



CMS Experiment Readiness for Data Transfers

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WLCG Workshop
September 1, 2007



CMS Transfers

The CMS computing model expects data transfers to work efficiently between computing Tiers

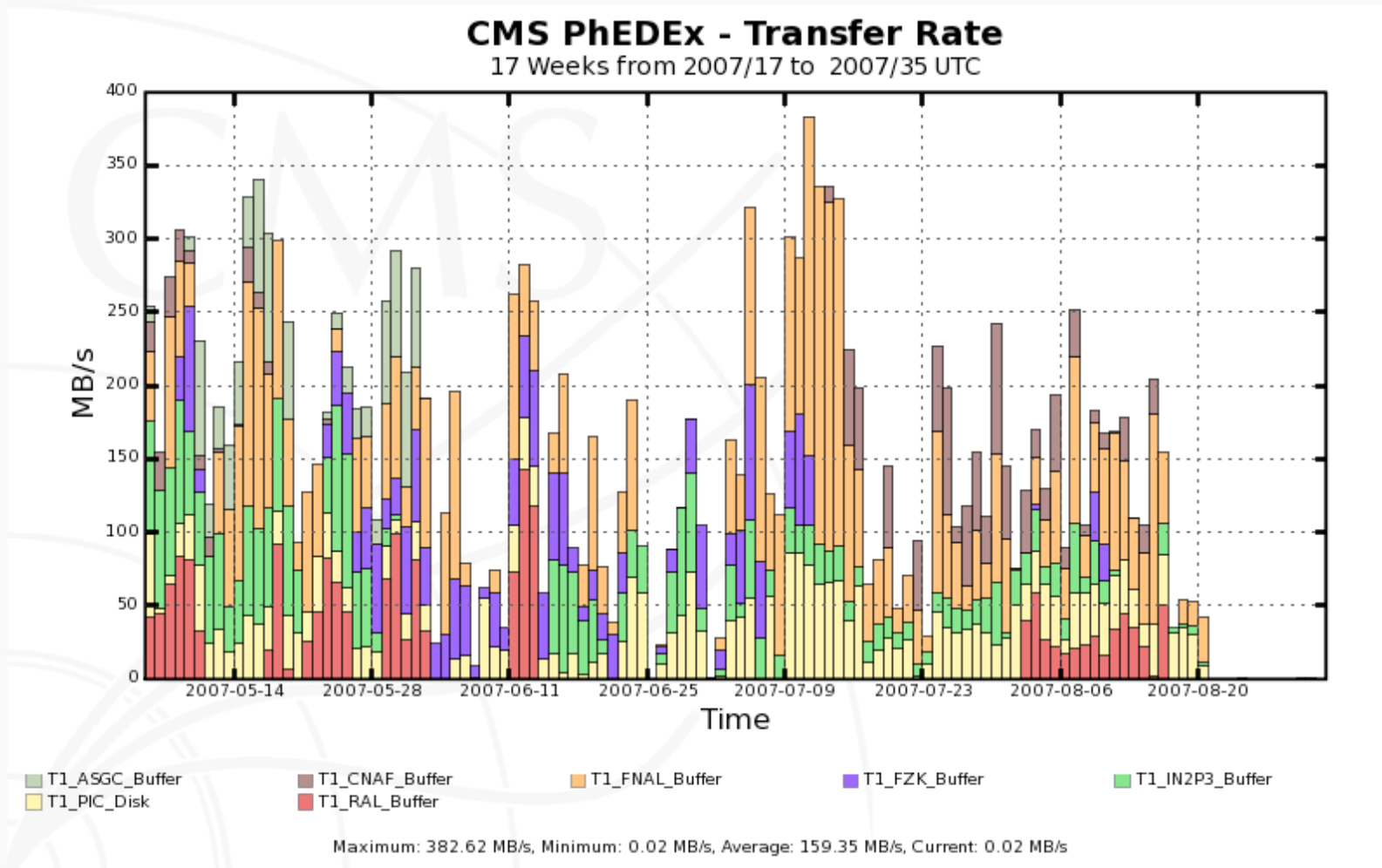
- ➔ CERN to Tier-1 is needed for the second copy of the raw and reconstructed data
 - This is the primary copy accessed for data serving
- ➔ The Tier-1 to Tier-2 transfers are bursty and driven by analysis access
 - Need to finish a transfer completely
 - Requirements are driven by the size of datasets and the length of time it seems acceptable to wait
- ➔ The Tier-2 to Tier-1 transfers are modest but are needed to allow the Tier-2 disk to be used for analysis
 - Computing model calls for ~10% in staging



