

Access Grid Technology for Remote Collaboration

What is it and where is it going?

Michael Daw

Research Support Services,
Manchester Computing

E-Social Science Conference, 22 June 2005

Contents

- What is Access Grid?
- Birth of the Access Grid
- Key Concepts
- Early Achievements
- Access Grid in the UK
- Developments
- Conclusions



What is Access Grid?

ETF Management Meeting



Seminar



e-Social Science



Performance Art

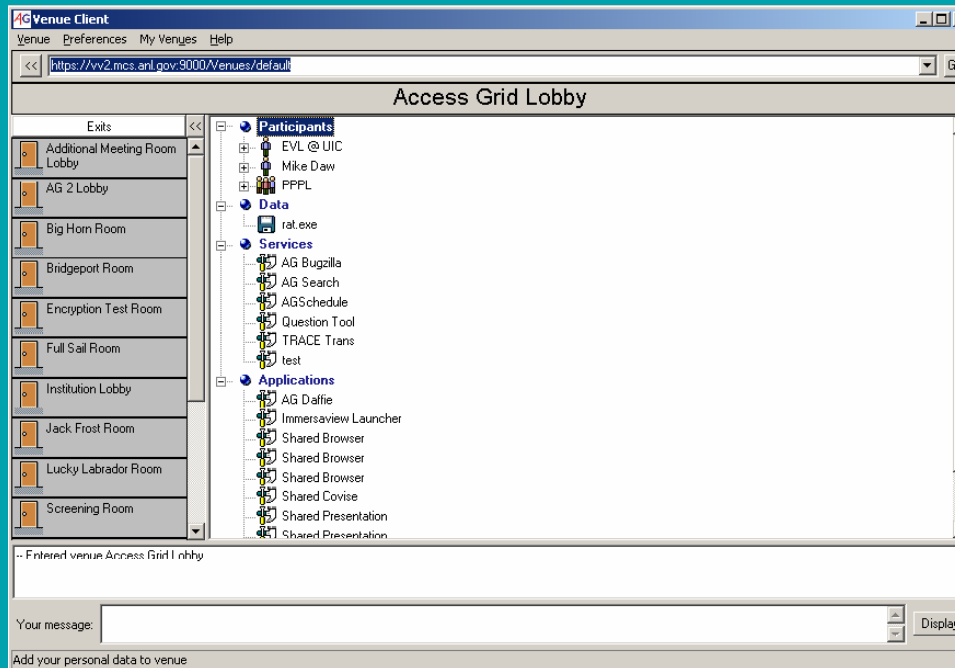
Access Grid in Manchester

- 4 major nodes and rising...
 - **Room G95** (first node in the UK, integrated with videoconference suite)
 - **Room 1.10** (integrated with passive stereo system)
 - **Smith Building** (full-size lecture theatre with AG functionality)
 - **Jodrell Bank** (situated at site of major radio telescope, 20 miles from Manchester)
- <http://www.sve.man.ac.uk/Research/AtoZ/AccessGrid/>



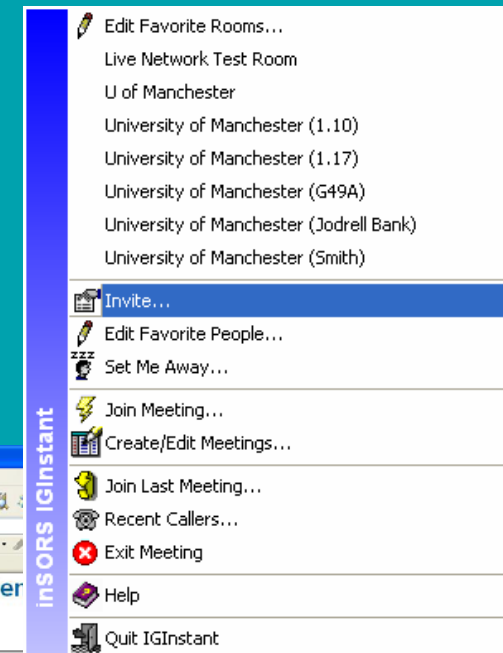
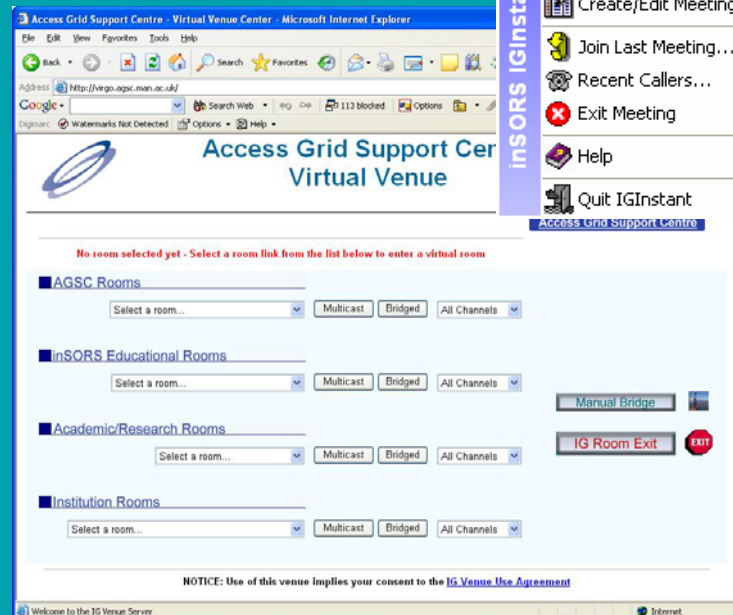
Research Software – “Access Grid 2”

