



COALITION FOR NETWORKED INFORMATION

To Advance Scholarship and Intellectual Productivity
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**REPORT OF THE FALL 1990
MEETING OF THE TASK FORCE**

TABLE OF CONTENTS

AGENDA 7 PAGES

SUMMARY OF VISION STATEMENT 8 PAGES

SUMMARY OF WORKING GROUP DISCUSSIONS

 NON-COMMERCIAL PUBLISHING 7 PAGES

 COMMERCIAL PUBLISHING 2 PAGES

 ARCHITECTURES AND STANDARDS 2 PAGES

 LEGISLATION, CODES, POLICIES, AND PRACTICES 2 PAGES

 DIRECTORIES AND RESOURCE INFORMATION SERVICES 2 PAGES

 TEACHING AND LEARNING 2 PAGES

 MANAGEMENT AND PROFESSIONAL AND USER EDUCATION 7 PAGES

SUMMARY OF PROJECT PRESENTATIONS 2 PAGES

 CLASS (COLLEGE LIBRARY ACCESS AND STORAGE SYSTEM) PROJECT • KNOWLEDGE
 MANAGEMENT: REFINING ROLES IN SCHOLARLY AND SCIENTIFIC COMMUNICATION •
 USCINFO: A CAMPUS-WIDE LIBRARY INFORMATION SYSTEM AT THE UNIVERSITY OF
 SOUTHERN CALIFORNIA • NEW PATHWAYS TO A DEGREE

SUMMARY OF SYNERGY SESSIONS

 STRATEGIC ALLIANCES: THE DATABASE PRODUCERS' ROLE 2 PAGES

 ACADEMIC LIBRARY STATISTICS 1 PAGE

 INTEGRATING CD-ROM AND MAINFRAME-BASED
 NETWORKED INFORMATION RESOURCES 3 PAGES

 MANAGING INTERNET-BASED ELECTRONIC BULLETIN BOARDS 1 PAGE

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Report on the Fall 1990
Meeting of the Task Force

TABLE OF CONTENTS

COORDINATING PARTICIPATION IN THE COALITION	1 PAGE
THE SCOPE AND CONTENT OF UNIVERSITY INFORMATION POLICY.....	1 PAGE
NATIONAL ENGINEERING EDUCATION DELIVERY SYSTEM	1 PAGE
PROPOSED: AN INTERNET-BASED FEDERAL ELECTRONIC INFORMATION DEPOSITORY	1 PAGE
EXTENDED ACCESS TO THE INTERNET: K - 12 AND AROUND THE GLOBE	1 PAGE
DOCUMENT TRANSMISSION OVER THE INTERNET: FAX OR FRICTION.....	2 PAGES
PLANNING THE GOVERNANCE OF THE NREN	2 PAGES
EVALUATION FORM	2 PAGES
EVALUATION TABULATION.....	1 PAGE
MEMBERSHIP SIZE SURVEY.....	11 PAGES



AGENDA

FALL 1990 MEETING OF THE TASK FORCE November 3 - 5, 1990

Loews L'Enfant Plaza Hotel
480 L'Enfant Plaza, SW
Washington, DC 20024

OVERVIEW

- The purposes of the Meeting are:
 - To ratify the Coalition Program Plan;
 - To organize the Coalition Working Groups;
 - To provide information on projects that seek to advance the understanding of or the state-of-the-art relative to Coalition vision statements; and,
 - To create opportunities for members of the Coalition Task Force to share experiences and aspirations.
- The Meeting will begin on the evening of Saturday November 3 with a vision statement followed by a reaction to and a discussion of that vision statement.

A reception will follow at which a delectable selection of hors d'oeuvres together with an ample supply of shrimp, turkey, roast beef, and pasta, a cash bar, and tempting desserts will sustain a good opportunity for Meeting attendees to mix with and to get to know each other.

- The Meeting will continue on the morning of Sunday November 4 with a presentation of the Program Plan drafted by the Coalition Steering Committee followed by brief, introductory presentations by each Working Group Convenor of her or his perspective, objectives, and priorities.

