

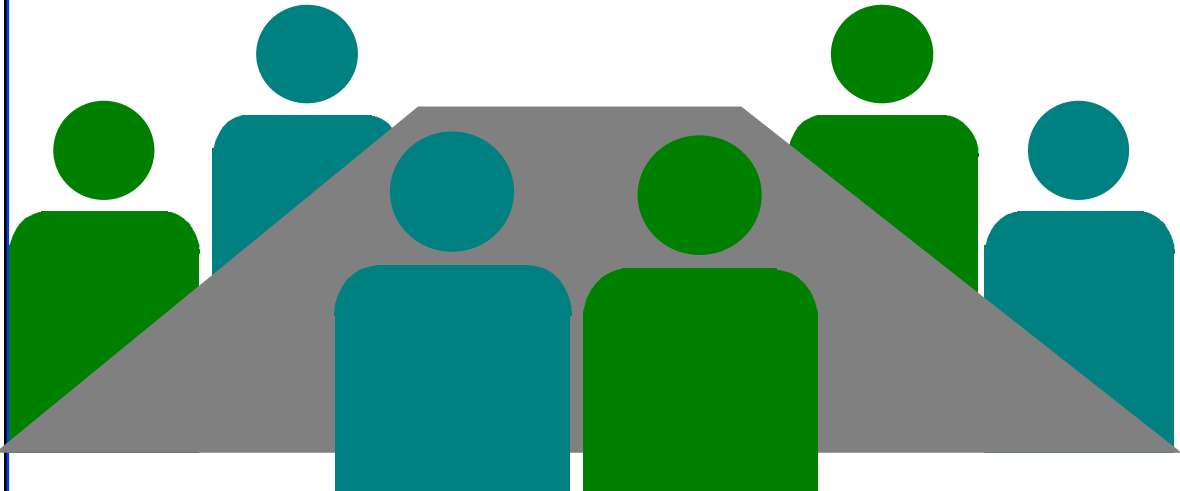
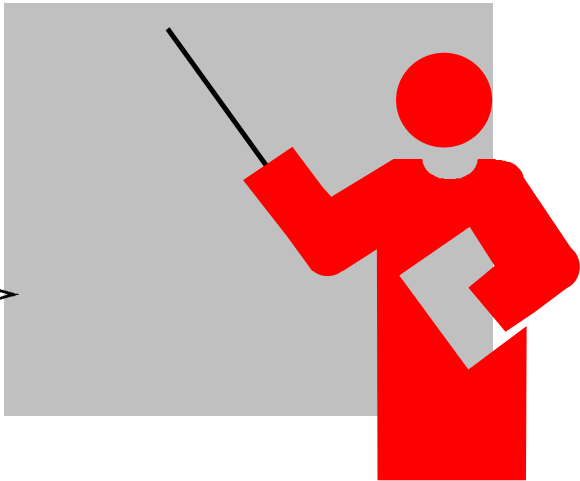
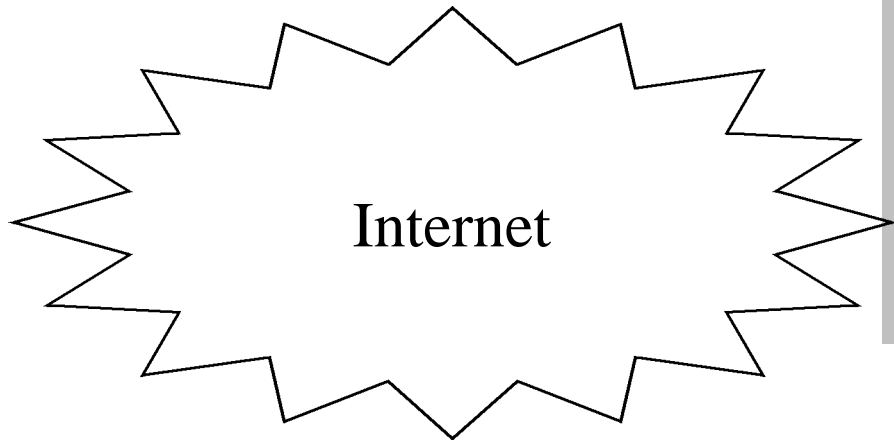
Research and Teaching Applications of WWW and Multimedia On Internet

