

Internet-2 Based Tele/Videoconferencing for Distance Medical Education: The EduMed.Net Project

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Introduction and Aims

The delivery of distance medical education content and interaction has received a powerful boost by the advent of broadband global networking. Its revolutionary potential is very large for health sciences education, particularly for Continued Medical Education (CME).

On the other hand, medical schools and hospitals are still living in the world of narrowband Internet. This has been delaying the impact of advanced information technologies on the new educational paradigms in the health field.

The aim of this project is to establish in Brazil a distance education network in medicine and health sciences (the EduMed.Net Project), which will be based on access of medical schools and major teaching hospitals to a high speed backbone comprised by fiber optic and broadband digital satellite. The target within five years is to reach 90% of Brazil's 200+ medical and nursing schools and 500+ teaching hospitals. The network is governed by a National Consortium.

Methodology

In the present work we report the general concept and operational structure of Edumed.Net, as well as the undergoing feasibility and technical studies. Each health sciences school will get a fully equipped tele/videoconferencing room, with at least 2 Mbps dedicated connection and a microcomputer student laboratory connected to Internet 2.

Three important supporting technologies for Edumed.Net were studied and existing solutions were compared: 1) a centralized distance education software platform, for academic management, authoring and content/interaction tools delivery; 2) a suitable videoconferencing solution which would fit the requirement of asymmetrical teleconferencing to a large number of receptive rooms, either via ISDN or IP; and point-to-point and multipoint bidirectional videoconferencing to a smaller number of rooms;

and 3) a general solution for on-demand streaming video of high quality to any point in the country.

Results

We have examined FirstClass, TelEduc, WebCT, ClassPoint, ClassBuilder, Blackboard, LearnSpace and AulaNet for our distance education software platforms. TelEduc, a free source code application developed by UNICAMP was chosen on the basis of robustness, speed, simplicity of use and economical convenience. Regarding the teleconferencing infra-structure, the best solution was that provided by VCON, which offers interactive multicasting technology to up to 100 rooms with inexpensive equipments, including QoS (Quality of Service) and lip sync features. Their systems provide ample flexibility, and are fitted with standard interfaces for ISDN and IP access (H320 and H323 protocols). The general solution for streaming services is MCI/Embratel's DAMA digital broadband satellite services, which will be operating also a inexpensive bidirectional asymmetrical satellite service in 2002.

Discussion

For a developing country like Brazil, where the situation in health sciences schools regarding tradition and culture of informatics usage, access to broadband technologies, geographical location, etc., are tremendously heterogeneous, setting up and making operational a distance education network is a big challenge. The Edumed.Net is entering now the first phase of pilot operation, where issues such as user training, technical support, day-to-day operation of the educational program grid, etc., will be developed, tested and refined. Approximately 12 institutions spread about Brazil will work together in this phase, acquiring technology, installing and transmitting content on an experimental basis. Mandatory periodic physician recertification, which is in the process of being adopted for ca. 100,000 professionals in Brazil will certainly provide motivation for the success of this endeavor.