After lunch, attention will turn to presentations on four projects that the Coalition Steering Committee believes will be of particular interest to members of the Coalition Task Force.

The evening of Sunday November 4 is reserved for informal and relatively unstructured exchanges of information and experiences among Meeting attendees, facilitated by a wine and cheese reception. In addition, eleven separate Wine and Cheese Synergy Sessions will be conducted by Meeting attendees.

Two Working Group small group discussions will also be held during the early evening of Sunday November 4 in order to accommodate the travel schedules of their Convenors.

- The Meeting will conclude on the morning of Monday November 5 starting with a series of parallel Working Group small group discussions. The general terms of reference and programs of work of each Working Group will be discussed and then followed by a panel discussion at which each Working Group Convenor will briefly report on the lessons and priorities that he or she is taking away from the Meeting.

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AGENDA
Fall 1990 Meeting of the Task Force
November 3 - 5, 1990

SCHEDULE FOR SATURDAY NOVEMBER 3, 1990

- 5:30 pm **Registration and refreshments**Ballroom Foyer and Solarium
Cold drinks will be available.
- 7:00 pm **Welcome and overview**.....Ballrooms B, C, and D
Richard Paul West, Associate Vice President of the University of California and Chair of the Coalition Steering Committee, and Paul Evan Peters, Senior Program Officer for Technology of the Association of Research Libraries and Director of the Coalition, will call the Meeting to order and present the agenda.
- 7:15 pm **Vision statement**.....Ballrooms B, C, and D
A vision for research and education networks and network services
Stephen C. Hall, Director, Office for Information Technology, Harvard University
- 8:00 pm **Reaction to the vision statement**Ballrooms B, C, and D
Martha A. Bowman, Director of Libraries, University of Missouri at Columbia
- 8:15 pm **Questions and comments**.....Ballrooms B, C, and D
- 8:30 pm **Supper buffet reception**.....Ballroom Foyer and Solarium
A selection of hors d'oeuvres together with shrimp, roast beef, turkey, and pasta, a cash bar, and a selection of desserts will be available.

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AGENDA
Fall 1990 Meeting of the Task Force
November 3 - 5, 1990

SCHEDULE FOR SUNDAY NOVEMBER 4, 1990

7:30 am Registration and continental breakfast.....Ballroom Foyer and Solarium
Coffee, tea, juices, mineral water, sodas, fruit, yogurt, and a variety of bread stuffs will be available.

8:30 am Program Plan presentationBallrooms B, C, and D
Richard Paul West and Paul Evan Peters will lead a discussion of the Program Plan.

9:30 am Working Group introductions.....Ballrooms B, C, and D
Each Working Group Convenor will present her or his perspective, objectives, and priorities in preparation for the small group discussions scheduled for Monday November 5.

Non-commercial publishing

Peter Lyman, Associate Dean for Scholarly Technology, University of Southern California

Commercial publishing

Karen Hunter, Vice President and Assistant to the Chairman, Elsevier Science Publishers BV

10:15 am Break.....Ballroom Foyer and Solarium
Coffee, tea, mineral water, and sodas will be available.

10:30 am Working Group introductions, continued.....Ballrooms B, C, and D

Architectures and standards

Clifford A. Lynch, Director, Library Automation, University of California, Office of the President

Legislation, codes, policies, and practices

Susan K. Martin, University Librarian, Georgetown University

Directories and resource information services

George H. Brett II, Assistant Director, Educational Computing Service, University of North Carolina, and Peggy Seiden, Head Librarian, Pennsylvania State University at New Kensington

Teaching and learning

Phillip Tompkins, Director of Library Information Services, Maricopa Community College District

Management and professional and user education

Tom W. West, Assistant Vice Chancellor, Computing and Communications Resources, California State University System, and Nancy M. Cline, Dean, University Libraries, Pennsylvania State University

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AGENDA
Fall 1990 Meeting of the Task Force
November 3 - 5, 1990

SCHEDULE FOR SUNDAY NOVEMBER 4, 1990
(continued)

12:00 pm Lunch.....Monet Ballroom

A deli buffet, including soup, sandwiches, salad, and cookies, will be available together with iced tea, mineral water, and sodas.