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- ❑ Networking Trends
- ❑ Applications of WWW in Research
- ❑ Multimedia over Internet
- ❑ MBone, Internet Phone,
Internet Radio

Trend: Exponential Growth

- ❑ 4 Million hosts on the Internet.
- ❑ Exponential growth in traffic
- ❑ 16 to 17 TByte/month on ex-NSFnet
= 2XLibrary of Congress/month

Networking in Social Fabric

- ❑ USENET: Ten million news articles/month
- ❑ 18 on-line coffee houses in San Francisco
- ❑ National Public Radio Program
- ❑ Supreme court decision within one day
- ❑ 137 countries reachable via Email
- ❑ Real estate, on-line catalogs

Impact

- ❑ Technology is moving too fast
 - ❑ Example: Fast (100 Mbps) Ethernet vs Distributed Queue Dual Bus (DQDB)
- ❑ Paper publication takes 1-3 years \Rightarrow No Impact
- ❑ Reading papers not sufficient for research
- ❑ World-Wide Web,
Mailing lists, News Groups

WWW: A Case Study

- ❑ CIS788: Recent Advances in Networking and Telecommunications
- ❑ Research Seminar at OSU: Summer 1995
- ❑ 18 Graduate + 1 Undergraduate
- ❑ Lectures + Exams as usual
+ Student project reports

CIS788

- ❑ Lectures: High Speed networking, ISDN, Frame Relay, ATM, Multimedia, Wireless
- ❑ Student Projects: ATM Products, Multimedia Products, Wireless ATM, Fiber Channel, ...
- ❑ See *<http://cis.ohio-state.edu/~jain/CIS788.htm>*

Homework 1

Search 5 references on HTML from:

- ❑ Books in Print CDROM (All Books)
- ❑ Ohio-Link (Books easily available)
- ❑ COMPNDEX/INSPEC CDROMs (Technical Articles)
- ❑ Computer SELECT CDROM (Products and news)
- ❑ Web pages (Recent Info)

Web Search Starting Points

- ❑ Yahoo: <http://www.yahoo.com/>
- ❑ OSU Gopher: For OSU Libraries and Ohio-link
 - ❑ <gopher://gopher.acs.ohio-state.edu/>
- ❑ All-in-One Search Page:
 - ❑ <http://www.albany.net/~wcross/all1srch.html>

