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Agenda 101

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Access Grid 101

The Access Grid[®] is a collaborative tool. It brings together resources like audio, video, presentation applications, and physical room designs. These “nodes” create interactive environments that happen to interfaces with everything from Grid middleware to visualization environments.

The Access Grid spaces are also used as a research environment for the development of distributed data and visualization corridors and for the study of issues relating to collaborative work in distributed environments.

This collection of resources that make up the Access Grid are used to support a myriad of projects across the Grid. Collaborative work sessions, seminars, art performances, lectures, tutorials, and training quickly separate it from a typical desktop-to-desktop tool that focus on individual communication.





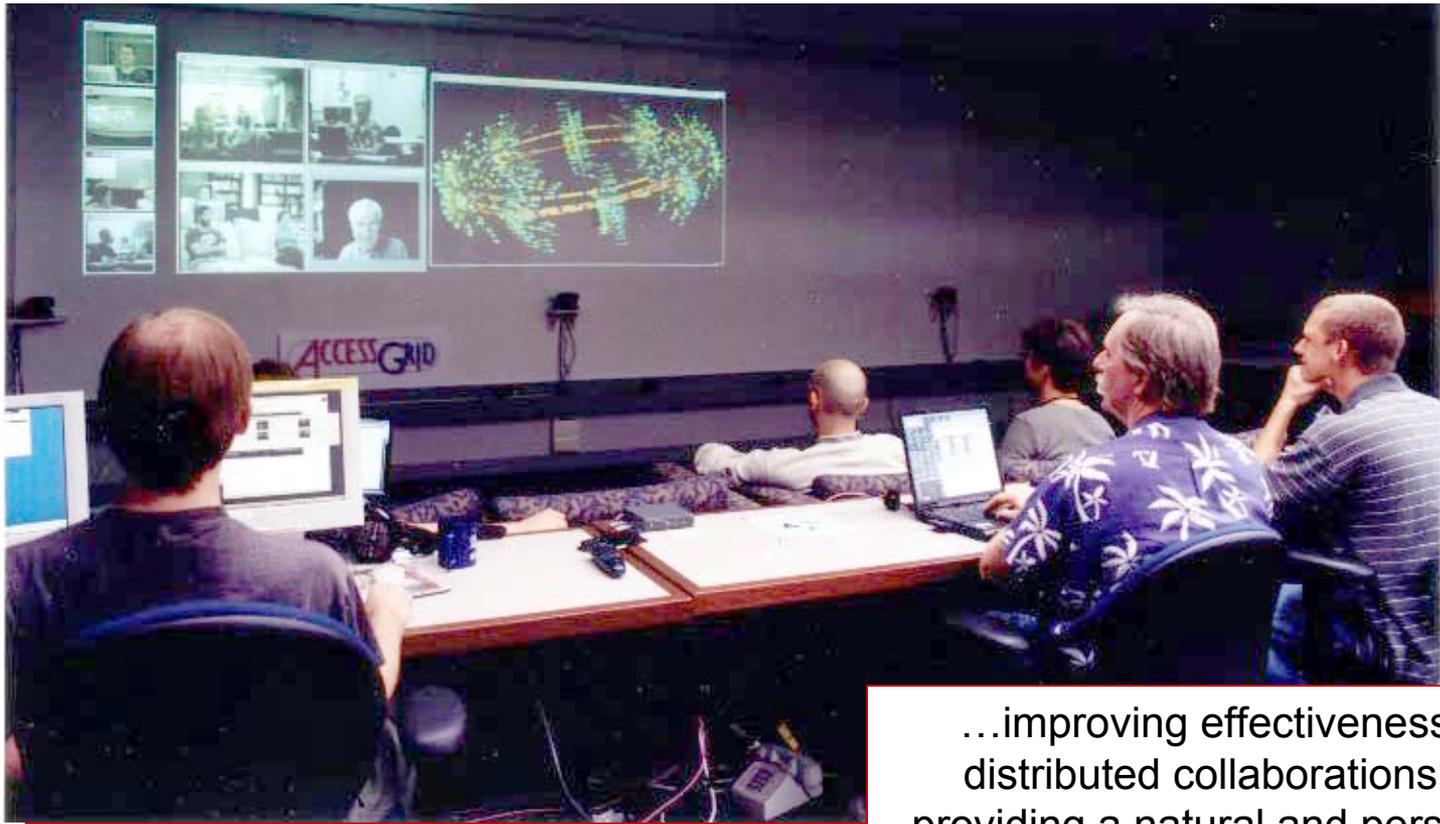
Basic Concepts

The basic concept of the Access Grid (AG) is collaboration among two or more groups that can encompass a variety of actions, such as communication, information sharing, research, coordination, analysis, management, problem solving, and negotiation.

The AG technology was developed by the Futures Laboratory at Argonne National Laboratory, under research funding from the U.S. Department of Energy Office of Science, the U.S. National Science Foundation, and Microsoft Research. Argonne is operated by the University of Chicago.

Access Grid ® is a registered trademark held by the University of Chicago.

In Progress...



...improving effectiveness of distributed collaborations by providing a natural and persistent virtual meeting space



Terms

<http://www.mcs.anl.gov/fl/research/accessgrid/documentation/user.html>

- **Virtual Venue**

Virtual Venues is the means by which we organize the virtual space in which Access Grid events take place. The venue client software installed on your AG node gives you a simple way to navigate among a set of virtual conference rooms.

