Progress report

We have developed new features and new functionality to extend and to improve the tools inherited from the MICE project. These improvements are in more robust and better quality coding, new shared workspace tools, a better media server, and better session announcement and starting facilities.

We continue to facilitate the use of the tools over heterogeneous networks. We use Direct Broadcast Satellite (DBS) as part of our multicast infrastructure thanks to the generous donation by Eutelsat of an up-station at INRIA and of multi-megabit bandwidth. To allow users having low bandwidth connections, such as N-ISDN, to join Mbone conferences, we have developed a gateway which provides bandwidth-controlled audio and video to such a user without reducing the bandwidth available to others in the conference.

We continue to play a major role in the development of international standards in the field of multimedia conferencing, both within the Internet community (IETF) and within the ITU (ITU-T). This participation is helping to ensure that both the above improvements and the developments mentioned below are not limited to the MERCI participants, but will be reflected in the International standards.

We have made good progress in a major goal of enabling both confidentiality for conferences and authentication of participants by our success in providing internationally available encryption for the MERCI tools. Secure versions of SDR, VIC, VAT, RAT and NTE have been released. We have continued to align the MERCI architecture with that of the IETF in the security area, with the Public Key Infrastructure being piloted in the related ICE-TEL project.

We have made a start on integrating the circuit-switched conferencing model of the ITU with the packet-switched model of the Internet. We have an interworking implementation which allows an H.320 terminal to join an Mbone conference.

We have had feedback from users in our sponsoring partners, especially Shell Research for whom we have developed a specific user interface to incorporate their requests. Likewise we are responding to a report from Hewlett Packard.

We have made progress in the exploitation of the MERCI tools. UiO have launched a new company, New Learning, to supply and support conference rooms incorporating MERCI technology. We have actively collaborated with the Communications Research Centre of Industry Canada and moves are afoot to incorporate them as a partner.

The MERCI Partners

GMD - Forschungszentrum Informationstechnik GmbH
Institut National de Recherche en Informatique et Automatique
Kungliga Tekniska Högskolan
University of Oslo
Rechenzentrum Universitaet Stuttgart
TELES
University College London
Hewlett-Packard
Shell Research
UKERNA

E U Telematics for Research Programme

MERCI

Multimedia European Research Conferencing Integration

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MERCI Objectives

The objective of the project is to provide all the technology components, other than the data network itself, to allow proper deployment of the tools for multimedia collaboration in Europe. We are pursuing this end by improving the tools and verifying their usability.

Tool improvements

These provide:

* Better integration for easier use by untrained users
* Better quality video, audio and shared workspace facilities
* Inter-operable cross-platform support for many systems - UNIX workstations and PCs
* Increased support for the introduction and recording of multimedia information in conferences
* Support for different network technologies - mainly over IP: packet-switched, ATM or SMDS, ISDN and Direct Broadcast Satellite (DBS)
* Inter-operation between workstations running the multicast Internet and terminals using the normal ITU-T procedures
* Facilities for secure conferencing - with easy distribution of keys and information
* Distributed measurement, monitoring and control
* Support for Conference Rooms

Besides tools from earlier EU projects, MERCI will utilise results in the form of Security tools from the concurrent Telematics project ICE-TEL.

Verification activities

These are underway both inside the project and within other Telematics projects using the following:

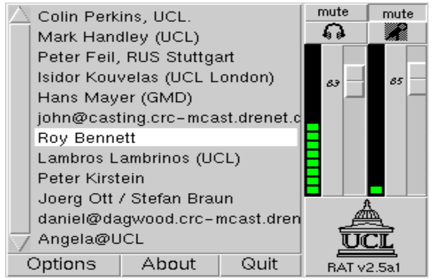
* Regular research seminars given from the sites of the partners - and from North America
* Annual interactive workshops in minimally-invasive surgery given at UCL - transmitted internationally, and with some operations coming from other countries
* Industrial trials with commercial organisations including our sponsoring partners Hewlett-Packard & Shell Research
* Use in the research community, including by our sponsoring partner UKERNA and by other ACTS and Telematics projects including MANICORAL, ATHOC and ICE-TEL

Some of the tools used

New tools

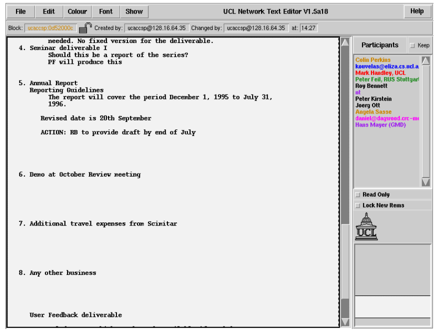
We have developed two new gateway tools to allow users to access the Mbone. One allows access over N-ISDN and the other interconnection between H.320 and Mbone conferences. Our associate CRC has developed other Mbone tools for use in conferencing: MPoll is a distributed voting system and MultiMON is a multicast Mbone monitoring tool.

RAT



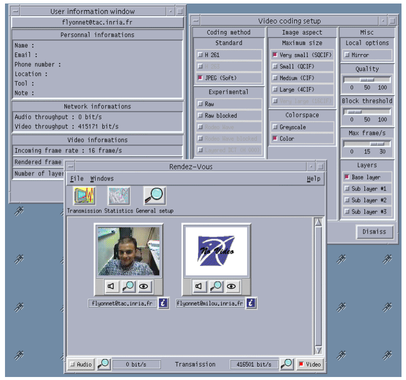
The Robust Audio Tool was developed at UCL to provide increased resistance to network loss by using a *redundant*, low-bandwidth audio stream, transmitted along with the primary audio stream. RAT has since been further developed to handle high quality encoding, and stereo. Work is now proceeding on sound localisation.

NTE



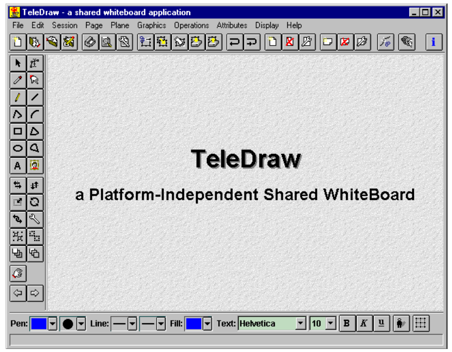
Network Text Editor, developed at UCL, allows many users to simultaneously edit a text document over the Mbone. It displays individual users' contributions in different colours. Any participant may update or delete any participant's contribution unless that contribution is *locked*. Files may be loaded and saved in text format. The tool allows encryption of the data.

Rendez-vous



Developed by MERCI partner INRIA as the successor to IVS, it uses new approaches to video encoding and process management to optimise the coding and decoding of video. It has integrated the INRIA audio tool FreePhone into the user interface.

TeleDraw/TeleCanvas



RUS is developing this Java-based (and, thus, easily portable) shared whiteboard application. An initial alpha release of the prototype, called TeleCanvas, is expected soon. Following this, there will be intensive testing by the project to develop the tool as an RTP/2 compliant replacement for WB. TeleCanvas is an object-oriented line-drawing tool for use within a conference with multiple participants.