AG FOCUS

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Informing Users and Grid Communities about Access Grid™ Developments

AG-TECH Update

Presenting A Challenge for Development to the AG Community

The centennial celebration of Albert Einstein's "miraculous year" is rapidly approaching. In 1905, Einstein published three legendary papers that contained ideas that shaped the development of modern physics. He once said, "Imagination is more important than knowledge." Therefore, the challenge to you as users and developers of the Access Grid™ (AG) is to use your imagination to continue exploring the possibilities for future collaboration environments.

Where are we today? Technology advancements in computing, high-speed networks and data storage are continuing at a rapid rate, having profound effects on how science is being done. With the advanced networking we have today, resources that include people as well as computers, data stores and experimental facilities can be linked in ways that are beginning to reduce barriers of distance, institution and even discipline…but we need to continue that progress.

In 1997, my office funded a project at Argonne National Laboratory (ANL)—"shared virtual spaces." It was one of several that were part of an ambitious, minimally-funded effort focused on harnessing the fusion of computing and communications to accelerate the ability of the U.S. Dept. of Energy to meet its missions. In 1999, the AG sprang forth from this project, mature in its vision but realistically premature for some elements of the technology and supporting infrastructure.

It suffered growing pains…but combining persistent virtual spaces with ideas and tools from computer supported collaboration was a concept whose time had come. Enabling effective distance communication between groups of people was important to enough institutions that, even working with technology that was three to five years early, it didn't take long to put a number of AG nodes in place, spanning five continents and soon to be six. Imagine—a technology that defies distance.

AG is no longer just an ANL project. The concept has engaged the community and it is now up to the community to nurture and grow the child. An open source software environment is a good space for that. Science is a beneficiary

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Building AG Global

PRAGMA: A Community-Based Approach to Using the Grid

The Pacific Rim Application and Grid Middleware Assembly (PRAGMA) is an open, institution-based organization of twenty institutions that was founded in 2002. Its goal is to establish sustained collaborations and to advance the use of grid technologies in applications among a community of investigators working with leading institutions around the Pacific Rim. PRAGMA was founded based on the following premises: the conduct of science is global and more examples arise that point to the challenges that must be faced internationally; the grid promises to revolutionize

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ACCESS GRID™ www.accessgrid.org

General Inquiries ag-info@mcs.anl.gov
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AG Focus is a publication of the Futures Laboratory within the Mathematics and Computers Science Division of Argonne National Laboratory, operated by the University of Chicago (www.mcs.anl.gov/fl/).

Collaborating with Microsoft ConferenceXP

Shown is a distance-learning class using ConferenceXP.

ConferenceXP, developed by Microsoft Research's Learning Sciences and Technology group, enables you to interact and collaborate with others in a virtual collaborative space, called a venue. In addition to offering high-quality, low-latency audio and video, the ConferenceXP Client application includes two sample capabilities—ConferenceXP Presentation and Chat. ConferenceXP Presentation enables you to collaborate with real-time ink on an electronic whiteboard or distributed Microsoft® PowerPoint® presentation, and Chat enables you to send instant messages.

When you start the ConferenceXP Client application, it opens a window that displays the available venues you can join. After you join a venue, ConferenceXP automatically starts the multipoint real-time audio and video capability, which enables you to see and hear others in the same venue. You can choose whether you want to automatically send or receive audio and video streams, and you can specify how the video windows display onscreen.

To provide high-performance audio and video, ConferenceXP uses Microsoft Windows Media® audio and video codecs. Its audio and video features are designed for high-speed networks—2 megabits per second (Mbps) or faster—which enables high-quality multipoint conferencing. It delivers full-screen video at 30 frames per second and supports three video data transfer rates: high (1.5 Mbps compression at 640 x 480 resolution), medium (512 kilobits per second [Kbps] compression at 320 x 240 resolution), and low (256 Kbps compression at 320 x 240 resolution).

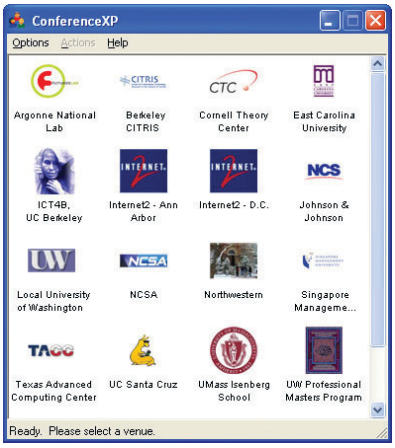
As a peer-to-peer application, ConferenceXP sends audio, video and data streams between ConferenceXP clients, instead of sending these streams to or receiving them from a server. To support simultaneous users while keeping network traffic to a minimum, ConferenceXP uses multicast. That way, a ConferenceXP client can send a stream once to all ConferenceXP clients set up to receive the data.

With ConferenceXP, participants can join online conferences, presentations, and meetings by using a simple point-and-click user interface. Because ConferenceXP supports standard plug-and-play devices, as well as installing (and uninstalling) as a standard Microsoft Windows® application, setting up ConferenceXP hardware and software is easy.

The ConferenceXP research platform enables developers to build a set of interoperable solutions on top of a common framework. With published APIs and a set of base classes, developers and researchers can design powerful new conferencing and collaborative environments, create custom interfaces, and integrate ConferenceXP with existing conferencing and classroom systems. The difficult parts of developing collaborative applications—forming groups, managing group state and status, dealing with network errors—are taken care of by the ConferenceXP platform and its services.

For more information about ConferenceXP, visit the ConferenceXP Community Web site at www.conferenceXP.net.

**—Chris Moffatt,
Microsoft Research,
Learning Sciences and
Technology,
chrismof@microsoft.com**



ConferenceXP displays a collaborating participant's video stream (l) and the available venues a user can join (above).

Developer's Corner

AGTk 2.2: Simplifying Shared Application Development

In previous columns, I've discussed the facilities provided by the Access Grid™ (AG) Toolkit for developing shared applications. In this column, I'll cover a convenience class included in the 2.2 release that bundles together much of what is needed to develop shared applications. Afterward, I'll provide an example of a shared application that I developed in a couple hours at home.

Shared applications typically: join a shared application instance, connect an event client to the shared application event service, register callbacks to handle events and send events. More involved shared applications may require additional functionality, including log application execution, store application state in venue and provide participant info.

The SharedAppClient Class

To address these needs, the AG team constructed the SharedAppClient class. It includes interfaces to provide shared application developers with easy access to the support they need to develop applications as easily as possible. For example, with the SharedAppClient, the single call:

```
Join(appServiceUrl)
```

joins the shared application session, creates an event client, and connects the event client to the event service for the shared application. Events can be registered using a simpler method than previously:

```
RegisterEventCallback(eventType, callback)
```

where the eventType is defined by the application, and the callback is a method that will be called when an event of the specified type is received by the event client. The callback must accept a single argument: the event that was sent.

