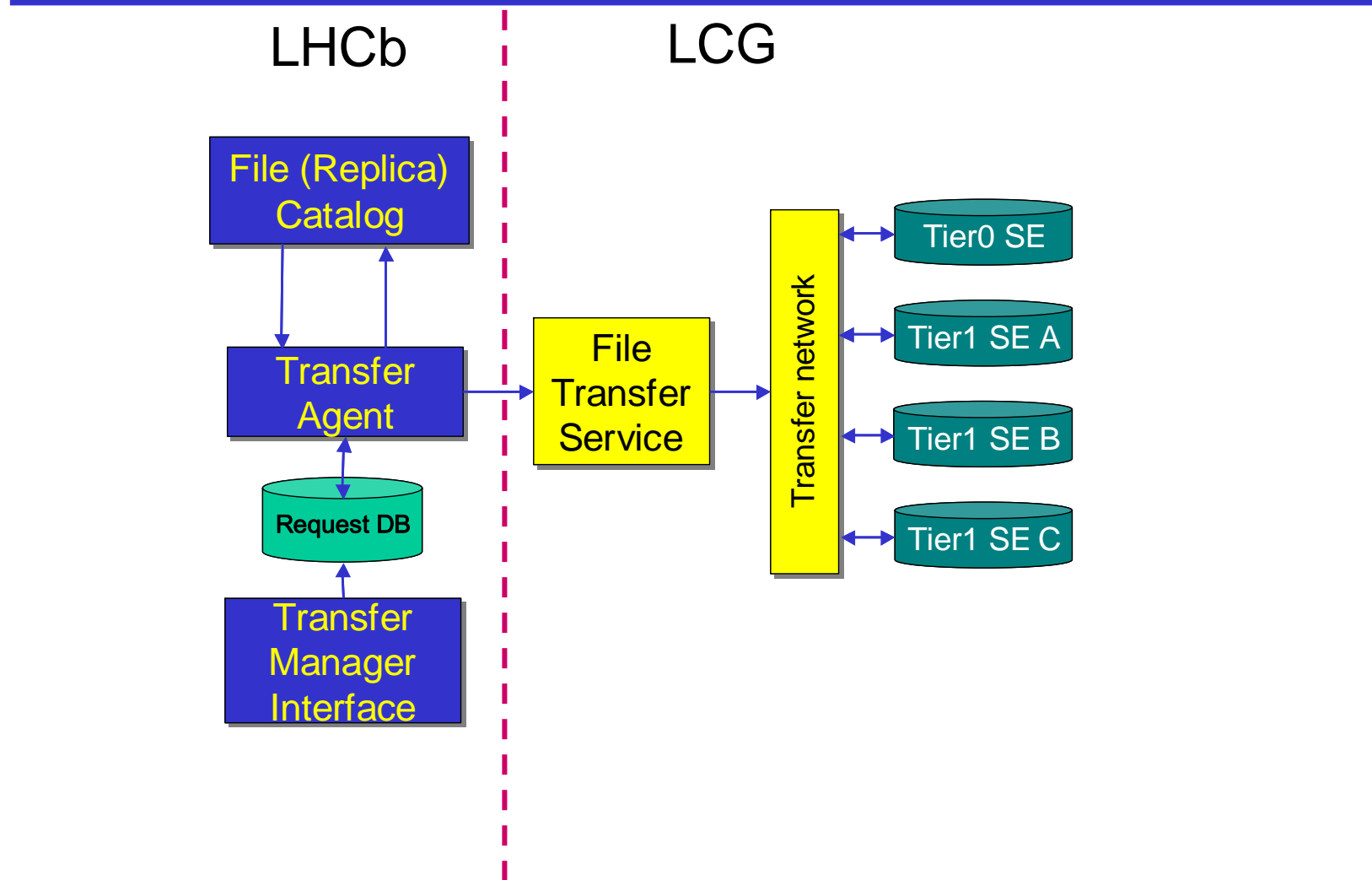


SC3 Setup



- **Work done by:**
 - Marianne Bargiotti
 - Adria Casajus
 - Gianluca Castellani
 - Ricardo Graciani
 - Gennady Kuznetsov,
 - Stuart Paterson,
 - Juan Saborido
 - Roberto Santinelli (LCG support)
 - Andrew C. Smith,
 - Andrei Tsaregorodtsev,
 - Tier1 support personnel + LHCb Contact @ Tier1
- **DIRAC TransferAgent (FTS).**
- **FTS Channels.**
- **SRM endpoints.**

