



**GridPP**

UK Computing for Particle Physics

# dCache to DPM File Transfer Performance Problems

Graeme Stewart  
University of Glasgow



LCG GDB January 2006



UNIVERSITY  
of  
GLASGOW



- Idea was to perform file transfers as part of SC4 preparations:
  - Tier 2 to/from Tier 1
    - Target rate 300Mb/s
    - Transfers of 1TB
  - Inter-Tier2
    - Target rate 100Mb/s
- Gain experience with tuning SRMs and network, uncover problems early.





- Immediately obvious that transfers from RAL dCache to Glasgow DPM was poor - 2Mb/s
- Investigated with help of FTS team. Pinned down to underlying gridftp transfer being throttled.
- Able to reproduce problems using `lcg-rep`, which confirmed this.





# Transfer Times between SE Types

lcg-rep 1GB file, 10 GridFTP streams  
Transfer time in seconds

Source	Destination					
	RAL dCache	CERN Castor	Gla Classic	Gla DPM	DESY dCache	INFN DPM
RAL dCache	0	167	241	3907		3909
CERN Castor	87	0	177	212		
Gla Classic	27	157	0	42		
Gla DPM	29	157	136	0	170	251
DESY dCache				3912	0	3908
INFN DPM				131	131	0

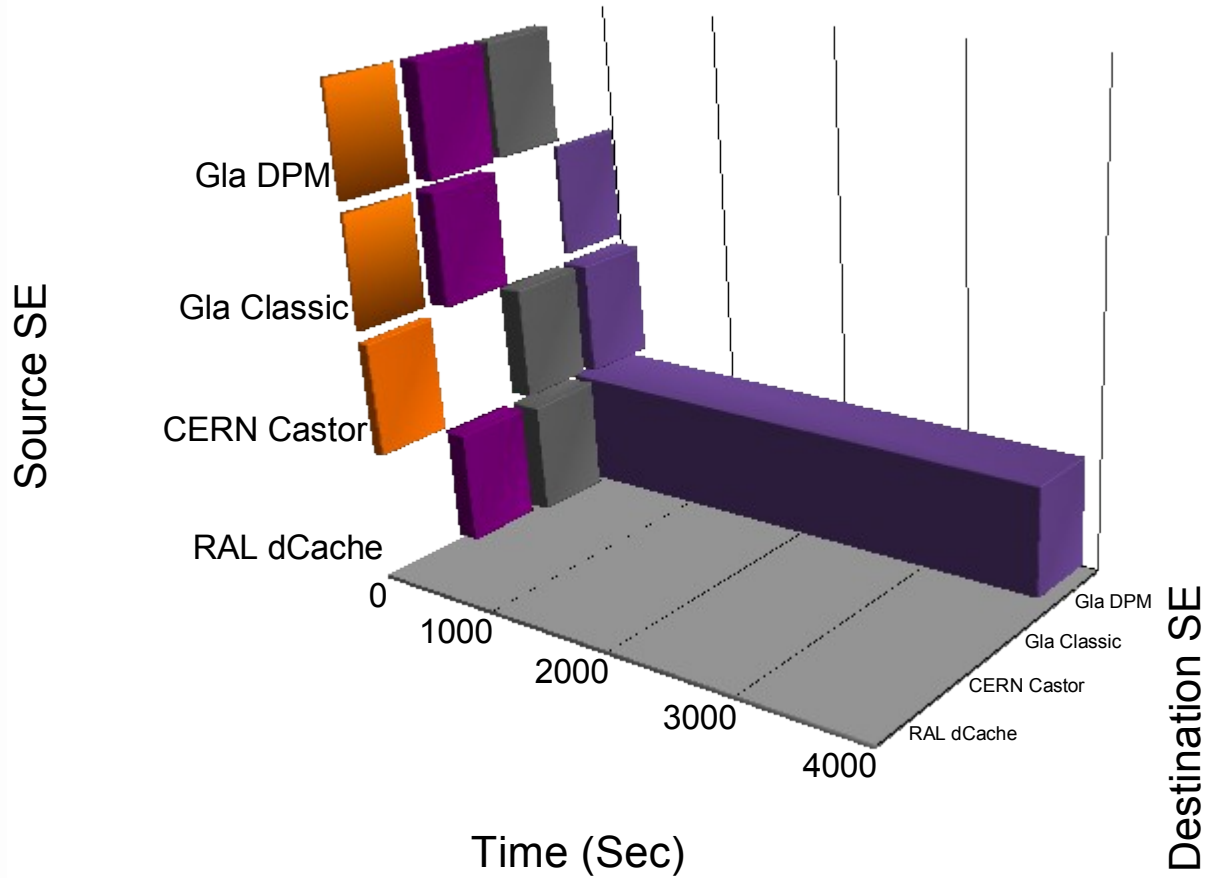
- Notice the poor transfer time from the each of the dCaches to the DPMs.
- Results confirmed as a *general* problem by testing with other dCaches (Edinburgh, DESY) and DPMs (Edinburgh, Durham, pi.infn.it).





# Transfer Time Graph

lcg-rep 1GB file, 10 GridFTP streams





- Issue raised with dCache (Greig Cowan) and DPM (Graeme Stewart) developers in December.
- Suggestions from DPM developers of workarounds - multistreams, kernel tweaks, etc. Tried unsuccessfully.
- DPM developers believe problem may disappear by implementing srmCopy (but I'm sceptical).
- During transfers large `recv-q` seen on DPM side (200k) and moderate `send-q` on dCache side (30k). DPM not processing data received quickly?





- Urgent issue to resolve for GridPP (13 DPMs installed/planned) and the whole of LCG
- We know it's being looked at, but GridPP DB stresses that **this is the most urgent issue we have right now in the run up to SC4!**

See also:

<http://ppewww.ph.gla.ac.uk/~fergusjk/lcgRepTesting.txt>