Applications can send events by calling the SendEvent method, which takes an application-defined event type and data as arguments:

```
SendEvent(eventType, data)
```

The SharedAppClient class also provides interfaces for the additional functionality described above:

- Application logging
  `InitLogging(debug = 0, log = None)`
- Storage/retrieval of application state
  `SetData(dataKey, dataValue)`
  `GetData(dataKey)`
- Participant Info, so shared apps can display a list of participants
  `GetParticipants()`
  `SetParticipantProfile(ClientProfile)`

Some of these interfaces are new, while others are simplified to hide details that developers don't need to know. Documentation for the complete SharedAppClient interface is available online at http://www.mcs.anl.gov/fl/research/accessgrid/documentation/devcorner/2004.2/SharedAppClient.html.

The SharedAppClient is being used in the SharedPresentation and SharedBrowser applications for developers to refer to as examples.

Example: SharedGnuplot

Gnuplot is a program widely used for plotting scientific data. It is very straightforward to use: issue plot commands at the prompt and the resulting plot is displayed in a window.

For an example of shared application development using the SharedAppClient class, I developed a shared version of Gnuplot. In this case, when one user inputs a plot command, it is propagated to the other users over the event channel, and executed locally, so that they also see the plot.

The example consists of a command processor and a GnuplotSharedAppClient. The command processor is derived from the one found in the Python cmd module. It takes commands, sends them to Gnuplot, and calls a callback registered to deal with commands. The callback, in this case, is a method in GnuplotSharedAppClient that sends the command to other participants. When this event is received by other clients, the command is sent to their Gnuplot command processor so that the plot is displayed locally.

Shared applications typically: join a shared application instance, connect an event client to the shared application event service, register callbacks to handle events and send events.

The command processor is just a front-end to Gnuplot, so it accepts any valid Gnuplot command. There are a couple built-in demo commands included; type 'demo1' or 'demo2' to view interesting sample plots.

The example works on both Windows and Linux; on either platform, it requires that the following packages be installed:

- Gnuplot (http://gnuplot.info)
- Gnuplot.py (http://gnuplot-py.sourceforge.net)
- Numeric Python (http://numpy.sourceforge.net)

The SharedGnuplot package is available at http://www.mcs.anl.gov/fl/research/accessgrid/documentation/devcorner/2004.2/SharedGnuplot.html . It is about 225 lines of code, including comments and the demo command sets, showing how simple it is to develop a shared application for AG.

This example could be easily extended by parsing the Gnuplot commands and performing appropriate venue operations, including storing the current plot state in the venue so late-joining participants see the latest plot, and capturing file-based plot commands to upload the data file to the venue.

If you have any questions or comments about this article, please email me.

—Tom Uram, Argonne, Futures Laboratory, turam@mcs.anl.gov

AG Collaborations

Karaoke & The Grid: AG Entertainment at Its Finest

Karaoke was originally invented in Japan, but today has become global entertainment. In a Karaoke session, a song is sung by an individual or together with friends accompanied by the background music.

In November 2003, a distributed Karaoke session was held over Access Grid™ (AG) as part of SC Global 2003, a distributed international conference on the Grid. Special AG nodes, Karaoke Grid nodes, were developed and deployed at a karaoke room and at Waseda University, forming a global virtual karaoke room. There were more than 20 singing sites from five countries, Australia, German, Japan, Thailand and the U.S.

Young Japanese people in Phoenix sang their favorite Green Day and Beatles songs and shouted with Japanese friends being costumed as Santa Claus and reindeer. A group at Boston University requested a Bon Jovi song and raised their fists while singing. A man at Winston-Salem State University led the singing of "We Are the World" as he was dancing.

Several challenges had to be overcome to accomplish the karaoke session, including the audio configuration for singing, audio latency, IP multicast reachability, deployment at a karaoke room in service, and the performance rights of songs. Audio latency was reduced by research efforts of Waseda University but more reduction is still required for a duet.

The Karaoke Grid was developed by the National Institute of Advanced Industrial Science and Technology (AIST), a leading karaoke service provider for XING and Waseda University. They proposed the session and managed it. The Asia-Pacific Advanced Network (APAN) strongly supported the AG infrastructure such as an IP multicast connectivity. The session was accomplished over a trans-pacific high-performance network, TransPAC.

For the most part, AG has been applied for formal use such as lectures and meetings. Such applications still require more sophisticated technical support such as speech recognition and real-time interpretation of speech.

But informal applications like karaoke disclose limits and requirements on technologies, providing a foundation for future research.

—Kazuyuki Shudo, AIST, shudo@ni.aist.go.jp

SC Global 2004: New Directions in Collaboration

Anchored in the newly constructed, technology-enhanced Pittsburgh convention center, SC Global 2004 will link Access Grid™ (AG) communities from around the world with the annual SC Conference to exchange ideas through highly informative talks, papers, panels and BOFs on topics of interest to attendees. The focus of this year's SC Global will be demonstrating collaborative applications and tools that have developed over recent years, as well as a unique venue for artistic expression and other innovative ideas in the AG environment.

Two new initiatives for SC Global 2004 include: the keynote talks being broadcast over AG, allowing remote participants to have a more complete experience of the conference; and plans are underway for a suite in the Pittsburgh convention center for a set of personal AG nodes for use by conference participants (additional telecommunications technologies may be made available as well).

SC Global 2004 builds on the solid foundations of SC Global events in 2001 and 2003. In 2001, 43 sites using AG and inSORS Grid techologies spread across 11 countries and 6 continents, providing four concurrent tracks of events. In 2003, 80 sites participated, representing 10 countries and 5 continents. The technical infrastructure was broadened to enable participation by AG, inSORS Grid, Windows Media and vBrick streams.

Detail of this year's SC Global, including technical infrastructure and deadlines for participating sites, will be discussed at the AG Retreat 2004. For more information, visit www.sc-conference.org/sc2004/scglobal.html.

—Jackie Kern, NCSA, jkern@ncsa.uiuc.edu

SC Global 2004 to be held in Pittsburgh is hoping to build upon the 80 AG nodes sites used at the 2003 event.

Universities Come Together to Develop Art on the Grid

The Access Grid™ (AG) is prime technology for collaborative art projects involving a variety of media. Art on the Grid is an organization of visual, media and musical artists that are developing productions on the Grid to explore its strengths, weaknesses and inherent potential. In March and April, Art on the Grid produced a series of events to study the effectiveness of the Access Grid when applied to the arts.