- **LHCb always had continuous effort joint with LCG about production and LCG resources**
- **LHCb decided to enlarge the PASTE group towards a "Task Force" including:**
 - **More representatives from Grid Deployment**
 - **More representatives from Service developers**
 - **More LHCb contacts**
- **The Task-Force/PASTE group holds weekly meetings (Tuesday @ 10:00)**
- **During SC3, daily (working days) meetings @ 16:00**



- Gets transfer requests from Transfer Manager;
- Maintains the pending transfer queue;
- Validates transfer requests;
- Submits transfers to the FTS;
- Follows the transfers execution, resubmits if necessary;
- Sends progress reports to the monitoring system;
- Updates the replica information in the File Catalog;
- Accounts for the transfer characteristics:
 - Start/execution time;
 - Effective bandwidth.

- **July 7th:** first transfer submitted on CERN-CERN channel using the CLI on the fts-lhcb-test machine.
- **July 8th:** transfers possible to INFN and GridKA (other endpoints not fully functioning)
- **August 8th:** FTS Client installed on development machine (install instructions on twiki missing mention of CGSI_gSOAP rpm).
- **August 10th:** DIRAC transfer agent able to resolve source and target SURLs and submit transfers to FTS through client.
- **August 29th:** Started intstall of new FTS 1.3 client on development machine. Initially not possible to perform transfers to production endpoints at the Tier1s as not mentioned in the channel configurations.
- **August 31st:** DIRAC transfer agent is able to take a list of LFNs and target sites then create and submit FTS jobs.

- **September 9th:**
 - FTS transfers integrated to use request DB within DIRAC.
 - Monitoring of FTS transfers using the 'glite-transfer-status' CLI gives information on all files in transfer. This is parsed and completed files and failed files are recorded in the request DB.
 - Logic implemented to register completed files in the catalogs.
- **September 19th:**
 - DIRAC transfer agent implementing resubmission of files that have failed to transfer successfully.
- **September 29th:**
 - sending transfer accounting information on completion of FTS jobs.
 - First messages send to monitoring service.

	SRM endpoint	
	Production	SC3
CERN	castorgrid.cern.ch	castorgridsc.cern.ch
CNAF	castorsrm.cr.cnaf.infn.it	sc.cr.cnaf.infn.it
GRIDKA	f01-015-103-e.gridka.de	
IN2P3	ccsrm.in2p3.fr	
PIC	castorsrm.pic.es	castorsrm-sc.pic.es
RAL	dcache.gridpp.rl.ac.uk dcache-tape.gridpp.rl.ac.uk	
SARA/NIKHEF	srm.grid.sara.nl	

	MSS Area	
	Permanent	Temporary
CERN	/castor/cern.ch/grid	/castor/cern.ch/grid/lhcb/sc3
CNAF	/castor/cnaf.infn.it/grid/lcg	/castor/cnaf.infn.it/grid/lcg/lhcb/sc3
GRIDKA	/pnfs/gridka.de	/pnfs/gridka.de/sc3
IN2P3	/pnfs/in2p3.fr/data/lhcb/disk	/pnfs/in2p3.fr/data/lhcb/hpss/lhcb/sc3
PIC	/castor/pic.es/grid	/castor/pic.es/sc3
RAL	/pnfs/gridpp.rl.ac.uk/data	/pnfs/gridpp.rl.ac.uk/tape/lhcb/sc3
SARA/NIKHEF	/pnfs/grid.sara.nl/data	/pnfs/grid.sara.nl/data/lhcb/sc3

