

U.S. CMS Software and Computing Oversight Panel (SCOP) Review
January 13,14, 2005
at Fermilab

Role of the SCOP:

The [U.S. CMS Software and Computing Management plan](#) describes how work on Software and Computing is organized, managed, funded and overseen. One element of the oversight is the Software and Computing sub-group of the US CMS Project Management Group (PMG) which meets regularly throughout the year. This PMG is chaired by the Fermilab Associate Director for Research, Hugh Montgomery. Another very important element of the oversight process is carried out through an external oversight panel appointed by the chair of the Software and Computing PMG.

“The chair of the Software and Computing sub-group of the PMG establishes a standing external review committee that periodically examines and evaluates all aspects of U.S. CMS Software and Computing, the Software and Computing Oversight Panel (SCOP). A recognized expert in HEP computing chairs the committee. Its membership includes international HEP computing experts and participation from CMS software management. The SCOP reports to the Fermilab Associate Director for Research in his oversight role, and it should provide advice to the U.S.CMS Software and Computing Manager. The chair of the SCOP will be invited periodically to meetings of the Fermilab Physics Advisory Committee to present the status and plans for U.S. CMS Software and Computing. The Panel will meet regularly and produce a written report.”

Since last year the SCOP is chaired by Stu Fuess and has the following Members, most of whom served on the committee last year:

SCOP Members:

Stu Fuess (Fermilab/D0) – chair
Bob Cousins (UCLA/CMS)
Sarah Eno (U. Maryland/CMS)
Claudio Grandi (INFN/CMS)
Mark Kaletka (Fermilab)
David Morrison (Phenix/BNL)
Don Petravick (Fermilab)
Marj Shapiro (U.C. Berkeley/Atlas)
Paul Sheldon (Vanderbilt/BTeV)

Charge and Purpose of the SCOP Review:

US CMS Software and Computing is managed as a project with a baseline scope and cost and a well defined work breakdown structure and work plan. This work is integrated into the overall work plan of CMS and into the international LHC computing efforts. US CMS Software and Computing provides the US share to the CMS Computing and Core Software Project and in some cases US personnel contributes to the LHC Computing Grid Project. Some work is carried out in common with ATLAS.

There are a number of dependencies on and contributions to US Grid Projects and Grid deployment efforts nationally and internationally.

The overall program of work for US LHC Software and Computing is formally reviewed by a joint DOE-NSF review process with the next major review scheduled for March 1-4, 2005. January 13-16, 2004. The detailed charge to this DOE-NSF review has not yet been published, but it is expected to concentrate on the projections of the U.S. CMS needs for achieving fully functional software systems and for the required ramp-up to full sized computing systems in 2006 and 2007.

The CMS experiment, in preparation of the Computing Technical Design Report and of the Computing MoU, is developing the CMS computing model. This is timed to provide input into a LHCC Review of Computing Resources for the LHC Experiments, which is scheduled for January 17-19. From the announcement of that review:

"it is felt to be desirable at this stage to seek an informed, independent view on the reasonableness of the present estimates.

Starting from the present requirements documents, the task of this Review is thus to examine critically, in close discussion with the computing managements of the experiments, the current estimates and report on their validity in the light of the presently understood characteristics of the LHC experimental programme."

This review and the information provided for it will give important input into the U.S. CMS planning, although the SCOP review of U.S. CMS will precede the LHCC review of CMS. The SCOP will be able to give valuable input into how US CMS should plan for contributing to the required resources for CMS computing.

For the SCOP review and in preparation for the DOE/NSF review, US CMS is expected to prepare materials that speak to the following questions.

1. Are the cope and schedule for Software and Computing well matched to the needs of CMS? Are the resopurces sufficient and the planning advanced enough to provide fully functional software and computing systems at the appropriate scale at the startup of data taking? Are any changes needed?
2. Is staffing for US CMS Software and Computing matching the needs?
3. Is US Software and Computing well integrated into the work of CMS?
4. Is US Software and Computing well placed in its connections to, and reliance on, the many different projects and activities to which it is related namely: US ATLAS software and computing, Fermilab Computing, Grid Projects, Prototype Tier 2 University computing facilities, and LCG?
5. Does the management plan clearly describe how the work is to managed, how decisions are to be made and is it useful and relevant? Are personnel, contingency planning, and flexibility of US CMS S&C adequate?

6. Are the plans to provide computing capabilities for US CMS and International CMS adequate and timely and is technical progress on executing these plans in a sufficiently advanced state?
7. Are function, scope and structure of the Fermilab Tier1 computing facility and the relationship to smaller regional and university facilities appropriate and sufficient? Are the existing computing centers being leveraged to provide resources for LHC computing? In particular, are there sufficient resources for the US Tier I center to acquire enough hardware resources to play an appropriate role in upcoming data challenges?
8. Is the US providing an appropriate and fair share of resources for core software activities to CMS? How does this compare with the contributions from other nations? Is the organization and the work plan of CMS such that these resources are effective and the results of their efforts are endorsed and used experiment-wide.
9. Some of the resources provided to CMS are deployed in sub-projects of the LCG Project. Are these resources being well used and effective?
10. How are contributions of software from Grid R&D projects managed, and how well are US efforts integrated into overall LHC Computing Grid Project efforts?
11. Do the future work plans for US CMS Software and Computing include a component that helps ensure that US physicists will be able to contribute effectively to the physics?
12. Is US CMS Software and Computing and Fermilab as the host lab successful and efficient as a User Facility for the U.S. CMS physics efforts, supporting the physics group activities and in delivering satisfactory services to the User Community?
13. Is Fermilab's support for the Project commensurate with its role as the host lab and as a potential Physics Analysis Center for US CMS?

US CMS is asked to post, in advance, those presentations planned for the SCOP Review, and, if available, those intended for use with the LHCC review and to make them available to the SCOP.

US CMS is asked to *explain and summarize* for the SCOP the answers to the questions above using prepared presentations.

The SCOP is asked to provide written observations and recommendations to the Associate Director for Research in the following areas in particular.

The SCOP is asked to assess, at a high level, the progress of the US CMS Software and Computing efforts and the efficacy of their connections to CMS Software and Computing, the LHC Computing Grid Project, US ATLAS efforts, U.S. Grid Projects, Computing at Fermilab and other computing centers and regional and university facilities in the US and abroad.

The SCOP is asked to evaluate whether the US CMS Software and Computing Manager and his management team present a coherent and comprehensive picture that answers the questions above. . The committee is asked to provide observations (both positive and negative), concerns, and recommendations to the US CMS Software and Computing Manager to assist him in presenting the status of the work and in formulating and presenting future work plans.