- **Venue Server**

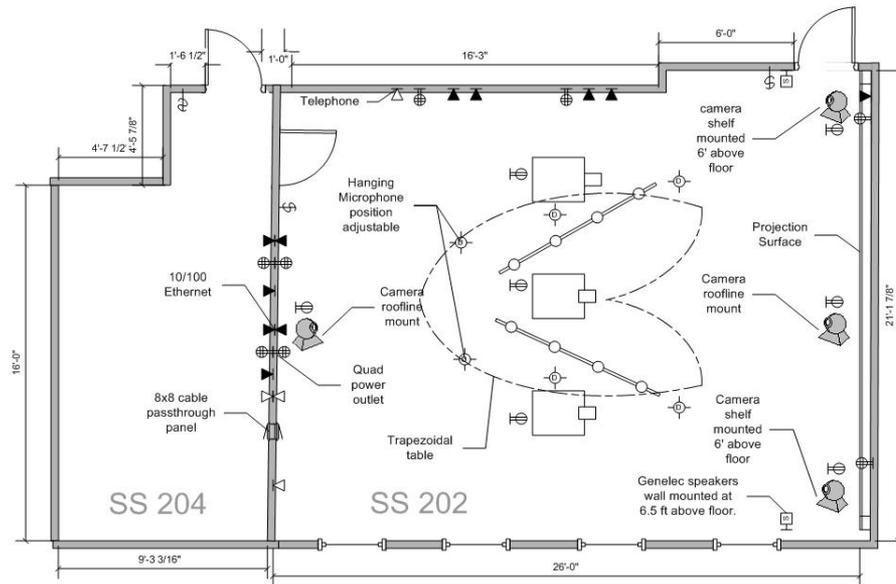
A venue server is a software component that all clients connect to. It can host multiple “virtual venues” which can be accessed independently.

- **Venue Client**

The Venue Client is used to connect and participate in an Access Grid Virtual Venue. It displays the contents of the Virtual Venue, connections to other venues, and an interface to configure your node arrangement.

Types of AG Nodes

- laptop
- desktop
- room



- one-machine driven
- multi-machine driven

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Requirements

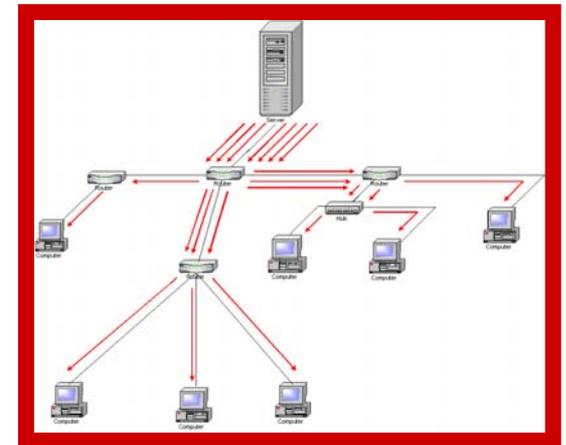
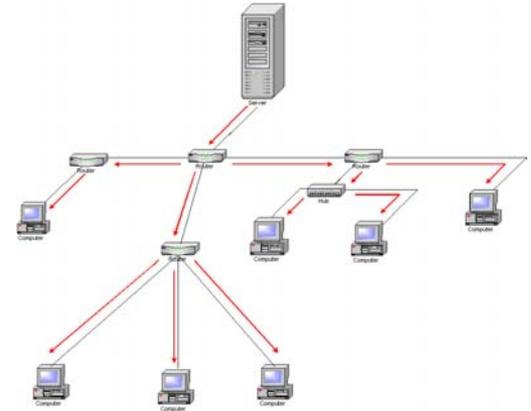
- headset/webcam for desktop node
- multi-machine requirements will be listed in a later slide
- bandwidth minimum requirements
 - four video streams, plus one audio stream
would require approximately 1.5 Mb times # of sites
- firewalls
 - configuration info available online
<http://www.mcs.anl.gov/fl/research/accessgrid/documentation/agep/AGEP-0109.html>
- multicast vs. unicast
 - details, availability, robustness
mcast-support@accessgrid.org

Unicast

A unicast application transmits a copy of every packet to every receiver.

Recipients make individual requests to a server. Each request is fulfilled individually so each request takes a chunk of the available bandwidth.

Unicast is communication between a single sender and a single receiver over a network.



Multicast

Internet Protocol (IP) multicast is a bandwidth-conserving technology that reduces traffic by simultaneously delivering a single stream of information to thousands of corporate recipients and homes.

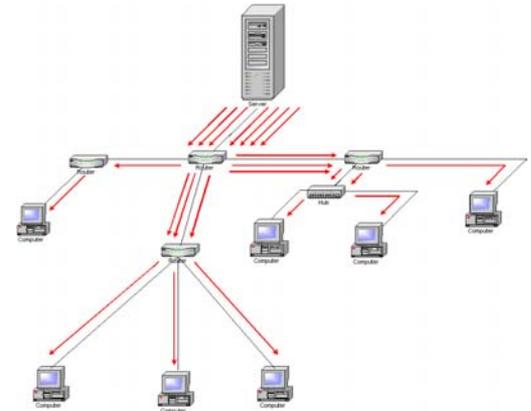
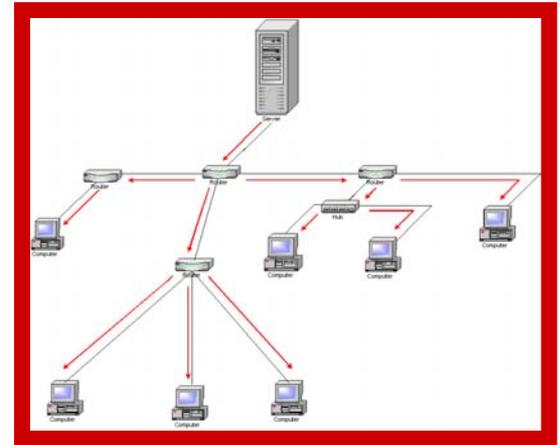
Multicast is the delivery of information to multiple destinations simultaneously using the most efficient strategy to deliver the messages over each link of the network only once and only create copies when the links to the destinations split.

IP Multicast delivers source traffic to multiple receivers without adding any additional burden on the source or the receivers.

Does your site have multicast?