- **Phase 1: (Data Moving)**
 - Demonstrate Data Management to meet the requirements of the Computing Model
 - October
- **Phase 2: (Data Processing)**
 - Demonstrate the full data processing sequence in real time
 - Demonstrate full integration of the Data and Workload Management subsystems
 - Mid-November + December

a) Distribute stripped data Tier0 \Rightarrow Tier1's (1-week). **1TB**

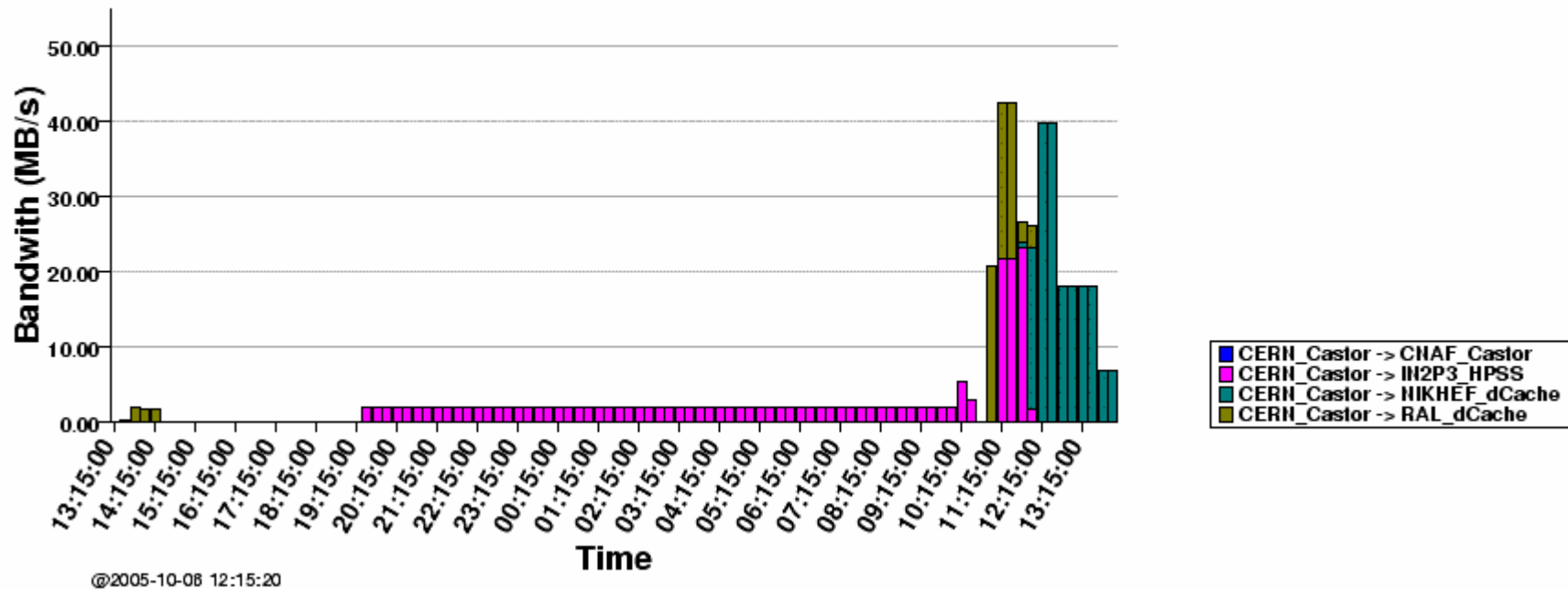
- ❖ The goal is to demonstrate the **basic tools**
 - Precursor activity to eventual distributed analysis

b) Distribute data Tier0 \Rightarrow Tier1's (2-week). **8TB**

- ❖ The data are already accumulated at CERN
- ❖ The data are moved to Tier1 centres in parallel.
- ❖ The goal is to demonstrate **automatic tools** for data moving and bookkeeping and to achieve a **reasonable performance** of the transfer operations.