1:30 pm Project presentations.....Ballrooms B, C, and D

Each presenter will provide an overview of her or his project and respond to questions and comments.

The CLASS project: A prototype for digital preservation

M. Stuart Lynn, Vice President, Information Technologies, Cornell University

Knowledge management: Refining roles in scholarly and scientific communication

Richard E. Lucier, Director, Laboratory for Applied Research in Academic Information, Welch Medical Library, Johns Hopkins University

3:00 pm Break.....Ballroom Foyer and Solarium

Enjoy a Sunday afternoon ice cream and popcorn break in the park-like Solarium.

3:30 pm Project presentations, continuedBallrooms B, C, and D

USCInfo: Experiences with a campus-wide library information system

John Waiblinger, Assistant University Librarian for Academic Information Services and Associate Director of the Center for Scholarly Technology, University of Southern California

New pathways to a degree: Using technologies to open the college

Michael J. Strait, Project Officer for Research and Evaluation, Annenberg/CPB Project

5:00 pm Wine and cheese receptionMonet II

5:30 pm Working Group small group discussions

Two Working Group small group discussions will be held at this time.

Architectures and standards.....Quorum

Management and professional and user education.....Caucus

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AGENDA
Fall 1990 Meeting of the Task Force
November 3 - 5, 1990

SCHEDULE FOR SUNDAY NOVEMBER 4, 1990
(continued)

5:30 pm Wine and Cheese Synergy Sessions

These sessions will provide an opportunity for Meeting participants to interact informally about projects and ideas of their own choosing. Feel free to bring along your glass of wine and come prepared to engage in a lively discussion.

Strategic alliances: The database producers' roleMonet I

Barbara Lawrence, Administrator, Technical Information Service, American Institute for Aeronautics, representing the National Federation of Abstracting and Indexing Services

Academic library statistics.....Monet III

Ronald Naylor, Assistant Director for Administrative Services, University of Miami, and Kent H. Hendrikson, Dean of Libraries, University of Nebraska at Lincoln

Integrating CD-ROM and mainframe-based networked information resources.....Degas

Paul Morris, Executive Director of Computer Services, Tufts University, and David R. McDonald, Director, Arts and Sciences Library, Tufts University

Managing Internet-based electronic bulletin boardsLafayette

Paul McDonald Jones, Advanced Workstation Group Leader, Academic Computer Services, University of North Carolina at Chapel Hill

6:30 pm BreakMonet II

6:45 pm Wine and Cheese Synergy Sessions, continued

Coordinating participation in the CoalitionMonet I

Greg Anderson, Associate Director for Systems and Planning, Massachusetts Institute of Technology, and Marilyn McMillian, Director of Information Systems Planning, Massachusetts Institute of Technology

The scope and content of university information policyMonet III

Joan L. Chambers, Director of Libraries, Colorado State University

National Engineering Education Delivery System.....LaSalle

David M. Martin, Professor and Network Coordinator, College of Engineering, Iowa State University, and John Saylor, Engineering Librarian, Cornell University

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AGENDA
Fall 1990 Meeting of the Task Force
November 3 - 5, 1990

SCHEDULE FOR SUNDAY NOVEMBER 4, 1990
(continued)

6:45 pm Wine and Cheese Synergy Sessions, continued

Proposed: An Internet-based Federal electronic information depositoryDegas

Ronald L. Larsen, Associate Director of Libraries for Information Technology, University of Maryland at College Park

Extended access to the Internet: K - 12 and around the globeLafayette

Art St. George, Executive Network Services Officer, University of New Mexico

Document transmission over the Internet: Fax or friction?Montcalm

William J. Studer, Director of Libraries, Ohio State University, and Robert S. Dixon, Director of Instruction and Research Computer Center, Ohio State University

