

## Using High-End Collaborative Technologies at Los Alamos National Laboratory

Cindy Sievers, CCS-1

**T**he premier international conference on high-performance computing, networking, and storage, Supercomputing '06 (SC06), convened in November 2006 in Tampa, Florida. As the SCGlobal Showcase '06 General Producer, I worked with SCGlobal to play a major part in SC06 by linking geographically diverse communities from around the world and allowing them to showcase high-end collaborative technologies.

With attendance in excess of 7,000 people, SC06 is an excellent forum for researchers to explore ideas and build collaborations. The latest in high-end collaborative technologies varied in type from simple video conferencing and multipoint information dissemination to highly sophisticated arts productions. Wide and diverse groups of people from business and educational researchers to corporate executives are touched by these technologies enabling those with scarce resources, specialized expertise or equipment, and education resources to collaborate in a timely and cost-effective manner. The SCGlobal presentation had two parts: SCGlobal Showcase and SCDesktop.

### SCGlobal Showcase

Utilizing Access Grid Technologies, the SCGlobal Showcase presentations were made with speakers at both local and remote locations around the world. (See Fig. 1). The Access Grid<sup>®</sup> (AG) is an ensemble of resources including multimedia large-format displays, presentation and interactive environments, and interfaces to Grid

middleware and to visualization environments. These resources are used to support group-to-group interactions across the Grid.

### SCDesktop

From its successful debut last year, SCDesktop returned to offer the supercomputing community the option of participating in SC06 remotely as a "virtual attendee." A virtual attendee accessed sessions, such as the keynote address, plenary sessions, exhibitor forums, and poster sessions, via collaborative technologies that provide two-way audio and video connections to the conference. As part of the registration, virtual attendees received a limited-term license for the collaboration software. Testing and training were provided so that attendees were confident of successful participation.

An added feature of SCDesktop this year was the introduction of Time Delayed Broadcasting. All programs that were offered to virtual attendees were rebroadcast 12 hours later. This time delay allowed European and Asian audiences to enjoy the programs at a better time locally.

Almost 100 sites worldwide participated in SCGlobal, with six continents represented. Remote locations included sites from Canada, United States, United Kingdom, Australia, South America, Mexico, Korea, Alaska, and Hawaii. Site participation ranged from room-based nodes (with more than 10 participants at each room) to individual desktop nodes. We also had up to 40 people in the

SCGlobal room at the SC06 conference center attending the sessions in person. Of special interest were the training sessions, which offered local and remote participants an opportunity to get some hands-on training of new application software developed in the open source AG community.

#### **Access Grid at LANL**

Access Grid technologies are being used at Los Alamos National Laboratory (LANL). We currently have three room-based nodes and several desktop nodes. The main AG node is primarily used for group-to-group technical meetings and seminars. Another AG node, located at the Los Alamos Research Park, is used for the LANL/University of California, Santa Barbara (UCSB) Institute distance learning classes. A third AG node is being built at the LANL Research Library and will host scientific discussions and technical meetings. Numerous examples of how the LANL AG has enabled the Laboratory's programmatic and scientific efforts include 1) collaborations between the LANL Climate, Ocean and Sea Ice Modeling Project within the Climate

Change Prediction Program and its sponsors and others; 2) the partnership between UCSB and LANL to create the Institute for Multiscale Materials Studies; and 3) scientific collaborations with DARPA's High-Productivity Computing Systems program.

*For more information contact Cindy Sievers at [sievers@lanl.gov](mailto:sievers@lanl.gov).*

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**Fig. 1.** The SCGlobal room at the Supercomputing '06 conference in Tampa, Florida. The photo shows local presenters as well as remote participants, as seen on the video screen.