- Sept 2002 – Early discussions about Access Grid 2
- February 2003 – Alpha release of AG2.0



Commercial Software – InSORS Grid™

- Robust, stable alternative
- At a price
- Compatible with Access Grid
- Key new feature: Interoperation
- Making inroads in UK
- Making inroads in US



The Birth of the Access Grid

Birth

- November 1998 – Futures Lab @ ANL



Baby Steps

- Chautauqua 1999:
 - University of New Mexico
 - University of Kentucky
 - Boston University
 - Argonne National Labs



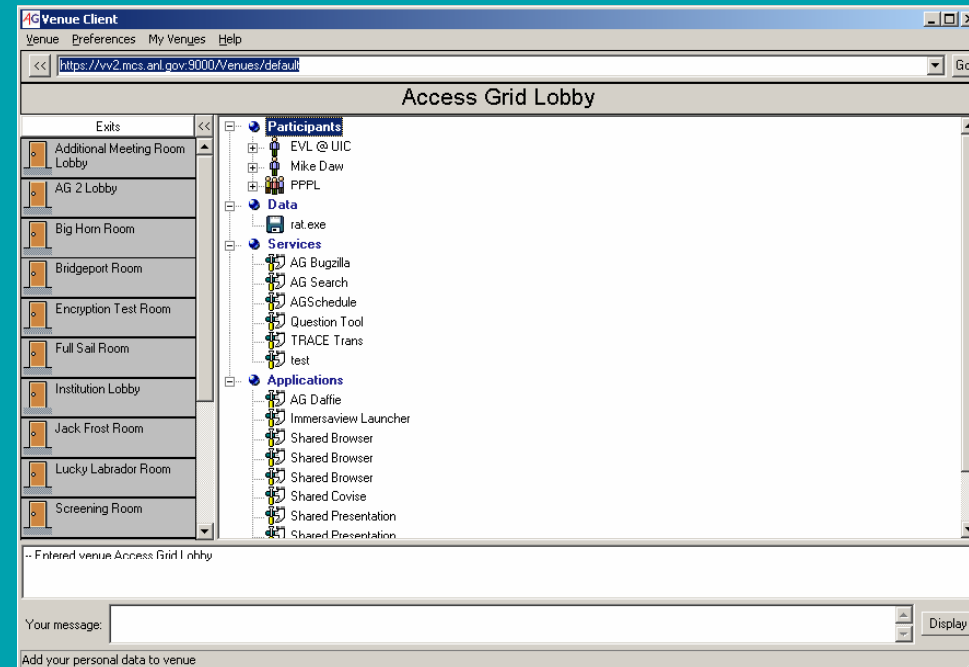
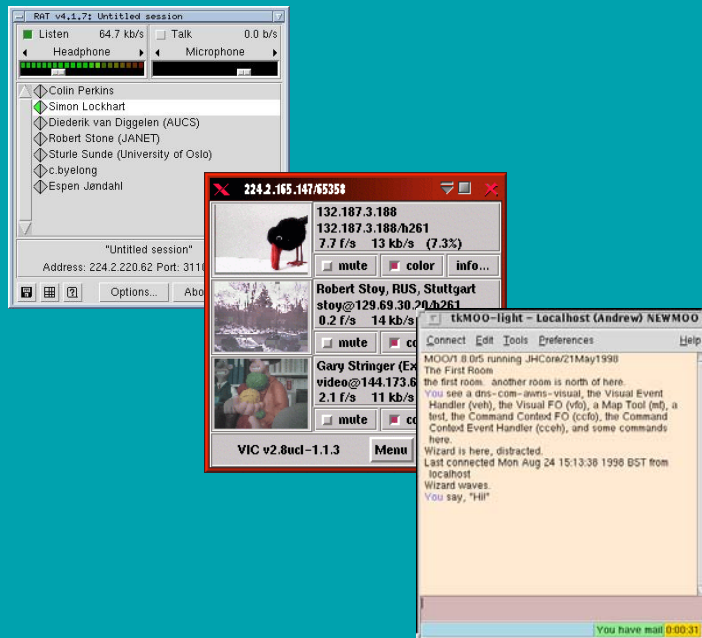
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The University
of Manchester