- The 606 files (DC04/v2) to be transferred were broken up into 6x101 file blocks. Half of this data already existed at CNAF and PIC.
- **October 4th:**
 - Started transfer 1 block to sites (permanent).
 - One block submitted to **RAL** channel. This transfer was **successful** with only 8 files failing (now only 2).
- **October 5th:**
 - 2 blocks submitted to **RAL** channel at once. Also **successful**.
- **October 6th :**
 - 3 blocks to **IN2P3**.
 - **One of these jobs exposes a bug in FTS** where an error string is returned with the status when performing a 'glite-transfer-status -l' for a transfer of 100 files (bug submitted to savannah). This causes failure in parsing of the output.
 - 1 block submitted to both **RAL** and **IN2P3** channels with success.
 - 4 blocks to **SARA** channel also **successful**. Some of these files registered with wrong PFN in LFC due to a Transfer Agent configuration problem.

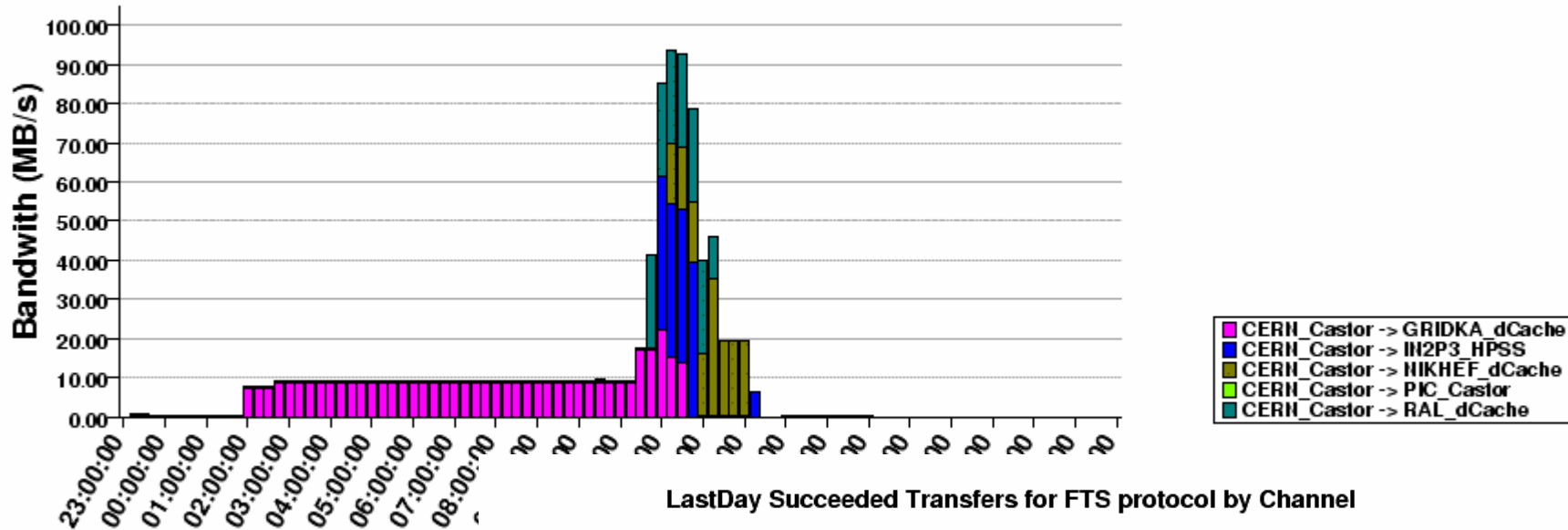
LastDay Bandwith plot for FTS protocol by Channel



