



ATLAS Data Transfer Tests

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Original Plan

- Late Winter and Spring 2007:
 - Exercise Tier-0 \Rightarrow Tier-1 transfers up to nominal rate (1020 GB/s total)
 - Use SRM 2.2
 - Roll out DQ2 version 0.3
 - Continue functional tests of Tier-1 \Leftrightarrow Tier-1 and Tier-1 \Leftrightarrow Tier-2 transfers using continuous simulation production
- Late Spring and Summer 2007:
 - Rate tests of Tier-1 \Rightarrow Tier-2 transfers up to nominal rate
 - ~30 MB/s max for largest Tier-2s in 2008
- Late Summer and Autumn 2007:
 - Reprocessing tests at Tier-1s and rate tests of Tier-1 \Leftrightarrow Tier-1 transfers
 - Similar rate to Tier-0 \Rightarrow Tier-1 transfers in 2008 for coupled Tier-1s



Where we are

- Castor trouble caused ~3 months delay in the start of the intensive Tier-0⇒Tier-1 tests
 - Castor at CERN is now OK but not yet at other sites (RAL, ASGC, CNAF)
- In the meantime many studies of lower-level components were performed
 - Number of parallel streams, time-outs and retry procedures, etc.
- Still there is a number of open issues
 - We can achieve in most cases transfer rates much above nominal if we do not have many sites active at the same time
- We rolled out DQ2 0.3 ten days ago and got it to work in a few days everywhere
 - With some foreseen but limited disruption to other data management activities
- Tier-1⇒Tier-2 functional transfer tests continue all the time but intensive tests are hampered by the general lack of disk space at Tier-1s
 - Distribution of simulated AOD data for distributed analysis tests had priority so far
 - We are going to concentrate on them again as soon as the Tier-0⇒Tier-1 tests are satisfactory
- Testing of SRM 2.2 has started in parallel (always the same people)