Other Assignments

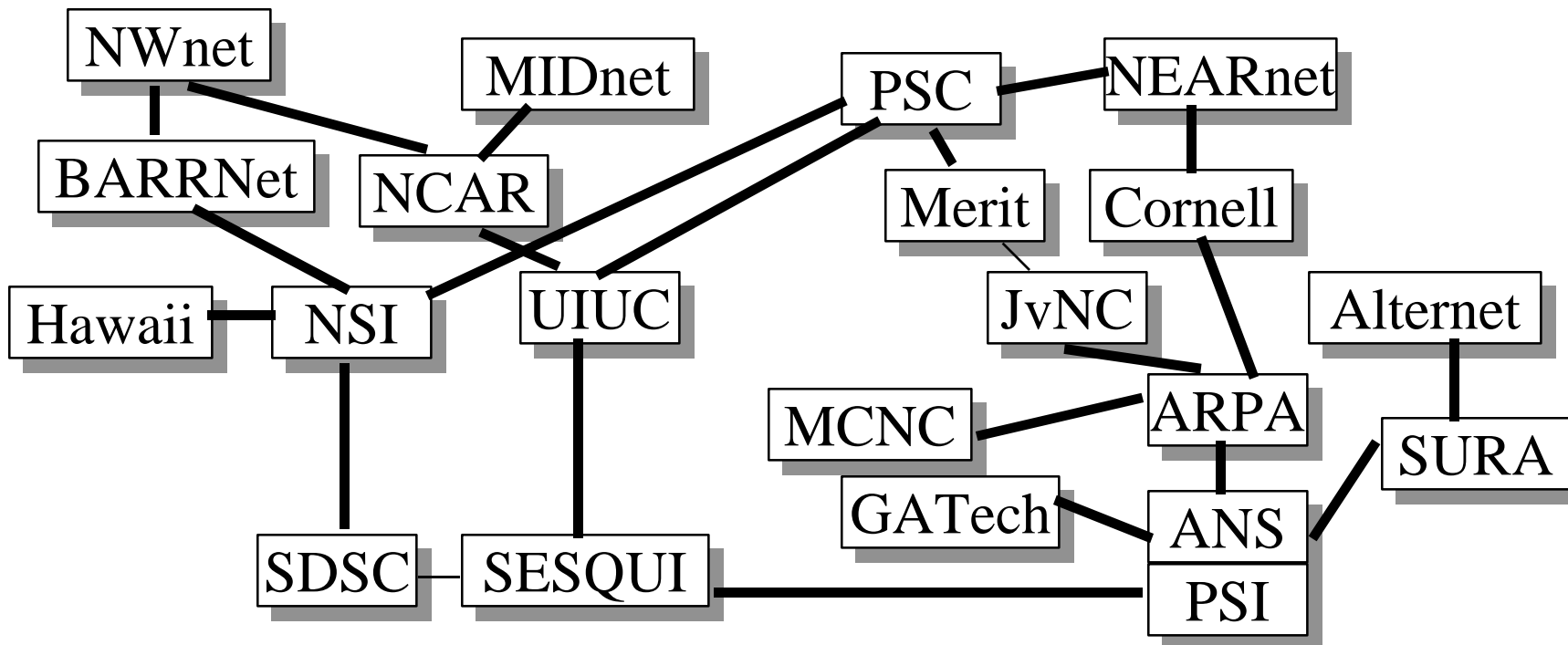
- ❑ Search for references on their topic
- ❑ Collect references
- ❑ Summarize references
- ❑ Draft reports
- ❑ Common style rules

Common Style Rules

- ❑ Same Title and Header
- ❑ Two sentence abstract
- ❑ Table of Contents
- ❑ Pointer back to class page
- ❑ Pointer to Author's page/email
- ❑ All Pointers: down and up the web tree

MBone

- ❑ Internet Multicast Backbone
- ❑ A set of routers that implement IP multicasting



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MBone (Cont)

- ❑ Uses radio/tv station paradigm: Sender is allocated a multicast address and it starts transmitting on that address
- ❑ Anyone can listen by tuning into the multicast address
- ❑ The router provides a connection to the nearest point
- ❑ Sender has no idea of listeners

- ❑ First audiocast in March 1992:
IETF meeting to 20 sites
- ❑ Now over 600 hosts in over 15 countries
- ❑ Programs include space shuttle, conferences,
IETF,...
- ❑ Clinton and Gore have appeared
- ❑ Is a source of congestion
and complaints

Internet Multimedia Tools

- ❑ vat - Visual audio tool (conferencing)
- ❑ nevot - Net voice terminal (conferencing)
- ❑ ivs - INRIA video conferencing system
- ❑ nv or NetVideo - network video
- ❑ vic - Video conferencing tool
- ❑ wb - White board (shared drawing space)