- **October 7th:**

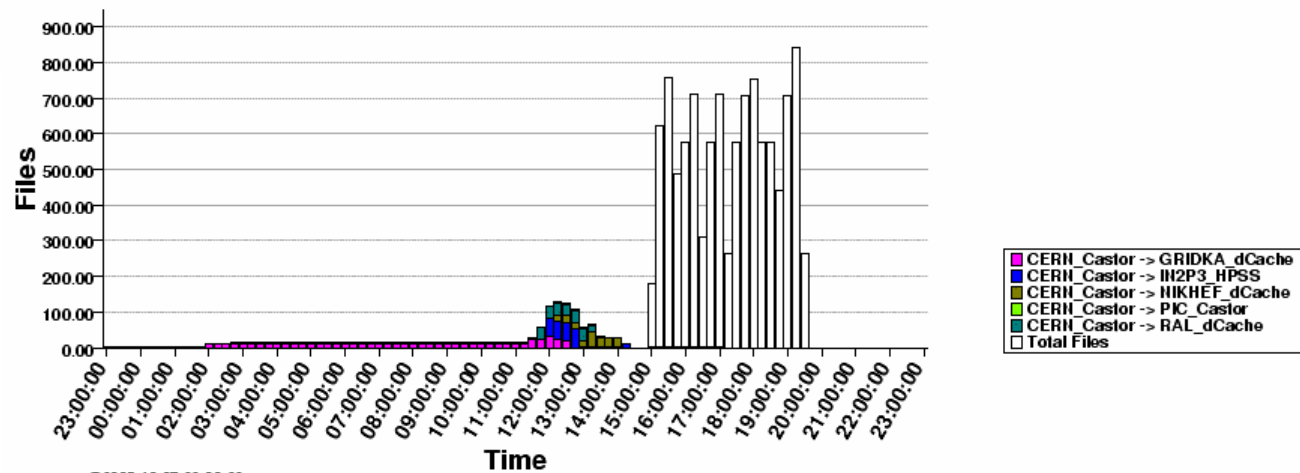
- 6 blocks submitted to FTS in single job on **GridKA** channel. Transfer Agent truncates this request to 450 file request (still being investigated although suspected to be problems with LFC host).
- Both FTS and Transfer Agent were able to cope with this volume of files in a single job although submission time is still long due to repeated (blocking) polls of the catalog.
- 2 blocks were submitted concurrently on the **RAL**, **SARA** and **IN2P3** channels.
- All of these files transferred **successfully**. During this period transfer rates of **~90MB/s** were seen out from CERN.
- The attempt to transfer DC04/v1 data failed due to Configuration issues (data is not on LCG area at CERN).