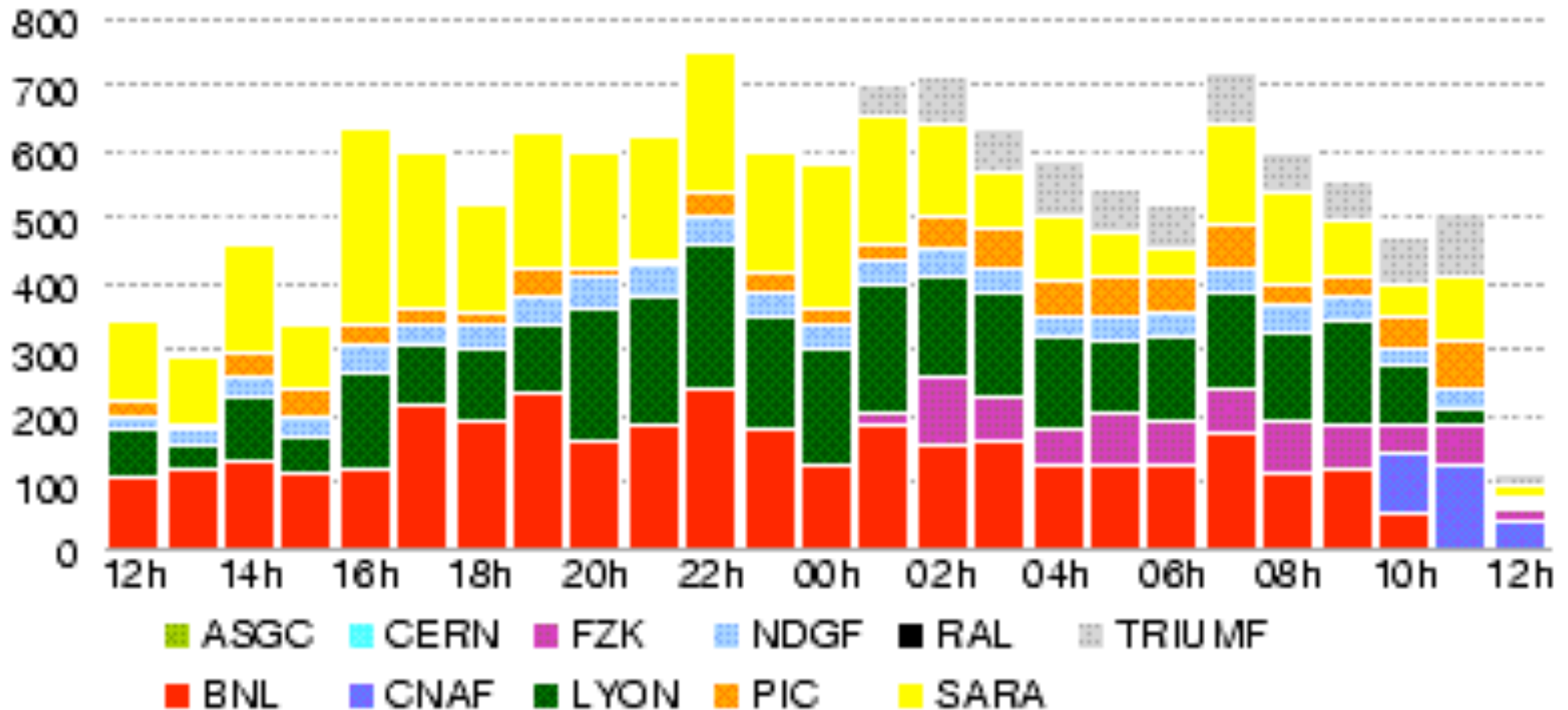


LHCC - 2 July 2007

ATLAS T0-T1 Exports

Mbytes/second

Mon/Tuesday 28/29 May 2007





ATLAS T0→T1 Exports

situation at May 28/29 2007

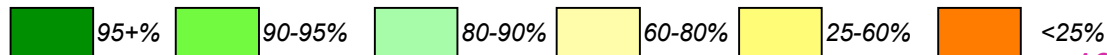
Tier-1 Site	Efficiency (%)	Average Thruput (MB/s)	Nominal Rate (MB/s)	50% of nominal achieved	100% of nominal achieved	150% of nominal achieved	200% of nominal achieved
ASGC	0	0	60				
BNL	95	145	290				
CNAF	71	11	90				
FZK	46	31	90				
Lyon	85	129	110				
NDGF	86	37	50				
PIC	45	37	50				
RAL	0	0	100				
SARA	99	149	110				
TRIUMF	94	34	50				



AOD and NTUP Replication Status (T1s)

- *Data replication period: Feb - 19 Jun 2007, DQ2 0.2*
- *Total data volume: >3200 datasets, >570k files, >23 TB*

to \ from	ASGC	BNL	CERN	CNAF	FZK	LYON	NDGF	PIC	RAL	NIKHEF/SARA	TRIUMF	%
ASGC	Grey	Yellow	Green	Yellow	Light Green	Green	Green	Yellow	Orange	Yellow	Green	80
BNL	Green	Grey	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Green	92
CERN	Light Green	Yellow	Grey	Orange	Yellow	Yellow	Yellow	Yellow	Orange	Yellow	Light Green	45
CNAF	Light Green	Orange	Light Green	Grey	Orange	Orange	Yellow	Orange	Orange	Yellow	Light Green	21
FZK	Light Green	Light Green	Green	Yellow	Grey	Green	Light Green	Yellow	Yellow	Yellow	Light Green	84
LYON	Green	Light Green	Green	Yellow	Green	Grey	Green	Yellow	Yellow	Light Green	Green	85
NDGF	Light Green	Light Green	Light Green	Light Green	Light Green	Green	Grey	Yellow	Orange	Yellow	Yellow	82
PIC	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Grey	Orange	Orange	Orange	-
RAL	Yellow	Orange	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Grey	Yellow	Orange	25
NIKHEF/SARA	Light Green	Orange	Light Green	Yellow	Yellow	Yellow	Yellow	Yellow	Orange	Grey	Light Green	36
TRIUMF	Green	Orange	Light Green	Yellow	Yellow	Yellow	Light Green	Yellow	Orange	Yellow	Grey	36



no AODs consolidation within the cloud or/and replication was stopped



What next

- Continue studying Tier-0 \Rightarrow Tier-1 rates
- As soon as adequate disk space is available at Tier-1s (hopefully during this Summer): use Tier-0 data for Tier-1 \Rightarrow Tier-2 rate tests
 - Now the buffers at several Tier-1s are so small that files are deleted before datasets are completed and transferred to Tier-2s
- On a similar timescale: start intensive tests of Tier-1 \Rightarrow Tier-1 transfers
 - Especially for the highest-rate combinations
 - BNL \Leftrightarrow IN2P3-CC + FZK
 - NIKHEF/SARA \Leftrightarrow ASGC + TRIUMF
 - RAL \Leftrightarrow CNAF
 - PIC \Leftrightarrow NDGF
 - Every Tier-1 \Rightarrow BNL
- Also this Autumn: start reprocessing tests at Tier-1s in the FDR context
 - Recalling data from tape
 - Pinning files on disk till processed



Summary 2007 timeline

- Running continuously throughout the year (increasing rates):
 - Simulation production
 - Cosmic ray data-taking (detector commissioning)
- January to Summer:
 - Data streaming tests
- From February onwards:
 - Intensive Tier-0 tests
 - Data Distribution tests
- From March onwards:
 - Distributed Analysis (intensive tests)
- May to Summer:
 - Calibration Data Challenge
- September onwards:
 - Full Dress Rehearsal
- At the same time:
 - Cosmic data taking