On March 25, the University of Alaska Fairbanks gave a Grid presentation of musical artist Valerie Naranjo to more than 25 sites internationally. Valerie is the percussionist for the Saturday Night Live Band and the Drum Principal and Arranger for the Broadway production of the Lion King. She is a noted singer and drumming expert in African and Native American musical genres. The clinic was an effort to ascertain how effectively the Grid can be used to communicate instrumental and vocal musical techniques and concepts.

During her session, she performed on the Gyil (an African xylophone), the marimba, sang Native American songs and lectured about her music. She also directed participants in call and response singing, a first for this kind of event on the Grid. A questionnaire was sent out to people who viewed the event, the results of which will be included in a presentation at the June AGN Retreat in Toronto.

On April 23-25, several sites came together to create a new form of performance. University of Utah, University of Alaska Fairbanks and University of Maryland College Park combined their resources to create InterPlay: Hallucinations. The work was directed by Jimmy Miklavcic with performances by Nadja Masura and Brian Buck, University of Maryland, Miho Aoki and Scott Deal, University of Alaska, and Beth Miklavcic, Tony Larimer and Aaron Henry, University of Utah.

Grid operator Paul Mercer at the University of Alaska coordinated the live feeds from Aoki and Deal. Each site utilized their AG Nodes to capture the local performances. Utah's site used each of the remote site's video streams and mixed these with the local streams and set them back out onto the grid.

Through the process of creating Hallucinations, the three sites exercised the AG's strengths and wrestled with its weaknesses. Each site's process differed, ranging from the experienced node operator adapting his/her site for artistic purposes to the novice, building a PIG for the first time on a laptop.

Art on the Grid is an organization of visual, media and musical artists that are developing productions on the Grid to explore strengths, weaknesses and inherent potential.

There were several issues that involved capturing incoming video, modifying it and retransmitting to the grid. Utah used ATI Radeon 9600 graphics cards with built in scan conversion. This allowed Jimmy Miklavcic to take any large vic window, convert it to 640 X 480 NTSC and pass it through a prosumer video mixer. The mixed signal is then connected to Osprey 230 capture cards and transmitted back on the grid. Utah's current node has seven video capture cards. Nadja Masura at the University of Maryland utilized MAX/MSP & Jitter, an audio and video processing software system from Cycling 74. Her experience with AG 2.1.2 on a laptop was her first one. Her design was to take two video signals and process them with MAX/MSP & Jitter and send a single stream from her PIG. Paul Mercer at the University of Alaska had the challenge of supporting a live percussionist, computer assisted live electronics sounds, and 3D computer animation.

Pictured is percussionist Valerie Naranjo performing to 25 different Grid sites across the globe.

Percussionist Scott Deal, Professor of Music at the University of Alaska used a battery of percussion instruments, samplers and signal processors to produce computer assisted music for the event. Using Emagic Logic software and a DrumKat 4.5 Turbo, he also sent MIDI signals to UAF Art Professor Miho Aoki's graphics package Software 101, which drove animation that was sent to the other sites.

The group is currently planning more projects for the future.

–Dr. Scott Deal and Jimmy Miklavcic, University of Alaska Fairbanks, ffwsd@uaf.edu

Percussionist Scott Deal used a battery of instruments, samplers and signal processors to produce music across the Grid.

AG-Tech Update

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Presenting A Challenge to the AG Community for Development

of this technology, which is where I come in, but the technology is much bigger than any single beneficiary. How about the arts and humanities, economics, social sciences, health services and emergency care?

What needs to happen now?

The current technology can grow in many directions. How can you enhance the sense of presence? How can you improve the point of view? What tools can be added to the framework to address these questions?

AG is no longer an ANL project. The concept has engaged the community and it is up to the community to nurture and grow the child.

For example, sense of presence comes from all the senses. In a large room, a clue to identifying a speaker is where the sound comes from. You don't have this in the AG, but how about directional microphones and voice recognition to change an audible clue into a visual one?

When you're looking forward to what might be possible technology-wise, it sometimes helps to step back to see where you have been. If you'd been living in the 1800's and wanted to get from one side of the country in hours instead of days, would you have invested heavily in designing and building ever faster trains, or would you have started down the track that would lead to modern-day air transportation?

And…sometimes there are ideas spawned by visionaries connecting dots no one else sees.

—Mary Anne Scott, PhD, U.S. Dept. of Energy, Office of Science, scott@er.doe.gov

Building AG Global

Asia Pacific: A Distinctive Region of Diversity, Ready for AG

Have you ever noticed that most Access Grid™ (AG) nodes are located in North America? While this is true, more than 200 sites do exisit throughout the globe, not including smaller single PC, PIG nodes.

In Asia Pacific, AG nodes have been or are being deployed in at least eight countries including, Australia, China, Japan, Korea, Singapore, Taiwan, Thailand and Philippine. In addition, com-munities such as the ApGrid, Grid working group of Asia-Pacific Advanced Network (APAN) and the Asia Pacific Access Grid mail list are thriving.

Each country takes part in the AG community in respective ways. In Australia, Sydney VisLab built the country's first AG node in Aug 2001. Today, there are more than a dozen AG nodes over the country.

In China, the Admire research group at Beijing University has operated its AG node since 2001. In addition, Tsinghua University proposed and hosted a workshop for SC Global 2001 that included several dozen participants from China.

From Japan, the National Institute of Advanced Industrial Science and Technology (AIST), the Tokyo Institute of Technology (TITECH) and Kyushu University took part in SC Global 2001. They planned and managed a panel discussion as a kick-off event of ApGrid, which is a partnership of more than 40 organizations from 15 countries in the Asia Pacific region. AIST, a leading karaoke service for XING and Waseda University, held a distributed karaoke session as part of SC Global 2003 and more than 20 sites from 5 countries enjoyed the session.

In Korea, the Korea Institute of Science and Technology Information (KISTI) initiated a community Access Grid Korea. The Kwangju Institute of Science and Technology (KJIST) and Grid WG of APAN held tutorials and a workshop in August 2003 that highlighted speakers from seven countries.

In Singapore, the National Grid Office (NGO) built the first AG node in that country, which helped spawn community interest that includes Nanyang Technological University (NTU) and the National University of Singapore (NUS). NGO held the Memorandum of Understanding ceremony with AIST.

The technical problems that arise from diversity are where the nonverbal communication of AG assists.

In Taiwan, NCHC built the SARS Grid for fighting SARS. The SARS Grid consists of AG and medical information management systems. They were developed in cooperation with Pacific Rim Applications and Grid Middleware Assembly (PRAGMA) members and deployed at least four hospitals.

In Thailand, Kasetsart University has been working on a broad range of AG nodes from room-based to laptop. It also established the Asia Pacific AG mail list. In the Philippines, some room-based AG nodes are being built now.

