Strategic Capability High Performance Computing: Governance Approach

In early FY12 an internal assessment of institutional high performance computing (HPC) at LLNL showed a significant unmet need for both unclassified and classified (SNSI level) HPC cycles to help sustain and improve the codes, models and computational expertise that are foundational to the Laboratory's strategic capabilities – those that are critical to the future of the national security missions executed at the Lab. Allocations of HPC cycles are needed to sustain and improve these capabilities, beyond improvements that are explicitly funded by the programs, in order to meet broader mission needs now and for the future. At the time of the assessment, access to HPC cycles that enable such improvements was limited to PIs who are awarded LDRD or Grand Challenge allocations. To address the unmet need, it was recommended that allocations of institutional cycles be provided to the program PADs and discipline ADs, to be managed under a governance model acceptable to the CFO and Controller. The recommendation was approved for implementation by senior Lab management, subject to the following general guidance regarding institutional benefit:

> HPC cycles that are provided for strategic capabilities are to be used to sustain and enhance institutional capabilities that are broadly applicable to help ensure future mission success and benefit the Lab as a whole. These allocations may also be used to perform computations that enable the communication of LLNL institutional capabilities to current or potential customers, and to build the expertise of the next generation of scientists and engineers that will use these capabilities for the benefit of multiple Laboratory programs.

Starting October 1, 2012, WCI, GS, NIF, Engineering, Computation, and PLS will be provided with an equal HPC allocation on unclassified institutional commodity technology systems for high priority strategic computational capabilities that are so identified by the cognizant PAD or AD. In addition, high priority strategic capabilities that require SNSI-level classified HPC cycles can also be accommodated. Both the unclassified and classified strategic capability allocations will be implemented as a component of the Laboratory's Multiprogrammatic and Institutional Computing (M&IC) system, subject to the current M&IC governance structure and annual institutional review and planning. Consistent with the M&IC governance model, each directorate will identify a single point of contact (POC) to manage the directorate allocation and represent their respective organization in discussions of institutional needs. The directorate POC will serve as a member of the Institutional Computing Executive Group (ICEG), chaired by the M&IC Director.

Specific roles and responsibilities are as follows:

Director/DDST:

- As a component of annual M&IC review, determine the portion of the M&IC cycles that are provided for strategic capabilities under PAD/AD stewardship.

AD/PAD:

- Select strategic computational capabilities under the organization's stewardship for the purpose of HPC allocations as described above; set relative priorities for HPC allocations among strategic capabilities.
- Identify a point of contact to manage the organization's allocation and represent the AD/PAD in the ICEG.

AD/PAD Strategic Capability POCs:

- Manage the organizational allocation consistent with the strategic capability priorities set by the responsible AD/PAD and the purpose of these allocations, as described above.
- Execute an internal process each fiscal year to evaluate requests and sub-allocations under the directorate's purview for the following year, and review what has been accomplished in the prior year. Document the directorate allocation portfolio for the coming year, and send to the DDST (or designee) and M&IC Program Director.
- Resolve any internal issues regarding the relative priorities of sub-allocations in the directorate portfolio.
- Represent the organization's current and anticipated needs for computational capabilities in the ICEG.

M&IC Program Director:

- Implement the AD/PAD unclassified and classified strategic capability HPC allocations within the management structure of the M&IC program.
- Provide regular reports on system utilization and allocation information to stakeholders.
- Chair of the ICEG.