<http://beacon.dast.nlanr.net>

<http://detective.internet2.edu>





Software

- Prerequisite software
 - Python 2.3
 - ActiveState Python 2.3 (Windows)
 - WxPython 2.5
- AG Toolkit 2.3
- Supported platforms
 - Linux
 - Gentoo
 - Fedora
 - Debian
 - Slackware
 - Free BSD
 - MAC OS X 10.3
 - Windows XP



Text Communication

- **use venue client chat**
(part of the AG Toolkit)
- **download jabber client**
(use client via chat rooms built to coincide community groups or specific events)
- **other text backchannels**
(meeting specific)
- **live community-based world**





Future Text Communication

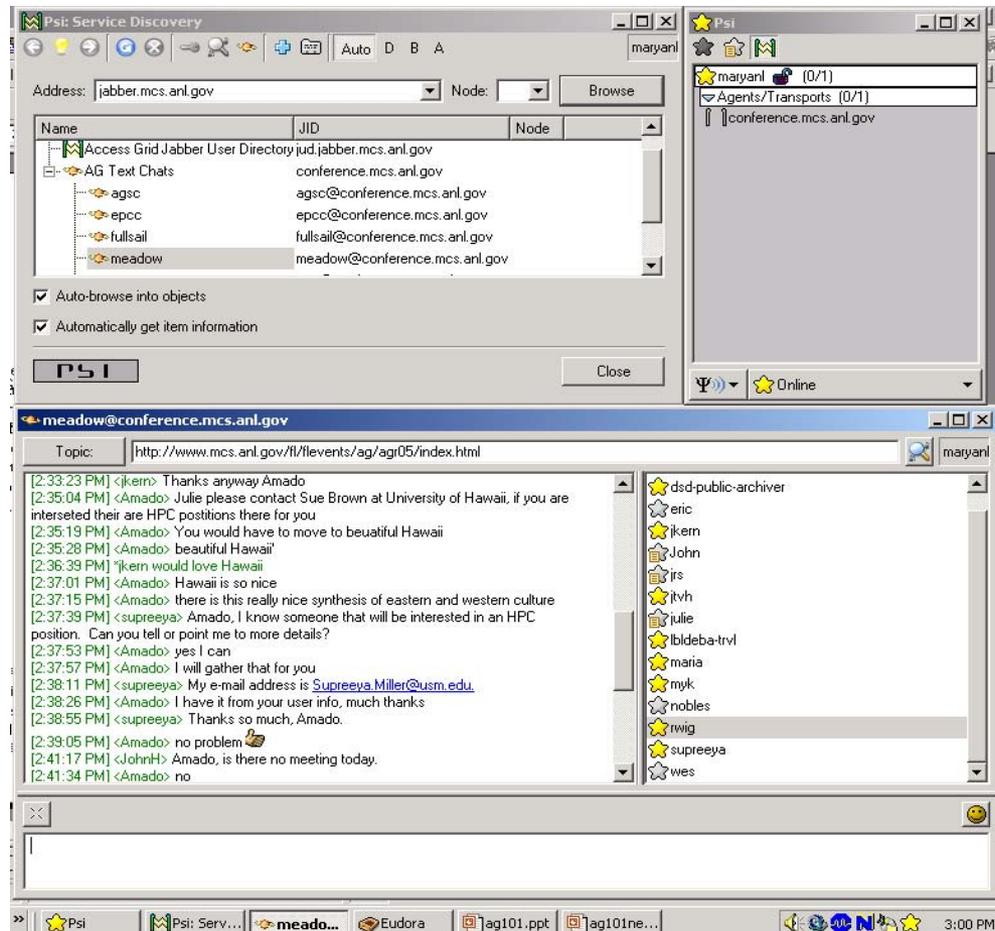
- separate user/operator chat rooms
- jabber client standard

Backchannel text clients are essential in the AG environment. Make sure you understand the standards in place when joining the AG community.

Jabber Communication

<http://www.mcs.anl.gov/fl/research/accessgrid/software/jabber.html>

<http://www.jabber.org/>



The screenshot shows two windows from the Psi (Pidgin) instant messaging client. The top window is 'Psi: Service Discovery' for the address 'jabber.mcs.anl.gov'. It displays a directory tree with a table of users:

Name	JID	Node
Access Grid Jabber User Directory	jud.jabber.mcs.anl.gov	
AG Text Chats	conference.mcs.anl.gov	
agsc	agsc@conference.mcs.anl.gov	
epcc	epcc@conference.mcs.anl.gov	
fullsail	fullsail@conference.mcs.anl.gov	
meadow	meadow@conference.mcs.anl.gov	

The bottom window is a chat session with 'meadow@conference.mcs.anl.gov'. The topic is 'http://www.mcs.anl.gov/fl/events/ag/agr05/index.html'. The chat history shows a conversation about HPC positions in Hawaii. The contact list on the right includes users like dsd-public-archiver, eric, jkern, John, jrs, itvh, julie, lbdeba-trvl, maria, myk, nobles, rwig, supreeya, and wes.



Jabbering...

The screenshot shows a Jabber chat window titled "meadow@conference.mcs.anl.gov". The address bar contains the URL "http://www.mcs.anl.gov/fl/flevents/ag/agr05/index.html" and the name "maryan". The chat history on the left includes the following messages:

