

MINOS Computing Needs for FY11 & FY12

Arthur Kreymer

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NuComp Steering Meeting

Life Cycle Overview-2011

- DAQ computing transfer from RAL to FNAL
 - Due to UK funding cuts
 - Donatella Torretta working on this at FNAL
- Simulation
 - Probably Hops MC in FY11
- Data processing
 - Possible ELM data reco pass, not certain
- Analysis
 - New Nue techniques (LEM) may be very expensive

Life Cycle Overview- 2012

- UK will no longer support DAQ
- Near Detector handover to Minerva
- Minos analysis will continue
- FNAL manpower will shift toward Minerva/Nova

Justification for Resources (estimated data types/sizes and CPU uses)

- Dcache

- RawDataWritePools - 10 TB, all raw data through 2012, using 8 now
- MinosPrdReadPools - 21 TB current ntuples (i.e. ND full cosmics)
- ReadPools - 14 TB shared with other expts
- WritePools - 6 TB shared cache, non-rawdata files

- Bluearc

- /grid/app - 2 TB – scratch
- /grid/fermiapp .3 TB – software releases
- /minos/app - 7 TB – should shift most of this to /minos/data/users
- /minos/data - 26 TB – old Satabeast, will merge with /minos/data2
- /minos/data2 – 67 TB – HDS disk, will add 30 TB FY10
- Usage (April 11 snapshot)
 - 8 analysis
 - 10 mcimport
 - 15 mcout_data
 - 3 minfarm
 - 8 reco_far
 - 14 reco_near
 - 18 users
- Can we bridge the street price gap - \$70/TB vs Bluearc/Dcache \$1000/TB ?

Justification for Resources (estimated data types/sizes and CPU uses)

- Tape – 486 TB net usage April 2010
 - 3 fardet_data
 - 5 neardet_data
 - 2 caldet_data
 - 1 beam_data
 - 107 reco_near
 - 64 reco_far
 - 61 mcin_data
 - 195 mcout_data
 - 32 stage (mc pre-overlay input)
 - 8 vault (second raw data copy)
 - 3 BAD (being removed)
 - 1 miscellaneous
- Interactive login and local batch
 - Minos Cluster (interactive)
 - 2005 - 12 dual, 2006 – 26 dual, 2010 5x8
 - AFS home and code area, code is now in Bluearc /minos/app
 - Condor local pool successful, heavily used most of the time

Justification for Resources (estimated data types/sizes and CPU uses)

- Grid
 - GPfarm – 600 slot standard allocation + 100 slot priority due to purchase
 - Fermigrid - usually get close to 2000 core limit opportunistically, need this.
 - We still need to expand to 5000 peak capacity (pending Condor 7.4.1)
 - Condor 7.4.1 should resolve the SAZ Tsumami problem
- Servers for DB, Web, special purpose
 - mysql production and farm servers, may need to add analysis servers
 - SAM production and dev/int dbbservers, shared with IF
 - Condor dedicated master node (minos25)
 - Data movement and monitoring (minos27)
- Special CD manpower needs (DB Apps, monitor, etc.)
 - We use UPS/UPD, SoftRelTools, CRL, DocDB, SAM, mysql (DBA support), Enstore, Dcache, Bluearc, MCAS, root, IMAP with Thunderbird alpine and other IMAP clients, root, ...

Processing Beyond FNAL

- TACC (Teragrid)
 - About ½ the CPU for the dogwood3 reconstruction (full ND Cosmic sample)
- Monte Carlo simulation is 100% offsite
 - William and Mary
 - RAL
 - Caltech
 - Tufts
 - U.T. Austin (TACC)
- data transfer needs
 - scp files to Bluearc via import nodes, then validate and srmcp to Dcache
 - Gridftp would be 'nice' ; lack clients and a Bluearc server
- Software or services needed at Fermilab to support this :
 - minos27 -MC data validation and import to Bluearc/DCache

Summary

Need	FY 2011	FY2012	Comments
Disk (TB)	+90 TB	+30 TB	+30 net each year
Tape (TB)	+100 TB	+100 TB	nominal
Int./batch (core)	40 + 0	40 + 0	deployed in FY10
GRID (slots)	100 + 0	+100	replace in FY13
Servers	+3	+3	replace
Personnel	1.6 FTE	1.0 FTE	ramp down

The End