LastDay Bandwith for FTS protocol by Channel



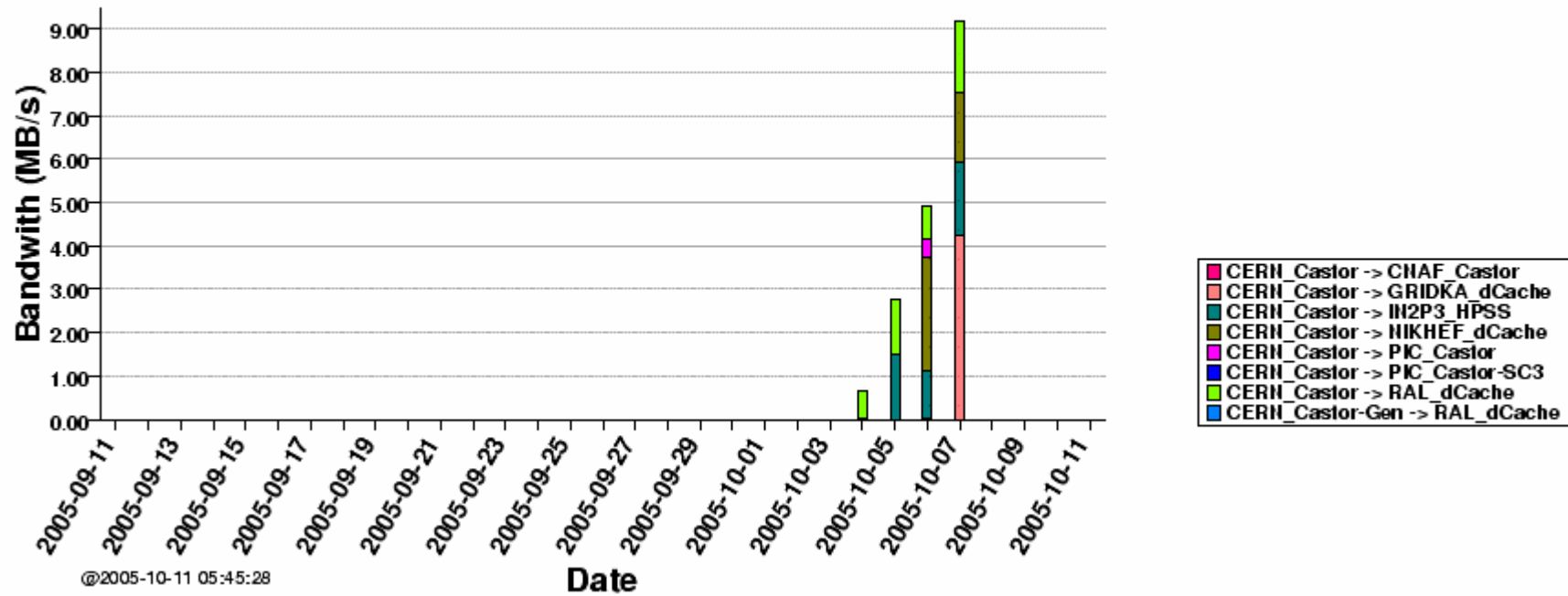
@2005-10-07 22:00:20

LastDay Succeeded Transfers for FTS protocol by Channel



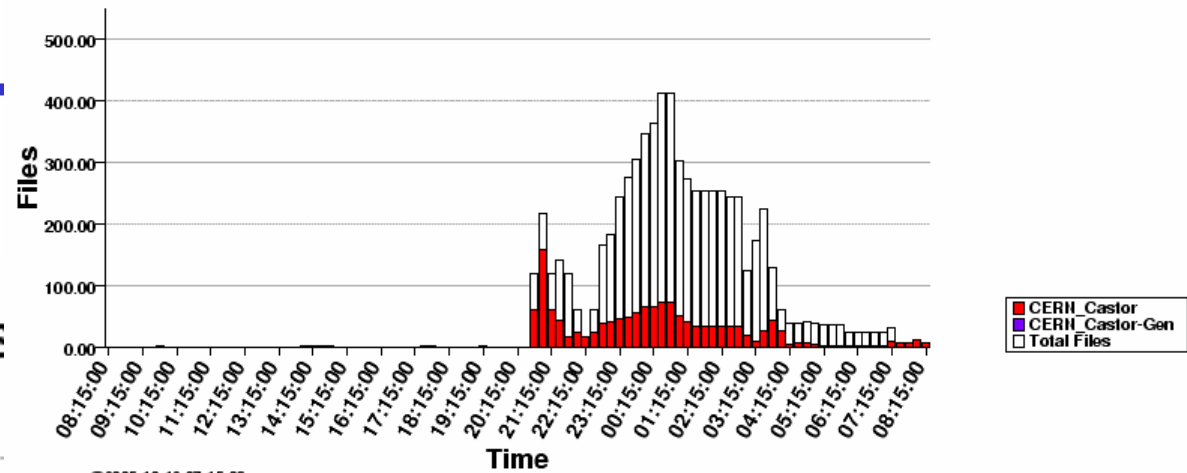
@2005-10-07 22:00:22

Daily Bandwidth for FTS protocol by Channel

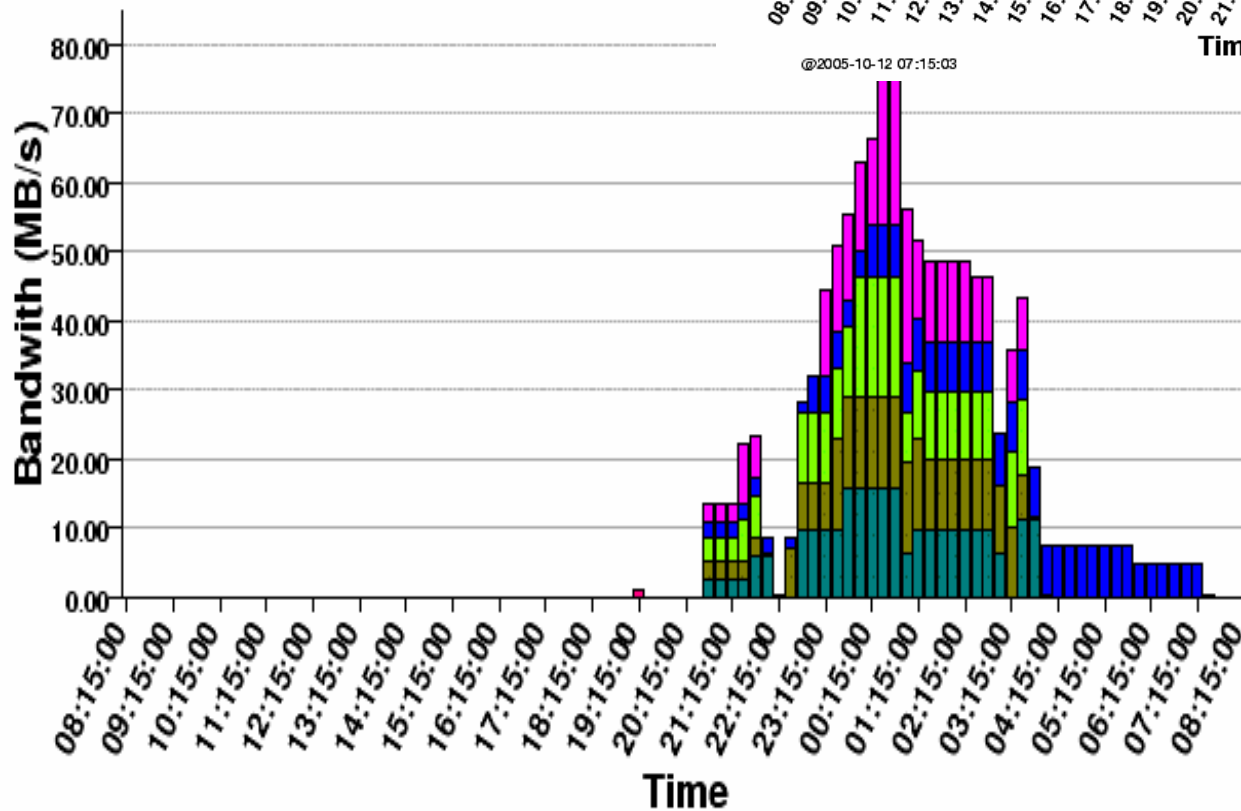


- **LHCb SC3 Service Phase activities have started**
- **Final debug of the Bulk Transfer Tools (TransferAgent).**
- **Good performance observed.**
- **Good response from sites.**
- **Ready for massive data movements.**
- **Need to test the long term stability.**

LastDay Failed Transfers for FTS protocol by Source



LastDay Bandwidth for FTS



- CERN_Castor -> CHAF_Castor
- CERN_Castor -> CHAF_Castor-SC3
- CERN_Castor -> GRIDKA_dCache-SC3
- CERN_Castor -> I1I2P3_HPSS-SC3
- CERN_Castor -> I1I2P3_dCache-SC3
- CERN_Castor -> PIC_Castor-SC3
- CERN_Castor -> RAL_dCache-SC3
- CERN_Castor-Gen -> RAL_dCache