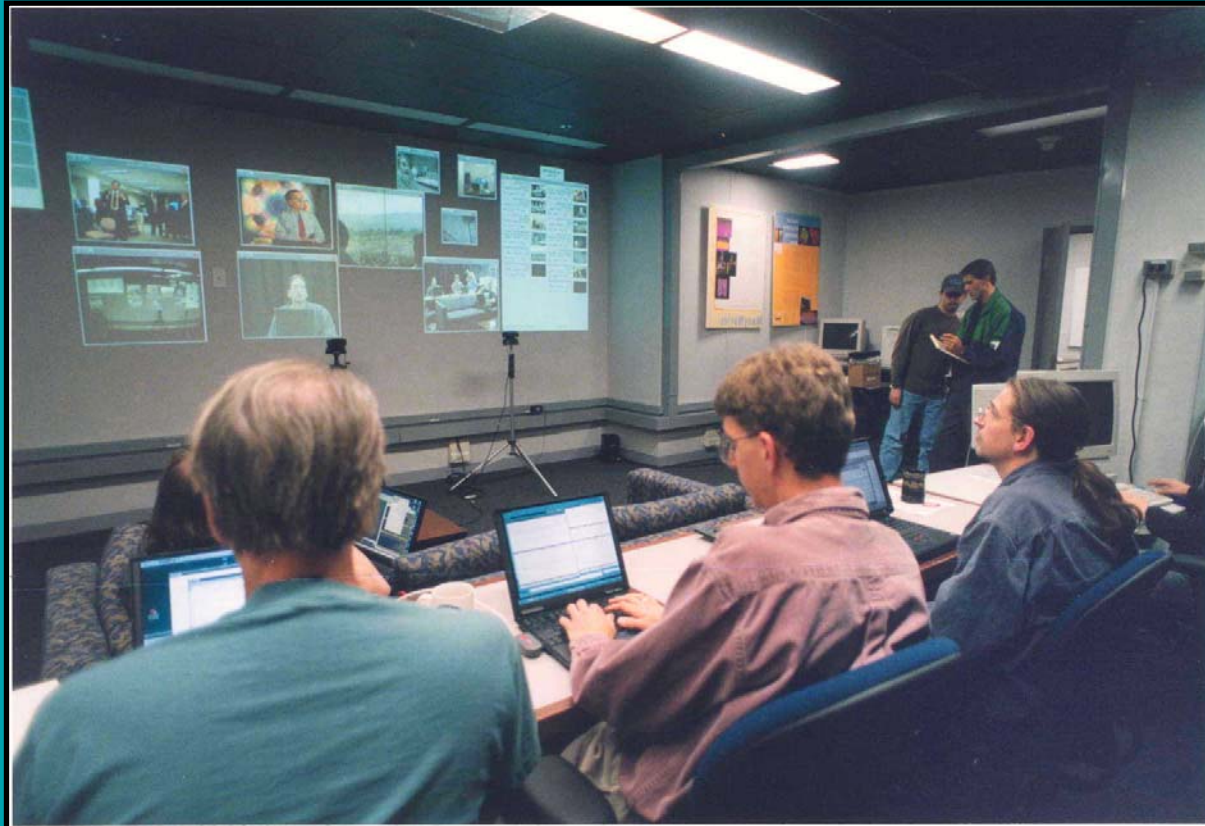
Key Concepts

Combining the strengths of UMIST and
The Victoria University of Manchester

Virtual Venues



Designed Space

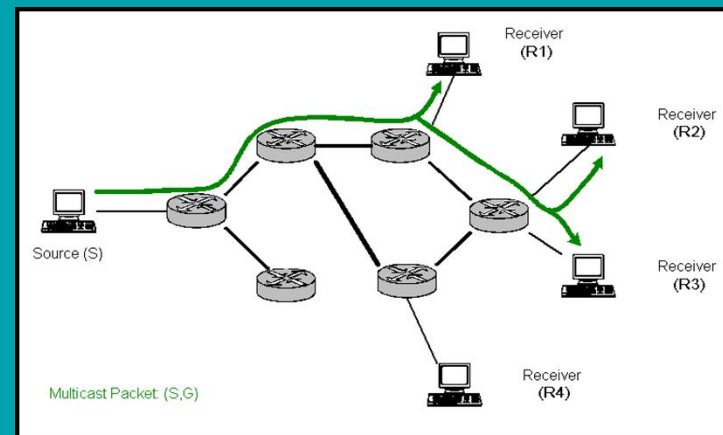
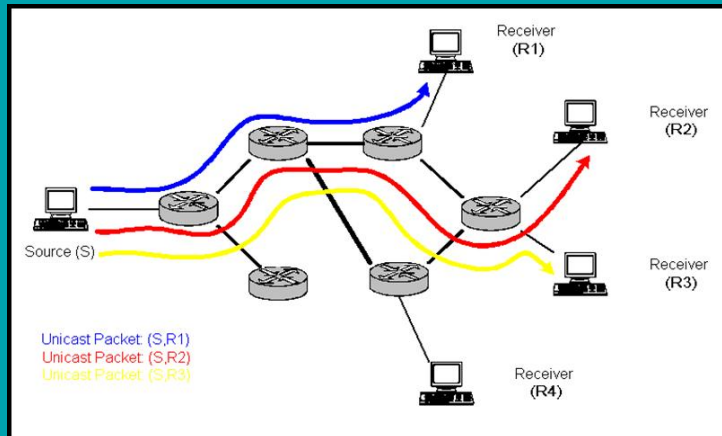


Group-to-group

- Key concept
- Supported by:
 - Large display
 - Many cameras
 - Hands free, natural audio