Planning the governance of the National Research and Education NetworkMarquette

Stephen C. Hall, Director, Office for Information Technology, Harvard University

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AGENDA
Fall 1990 Meeting of the Task Force
November 3 - 5, 1990

SCHEDULE FOR MONDAY NOVEMBER 5, 1990

- 7:30 am Registration and continental breakfast..... Ballroom Foyer and Solarium**
Coffee, tea, juices, mineral water, sodas, fruit, yogurt, and a variety of bread stuffs will be available.
- 8:30 am Working Group small group discussions**
Each Working Group Convenor will moderate a discussion of the general terms of reference and program of work of her or his Working Group.
- Non-commercial publishing.....Monet I**
Commercial publishing.....Monet III
Legislation, codes, policies, and practicesQuorum
Directories and resource information services.....Lafayette
Teaching and learning.....Caucus
- 10:00 am Break.....Ballroom Foyer and Solarium**
- 10:30 am Working Group Convenor panel discussion.....Ballroom B, C, and D**
Each Working Group Convenor will briefly report on the lessons and priorities that he or she is taking away from the Meeting.
- 11:45 am Wrap-up and next stepsBallroom B, C, and D**
Richard Paul West and Paul Evan Peters will make closing remarks and sketch upcoming Coalition milestones.



SUMMARY OF VISION STATEMENT FALL 1990 MEETING OF THE TASK FORCE

Note: Transparencies used during this presentation appear in this section after the reaction. The full text of this paper is reproduced as Vision Statement #5 in Section 2 of this binder and will be published in EDUCOM Review 26:1 (Spring 1991).

- Three themes:
 - A vision for the network and network-based services;
 - New horizons for technology, specifically information technology imaging and the CUPID Project; and
 - A model for governance issues concerning the NREN.

Network vision

- At the campus level, the purpose of technology can be simply for people to talk to people through their technology. Three strategies are needed for this to occur:
 - Providing things at the desktop so that individuals can do their own thing;
 - Building a network; and
 - Making a greater amount of information resources available to people in a fairly seamless way.
- Some strategies for the Coalition are:
 - To discuss how software could be employed at the desktop level; and
 - To examine a possible interface between electronic and voice mail.
- Six things that we could work on, in accordance with the mission statement of CNII are:
 - Directories;
 - Standards for supporting the user;
 - International image and text data standards;
 - Voice, video, data mail services;
 - Security and integrity of the network; and
 - A new copyright paradigm.

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Summary of Vision Statement
Fall 1990 Meeting of the Task Force

Imaging technology

- The personalized printing/publishing vision is made possible by new developments in imaging technology. It enables individuals to send printed information in a finished form to one another. Xerox in particular is developing products that allow an individual to scan a lot of information very rapidly with very high resolution.
- The implications of these new developments are that we can start to think in ways that we have never imagined before, about printing using a network. We will be able to have multiple inputs going to multiple outputs.
- When the Internet was new, we only had three basic applications: log on, electronic mail, and file transfer. The printing function, if carried out on the Internet, could be its fourth major application.
- As an outgrowth of a Xerox University Advisory Panel, the Consortium for University Printing and Information Distribution (CUPID) was formed by a group of universities who are CNI members. The main goal of the group is to establish a prototype of a distributed demand print utility.
- Some of the projects that CUPID is interested in include using imaging technology to distribute case study materials, class notes, extension materials, and grant submissions and reports. The CLASS project at Cornell could provide a basis for a new form of interlibrary transfer.
- Our plan is to first develop an architecture, then test new devices, and demonstrate the feasibility of this utility for higher education. We expect that elements of what we do will become a part of the new infrastructure.