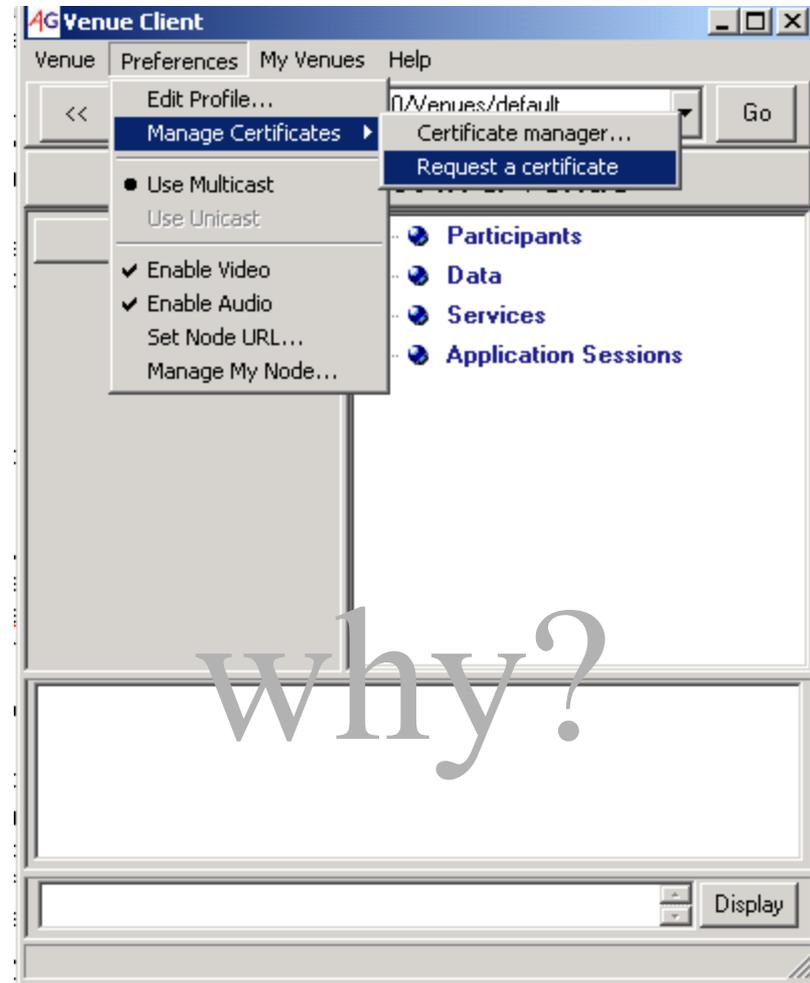
- [2:37:39 PM] <supreeya> Amado, I know someone that will be interested in an HPC position. Can you tell or point me to more details?
- [2:37:53 PM] <Amado> yes I can
- [2:37:57 PM] <Amado> I will gather that for you
- [2:38:11 PM] <supreeya> My e-mail address is Supreeya.Miller@usm.edu.
- [2:38:26 PM] <Amado> I have it from your user info, much thanks
- [2:38:55 PM] <supreeya> Thanks so much, Amado.
- [2:39:05 PM] <Amado> no problem 🍊
- [2:41:17 PM] <JohnH> Amado, is there no meeting today.
- [2:41:34 PM] <Amado> no
- [2:41:42 PM] <JohnH> Ok. How are you?
- [2:41:48 PM] <Amado> we will not come together again until the 21
- [2:42:05 PM] <Amado> we will be in the BPC ag session on the 20th during our regular meeting time
- [2:42:18 PM] <JohnH> Right.
- [2:42:21 PM] <Amado> very well thank you for asking 😊
- [2:42:23 PM] <JohnH> See you then.
- [2:42:28 PM] <Amado> see you then
- [2:42:28 PM] <JohnH> Later.
- [2:55:59 PM] **** Ivan' has set the topic to:
<http://www.mcs.anl.gov/fl/flevents/ag/agr05/index.html>
- [2:55:59 PM] **** maria has joined this session
- [2:57:07 PM] <maria> hello all
- [2:58:41 PM] <supreeya> **hello, maria**
- [3:00:24 PM] *Amado waves at Maria
- [3:03:16 PM] **** julie has left: Disconnected
- [3:29:11 PM] **** supreeya has left: Logged out
- [3:45:14 PM] <maria> just taking a screenshot of jabber in action 😊

The contact list on the right side of the window includes the following names:

- Amado
- dsd-public-archiver
- eric
- jkern
- John
- irs
- itvh
- lbldeba-trvl
- maria
- myk
- nobles
- twig
- wes

Why Identity Certificates

- personal identification from a trusted authority
- venue permissions configuration



Request Identity Certificate

- use venue client (or wizard)
- request identity or anonymous certificate and remember your passphrase
 - request certificate on machine you will retrieve from
 - passphrase needs to be retained or new certificate will need to be requested
 - remember that certificates will expire annually
 - certificates can be exported to and from different machines

Request Certificate - Step 3 of 4

Enter Your Information

The name fields should contain your first and last name; requests with incomplete names may be rejected. The e-mail address will be used for verification; please make

The domain represents the institution you belong to; it will default to the hostname part of your email address;

The passphrase will be used to access your generated certificate after it is created. Remember it: it is not possible to determine the passphrase from the certificate, and it

First name: Last name:

E-mail:

Domain:

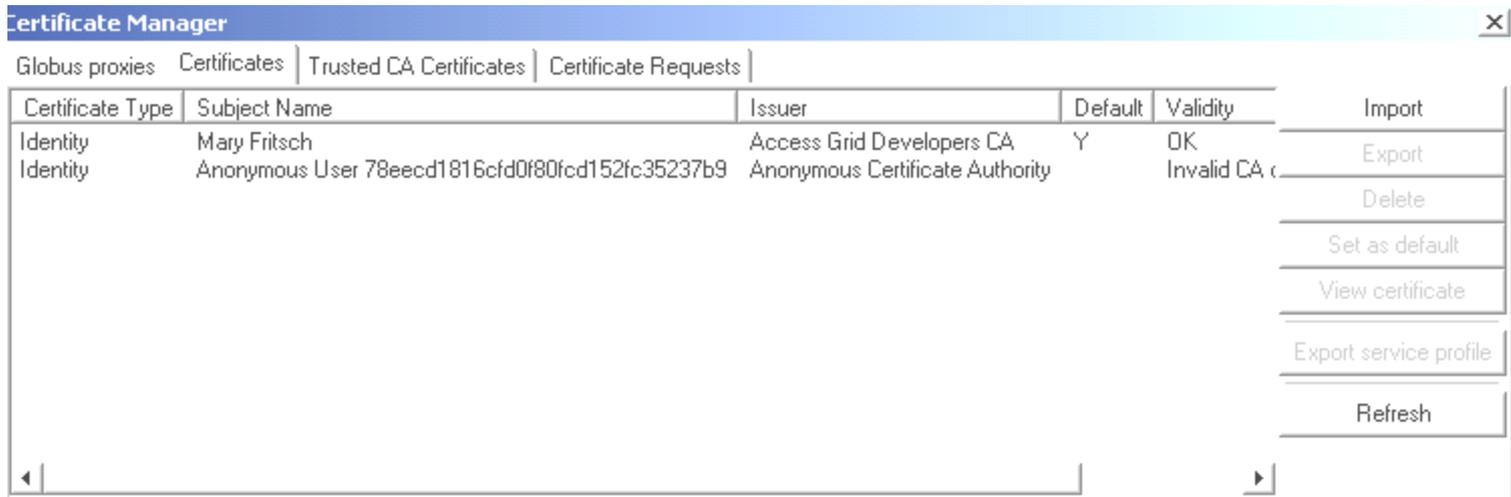
Passphrase:

