



GridPP
UK Computing for Particle Physics

CMS Computing Model summary

UKI Monthly Operations Meeting
Olivier van der Aa

Tier Roles in the CMS model

Data types

- RAW: Detector data + Trigger data
- RECO: Reconstructed object (e, μ , τ , jets) + Reconstructed Hits
- AOD: Analysis Object data. Reconstructed (e, μ , τ , jets) + Hits required for track refit

1.5MB/evt



250kB/evt



50kB/evt

Data reduction

Tier function

- Tier0 (CERN): Process RAW to make RECO objects
hold a copy RAW and RECO objects
- Tier1: Re-reconstruction, Calibration, Skim and analysis.
Each T1 hold a fraction of RAW and RECO (16%)
- Tier2: MC production, Analysis, calibration
Will receive fraction of RECO/AOD
~200 TB, 0.9 MSI2K per Tier2

- Tier2 Clients:
 - “Local community”: some fraction free for private use.
 - “CMS controlled”: Host specific analysis determined by physics groups and local interest.
 - Opportunistic: soaking up of spare capacity by any CMS user.
- Tier2 User Services:
 - Medium or long-term storage of AOD
 - Support for interactive bug finding.
 - Optimised access to CMS central database servers for obtaining conditions and calibration data
- Tier2 System Services:
 - Mechanism for prioritisation of resources access between competing remote and local users.
 - Provision of software, servers and local databases required for the operations of the CMS workload and data management services.

Numbers for a nominal T2 in 2008

- Tier 2 nominal numbers.
 - CPU=0.9 MSI2K
 - Disk=200 TB
 - WAN= 1Gb/s for each site in the T2.
 - Data Import=5TB/day from T1 for AOD and other data replicated at T2
 - Data export=1TB/day essentially for MC production shipping to T1.
 - Job submission frequency: 1 job/20 sec

Information source: <http://cmsdoc.cern.ch/cms/cpt/tdr>