

Title: An H.323 Videoconferencing Service for the German Research and Education Community

Authors: Jürgen Hornung, hornung@shuttle.de, DFN VideoConferencing
Lindenspürstr. 32, D-70176 Stuttgart, Germany
Gisela Maiss, maiss@dfn.de, DFN-Verein
Anhalter Str. 1, D-10963 Berlin, Germany
WWW <http://www.dfn.de>

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Abstract

The service DFNVideoConference (DFNVC) offers scientists the possibility to communicate via multipoint conferences from a PC, a workstation, a room system or a telephone using the DFN networking infrastructure within the Gigabit Research Network G-WiN. The service is based on the ITU Standard H.323, which defines data communication in audio-, video- and data conferences over IP-based networks.

The presentation will give a summary of work being done in 2002 and up to now to build an adhoc, selfdialing H.323 videoconferencing service for the German Research Network.

The videoconferencing service DFNVC

After one year of pilot service DFN now started in April 2003 with a regular and charged service for its member organisations and their users as well as for interested scientific institutions. More than 70 organisations used and tested the pilot service. Due to user demands the service was expanded in the meantime with some new features.

Some examples for scenarios and user requirements:

- Members of a working group located at different institutions meet on a regular or spontaneous basis to discuss the results of their work.
- University directors use the video conference service for their regular meetings to save time and money. They get support from a system operator to monitor the conference and provide help if necessary.
- Students attend lectures and participate in seminars from their home-computer.
- A medical doctor needs to consult colleagues at other hospitals on an unusual syndrome of a patient. A video conference is set up and every expert can have a look at the results of earlier examinations. Using the whiteboard the participants decide on further actions.
- Scientists discuss their research results over a video conference. Comments are required by someone without access to a video conference system. He is asked to join the conference via telephone.

The service DFNVC (www.dfn.de/service/dfnvc/)

- allows ad hoc conferences initiated by users spontaneously
- offers Dial-In for H.320-systems connected via ISDN
- supports preparation and initiation of conferences with self dialing and self administration
- provides a Global Dialing Scheme
- makes available test results and descriptions for video conference systems
- offers hotline and training courses for administrators

DFNVC can be used in two different ways:

- The organisation runs its own gatekeeper (H.323 zone) and gets first-level-support only for VC administrators, not for VC users
- Users in an organisation register their devices with the DFN gatekeeper (DFN zone) and get first-level-support directly

Technology

The service DFNVideoConference is based on the ITU Standard H.323, which defines data communication in audio-, video- and data conferences over IP-based networks. The Gigabit Network G-WiN provides an efficient communication infrastructure for participants of the research and education community in Germany. The H.323 equipment used for the service are technical components such as MCU, gatekeeper and gateway. The MCUs (Multipoint Control Units) dealing with the collection, merging, and distribution of multimedia data streams are the core components of DFNVC. A Data Collaboration System supports the parallel access to distributed applications. ISDN based systems can participate in a conference over a gateway. Call routing and addressing is organised by gatekeepers. An international gatekeeper structure and a Global Dialing Scheme provide the possibility of world wide connectivity.

In addition to these facilities DFN has developed specific software to provide its users with a solution for above mentioned demands. So it is possible to generate conference identifiers automatically and to specify optional conference and administrator passwords.

VC portal

The interface to DFNVC is the VC portal (www.vc.dfn.de) which supports the setting up of conferences (creation of conference IDs), management of conferences (invite, exclude, and mute participants, change the video layout) and password protection for conferences. It also provides all relevant information, for example the service description and specification, training material, documentation, as well as a description of the Global Dialing Scheme for gatekeepers and end systems.

Further information

DFN offers to its users training courses with all details of H.323 video conferencing aspects and all informations needed to use the DFNVC service. The Competence Centre for Video Conference Services (VCC) at the Technical University of Dresden (vcc.urz.tu-dresden.de) evaluates video conference hardware and software. Most video conference systems available on the market were tested in detail and the results are published on the VCC server. A videoconferencing handbook (freely available from DFN) provides a good introduction into the problem areas.

There are still some challenges for the future such as the integration of non H.323 video conferencing services or the buildup of international user directories.

Vitae:

Jürgen Hornung studied mathematics at University of Stuttgart. He joined the DFN in 1998 and is working as network engineer with the focus on video conferencing since 2001.

Gisela Maiss studied computer science at Technical University of Berlin. Since 1984 she is working in several projects in the DFN staff especially responsible for multimedia applications.