Retype passphrase:



Import Identity Certificate

- wait for approval on identity certificates
 - anonymous certificates are instantly available
- import your certificates into the venue client
 - anonymous certificates imported without passphrase needed



Certificate Manager [X]

Globus proxies | Certificates | Trusted CA Certificates | Certificate Requests

Certificate Type	Subject Name	Issuer	Default	Validity	Import
Identity	Mary Fritsch	Access Grid Developers CA	Y	OK	Export
Identity	Anonymous User 78eecd1816cfd0f80fcd152fc35237b9	Anonymous Certificate Authority		Invalid CA c	Delete

[Set as default](#)
[View certificate](#)
[Export service profile](#)
[Refresh](#)

Simple Components

The screenshot displays three overlapping windows from the Access Grid software:

- Test Room Window:** Shows a video feed of a woman (Mary @ Argonne) with controls for audio (Listen/Talk, Speaker/Mic) and video (mute, color). It also lists participants: Mary @ Argonne, UAMS, and Administrator.
- Venue Client Window:** Shows a tree view of the Test Room environment, including Participants (John Krauspe, Mary @ Argonne), Data, Services, and Applications (Shared Browser, Shared Presentation, simple Pyluggler-AG).
- Web Browser Window:** Displays the Access Grid website with text describing the system as an ensemble of resources for multimedia environments, supporting group-to-group interactions across the Grid.

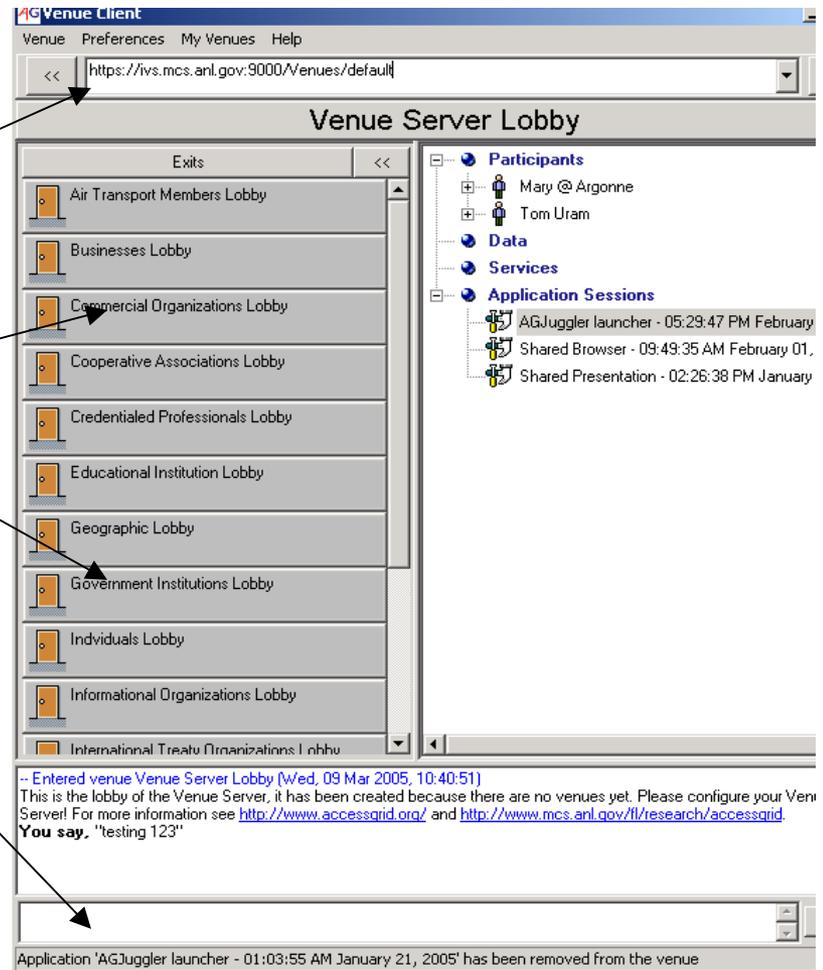
Complex Components

The screenshot displays a complex multi-windowed desktop environment. Key components include:

- Video Conference:** A central window titled "Argonne National Laboratory" showing a grid of video feeds from participants like Amado Gonzalez, Argonne National Laboratory, and Cindy Sievers. A control panel for "7xRAT v4.2.22" is overlaid, showing audio settings for listening and speaking.
- Shared Presentation:** A "Microsoft PowerPoint" window titled "Requirements for new media tools" is in the foreground. It lists requirements such as high performance, platform support (Windows, Linux, OSX), cross-platform codec compatibility, and good codec support (h261, h264).
- System Windows:** A "New Client" window shows a search bar and a list of application sessions. A "Shared Presentation Controller" window is also visible, showing slide navigation controls.
- Taskbar:** The bottom of the screen shows a taskbar with icons for "mir5.jpg" and "allegro1.jpg".