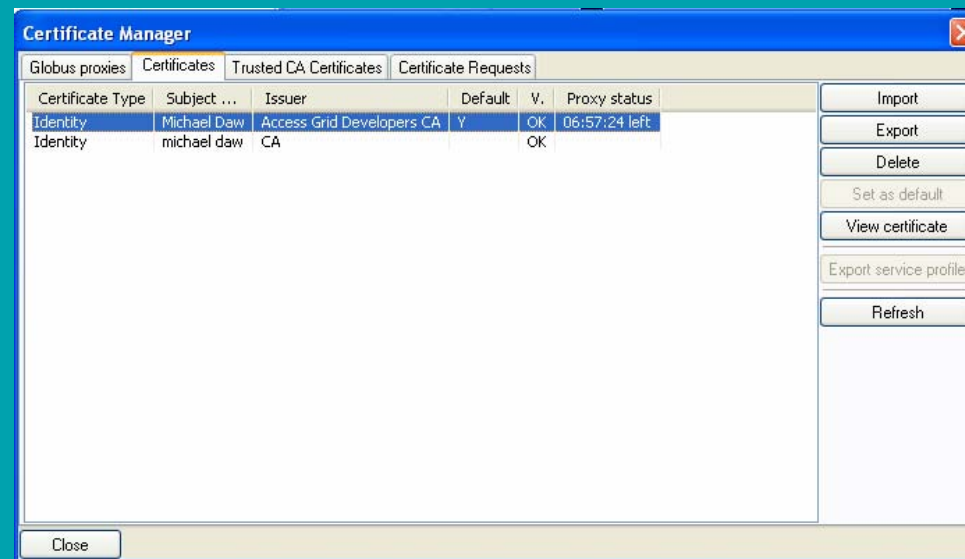
Multicast

- Efficient use of bandwidth in many-to-many scenario



Handling Security

- Commercial software:
 - Encryption key
 - How to distribute...?
- Research software:
 - Secure venues
 - Grid certificates



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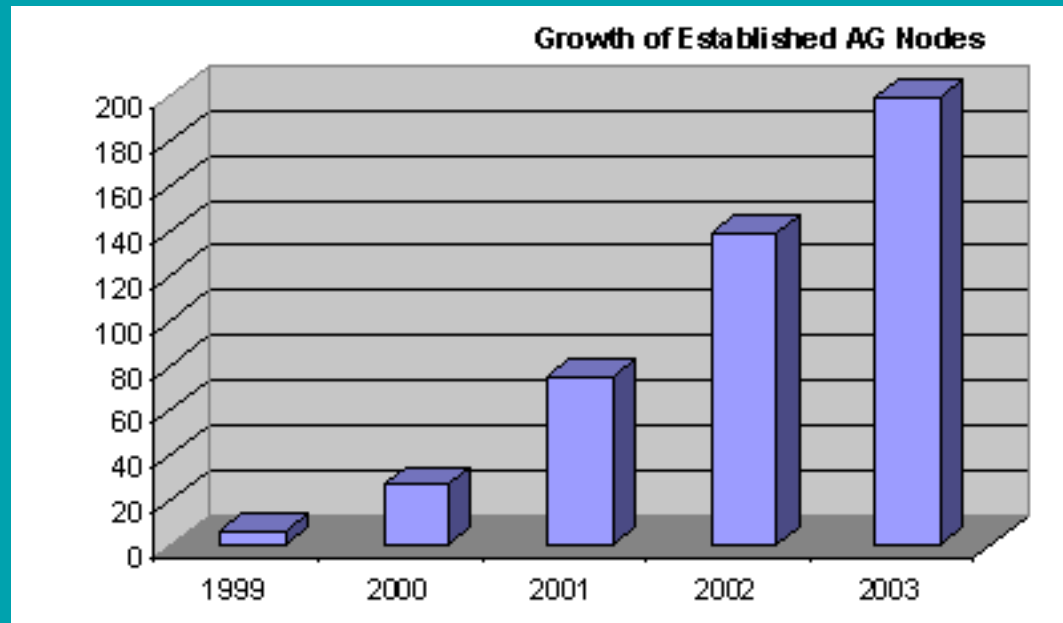
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Early Achievements

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Exponential Growth

- 2001-2002
- First nodes in Europe, Australia, Asia
- August 2001 – first node in UK in Manchester



SC Global

- SC Global 2001 covers 5 out of 6 continents
- SC Global 2003 achieves professional, well-received event
- SC Global 2004 concentrates on establishing the event:
 - Collaborative Tools and Virtual Reality
 - How Access Grid helped with combating SARS
 - Art and the Access Grid (pictured)



