

# Advanced User Support Area Goals

Version 0.1 (8/25/08)

## 1 Background

The Advanced User Support (AUS) area is being established within TeraGrid to coordinate and focus advanced support for TeraGrid users. AUS staff will provide targeted advanced support to user applications to enhance the effectiveness and productivity of scientists and engineers using TeraGrid's resources; this support will include porting applications to new resources, implementing algorithmic enhancements, improving the scalability of codes to higher processor counts, optimizing codes to efficiently utilize specific resources, and providing visualization, workflow and data analysis/transfer expertise to the user community. The AUS area will work with the other related areas within TeraGrid such as User Support (US), User Facing Projects and Core Services (UFC), Networking, Operations and Security (NOS), and Science Gateways (SGW).

## 2 Higher Level Goals and Tasks

Following are the higher level goals of the AUS area:

- Establish a transparent TeraGrid-wide process for:
  - identifying requests and potential opportunities (including TRAC requests, discretionary AUS effort etc.) for AUS to applications/users/groups
  - prioritizing those requests/opportunities
  - identifying and tracking TeraGrid-wide AUS staff expertise
  - matching appropriate TeraGrid AUS staff to user requests and opportunities
- Provide outreach to the current, future, and potential (e.g. economics, linguistics, medical/clinical, humanities etc.) computational science user community about the availability of AUS
- Increase the number of TRAC-recommended AUS requests and, as needed, work with users to write the AUS part of TRAC proposals
- Target users at all scales (startup and research allocations, and PetaApps) , as well as users of the other NSF-funded large scale CI/HPC projects for AUS
- Identify projects that are of benefit to the general user community such as:
  - porting, optimizing and benchmarking 3<sup>rd</sup> party scientific applications and kernels that are widely used on TeraGrid machines
  - utilizing performance analysis expertise from TeraGrid staff for application scaling, optimizing and providing detailed examples of how profiling/tracing tools are used on HPC machines
  - documenting and training on how to optimize for multi-core architectures
  - providing workflow, visualization, data transfer/analysis use case scenarios
  - etc.
- Coordinate training for advanced HPC/CI topics and hold appropriate workshops for the user community (Extreme Scalability, petascale workshop etc.)

- Disseminate technical knowledge gained from successful AUS projects via various means (documentation, web article, KB, CI/HPC training/workshop etc.)
- Manage the initiation, progress, and completion of AUS projects and generate AUS progress and final reports and share with other area directors
- Maintain collaboration and interface with the other user services related areas
- Make AUS projects truly collaborative between the PI (and the PI team members) and AUS staff with strong interest from the PI in the collaboration
- Identify means by which AUS staff (many at the Ph.D level) are appropriately credited for successful AUS projects (e.g. co-authors in papers/presentations etc.) such that the AUS staff are enthusiastic about AUS projects and have a visible path to professional and career development