The Asia Pacific region is about diversity. From different languages to different customs, the region and the eight countries highlighted here are as diverse as they are the same. The technical problems that arise from this diversity are where the nonverbal communication of AG assists.

—Kazuyuki Shudo, AIST, shudo@ni.aist.go.jp

Cave Lifts Purdue

West Lafayette, Indiana—To demonstrate the advanced computing power of Purdue University's Envision Center for Data Perceptualization, biology professor Paul Robinson revealed a bit of his inner self—a white blood cell. Projected on wall-sized screens in the center's virtual reality theater, the 5,600-square foot "Cave," a three-dimensional image of the cell scanned from an earlier sample resembled two blobs locked in combat. In another room, an AG node will link Purdue with more than 200 high-speed multimedia research and academic sites on five continents. Equipped with a 219-inch-by-58-inch video screen, it will allow users work collaboratively on projects in ways that standard teleconferences do not allow. "There are a number of classes that we plan to teach through the AG in the fall," said technical architect Dwight McKay, who is responsible for the center's day-to-day operations. "Right now there are a few scattered projects going on and there will be some projects during the summer, but we expect explosive growth as we become better."

–Information courtesy Indianapolis Star, www.indystar.com

$50K Learning System Grows

College Park, Maryland—A group of students walks into a class and immediately confronts a wall of computer images in a scene reminiscent of The Architect's appearance in The Matrix: Reloaded. Instead of seeing people's lives the students sit in on other classes studying the same topic at universities across the nation. It's a whole new type of distance learning - "videoconferencing on steroids," said David McNabb, a faculty research assistant for the Office of Information Technology. Scenarios such as this may become more common at the university following the creation of the University of Maryland AG Initiative, an open community that supports collaboration among institutions. "The AG is ideally suited for smaller research groups," McNabb said. "We've looked at some distance learning projects, but they're not here yet."

–Information courtesy www.inform.umd.edu

Chicago AG Is Collaboration

Chicago, Illinois—Collaborative software is nothing new. Graybeards recall "groupware" (a popular term from more than a decade ago) that referred to software that integrated the work of multiple individuals on a LAN. Lotus Notes, a famous example of groupware, was the early entrant in this field and is still used at many Midwest organizations. AG and PC-based software like Lotus Notes represent two extreme ends of collaborative technology in terms of costs and sophistication. Despite the popularity of Lotus Notes, the reality is that collaborative software is still uncommon. The potential to substantially increase productivity, speed up cycle times and reduce confusion exists even with low-cost, desktop-based collaborative software tools. Some tools don't even require a persistent Internet connection, which makes them perfect for laptop-toting travelers or people only with access to the Internet.

–Information courtesy Jay Hemmady, Pensive PundIT column in ePrairie, www.eprairie.com

Australia's Virtual Reality Center

Adelaide, Australia—A new $5 million virtual reality centre opened at the University of Adelaide on May 4. The 3D Visualisation Facility has four partner universities-–the three South Australian universities and Curtin University in Western Australia—as well as industry and government partners. "This facility will put Adelaide at the forefront in three-dimensional research in Australia," said Professor of Petroleum Engineering and Management Ashok Khurana. "We hope to make a real impact in the way research and teaching is conducted across many areas of the University of Adelaide, and to provide a world-class facility for those outside of the University." The 3D Visualisation Facility is underpinned by some serious technology. It features three imposing screens, motion tracking, full stereo sound and real-time computing capability area. It also boasts an "intelligent whiteboard" that can record anything written on it in digital form, send it anywhere in the world and link up with the international AG system, allowing visual and audio-based remote collaboration with more than 250 universities around the world. "The applications for this facility are almost limitless and stretch across just about everything the University of Adelaide does, from petroleum engineering and molecular biology to agriculture and wine," said Professor Khurana.

–Information courtesy www.news-medical.net

Continuum Supports Distributed Scientisits

Chicago—Specially equipped rooms in a business headquarters used for conferences and planning, often referred to as war rooms, contain media intended to support or facilitate intense problem solving sessions. Researchers at University of Illinois at Chicago's Electronic Visualization Laboratory (EVL) have developed a high-tech war room for scientists called the Continuum, where distributed collaborators solve problems assisted by advanced collaboration, computation and visualization technologies backed by PC clusters connected over gigabit networks. EVL's Continuum Project aims to develop integrated ubiquitous tools and environments to enhance collaboration. These include interactive stereoscopic displays, multi-site audio/video conferencing and high-resolution tiled displays. "We want to understand how to build rooms with walls made of high-resolution displays capable of both stereoscopic and monoscopic projection-allowing scientists and decision makers to see all of their data, all of the time," said Leigh. "We believe display-rich environments are a powerful way to enhance group awareness in distance collaborations. It's something that today's basic video conferencing tools have great difficulty conveying."

–Information courtesy Electronic Visualization Laboratory, University of Illinois at Chicago, www.evl.uic.edu

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PRAGMA: A Community-Based Approach to Using the Grid

science as much as networking has done to our daily activities; and the grid is yet too difficult to use by most researchers. Finally, PRAGMA recognizes that constructing and using the grid to promote e-science is inherently a global, collaborative undertaking. No one institution or economic entity has all of the talent or all of the resources to do this. Yet, each needs to participate in building the future scientific, social and economic global infrastructure.

PRAGMA accomplishes its mission primarily by conducting joint projects that develop grid middleware to advance applications and by sharing resources to create a testbed, and addressing scheduling and allocation issues across institutional and international boundaries. In addition, PRAGMA is committed to disseminating the results of its efforts to the broader community and to work with regional and international groups to enhance the overall grid infrastructure and to promote global collaboration.

PRAGMA's goal is to establish sustained collaborations and to advance the use of grid technologies in applications among a community of investigators working with leading institutions around the Pacific Rim.

During the two years of existence, PRAGMA has developed technologies for a variety of examples, ranging from controlling a microscope to understand cell processes in the brain to monitoring the environment in national parks and establishing a global framework for lake ecologists, distributed computations that can lead to insights into drug discovery to moving files essential to high-energy physics experiments, and from conducting a global structural genomic experiment to rapidly deploying technology to assist the world in fighting the outbreak of SARS. These accomplishments highlight working together across political and disciplinary boundaries, with a common focus and shared principles underlying the collaborations, and illustrate the concept that the grid "brings remote resources (observational equipment, computers, data and people) together to one's local work environment."

During the coming year, PRAGMA will continue to demonstrate the value of application-focused collaborating to build the grid from the ground up. We expect to diversify areas of applications, to expand the institutions and geographic regions involved, run experiments to demonstrate how to make the grid usable on a routine basis, integrate software from various member institutions, and develop vehicles and resources to train and exchange participants.

