

Facilities & Grids - Findings

- USCMS is not reliant on the gLite release milestones from LCG in order to be able to maintain interoperability with LCG.
- The looming end-of-funding for US grid projects places the USCMS ability to deploy a grid-enabled framework for its analysis at risk. The level of effort needed for CMS-specific work that is presently funded outside the USCMS M&S budget is ~ 9FTEs distributed among T1 and T2 centers across the collaboration.
- USCMS requires/plans on OSG funding, estimated ~ \$3.65M/yr, for continued development and deployment of grid infrastructure to support its program. Of this ~ \$0.5M/yr would directly pay for USCMS FTEs.
- At the present time, experience with GRID3 is that the job failure rate for jobs submitted to the grid resources is ~30%. There are few details available in terms post-mortems on these failures and their mechanisms. The plan is to improve this situation in time for DC06.
- The expected job submission rate during 24x7 production running is not presently known and will become defined as part of DC06. Nonetheless, it is expected that a failure rate of 10% is achievable and tolerable. Inefficiencies associated with such failures have been factored into the CMS Computing Model.
- USCMS approach to security is based on a multi-pronged approach, including strong involvement with the FNAL Security Team, engagement of the grid community in the various security fora, including the OSG Security Technical Group, and joint activities with LCG. Recent incidents have been limited to one at one of the T2s. The program plan includes a dedicated FTE in the area of USCMS cybersecurity.

Facilities & Grids - Findings

- The LPC will essentially be funded completely from the USCMS M&O program at a level of approximately \$2M/yr.
- USCMS has planned T1 center to meet the needs of the new computing model, representing a 2x increase in capacity from previous model, and is presently about 5% of full capacity.
 - Plan to use IBRIX for shared filesystem user disk
- US CMS has chosen for 4 new Tier2 centers in addition to the existing 3 prototype T2s, and will submit a proposal to NSF to augment 4 of these.
- USCMS is playing a leading role in OSG.
- FNAL established optical link to Starlight independent of ESnet for USCMS.
- Facilities functioned well during DC04.
- DC05 was cancelled, but there are service challenges and Magnet test that replace some of the goals.

Facilities & Grids - Observations

- Success of the DISUN proposal is important but not guaranteed and yet critical to the T1/T2 fabric staffing plan.
- Means to generate OSG funding is an open question. Analysis provided of OSG support needs is helpful.
- LPC funding seems reasonable to assure critical mass of US expertise, and appears to have USCMS-wide support.
- If ESnet can not achieve funding for it's deployment plan, FNAL will have a significant cost to provide adequate bandwidth to Starlight.
 - USCMS T1 plan relies on sufficient network bandwidth to other CMS T1 centers for access to raw, DST and AOD data.
- Choice of commercial filesystem (IBRIX) limits flexibility in choice of platform.
 - Risk of vendor failure.
 - Reliance on vendor support of client software on new platforms.
- Lack of data on grid performance and failure rates is a concern. This is recognized as an item in the WBS starting in FY05.
- Cybersecurity activities effective and appropriate.

Facilities & Grids - Recommendations

- FNAL/USCMS must continue to press the critical issue of providing adequate WAN BW.
- Continue to work with International CMS to address dependency on scope of other Tier1 centers.
- Continue to elaborate and make case for OSG/middleware support.