Access Grid in the UK

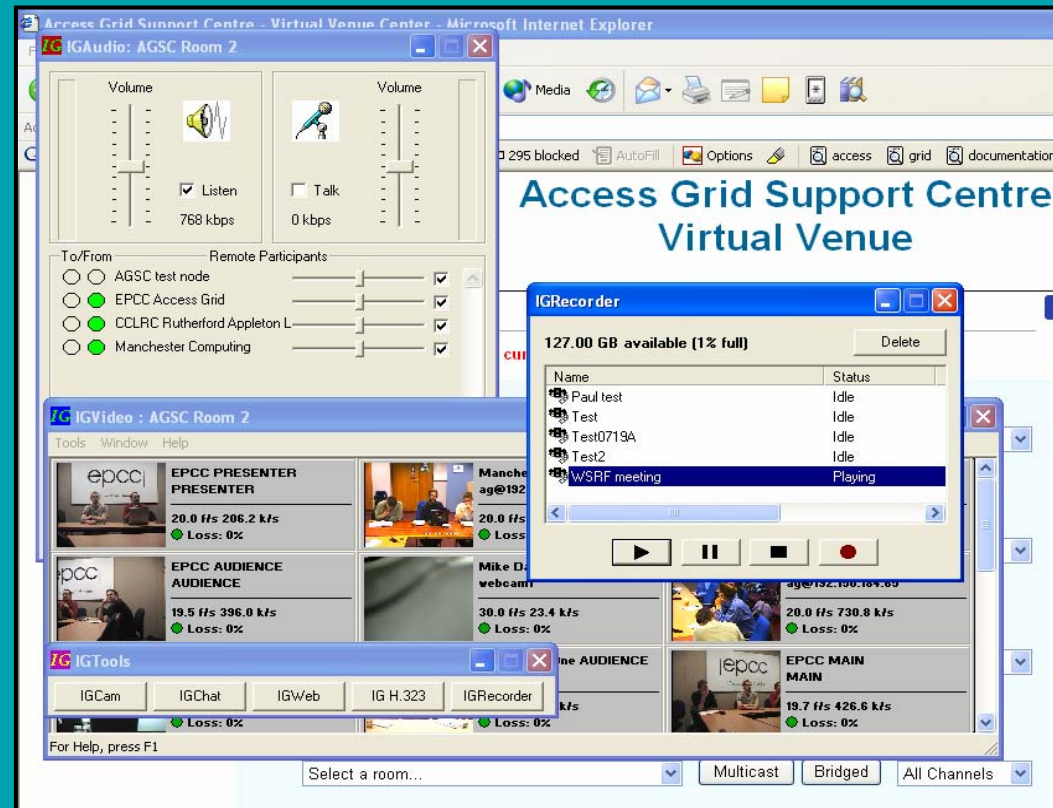
Access Grid in the UK

- About 60 AG nodes
- ...and rising!



Access Grid Support Centre

- At Manchester!
- General support
- IG Pix
- IG Recorder
- Virtual Venue Servers
- Multicast-Unicast Bridges
- QA Tests
- Training



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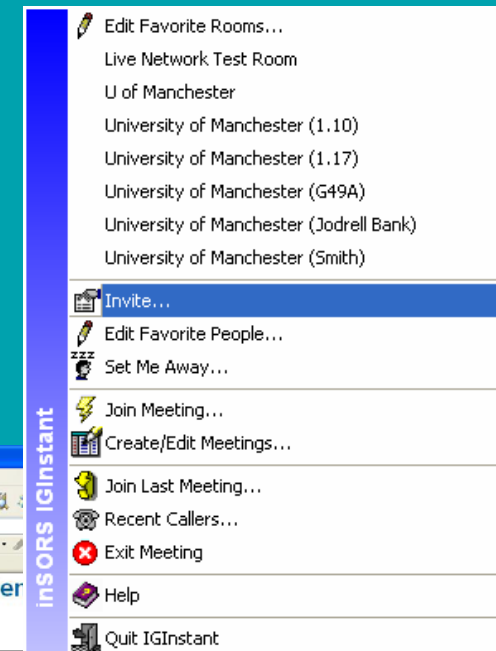
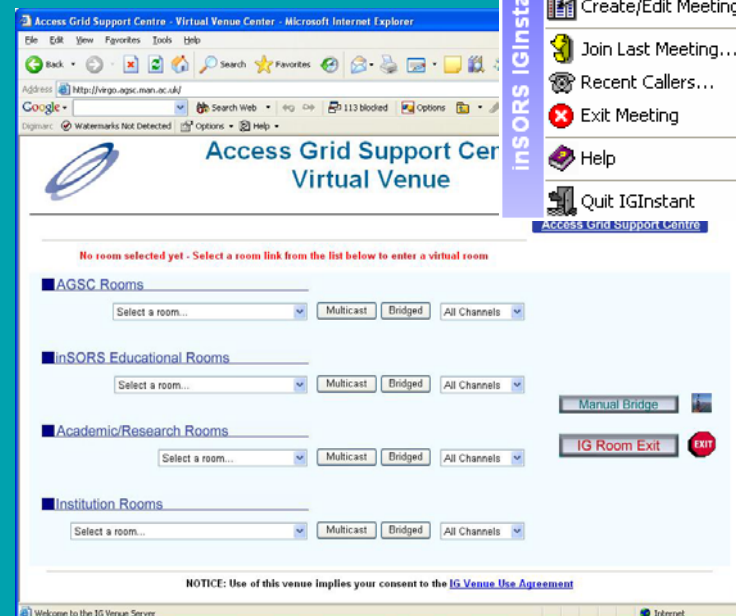
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Developments

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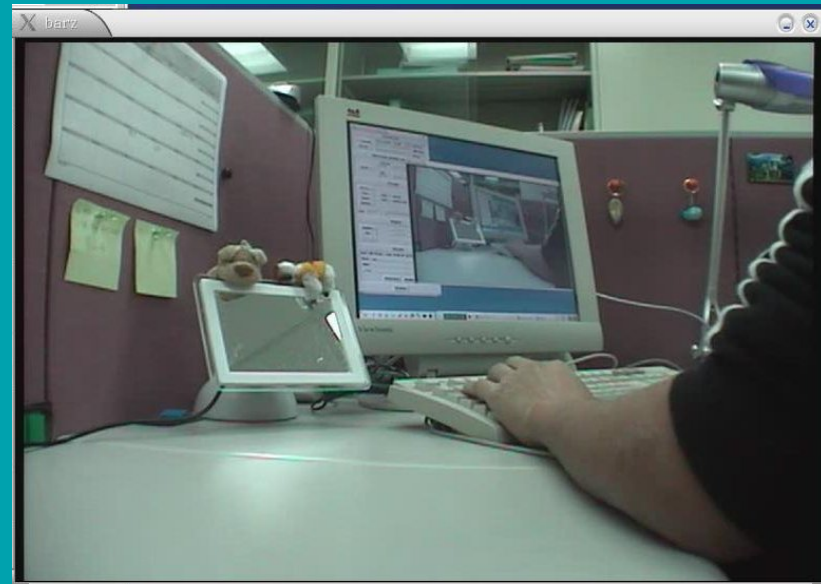
- Robust, stable alternative to research software
- At a price
- Compatible with Access Grid
- Key new feature: Interoperation
- Making inroads in UK
- Making inroads in US