Venue Client

- venue server address
- virtual venues/exits
- built in text client



Venue Client



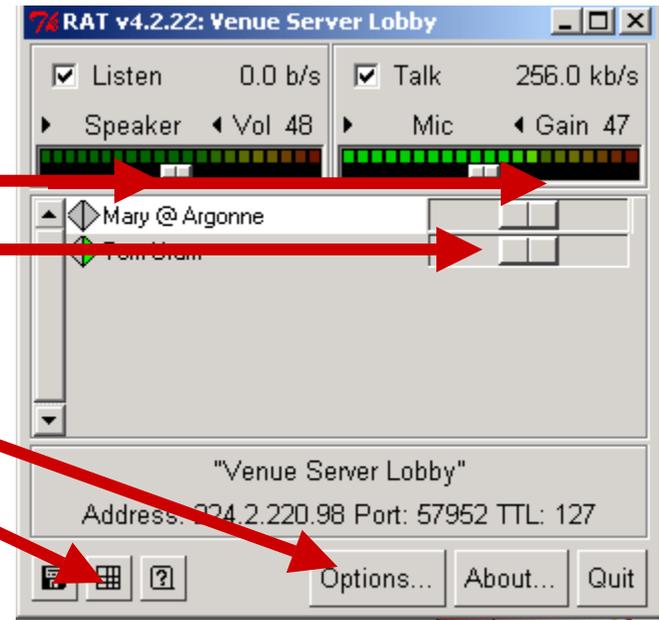
- participants
 - view attendee profiles
 - individual or group class
- data
 - drag and drop any type of file into the data section of a specific venue
- services
 - for integration of resources on the network
- application sessions
 - shared presentation
 - shared browser



RAT

Robust Audio Tool

- lists participants attending
- group gain control
- individual gain control
- setting adjustments
- quality matrix for tracking



VIC

Video Conferencing Tool

- send multiple streams
- manage multiple streams being received from remote sites
- place and size videos streams on display wall





Testing Process

- test equipment, network, configuration
- testing in line with meeting size
- attend Thursday testing/installation meetings
 - Thursdays @10:00am Central
<https://ivs.mcs.anl.gov:9000/Venues/default>
(from Government Institutions Lobby, drive to Argonne National Laboratory)
- request open testing call to the community via appropriate AG mailing list
- use testing to decide on the setup of your meeting
 - text client, data shared, video stream count, etc.



Live Demo - Desktop

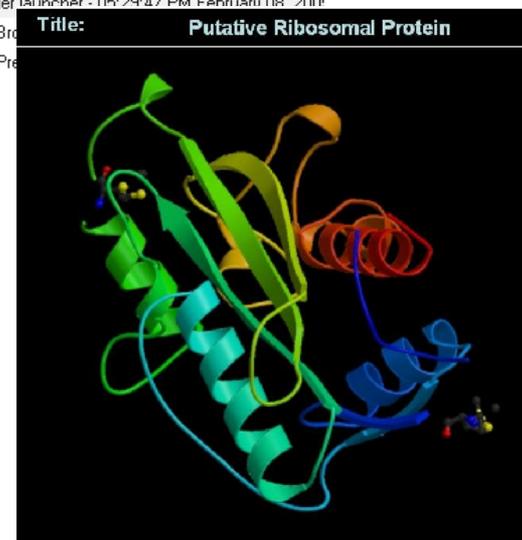
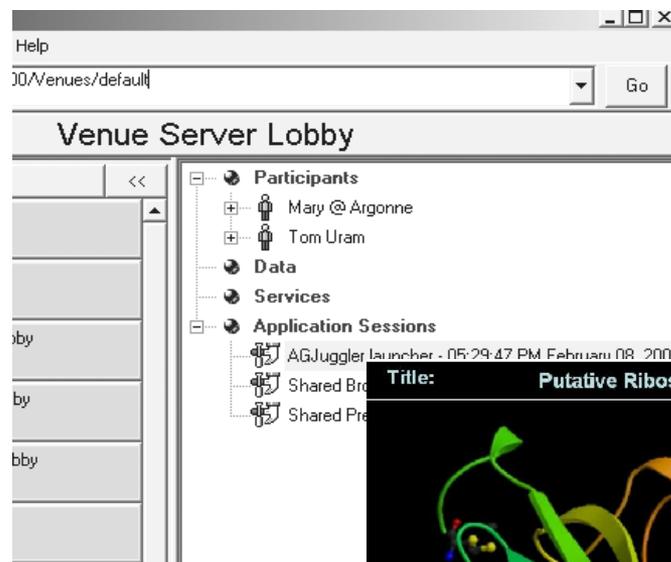
- certs menu
- details of venue client
 - overview of components
 - node management
 - multicast/unicast switching
- details of rat
 - gain controls (main, individual)
 - mute function
 - matrix operation
- details of vic
 - display wall setup
 - manipulation of streams
 - disable of single stream
- shared applications



Additional Shared Applications

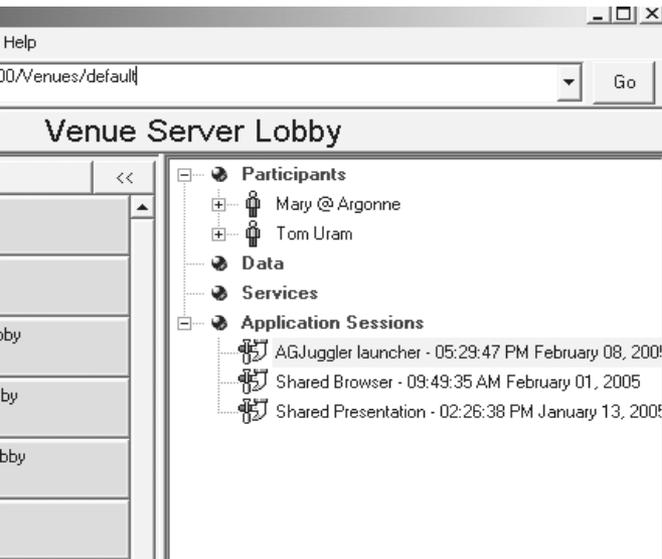
<http://www.mcs.anl.gov/fl/research/accessgrid/wiki/moin.cgi/ContributedSoftware>

