CSE 126/228F Lecture 1: April 1

Course Information

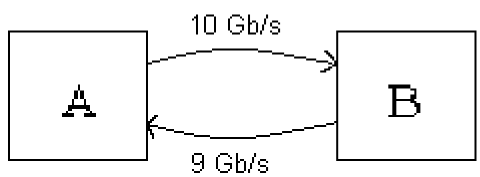
See website http://www-cse.ucsd.edu/classes/sp97/cse126

(If you're here then you probably know this…)

I will try to post notes here by the end of the week, please send me comments, suggestions, corrections, etc. via email (jgarrett@cs.ucsd.edu).

Historical Perspective

Modern computers are becoming faster and smaller, and network bandwidth is rapidly increasing. 10 years ago, computers were much faster than networks, which led to the growth of distributed applications which maximize computer time and minimize network use. Now, optical networks are capable of gigabyte/second transfers which electronic computers can't match. An example of a modern network is the BLAZENET network depicted here:



This network has computers A and B which can only communicate at 1Gb/s, so B only receives 1 out of 10 bits, sending the remaining 9 bits back over the return link. In this manner, the network acts as memory.

WWW

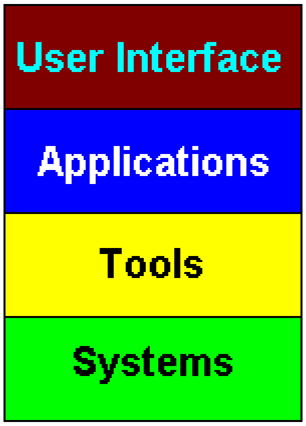
Multimedia is closely tied to the World Wide Web (WWW). Without networks, multimedia is limited to simply displaying images, videos, and sounds on your local machine. The true power of multimedia is the ability to deliver this rich content to a large audience.

What is Multimedia?

Multimedia has 3 aspects:

1. Content: Movie, Production, etc.
2. Creative Design
3. Enabling Technologies: Network and software tools that allow creative designs to be presented. These technologies will be the primary focus of this class.

Multimedia software can be viewed in a layered manner:



Systems: What we will cover

- Video, Audio, Images: The analog multimedia world
- Digital Media: Compression, standards, JPEG, MPEG. Why is compression important? Should we use a proprietary format (VExtreme, RealAudio) or a standard (MPEG)
- Storage: CD-ROM has been the traditional storage medium. Now, Digital Versatile Disc (DVD) promises to become very important.
- Database Systems: Content based video retrieval, Informix Illustra, Oracle, …
- Networking: Video Streaming Protocols, Asynchronous Transfer Mode (ATM) from a networking point of view

Tools: What we will cover

- Editing
- Authoring

Applications: What we will cover

- Interactive TV: Set-top box converts TV to an interactive terminal. What is Interactive? Is TV passive by nature, or will interactive TV be popular?
- Digital Libraries