

Building and Deploying a Sun-based Access Grid node

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The Access Grid (<http://www.accessgrid.org>) is a DOE funded research project being implemented by Argonne National Lab. In short, the AG is a highly interactive, immersive, multimedia-rich, collaborative environment that thrives on advanced infrastructures like Internet2, multicast, etc. AG sites typically have four cameras, multiple mics, four display devices (typically projectors), node operator stations, room echo cancellation, and one-four computers to encode, decode, display and manage all the data streams.

The heart of the system, the computers, are typically Intel-based boxes configured either as a single aggregate functioning box or two or more boxes distributing the functions of encoding, decoding, echo cancellation, and display. The software distributions are currently windows, linux, and now macintosh. All the code is public domain or freely distributable software.

AG nodes now are spread over hundreds of sites all over the world and the AG community is extremely active in contributing enhancements to the system, such as HD over IP technologies for enhanced video resolution. This community regularly interacts with one another to conduct business, seminars, presentations, outreach, thesis defenses, distance education, workshops, and telepresence activities.

The Center for Imaging Science at RIT is divided between two buildings and is about to be split into thirds. Deploying AG nodes would serve to eliminate the reduced productivity that comes from increasing the distance to your colleagues by keeping them connected, both formally and informally through persistent displays in these spaces. In addition, the AG nodes would join the Center and RIT to the global community that shares its interests, whether it be the specialized scientific research amongst colleagues or the outreach and dissemination efforts to bring advanced expertise to a broader community, such as the K-20, library, and museum arenas.

In addition, the Center for the Advanced Study of CyberInfrastructure and the IT Collaboratory would broaden the deployment to make it more an RIT resource rather than just a departmental/center resource.

Buildings to be connected (up to five): Center for Imaging Science, Munsell Color Lab, DIRS (Digital Imaging Research Systems), IT Collaboratory, and CASCI (Center for the Advanced Study of CyberInfrastructure).

Computer core of the AG node (excluding peripherals)
Single node configuration (two nodes optimal per site for redundancy)

Dual processor system (windows/linux compatible) for handling many simultaneous processes
(Smaller physical size is better, all things being equal)

RAM: 1GB minimum

AGP graphics with quad-head output for driving major display devices
(VGA or DVI or both, depending on display devices)

PCI slot for quad-input analog signals from cameras

PCI slot for dual-output graphics for node operators workstation

PCI slot for line-in audio or built-in audio if sufficient

GigE NIC

Disk configuration not critical

Wireles keyboard and mouse

Firewire ports (2 min)

USB ports (2 min)