Shared VizServer
Venue VNC Server
Venue Customizer
Shared Movie player
Shared Rasmol
ImmersaView Launcher
Basic Image
Shared Question Tool



Developing Shared Applications

Application Contest



Shared Sticky Notes - shared MIDI

ABC Shared Radiology/Volume Rendering

AGJuggler - virtual reality to run in AG

AGMedia Shared Application – shared application to employ high-quality video

Venue Customizer - specific services and parameters for customizing venues

AGConnector – network connectivity

ServerInfo and GridMultiplier

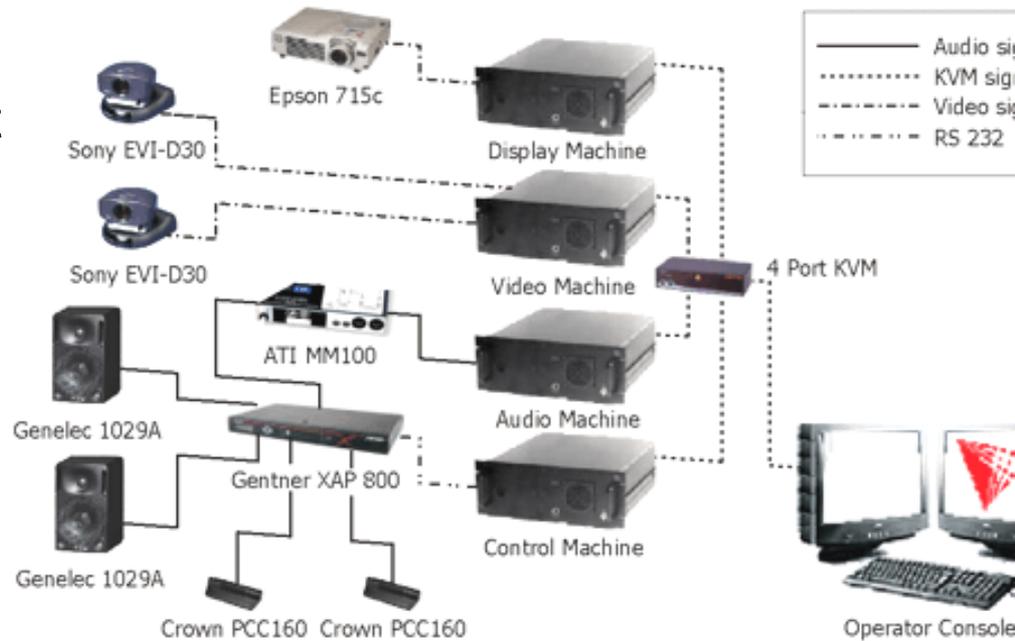
AG Device Control –remote manipulation of AG hardware

VizServer Shared App – scientific users for visualization of complex 3D data sets



Multi Machine Node Differs

- basic off the shelf equipment
 - multiple display walls
 - one/two machines
 - projectors
 - mics
 - speakers
 - kvm switches
 - rack mounting
 - cabling
- unique equipment needed for room nodes
 - echo cancellation unit (Gentner, ClearOne)
 - audio/video cards
 - microphones