InSORS Grid™



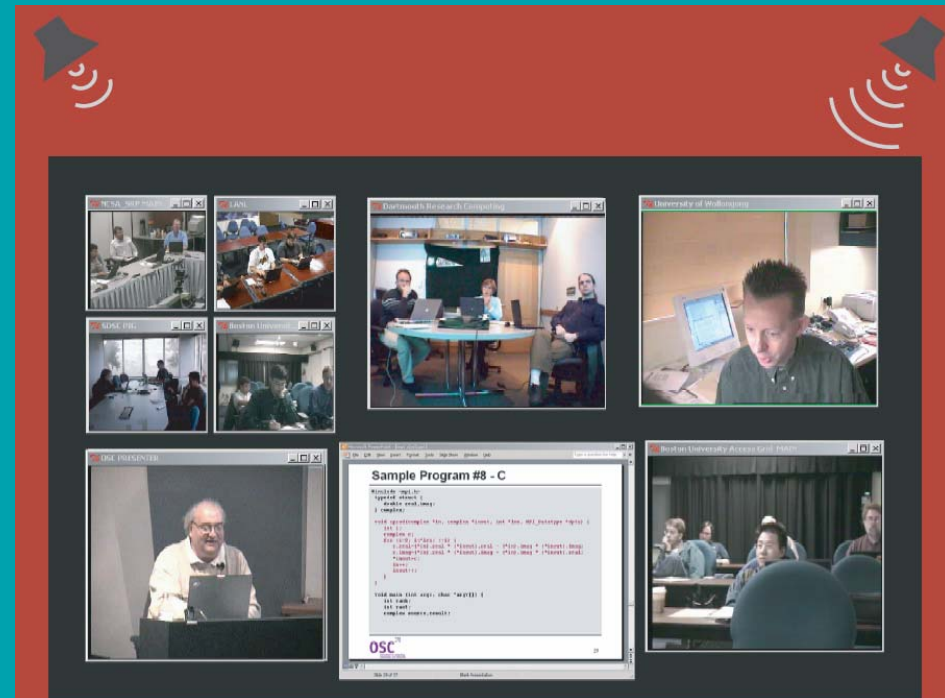
Better Video

- MPEG4 for vic = various resolutions, 64Kbps – 5Mbps
- <http://vic.nhc.org.tw/>
- Digital Video (740x480 at 30fps, 30 Mbps)
& High-Definition Video
(1280x720 at 30fps, 19.2 Mbps)
- Uses VLC (not vic)
- <http://netmedia.gist.ac.kr/agdv/>



Visual Cues & Audio Localisation

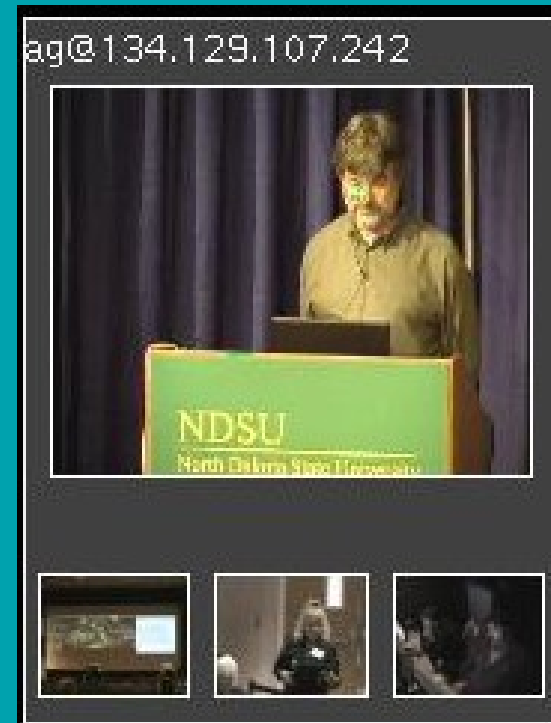
- WIP, but may solve the problem of “who’s speaking?!”
- Highlight the vic window
- Adjust audio to location of displayed window
 - Determined by position on screen
 - Changes when the window moves



- <http://scv.bu.edu/~putnam/ag-audio/misc/poster.pdf>

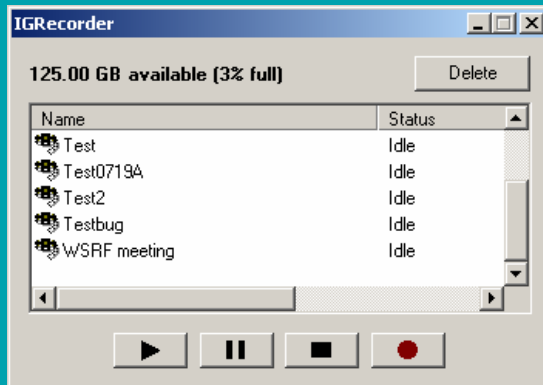
Automated Video Placement

- Video Presence (VP)
- Automatically arranges video streams by site
- Can choose layout for each site
 - 1 large stream + 3 small streams
 - 4 medium streams
- <http://if.anu.edu.au/SW/VP.html>