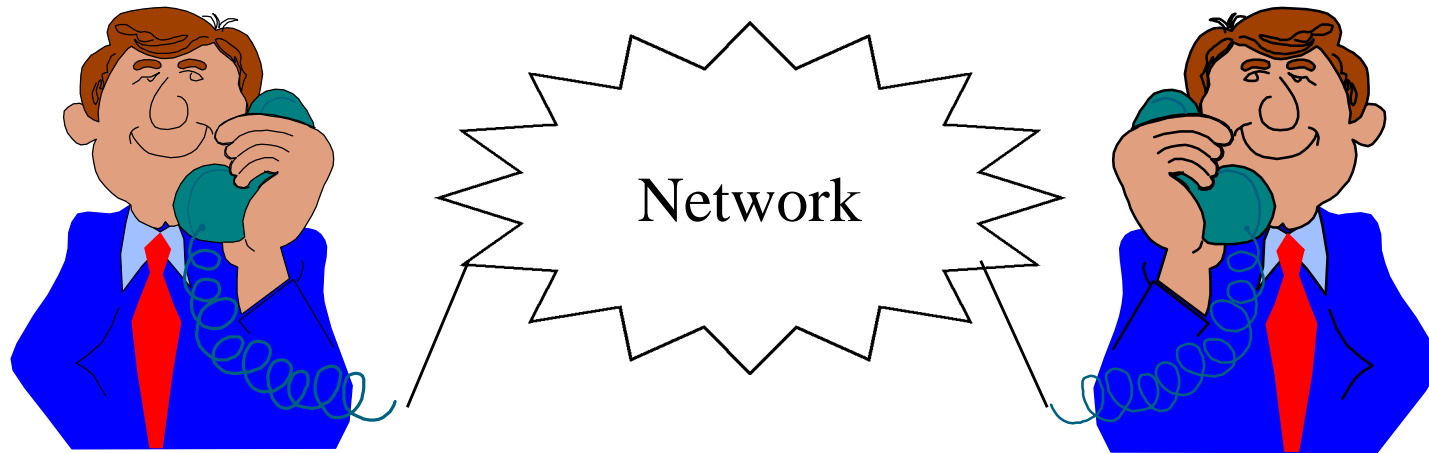
- ❑ imm - Image (JPEG) multicast client
- ❑ mmcc - Multimedia conference control
- ❑ media on demand server (Allows unicast replays of past Mbone sessions)
- ❑ CuSeeMe - Desktop video conferencing
- ❑ maven - Audioconferencing tool
- ❑ mmphone
- ❑ Ref: <http://www.lbl.gov/ctl/vconf-faq.html>

Internet Talk Radio

- ❑ Like National Public Radio on the Internet
- ❑ Supported by Sun Microsystems and O'Reilly & Associates. Run by Carl Malamud
- ❑ Covers networking topics
- ❑ Does not use MBone. Audio files are distributed.

- ❑ Geek of the Week: Key Internet personalities
- ❑ The Incidental Tourist: Restaurant reviews
- ❑ Key sessions of conferences are rebroadcast
- ❑ For further info info@radio.com
- ❑ **Ref:** <http://www.cmf.nrl.navy.mil/radio/ITRintro.readme.html>

Internet Phone Servers



- Being designed by Multiparty MUltimedia Session Control (MMUSIC) group of IETF

- ❑ Telephone servers (similar to routers)
- ❑ Receive local calls, determine the internet route and forward
- ❑ Accept remote calling requests

Ref: RFC 1789, "INETPhone:
Telephone Services and Servers
on Internet," April 1995.

<http://www.cnri.reston.va.us/>



Summary

- ❑ WWW for research and publication
- ❑ Internet protocols are being extended to allow multimedia
- ❑ Multicast backbone (Mbone)
- ❑ Internet talk radio and phone

HTML Books

- ❑ Larry Aronson, "HTML manual of style," Emeryville, Calif. : Ziff-Davis Press, c1994, 132 p.
- ❑ Ed Tittel and Steve James., "HTML for dummies," Foster City, CA : IDG Books, c1995, 452 p.
- ❑ Mary E. S. Morris., "HTML for fun and profit," Mountain View, Calif. : SunSoft Press, c1995, 264 p.
- ❑ Brent Heslop & Larry Budnick, "HTML publishing on the Internet for Windows" Chapel Hill, NC : Ventana Press, c1995, 480 p.

- ❑ Ian S. Graham, "The HTML sourcebook," New York : Wiley, c1995, 416 p.
- ❑ Tom Savola, "Using HTML," Indianapolis, IN : Que, c1995, 673 p. 227 p.
- ❑ Laura Lemay, "Teach yourself Web publishing with HTML in a week," Indianapolis, Ind. : Sams Publishing, c1995. 397 p.