PRAGMA is a single model of how to collectively build on international scientific needs such as building and deploying a grid. It is premised on the principles that a focus on application will produced those developments, that an open organization of institutions committed to this goal is a viable approach, that open access to software and data are essential, and that attribution of our individual and identifiable contributions will ultimately benefit the larger effort. As the number and diversity of international collaborations increase, we hope that our experience will provide guidance and inspiration as to what is possible.

The authors wish to acknowledge the support of the National Science Foundation for PRAGMA (NSF INT 0314015) and would like to express our gratitude to all of the PRAGMA members.

—P. Arzberger and P. Papadopoulos, PRAGMA, phil@sdsc.edu and parzberg@ucsd.edu

Photos showing Asia Pacific interaction are courtesy of AIST.

Retreat 2004
June 9-11

Ryerson University
Rogers Communication Center
Toronto, Ontario, Canada

as of 6/1/04

Wednesday June 9, 2004		Access Grid "Showcase" 2004 Program
Eastern Time		
8:00	9:00	***Registration*** ***Rogers Communication Centre***
9:00	9:15	**Welcome** Ron Rankine Ryerson University
9:15	9:30	**Opening Remarks** Rick Stevens Argonne National Lab/University of Chicago
9:30	10:15	**Art on the Grid** Paul Mercer University of Alaska, Fairbanks
10:15	10:30	Coffee Break
10:30	11:15	**Scientific Workspace of the Future** Thomas Uram Argonne National Lab
11:15	12:00	**High Quality Video Service Demonstration** SangWoo Han / JongWon Kim Gwangju Institute of Science and Technology
12:00	1:30	Lunch
1:30	2:15	**Advanced Biomedical Collaboratory** Fred Dech University of Chicago
2:15	3:00	**Impossible Skys** Tim Jackson Ryerson University
3:00	3:15	Coffee Break
3:15	4:00	**Fusion Collaboratory** Ti Leggett Argonne National Laboratory
4:00	4:30	**Multicast Experiences** Michael Murphy Ryerson University
4:30	5:00	**Karaoke on the Grid** Kazuyuki Shudo Grid Technology Research Center National Institute of Advanced Industrial Science and Technology (AIST)

Thursday June 10, 2004		Access Grid Retreat 2004 Program	as of 6/1/04
Eastern Time		*TRACK 1 - AG Operations*	*TRACK 2 - AG Technical*
8:00	8:30	Registration/Coffee	
8:30	9:00	**WELCOME** *Rick Stevens, Argonne National Lab/University of Chicago*	
9:00	10:00	**OPENING KEYNOTE** **Collaboration Technologies: The Next Generation** *Alan Blatecky, RENCI*	
10:00	10:30	BREAK	
10:30	11:00	**Access Grid Toolkit Roadmap** *Ivan Judson* *Argonne National Laboratory*	
11:00	11:30	**Scientific Workspaces of the Future (SWOF)** *Terry Disz* *Argonne National Laboratory*	**XMPP Chat in the AG** *Deb Agarwal* *Lawrence Berkeley National Lab*
11:30	12:00p	**Collaborative Virtual Environments over the Access Grid** *Dioselin Gonzalez* *Purdue University*	**Video Presence Clustered Rendering and Remote Display Manager** *Rod Harris* *Australian National University*
12:00	1:00	LUNCH	
1:00	1:30	**Partner Perspectives - inSORS** *Mike Galich and Jim Miller*	**Advanced Display Management** *Hiroyuki Komatsu* *TITECH*
1:30	2:00	**Partner Perspectives - Microsoft Research** *Todd Needham*	**Scheduling on the Access Grid** *Ivan Judson* *Argonne National Laboratory*
2:00	2:30	**Partner Perspectives - Internet2** *Jonathan Tyman*	**Developing Shared Applications** *Susanne Lefvert* *Argonne National Laboratory*
2:30	3:00	**AG Showcase Summary** *Ron Rankine* *Ryerson University*	**Design of Network-adaptive Extended Video Services for Access Grid** *JongWon Kim* *Gwangju Institute of Science and Technology*
3:00	3:30	BREAK	
3:30	4:00	**AG Collaborations - MSI Update** *Stephenie McLean* *NCSA/University of Illinois*	**Research Directions in Network Services** *Han Gao* *University of Chicago*
4:00	4:30	**AG Collaborations - SC Global Update** *Jackie Kern* *NCSA/University of Illinois*	**Improved Media Tools for the Access Grid** *Rhys Hawkins* *Australian National University*
4:30	5:30	**AG Community Roundtable/AG Future Directions** *Rick Stevens, Argonne National Laboratory/University of Chicago*	
5:30	6:00	**Special Interest Group Sessions *(note: sessions take place at Riley's Bar & Grill)*** *Hot Topics for AG Toolkit Development (Ivan Judson, Tom Uram); Documentation for the Access Grid (Jennifer Tieg von Hoffman, Jim Miller); Conducting Productive AG Sessions (Mary Fritsch, Jackie Kern); Troubleshooting the AG (Bob Olson, Shannon Schraegle)*	

Friday June 11, 2004		Access Grid Retreat 2004 Program	
Eastern Time		*TRACK 1 - AG Operations*	*TRACK 2 - AG Technical*
8:30	9:00	Registration/Coffee	
9:00	9:30	**Westgrid Collaboration and Visualization Network** *Brian Corrie* *Simon Fraser University*	**AG Collaborations - National Fusion Collaboratory** *David Schissel* *General Atomics*
9:30	10:00	**Packaging and Distributing the AG Toolkit** *Eric Olson* *Argonne National Laboratory*	**NLANR/DAST's Multicast Beacon Project Update** *Mitch Kutzko* *NCSA/Unviersity of Illinois*
10:00	10:30	BREAK	
10:30	11:00	**Application Level Networking: Network Monitoring and Bridging** *Tom Uram* *Argonne National Laboratory*	**Evaluation Of The MXQ Mechanism By Using Vic And Rat** *Kazuaki Obana* *NTT Network Innovations Laboratories*
11:00	11:30	**Credential Management** *Bob Olson* *Argonne National Laboratory*	**IPv6** *Piers O'Hanlon* *University College London*
11:30	12:00	OPEN TIME FOR ATTENDEES	
12:00	1:00	LUNCH	
1:00	2:30	**PANEL** **Future Security Issues for the AG** *Deb Agarwal, Lawrence Berkeley National Laboratory*	
2:30	3:00	**Special Interest Group Findings & Feedback** *SIG Leaders*	
3:00	3:30	**CLOSING SESSION** *Rick Stevens, Argonne National Laboratory/University of Chicago*	

Plenary Program

as of 6/1/04

Thursday, June 10

8:30am-9:00am
Rick Stevens, Argonne National Laboratory
Welcome

9:00am-10:00am
Alan Blatecky (alan@sdsc.edu), RENCI
Plenary Keynote - Collaborative Technologies: The Next Generation
Technology drivers (computers, networks, data) coupled with scientific applications is beginning to make collaborative technologies such as AG useful and effective. However, up to this point, the primary focus and efforts in these collaborative technologies have been technical in nature. It is now appropriate to broaden the base of collaborative technology developers to include a wide range of interdisciplinary expertise from the arts, humanities, economics and social sciences to not only mature collaborative technologies, but to address the tough issues of effective human interactions and communications.

