

MAGIC Meeting Minutes
April 5, 2006

I Participants

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I. Action Items

II. Proceedings

Kevin Thompson of the NSF chaired this meeting of MAGIC.

Briefing on TeraGrid: A National Production Cyberinfrastructure Facility

Charlie Catlett, TeraGrid Director, gave a briefing on the capabilities, status, and plans of TeraGrid. TeraGrid is an integrated set of HPC resources providing NSF scientists with access to resources and collections of resources through unified user support, coordinated software and services, and extensive documentation and training. Components of the TeraGrid include the Grid Infrastructure Group (GIG) that provides planning, management, and coordination, and Resource Providers. There are currently eight resource providers (NCSA, SDSC, PSC, Indiana, Purdue, ORNL, TACC, UC/ANL). Additional resource providers are being considered and a ninth site, NCAR, will join later this year. The resource providers provide computational power, data, storage, and other resources. They integrate the resources and act as if they are one single center, although they are distributed sites. The TeraGrid model scales to about 25 sites but not to 100 sites. The GIG receives \$9 Million per year in NSF funding and the resource providers receive \$19 Million per year.

TeraGrid objectives are:

- To enable Terascale science: at a scale not previously achieved
- Empowering communities by serving distributed and broad-based science
- Open infrastructure providing reliable and general purpose services and resources

TeraGrid resources collectively include 100+ TeraFlops of computational power, 3 PetaBytes of online storage and over 100 data collections.

TeraGrid currently provides a single point of contact for help, a common baseline user environment, services to assist users in harnessing appropriate TeraGrid platforms, enhancements driven by users, and science gateways to engage broader communities. The TeraGrid has always been oversubscribed by users. It has grown approximately 33 percent per year in usage due to increases in computational power and additional

facilities coming on-line. It supports a broad spectrum of science users including Physics, Astronomy, molecular biosciences, materials research, and others.

Some applications using the TeraGrid include:

- Predicting severe weather: Kelvin Droegemeyer
- FOAM Climate Model using virtualized resources and ensembles
- SPICE: Grid computing using novel algorithms
- Modeling Information Processing and Public Opinion
- Social and Behavioral Science Gateway

TeraGrid user support includes traditional high performance computing user services, TeraGrid user portal, intensive support programs to specific applications, and user surveys and interviews. Users have indicated particular interest in enhancements to:

- Remote file read/write
- High performance file transfers
- Coupled applications and co-scheduling

and many other areas.

TeraGrid is developing science gateways based on Web-based portals, application programs accessing services through the TeraGrid, and coordinated access points that enable users to move seamlessly from TeraGrid to other grids.

TeraGrid has produced a “Primer” to assist in integrating new computational systems into TeraGrid. See:

www.teragrid.org/basics/

They define four stages for integration: definition/evaluation/negotiation, planning, integration, and production.

In the international arena, TeraGrid is working with other Grid communities on federating security regimes for authentication and authorization. Discussions are held at the GGF meetings.

Discussion by the MAGIC members identified that:

- TeraGrid users primarily use Abilene and National LambdaRail for access to TeraGrid resources
- Limitations on networking are usually local, at the campus level
- TeraGrid hubs are in Chicago, LA, and Denver (NCAR access).
- Illinois and Indiana access TeraGrid through Ilight and Iwire respectively
- Privacy is an increasingly important issue: Campuses are increasingly using Shibboleth
- SURA has Grid program to develop software to coordinate heterogeneous resources. They are working with IBM to develop a consistent software stack.

Meetings

Week of April 10: Educause meeting on cybersecurity

June 12-15, Indianapolis: 1st annual TeraGrid Conference. See the TeraGrid Web site.

On June 13 Arden Bement and Kelvin Droegemeyer will give talks. There will be four all-day workshops on science gateways, education, virtual data system/data collections/repositories, and cooperation on federated authentication/authorization.

Next MAGIC Meetings

May 3, 2006: 2:00-4:00, NSF, Room 1150

June 7, 2006: 2:00-4:00, NSF, Room 1150