Meeting Memory and the Access Grid

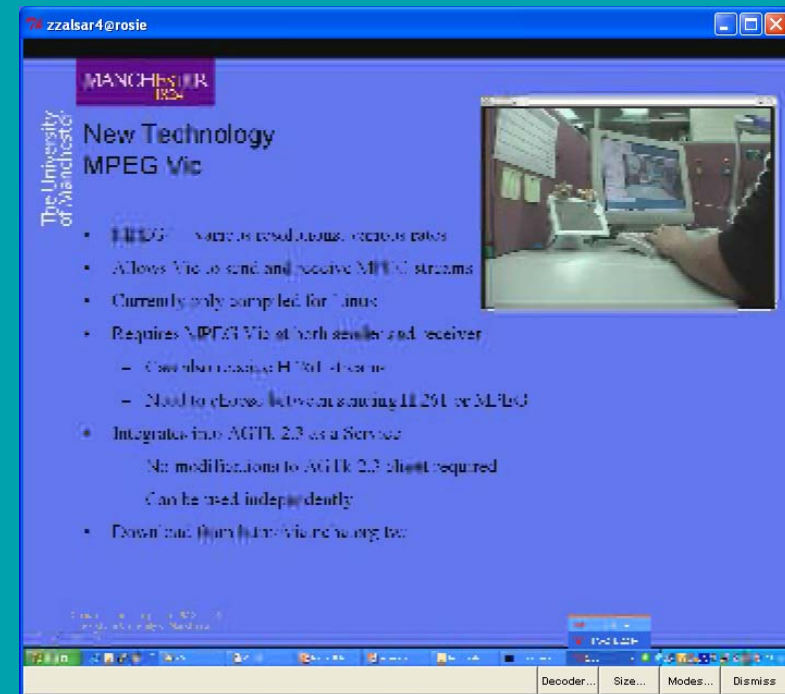
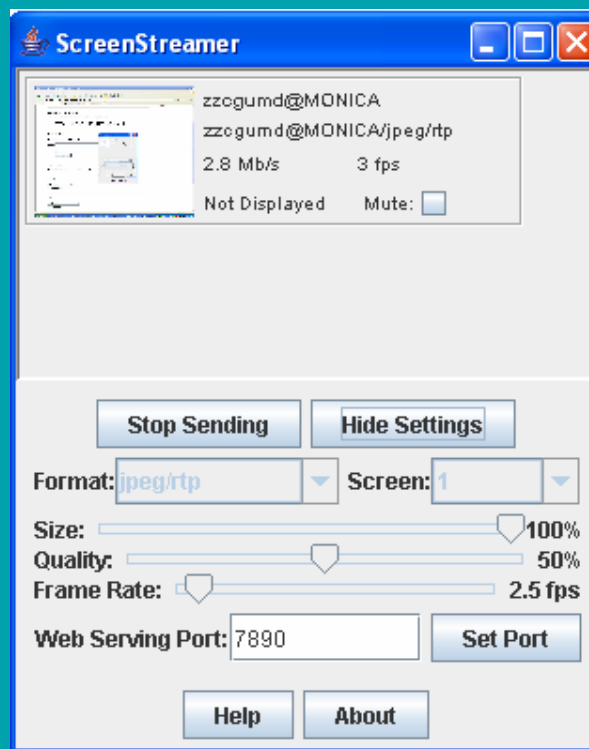
- Memetic – improving the ways we conduct meetings
- Enable asynchronous collaboration
- <http://www.memetic-vre.net>



Title: Lith Canyon EVA Segment 1 Planning Meeting - 3rd May 2004
Date: Tue May 4 00:37:00 2004
Participants: [Maarten](#), [Brent](#), [Abigail](#), [John](#)
Current Speaker: Maarten
Nodes: Make sure that Boudreaux is in line of sight from AstroOne. Thus move it to WP 2 and 3 at appropriate times
Video: Playing 00h 20m 09s
GroupSync: Offline Online
Mode: Master Slave
Receiving: Yes No

Screen Sharing

- Developed as part of memetic
- Can send screen in H.261 or JPEG



Access Grid on the Beach

- Chromakey-like technology
- Provides sense of location

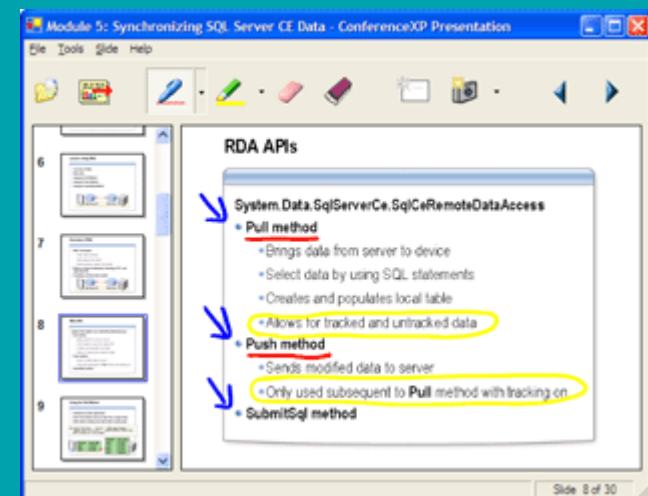
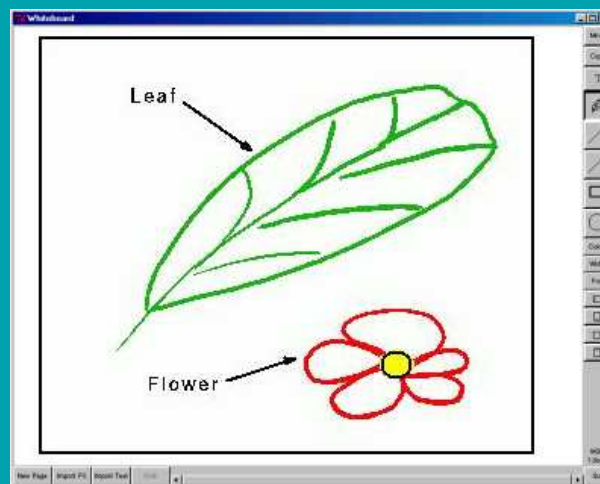
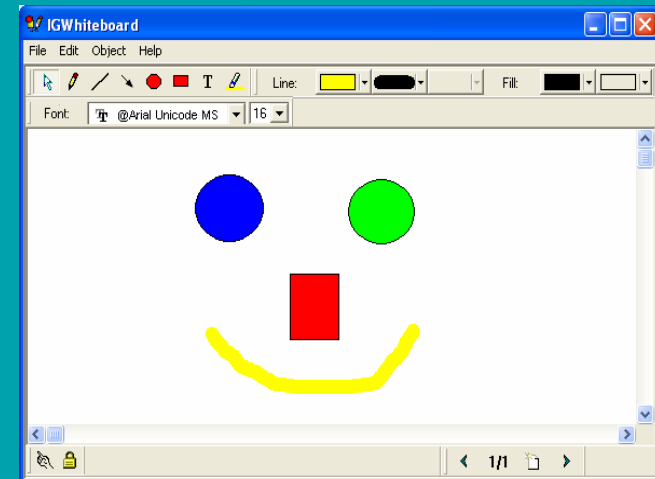