10:30am-11:00am
Ivan Judson (judson@mcs.anl.gov), Argonne National Laboratory
Access Grid Toolkit Roadmap
The Access Grid Toolkit has been out for only a year, and the adoption of the software has been remarkable. The past year has seen a large part of the community migrate to the new software; over the same period the AG Toolkit has increased in usability, reliability and functionality. This talk will present the roadmap for the Access Grid Toolkit over the next few releases of the software, through quarter 3 of 2005. The presentation is intended to stimulate discussion in the community, identify where developer opportunities exist, and show the users what features will be coming.

4:30pm-5:30pm
Rick Stevens, Argonne National Laboratory
AG Community Roundtable - AG Future Directions

5:30pm-6:00pm
Special Interest Group Sessions
NOTE: SIG sessions take place at Riley's Bar & Grill.

Ivan Judson, Tom Uram
#1: Hot Topics for AG Toolkit Development
Any developer interested in developing applications using the AG Toolkit (or developers that are already building exciting applications). You should have a basic knowledge and understanding of the Access Grid in order to fully participate

Jennifer Teig von Hoffman, Jim Miller
#2: Documentation for the Access Grid
Do you have valuable AG experience or knowledge that could help other AG users, node operators or developers? OR, are you missing critical information that would help you to more successfully use the AG? Please join this discussion. Prior knowledge of the Access Grid Documentation Project efforts to date is beneficial to a productive discussion.

Mary Fritsch, Jackie Kern
#3: Conducting Productive AG Sessions
Anyone interested in effectively using the Access Grid (site representatives, new users), or anyone with success tips to share (current AG node operators, experienced users), is welcome to participate.

Bob Olson, Shannon Schraegle
#4: Troubleshooting the AG
Node operators (and others) needing to better understand what to do when things go wrong.Network Administrators and Systems Administrators who find themselves supporting AG usage.

Friday, June 11

1:00pm-2:30pm
Deb Agarwal (DAAgarwal@lbl.gov), Lawrence Berkeley National Laboratory
PANEL Future Security Issues for the AG
The Access Grid Toolkit now uses the Globus Toolkit to build a secure collaborative infrastructure using a PKI. This panel will present a short security tutorial, a review of the existing Access Grid Security solution, discuss the current plans for future security solutions in the Access Grid. The panel will try to solicit from attendess security requirements that might be incorporated into the future work. A set of security best practices will also be discussed in the context of the Access Grid.

2:30pm-3:00pm
SIG Leaders
Special Interest Session Findings & Feedback

3:00pm-3:30pm
Rick Stevens, Argonne National Laboratory
Closing Session

Track One–AG Operations

as of 6/1/04

Thursday, June 10

11:00am-11:30am
Terry Disz, Argonne National Laboratory
Scientific Workspaces of the Future
The Scientific Workspaces of the Future project is a partnership between technology developers and end users to deploy and further develop next generation high-end collaborative and network based scientific visualization tools and systems designed to meet the specific needs of distributed applications communities. The initial application foci has been the atmospheric modeling and simulation community and computational molecular biology community. This talk will present the results of two years of close interaction with these application communities.

11:30am-12:00pm
Dioselin Gonzalez (dioselin@purdue.edu), Purdue University
AG Collaborations – Collaborative Virtual Environments over the AG
We present the current state of the first phase in a research project in the area of design and implementation of a framework for Collaborative Virtual Environments (CVEs). The long term objective is to create a toolkit that provides routines and functions that can be added to existing Virtual Reality (VR) applications in order to have them run in geographically distant Access Grid™ (AG) nodes. During the first phase, specific VR applications have been developed to run as shared applications for the AG.

1:00pm-1:30pm
Mike Galich and Jim Miller (jmiller@insors.com), inSORS
Partner Perspectives – inSORS
inSORS has seen major advancements in both its customer base and products and services in the previous 12 months. Jim Miller of inSORS will provide interesting examples of customer AG usage. From the end user point of view, the presentation will identify some features and functions of the AG that have proven to be effective in collaboration projects. A summary of inSORS' latest software enhancements and AG2.0 integration will also be presented.

1:30pm-2:00pm
Todd Needham, Microsoft
Partner Perspectives – Microsoft Research

2:00pm-2:30pm
Jonathan Tyman (tyman@internet2.edu), Internet2
Partner Perspectives – Internet2
The Internet2 Commons promotes and facilitates remote collaboration throughout the Internet2 research and education community. Working toward interoperability and sustainability in the field of collaboration technologies, the Commons aims to connect corporate, government and educational members so that community needs are met by appropriate solutions. There is practical support for widely deployed H.323, emerging desktop tools, and advanced technologies like AG. There is expectation that these can complement one another, leading to global adoption of videoconferencing and collaboration tools.

2:30pm-3:00pm
Ron Rankine (rrankine@ryerson.ca), Ryerson University
AG Showcase Summary Sessions

3:30pm-4:00pm
Stephenie McLean (mclean@ncsa.uiuc.edu), NCSA/UIUC
AG Collaborations – Minority Serving Institutions (MSI) Update
In July 2003, a Minority Serving Institutions AG Initiative was launched. This presentation will discuss some of the challenges and successes related to developing a virtual community using the Access Grid. This session will focus on how The Minority Serving Institutions (MSI) Consortium has worked to engage MSIs to be full participants in the high performance community through the use of the access grid. The session will further provide time for discussion and will make some recommendations to other emerging high performance communities that are looking to build the capacity to successfully implement this technology.

4:00pm-4:30pm
Jackie Kern (jkern@ncsa.uiuc.edu), NCSA/UIUC
AG Collaborations – SCGlobal Update
Anchored in the newly constructed technology-enhanced Pittsburgh convention center, SC Global 2004 will link Access Grid communities from around the world with the annual Supercomputing Conference, to exchange ideas through highly informative talks, papers, panels and BOF's on topics of interest to attendees. In this session, you will learn about the technologies planned for use by SC Global participating sites, the requirements and deadlines for participation, and hear a few highlights of the SC Global program. Plenty of time will also be available for questions and discussion of SC Global's past and future.