Tier-0 to Tier-1

This is an area demonstrated to work

- ➔ Continues to require reasonably vigilant effort

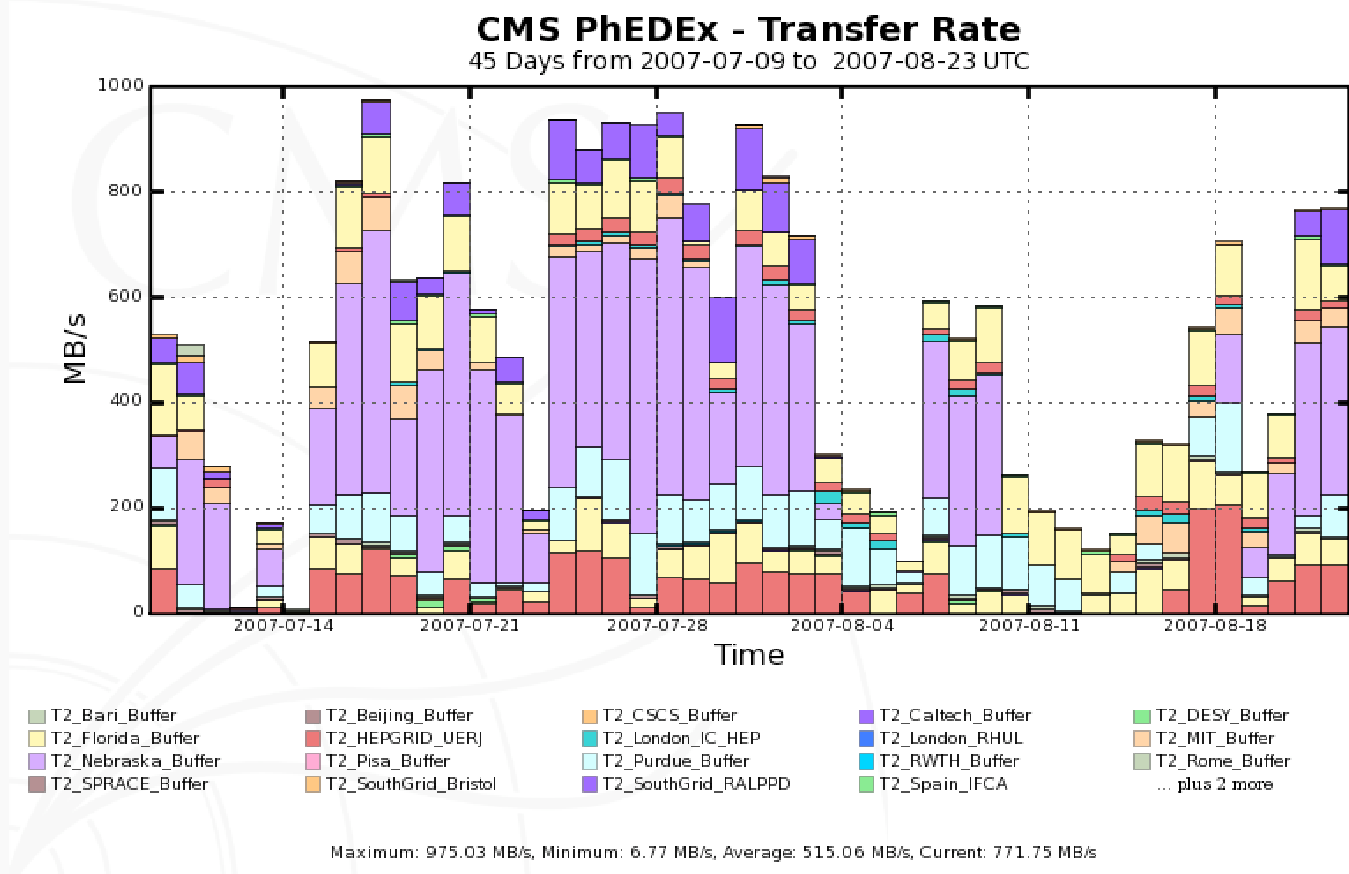




Tier-1 to Tier-2

Some of the links are performing reliably and quickly

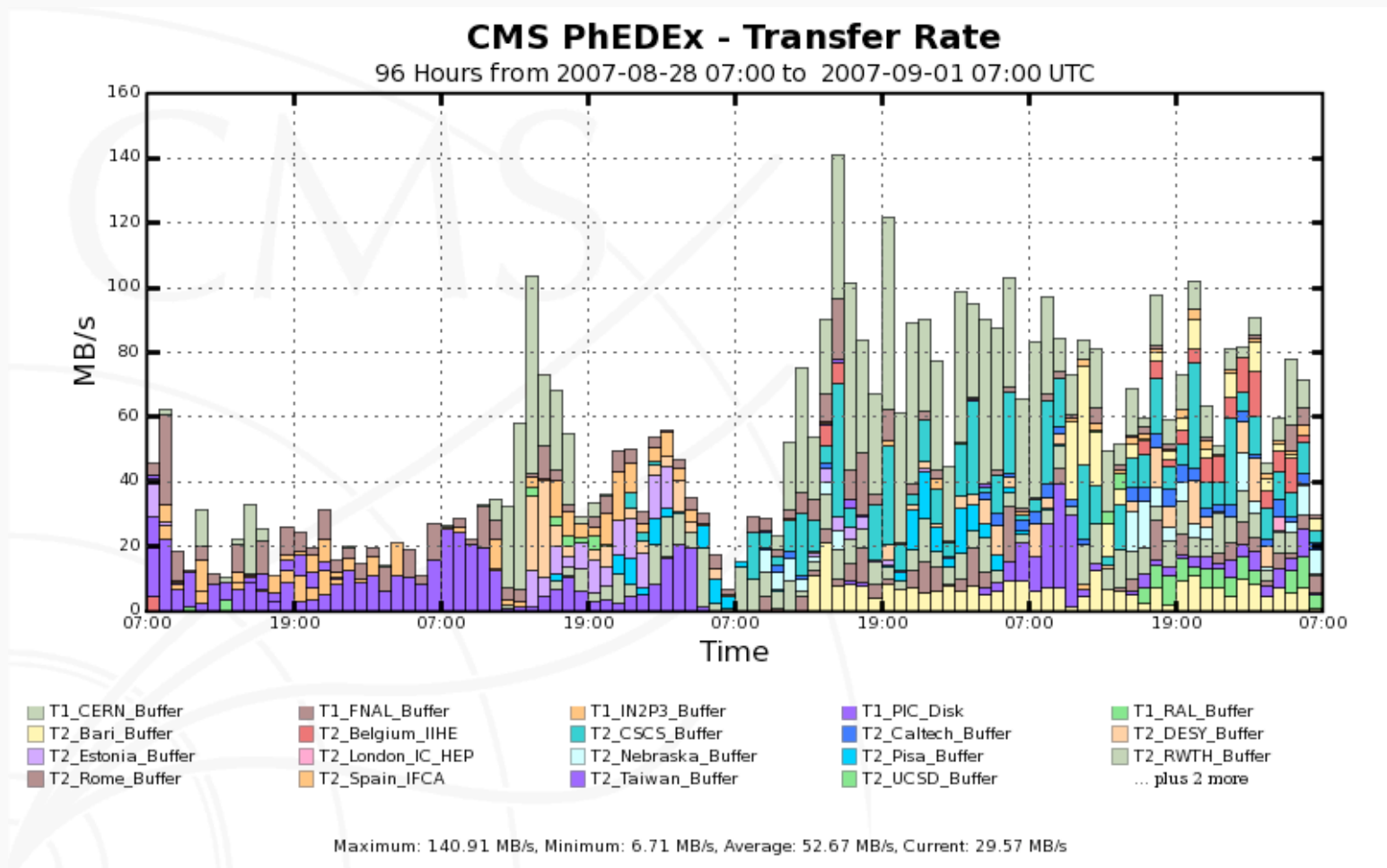
- ➔ Some are hardly working at all
- ➔ There are a lot of permutations





Tier-1 to Tier-2 transfers

Plot below is sum output of all Tier-1 centers besides FNAL.





Tier-1 to Tier-2 Transfers

There are two end points to every transfer

- ➔ We've seen problems both on the source and the destination

The computing model anticipates transfer burst to specific sites

- ➔ Not all sites all the time
- ➔ Not clear that every Tier-1 can sustain a constant load to a number of Tier-2s
- ➔ CMS introduced a Debugging Data Transfers group
 - For links to be commissioned a site needed to upload 3.5MB/s for 4 of 5 days
 - Reasonably modest goal and there are a minority of commissioned links