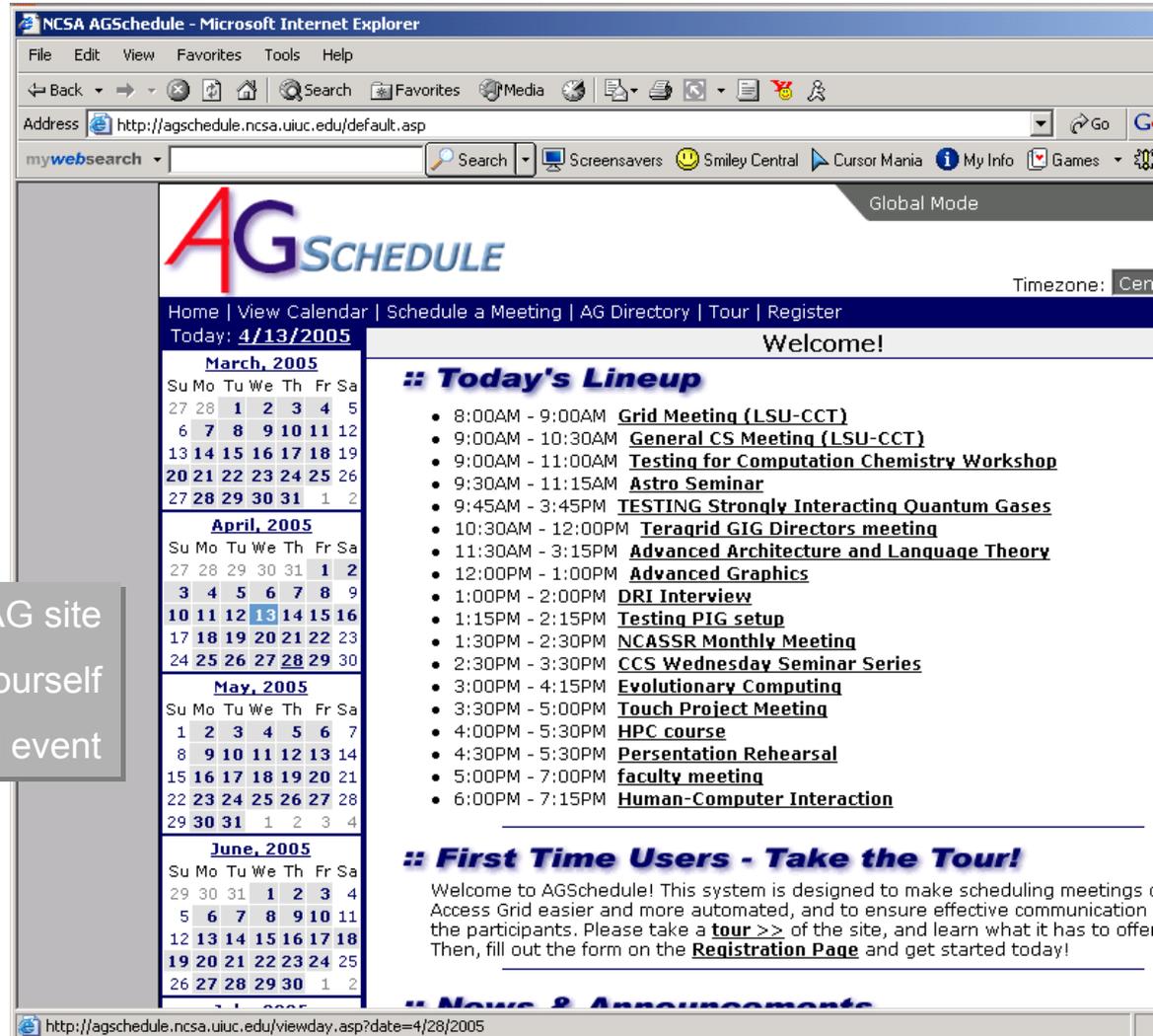


<ag-tech@mcs.anl.gov>

Scheduling AG Events

- NCSA Scheduler
- Venue Servers
- AG Nodes Info

register AG site
register yourself
add event



AG SCHEDULE

Home | View Calendar | Schedule a Meeting | AG Directory | Tour | Register

Today: 4/13/2005

Global Mode

Timezone: Cen

:: Today's Lineup

- 8:00AM - 9:00AM [Grid Meeting \(LSU-CCT\)](#)
- 9:00AM - 10:30AM [General CS Meeting \(LSU-CCT\)](#)
- 9:00AM - 11:00AM [Testing for Computation Chemistry Workshop](#)
- 9:30AM - 11:15AM [Astro Seminar](#)
- 9:45AM - 3:45PM [TESTING Strongly Interacting Quantum Gases](#)
- 10:30AM - 12:00PM [Teragrid GIG Directors meeting](#)
- 11:30AM - 3:15PM [Advanced Architecture and Language Theory](#)
- 12:00PM - 1:00PM [Advanced Graphics](#)
- 1:00PM - 2:00PM [DRI Interview](#)
- 1:15PM - 2:15PM [Testing PIG setup](#)
- 1:30PM - 2:30PM [NCASSR Monthly Meeting](#)
- 2:30PM - 3:30PM [CCS Wednesday Seminar Series](#)
- 3:00PM - 4:15PM [Evolutionary Computing](#)
- 3:30PM - 5:00PM [Touch Project Meeting](#)
- 4:00PM - 5:30PM [HPC course](#)
- 4:30PM - 5:30PM [Persentation Rehearsal](#)
- 5:00PM - 7:00PM [faculty meeting](#)
- 6:00PM - 7:15PM [Human-Computer Interaction](#)

:: First Time Users - Take the Tour!

Welcome to AGSchedule! This system is designed to make scheduling meetings Access Grid easier and more automated, and to ensure effective communication the participants. Please take a [tour >>](#) of the site, and learn what it has to offer. Then, fill out the form on the [Registration Page](#) and get started today!

News & Announcements

http://agschedule.ncsa.uiuc.edu/viewday.asp?date=4/28/2005



Community Contacts

- help resources
 - AG Focus Newsletter
<http://www.accessgrid.org/community/agfocus.html>
 - AG Software Manuals/Help Menus Online
<http://www.mcs.anl.gov/fl/research/accessgrid/documentation/user.html>
 - AG Document Project
<http://www.accessgrid.org/agdp/>



Community Contacts

- community resources
 - mailing lists
 - <http://www.accessgrid.org/community/maillinglists.html>
 - search all mailing lists
 - go to ag-tech mailing list archives
 - AG toolkit testing/installation meetings
 - Thursdays @10:00am Central
 - <https://ivs.mcs.anl.gov:9000/Venues/default>
 - (from Government Institutions Lobby, drive to Argonne National Laboratory)
 - AG Town Hall meetings
 - open forums, new speakers, changing topics of interest
 - unofficial global AG locations (ANL & NCSA)

Global Communities

Australia
Austria
Belize
Brazil
Canada
Chile
China
Christmas Island
Colombia
Czech Republic
Denmark
Finland
France
Germany
Greece
Hong Kong

Hungary
Iceland
India
Ireland
Israel
Italy
Japan
Korea (South)
Malaysia
Mexico
Namibia
Netherlands
New Zealand (Aotearoa)
Norway
Oman
Philippines

Poland
Portugal
Romania
Russia
Samoa
Singapore
Slovenia
Spain
Sweden
Switzerland
Taiwan
Thailand
United Kingdom
United States
Venezuela

[European Access Grid \(http://euroag.accessgrid.org\)](http://euroag.accessgrid.org)

[Asia Pacific Access Grid \(http://www.ap-accessgrid.org/\)](http://www.ap-accessgrid.org/)

[Access Grid Korea \(http://www.accessgrid.or.kr\)](http://www.accessgrid.or.kr)

[Access Grid Canada \(http://www.accessgrid.ca/\)](http://www.accessgrid.ca/)



Credits/Questions

Thanks to the ANL AG Development Team for all their guidance and instruction over the years.

Thank you for all the AG images and sketches I have used in my slides today from all around the world.

Thanks to the “meadow community” for filling in the meeting downtime with constructive direction of the AG.

Thanks to the AG community world-wide for diving in and bringing this technology so far.

Any questions?