Governance issues

- Locally, on the Harvard campus, we are focusing on quality service, building a network and wiring the campus, making new resources available, such as the HOLLIS catalog.
- In managing the NEARnet service, which serves 56 New England institutions, we are working to make sure that we can deliver quality service at all hours of the day, seven days per week.
- The model that I have developed draws on the work of Dick Nawlin and Chuck Gibson concerning the stages of growth of technology. Beginning in the early seventies, we experimented with networks. Now we are seeing tremendously fast growth, but I feel we are in a very early stage of this major growth. We need to examine the growth factors: financial, applications, resources to build the network, management, and users. We are now in an "early settlers" stage. According to this model, the management stage that ought to predominate currently is marketing.
- I am suggesting that there is a smooth way to manage this growth. If we go too far too fast, a lot of things might break.
- We need to focus at this stage on what kind of infrastructure we need, what kinds of policies we need, how to manage growth well, and how to manage the transition into the next stage of growth.
- I have a suggestion in the financial area - that institutions band together regionally and finance the network in their region, with the group financing institutions in remote areas. We will probably also need to clone network operation centers such as Merit around the regions of this country and around the world to deal with the heavy traffic demands.

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Summary of Vision Statement
Fall 1990 Meeting of the Task Force

Reaction

- Three themes: people, policies, and quality of service.

People

- Our ability to build networks depends critically upon people. Working on network projects gives us a springboard for connecting people to people.
- Planning information networks can assist with defining and strengthening academic library service to the community.
- State groups which bring librarians and computing center professionals together are very useful in promoting better service to the state. Planning groups for state networks can serve as the platform from which to build good working relationships which can lead to cooperation on other projects.

Policies

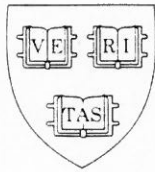
- We need to address the establishment of policies on information management. Librarians have traditionally been concerned with how we acquire, make accessible, and preserve knowledge. Personalized publishing is presenting us with a very new and exciting challenge in this area. We need to work on policies both within our own institutions and within our professional associations.

Service

- As information becomes more and more available and is held within the hands of individual users, we need to keep our focus on what this means in terms of the service that we provide.
- We need to consider how we will structure human intervention, in terms of assisting users, in a decentralized, electronic environment.
- We need to think about how we guide students to information and help them become information literate.
- We need a new paradigm for person to person information assistance.

1

... Toward an I/T Infrastructure



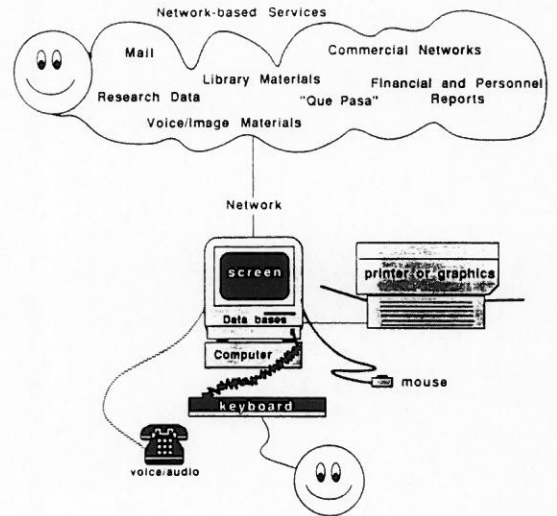
Stephen C. Hall

The Coalition for Networked Information

November 3, 1990

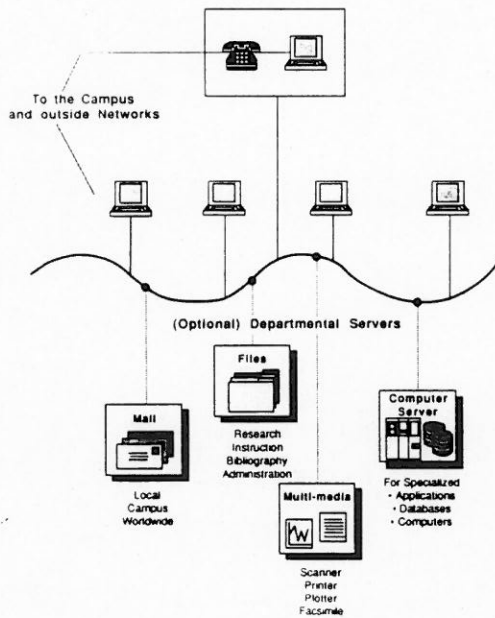
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Campus I/T Architecture... the personal view