Friday, June 11

9:00am-9:30am
Brian Corrie (bcorrie@sfu.ca), WestGrid/Simon Fraser University
WestGrid Collaboration and Visualization Network
WestGrid is a multi-province, multi-institute grid-computing project in Western Canada, deploying a range of grid enabled computation and storage facilities across Alberta and British Columbia. As part of this initiative, the Collaboration and Visualization (CV) Group within WestGrid has also deployed an advanced set of collaboration and visualization technologies across the WestGrid sites. The goal of the CV group is to provide an advanced collaboration and visualization infrastructure to the computational scientists in the WestGrid community. The collaboration infrastructure uses AccessGrid as a foundation for providing collaboration capabilities, including collaborative visualization, to its users. In this talk I will describe the WestGrid infrastructure that has currently been deployed, as well as describe some of our goals for integrating visualization into the AG environment as a "first class" collaboration service. I will pose some open questions as to how best to approach this integration in the AG environment.

9:30am-10:00am
Eric Olson (eolson@mcs.anl.gov), Argonne National Laboratory
Packaging and Distributing the AG Toolkit
Demand for the Access Grid Toolkit is growing. In particular, users wish to see the toolkit packaged and supported on various operating systems and hardware. This presentation discusses the strategy the Access Grid Toolkit is adopting to allow the porting and customization of the software.
This presentation is intended to begin a discussion in the developer community and provide developers with the information and tools they need to support the platforms of their choice.

10:30am-11:00am
Tom Uram(turam@mcs.anl.gov), Argonne National Laboratory
Application Level Networking: Network Monitoring and Bridging
The Access Grid has relied on working multicast infrastructure since its inception in 1999. This reliance on multicasting has required considerable effort, both from network providers who need to deploy and maintain the Access Grid and from the users who occasionally run into difficulties. This talk will describe how the Access Grid Toolkit plans to address these issues by integrating technologies already developed for application-level multicasting. The existing solutions will be presented within the framework of the Access Grid Toolkit. This solution is intended to provide stability to the users, while presenting opportunities for challenging middleware research.

11:00am-11:30am
Bob Olson (olson@mcs.anl.gov), Argonne National Laboratory
Credential Management
The Access Grid provides a secure collaborative environment, based on GSI/PKI tools and software. This talk will discuss the state of the toolkit and its security software. Also presented will be details about how the existing software will be enhanced to support additional security solutions. The discussion of future enhancements will include justification not only in terms of usability and security but also in terms of technology changes coming in the near future.

Track Two–AG Technical

as of 6/1/04

Thursday, June 10

11:00am-11:30am
Deb Agarwal (DAAgarwal@lbl.gov), Lawrence Berkeley National Labs
XMPP Chat in the AG

11:30am-12:00pm
Rod Harris (rod.harris@anu.edu.au), Australian National University
Video Presence Clustered Rendering and Remote Display Manager
The Australian National University Internet Futures team will present an application that can run across multiple off-the-shelf PCs turning them into a video decode cluster and display wall. The use of this will be to enable Access Grid Nodes to use multiple display PCs, with each being responsible for a portion of the total display, instead of a single display PC with a multi-head graphics card. Further more the application is able to be controlled remotely enabling a Node Manager to organize and arrange video tiles with minimal distraction to those participating in a video conference.

1:00pm-1:30pm
Hiroyuki Komatsu (komatsu@taiyaki.org), TITECH
Advanced Display Management
The Access Grid uses many windows such as video windows, presentation slides, and control panels. To control those windows, an operator has to move, resize and iconify each windows separately at the present. AGPager provides an easy window manipulation GUI as well as an automatic window layout system under a specified layout rule. This talk will present the usage of AGPager, the outline of the implementation, and the goal.

1:30pm-2:00pm
Ivan Judson (judson@mcs.anl.gov), Argonne National Laboratory
Scheduling on the Access Grid
The Access Grid provides a complex framework of services and resources that can make the coordination of events difficult. Scheduling systems provide interfaces for making reservations for resources and the infrastructure to enforce the resulting schedule. The Access Grid has had primarily two online scheduling systems, but with AG2 there exists the possibility to more deeply integrate a scheduling solution that can provide simpler to use but more control over the preparation, and possibly the execution of AG collaborations. This talk will present some scheduling scenarios, generated as part of the GGF, ACE research group, and some derived use cases and requirements will be discussed. The talk will conclude with the presentation of a draft design of scheduling software that could be integrated with AG2.

2:00pm-2:30pm
Susanne Lefvert (lefvert@mcs.anl.gov), Argonne National Laboratory
Developing Shared Applications
As the demand for customized collaborative tools increases, developers recognize the need for a shared environment providing a platform for applications to build on. This presentation will take a close look at the framework available in the Access Grid Toolkit for creating shared plug-in applications. An example shared application will be discussed, with the intention of providing a broad understanding of the technology fundamentals and the challenges associated with application implementation and integration. Also included in this presentation will be discussions about packaging, installation, and registration solutions to make an application available for the community.

2:30pm-3:00pm
JongWon Kim (jongwon@gist.ac.kr) and SangWoo Han (swhan@netmedia.gist.ac.kr), Gwangju Institute of Science and Technology (GIST, formerly known as K-JIST)
Design of Network-Adaptive Extended Video Services for Access Grid
The old VIC-based video services of AGTK 2.1.x is now facing limitations such as lack of high-quality video support, inflexible address allocation, and others. To address these problems, since year 2003, we've been working on high-quality video extensions for AG to include supports for DV (digital video) and HDV (high-definition digital video) video. Based on our past experience, we are now designing an extended version of video services for enhanced AG support: ExtendedVideoService. The proposed video service will provide a flexible arrangement for multicast address allocation and will interface diverse video delivery applications such as Vic, DVTS, and VideoLAN with AGTk. In addition, we suggest a MonitoringService that monitors current status of network and system resources and reports them. By interacting with the MonitoringService, the designed ExtendedVideoService may be able to control the quality of served video either manually or automatically.

3:30pm-4:00pm
Han Gao (hangao@cs.uchicago.edu), University of Chicago
Research Directions in Network Services
We first will review the current research in network services starting with theoretical development of network services infrastructure, which includes two basic management modules: Capability Matchmaker and Multicast Clustering. Then we will discuss the main technical issues about integrating these models into the existing AG architecture. Finally, several interesting research topics will be introduced briefly, such as defining fairness in multicast, multicast tree topology and other details of network service applications.

4:00pm-4:30pm
Rhys Hawkins (rhys.hawkins@anu.edu.au), Australian National University
Improved Media Tools For The Access Grid
The progress of a project to implement a new set of media tools for use in Access Grid sessions is presented. The new media tools have been designed to incorporate spatialised surround sound, flexible screen arrangement, remote control of video placement, the ability to run on separate machines, and provide a centralized mechanism for automated or preloaded video layout. The aim of these new media tools is to reduce the node operator load for setup and running of an Access Grid session, to improve the usability of Access Grid media software, and to give greater flexibility to the designers of Access Grid rooms.

