Workshop on Distance Learning

Introduction

It may be widely advertised that the technology for implementing interactive multimedia and other promising applications for distance learning is currently available, but the reality is that it is not. Several technical difficulties are still hindering the progress towards a scalable, affordable, manageable, developer-friendly, and user-friendly system.

A number of technical and policy issues need to be addressed and solved before multimedia applications can take advantage of the Internet. We currently have the resources to enable, in a very limited way, multimedia communication and collaboration among groups, and to manage these interactions. Scaling these groups to hundreds of students will necessitate management tools for handling the various multimedia streams, allocating bandwidth to them; it will require new protocols for controlling these streams as well as new protocols for student-teacher interactions. Perhaps even more importantly, we need to improve the performance of existing collaboration and conferencing tools by an order of magnitude by such techniques as reliable multicasting for data traffic and efficient utilization of the underlying network. A whole new set of unresolved issues is rising, such as the lack of interoperability standards for digital multimedia communication protocols. Most crucial to an application of collaboration technology in distance learning is user acceptance. We need to measure reactions by teachers and students to the user interface and develop a new paradigm for teaching and learning that truly takes advantage of the technology but is still acceptable and accessible to average, non-computer science students and teachers.

Other major issues to be considered are hardware and software heterogeneity. How do we allow students to participate in a class without imposing or requiring them to use any specific type of hardware and software? It is also important to have an easy-to-use interface with the computer system, particularly when many users are simultaneously interacting with the same applications and with each other.

This workshop focused on system and networking issues that included (but were not limited to) the effective use of bandwidth and multicasting, digital recording/replaying of classes, preparation and presentation of instructional materials, homework submission, grading and testing, collaborative group study, review and tutoring, performance and effectiveness measurements, and survey and feedback tools. The five papers published here were presented at the workshop.

The workshop was organized by Hussein Abdel-Wahab and Kurt Maly of Old Dominion University. The workshop URL is http://www.cs.odu.edu/~wahab/WETICE96.html.

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