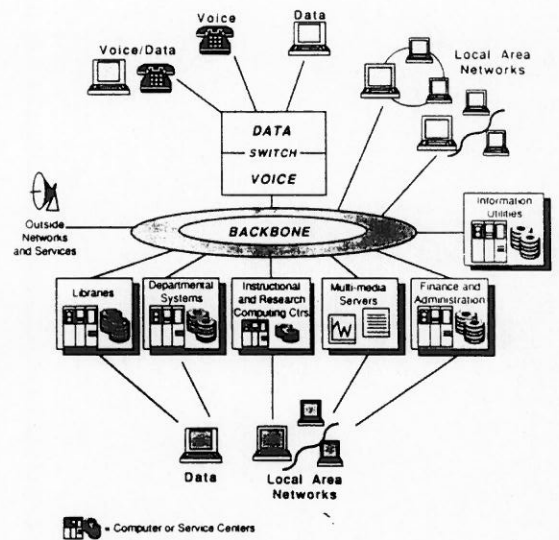
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Local Area Network (LAN) Architecture

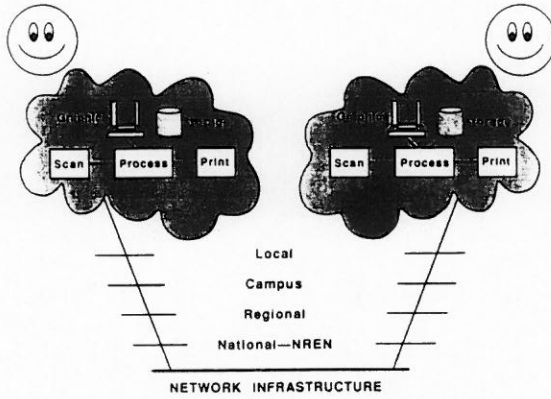


4

Campus I/T Architecture



Personalized Printing/Publishing Vision



A Platform for New Networked Information Services

- Full complement of Information Technology-Imaging (ITI) products
- Universal digital media
- Applications for all participants
- Flexible creation, editing, and printing/publishing options
- New variable (versus fixed) service factors

...Facilitating Just-In-Time, Customized, or Demand Printing

CUPID PROJECT

CONSORTIUM for ... Serving COMMUNITY of
UNIVERSITY the ... UNIVERSITY
PRINTING and PUBLISHERS and
INFORMATION INFORMATI
DISTRIBUTION DISTRIBUTORS

Working Group of CNI

Outgrowth of Xerox University Advisory Panel

A community printing Networked Information Service Vision

Prototype of a distributed demand print utility

CNI CUPID WORKGROUP

- | | |
|--------------|------------------|
| • Harvard | Steve Hall |
| • Calstate | Tom West |
| • Cornell | Stuart Lynn |
| • VaTech | Bob Heterick |
| • U.Mich | C. Autrey-Hunley |
| • Princeton | Skip Plank |
| • Penn.State | L. Mothersbaugh |
| • Duke | Pat Skarulis |
| • U.C.Davis | Lois Unger |
| • Xerox | Glenn Alexander |

Subset of Xerox University Advisory Panel

Cupid pilot intercampus applications:

- | | |
|-------------------------------|------------|
| Case Studies | Harvard |
| Class Notes | Xerox |
| Personally Published Books | Harvard |
| Interlibrary Transfer | Cornell |
| Extension Materials | VaTech |
| Collaborative Research Report | Princeton |
| Electronic Journal | Cornell |
| NSF Submissions/Reports | U.Michigan |