Friday, June 11

9:00am-9:30am
David Schissel (schissel@fusion.gat.com), General Atomics
AG Collaborations – National Fusion Collaboratory
The Department of Energy's National Fusion Collaboratory has been developing and prototyping collaborative environments in support of the nation's fusion program. Next generation fusion reactors will be an international effort with the reactor being shared by the entire global community. This talk will present a set of requirements that a project of this scope imposes on the collaborative environment.

9:30am-10:00am
Mitch Kutzko (mitch@ncsa.uiuc.edu), NLANR/DAST
Multicast Beacon Project Update
The NLANR/DAST Multicast Beacon is a multicast diagnostic tool written in Perl which uses the RTP protocol to provide useful statistics and diagnostic information about a given multicast group. Multicast is a way of distributing IP packets to a set of machines which have expressed an interest in receiving them. It is a one-to-many distribution model suitable for video conferencing and other forms of data sharing over the network. Teamed up with the Access Grid, the Multicast Beacon provides measurement data for the current multicast traffic in a group. The Access Grid is a project led by ANL to implement large-scale distributed collaboration over the network. It relies on multicast for distributing audio, video, and other data across the network. The Multicast Beacon can also be used as a general-purpose multicast measurement tool as well. Multicast performance measurement is usually straight-forward, as illustrated in RFC3550 (Real-time Transport Protocol). A set of measurement hosts send small probe packets to a particular multicast session, and also receive packets from the session in order to determine session transfer (network) performance. The NLANR/DAST Beacon uses RTP as the underlying protocol for generating statistics.

10:30am-11:00am
Kazuaki Obana (obana.kazuaki@lab.ntt.co.jp), NTT Network Innovation Laboratories
Evaluation of the MXQ Mechanism by Using Vic and Rat
This presentation discusses potential congestion problems caused by video and audio applications. These applications commonly use UDP for their transmission. Unlike TCP, UDP does not have any standardized mechanisms for congestion control. Therefore, they might lead to severe congestion that would significantly damage all of the flows in same traffic class and degrade network utilization. To overcome this problem, we propose the MXQ (MaXimal Queuing) mechanism to realize a new flow-aware forwarding policy. We evaluate this mechanism using UDP video (vic) and UDP audio (rat) applications which are used as components of Access Grid. The results show that the dynamic arbitration control realized by the MXQ mechanism can effectively control the congestion and enhance the effective use of best effort networks.

11:00am-11:30am
Piers O'Hanlon (P.OHanlon@cs.ucl.ac.uk), University College London
IPv6 and the Access Grid
The advent of IPv6 will provide a number of benefits to the Internet in terms of its continued growth and scaling properties. The provision of IPv6 functionality in Access Grid is under consideration within 6NET.org, a large European Research Project. Preliminary studies and tests have been performed and will be reported on. Initial investigations are underway into the impact of IPv6 on the deployment, functionality and development of AG systems.

AG Retreat 2005

Co-Hosted By
Lawrence Berkeley National Laboratory
Berkeley, California

ACCESS GRID

May 2005

Upcoming AG Events

Workshops & Retreats

September 22-23, 2004 - Sophia Antipolis, France
Collaboration Technology: Advances Enabling Global Scientific Acheivement
A Workshop to Prepare a State of the Technology Report
Co-hosted by INRIA and the Argonne/University of Chicago Computation Institute
Details forthcoming at www-unix.mcs.anl.gov/fl/events/Collaboration2004/

September 24, 2004 - INRIA, Sophia Antipolis, France
WACE 2004: Workshop on Advanced Collaborative Environments
Details forthcoming at www-unix.mcs.anl.gov/fl/events/wace2004/

Town Hall Meetings

Townhall meetings include general information from the AG community, and more detailed information on specific topics. Occasionally, the topic will be more oriented toward developers, but non-developers still are encouraged to attend those meetings.

July 13, 2004: Development Tutorial - Developing Network Services
Invited Speaker: Susanne Lefvert
Discussion of AGtk 2.3 release
Susanne will present the tools, interfaces, and cumentation that are used to construct rich middleware services that can enhance and expand typical AG collaborations. This will include a status report on the NMI Middleware effort that NSF is supporting the University of Chicago.

August 3, 2004: Access Grid Toolkit Status
Overview of AGTk2.3 Toolkit functionality
AGTk 2.3 testing and packaging update

September 7, 2004: Community Roundtable
The AG Team Invites all AG Users and Developers to provide feedback on the AG Toolkit. An exhaustive list of feature requests will be shared, and feedback is welcome so that the AG Team can prioritize tasks.

October 4, 2004: Development Tutorial - Shared Application
Invited Speaker: Eric Olson, VenueVNC
AGTk 3.0 Development Update

November 2, 2004: The Access Grid™ and Streaming Media
Invited Speaker: Thomas D. Uram
Tom will present: the requirements the Access Grid presents to streaming media solutions, some history of the existing tools, and some useful libraries for developing new tools; a plan for building very high performace, flexible, platform specific media tools, using QuickTime and Microsoft DirectShow; and how the combination of data formats choices d network services have a direct impact on AG collaborations.

December 6, 2004: XMPP in the AG
Invited Speaker: Deb Agarwal

AG Manifesto

Access Grid™

The Access Grid™ (AG) (www.accessgrid.org) 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, including large-scale distributed meetings, collaborative work sessions, seminars, lectures, tutorials and training.

The AG is now used at more than 200 corporate, research and academic organizations worldwide. The AG technology was developed by the Futures Laboratory at Argonne National Laboratory (www.mcs.anl.gov), under research funding from the U.S. Department of Energy Office of Science, the U.S. National Science Foundation, and Microsoft Research. Argonne National Laboratory is operated by the University of Chicago.

www.accessgrid.org

Access Grid™ Documentation Project

The Access Grid™ Documentation Project (AGDP) develops high-quality documentation on AG usage, development, and node operations, available by download. The AGDP aims to establish a set of AG references that are easy to find, use and search. This effort owes a great debt of gratitude to the Linux Documentation Project (LDP), on whose model the AGDP has been created, and on whose manifesto its own manifesto is based.

The AGDP has more than 30 documents and tutorials available online, covering topics as diverse as installing AG software, communicating effectively over the AG and managing AG events. These resources are created and supported by AG users, for AG users. Volunteers are always needed to support the project and a “wish list” is available on the AGDP for those interested in developing new documents.

The AGDP is supported in part by the National Computational Science Alliance.

www.accessgrid.org/agdp/