HTML On-line References

- ❑ Guides to Writing HTML Documents,
<http://union.ncsa.uiuc.edu/HyperNews/get/www/html/guides.html>
- ❑ Writing Web Pages,
<http://www.cs.buffalo.edu/pub/WWW/other/html.html>
- ❑ Web Developer's Virtual Library: WWW Development,
<http://www.charm.net/~web/Vlib/>
- ❑ HTML Quick Reference, <http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLQuickRef.html>

- ❑ A Beginner's Guide to HTML,
<http://www.ncsa.uiuc.edu/demoweb/html-primer.html>
- ❑ Creating Net Sites,
http://home.netscape.com/assist/net_sites/index.html
- ❑ Style Guide for Online Hypertext,
<http://www.w3.org/hypertext/WWW/Provider/Style/Overview.html>
- ❑ The Bare Bones Guide to HTML,
<http://www.access.digex.net/~werbach/barebone.html>

- ❑ Net Tips for Writers and Designers,
http://www.best.com/~dsiegel/tips/tips_home.html
- ❑ Style Your Sheet, <http://www.links.net/webpub/style.html>
- ❑ HTML Style Guide & Test Suite,
<http://www.charm.net/~lejeune/styles.html>
- ❑ WWW FAQ: How do I publicize my work?,
<http://sunsite.unc.edu/boutell/faq/publicizing.html>
- ❑ Top 10 Things NOT to do on a Web Page,
<http://ee.stanford.edu/eecns/www/donts.html>

Multimedia

- ❑ MBONE Information Web,
<http://www.eit.com/techinfo/mbone/>
- ❑ MBONE FAQ, <ftp://venera.isi.edu/mbone/faq.txt>
- ❑ Desktop Videoconferencing, <http://www.lbl.gov/ctl/vconf-faq.html>
- ❑ Internet Talk Radio,
<http://www.cmf.nrl.navy.mil/radio/ITRintro.readme.html>
- ❑ CU-SeeMe, <http://magneto.csc.ncsu.edu/Multimedia/Classes/Spring94/projects/proj6/cu-seeme.html>

- ❑ Information Sources: the Internet and Computer-Mediated Communication,
<http://www.rpi.edu/Internet/Guides/decemj/icmc/top.html>
- ❑ Video: An Overview of the Internet and World-Wide Web,
<http://pubweb.parc.xerox.com:80/hypertext/wwwvideo/wwwvideo.html>
- ❑ AudioFile, <http://www.tns.lcs.mit.edu/vs/audiofile.html>
- ❑ Yahoo - Computers:Multimedia,
<http://www.yahoo.com/Computers/Multimedia/>
- ❑ Index to Multimedia Information Sources,
<http://viswiz.gmd.de/MultimediaInfo/>
- ❑ Distributed Multimedia Survey,
<http://cuiwww.unige.ch/OSG/MultimediaInfo/mmsurvey/>

MBONE: References

- ❑ H. Eriksson, "MBone: The Multicast Backbone," CACM, August 1994, pp. 54-60.
- ❑ RFC 1112, "Host extensions for IP Multicasting"
- ❑ S. Casner, et al, "Frequently Asked Questions (FAQ) on the Multicast Backbone (MBone)," <http://www.research.att.com/mbone-faq.html>
See also <http://www.cs.ucl.ac.uk/mice/faq.html>

- ❑ M. Macedonia and D. Brutzman, "Mbone Provides Audio and Video Across the Internet," *Computer*, April 1994, pp. 30-36.
- ❑ MBONE: List of available s/w and FTP sites
<http://www.cs.ucl.ac.uk/mice/mbone-soft.html>
- ❑ MBONE Routers and Links
<http://info.arl.army.mil/ACIS/ACD/MBONE/mbone-routers.html>
- ❑ MBone interest group mailing list: mbone-request@isi.edu
- ❑ Conference announcements mailing list:
rem-conf-request@es.net

Thank You!



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