CUPID PROJECT PLAN

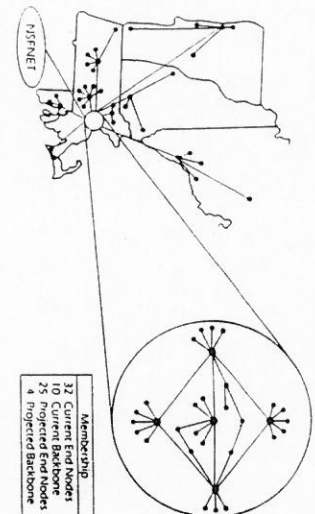
- Develop the NREN-based architecture
- Beta Test Docutech Networked Publishers and Media Servers
- Demonstrate feasibility of the utility and the applications
- Propose requirements or design for:
 - print file transfer protocol PFTP and operations procedures
 - new community printing and personalized publishing paradigms
 - the elements of an ITI-printing/scanning infrastructure

STRATEGY

- Ensure total quality for existing services and operations:
 - quality customer service
 - technology excellence
 - quality work life
 - responsible financial management
- Develop the I/T infrastructure for Harvard University:
 - network
 - network based services
 - support structure
 - plans, standards and governance

QUALITY IMPROVEMENT PROCESS

- A UNIFYING THEME FOR THE ENTIRE ADMINISTRATION:
 - focused on quality results for our customers, our people our technology, and our financial management
 - based on process and skills development
 - requires participation and self management
 - develops comparative evaluation benchmarks
 - follows outside role models
 - applies academic experience
- COMMON LANGUAGE AND TECHNIQUES:
 - Meeting management and interactive skills
 - Problems resolution process
 - Quality improvement process
- RESULTS ARE BEING DEMONSTRATED:
 - Response to Customer Requests
 - Services and Practices Enhanced
 - Problems Resolved
 - Staff Involved



NEARnet Topology — May 1, 1990

NEARnet STRATEGY

QUALITY SERVICE

- Provide internet connections to national and international backbones
- Provide a full range of affordable memberships and connection services
- Use state of the art in network technology
- Ensure top quality service levels

PARTICIPATIVE APPROACH

- Establish a Northern New England Regional Network
- Serve research and education community in university, colleges, agencies, and industry
- Ensure a participative governance structure
- Encourage networked information services
- Provide education for the campus network managers
- Support the NREN/NTTF and FARNET issues

WELL-MANAGED

- Purchase facility and operations management services
- Be financially self-sufficient for intra-regional services

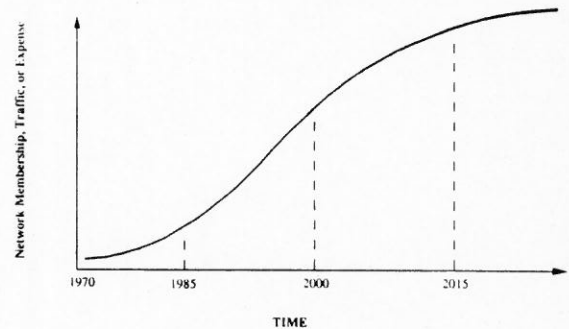
NEARnet GOVERNANCE

- Founding Member Agreement: MIT, Harvard, Boston University
- RFI sent to vendors
- Contract (annual renewal) MIT with BBN, for NEARnet Operations and Management
- Program Plan (annual update)
- Support DARPA, NSF
- Cooperation NENCC, JVNcnet, NYSErnet, and PREPnet, CSNET, CREN
- Committees: Steering, Technical, Planning and Subcommittees
- Member Meetings

NETWORK POLICY ISSUES

1. High Quality Services Levels.
2. Existing commercial traffic volumes.
3. More competition than cooperation among mid-level networks and other providers.
4. Financial and Management strength of mid-level networks.
5. No shared vision for NREN Governance.
6. Security risks of breakins and viruses.
7. Unethical, illegal, and unacceptable uses.
8. Strategic Funding for and responsibilities of: federal agencies, backbone networks participating institutions, and National Labs.
9. Directories and other usability aids.
10. Voice network interoperation.