Whiteboards

- UCL WBD
- InSORS IG Whiteboard
- Microsoft ConferenceXP

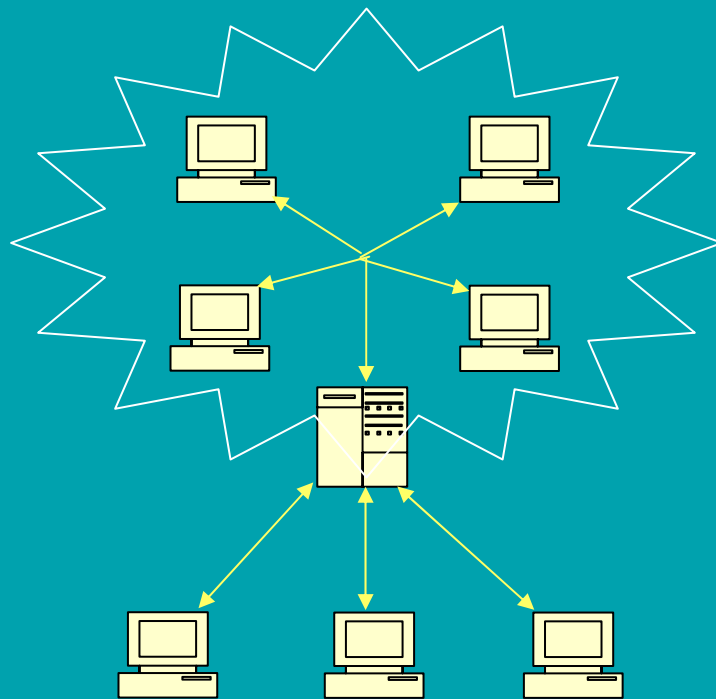


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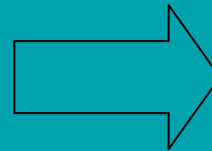


Beyond Multicast Bridges

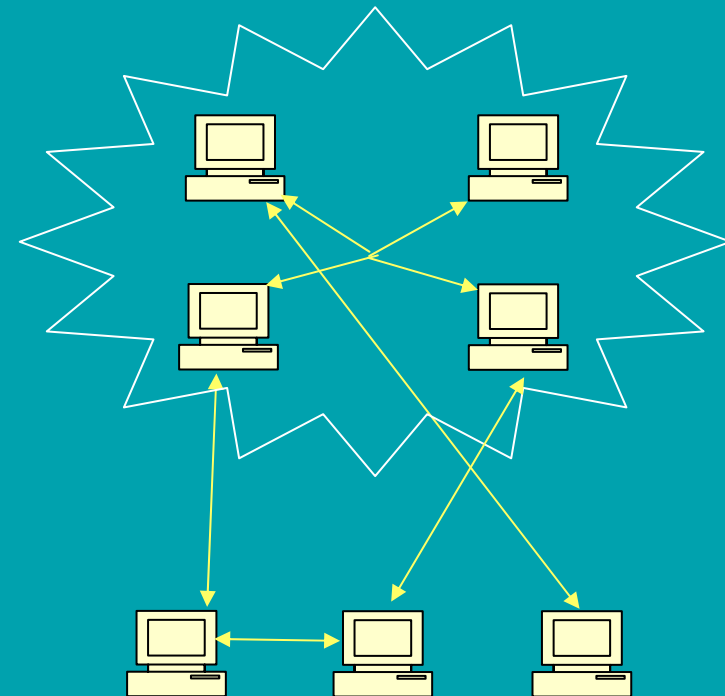
- Aspen - <http://bmrc.berkeley.edu/aspen-wiki/>



Multicast bridge



Aspen - P2P



Conclusions

What has the Access Grid Ever Done for Us?

- Great concept:
 - Large multi-site meetings
 - High quality designed spaces
- Virtual Venues
- Grid integration
- Fruitful research area
- Encouraging remote collaboration – saves time, money, environment

Research Support Services @ Manchester Computing

Contact Details

<http://www.agsc.ja.net>

<http://www.sve.man.ac.uk/General/Staff/daw>

michael.daw@manchester.ac.uk