PREDICTING NREN GROWTH



Stage Characteristics	TIME			
	Initiation	Growth	Control	Maturity
Growth Factors	ARPAnet, BITnet, CSNet etc	Regionals, Merit and State nets	WWREN, Proprietary, Utility	Public Network Infrastructure Component
Finance	Funded	Strategic Funding	"Regulated"	"Deregulated"
Application	Trial	E-Mail and Personalized Publishing	NREN Gateways and Personalized Communications	Public E ³ Media
Resources	9.6	T1	Gigabit	Startrek
Management	Entrepreneurial	Marketing	Utility	Full Service
User	Few	Pioneers & Early Adopters	NREN Public	General Public

Based on Nolan's & Gibson's "Four Stages of EDP Growth": HBR 1971

STRAWMAN NREN POLICIES FOR THE SHORT TERM

- Finance
 - Agencies fund the architecture, standards, backbone and remote member connectivity
 - Mid-levels must all become self-sufficient.
 - Pilot backbone cost-sharing for metro-areas
- Applications
 - Develop NREN and CNI vision
 - Pilot multi-media integration/transformation
 - Establish demand printing and personalized publishing
 - Encourage network based services
- Resource/Technology
 - Gigabit trunks to metro areas
 - Megabit over twisted pair for all
 - New switching/transport protocols for gigabit speeds
 - Merit NOC cloned in heavy traffic areas or geographic regions worldwide.

STRAWMAN NREN POLICIES (Cont.)

- Management responsibilities (Teamwork Toward Common Goals)
 - Architecture, I/T, Backbone, and Standards Development: CNI, CNREN (NTTF), FNC, & IAB
 - Marketing: FARnet, Regions, CNI & NTTF
 - NIC integration: CREN/NREN, Merit, Educom & IAB
 - NOC and service level standards: Merit, FARnet, & FNC
 - Operations & Financial management stability and self sufficiency: FARnet and NSF
- User Development
 - NREN/CREN provide NIC & NOC training for campus NIC & NOC groups
 - Showcase applications in all fields
 - Grants and incentives for application development
 - Pilot projects to stimulate I/T and infrastructure development
 - Develop white pages and yellow pages for all individual participants and "listed" services
 - Sponsor "research" for missing I/T components, policy and governance

OUR I/T INFRASTRUCTURE

- A shared network and networked information vision
- New horizons with personalized publishing and demand printing
- Built upon a balanced, participant-governed NREN



SUMMARY OF WORKING GROUP DISCUSSION FALL 1990 MEETING OF THE TASK FORCE

WORKING GROUP ON NON-COMMERCIAL PUBLISHING

Note: Transparencies used during this presentation appear in this section after the concluding remarks.

Scholarly communication

- The scholarly communication process is broken. The symbiosis of scholars, publishers, and libraries that has been built since the turn of the century, cannot be recreated in the same form in the electronic environment.
- The system of scholarly communication was created as a system of noncommercial publishing. It was founded on subsidies from higher education to journals.
 - Library subscriptions subsidize scholarly journals through their higher subscription rates. This was established as a deliberate strategy to help underwrite the activities of scholarly societies and university presses.
 - Authors give up their copyright when they publish in a scholarly journal.
- Since 1940 there has been a radical shift in balance between noncommercial publishing and commercial publishing of scholarly works; at present about 15 percent of scholarly journals are campus based or based in noncommercial publishing houses.
- The cost of scholarly journals is rising much faster than any other research cost.
- Libraries at major universities are faced with the possibility of not being able to deliver scholarly materials to our campus in an adequate fashion. This, in essence, is why I perceive the system as being broken.

Focus of the Working Group

- In this Working Group, I would like to focus on the question of what we can do through cooperative effort to rebuild a system of scholarly communication. Specifically, I would like to focus on what we can do in the next year that would make a difference and would begin to build some new channels and a new economic base.
- We need to work in cooperation with commercial publishers. Research by Rena Letterman uses the perspective that in the most vital societies, the system of private property and the system of cooperative property operate in parallel, and there is a kind of permeability between the two sectors.
- The steps we need to take are:
 - To speak to our faculty and convince them that there is a crisis in scholarly communication. Encourage them to participate in new forms of scholarly communication; and

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Summary of Working Group Discussion
Fall 1990 Meeting of the Task Force

WORKING GROUP ON NON-COMMERCIAL PUBLISHING

- To explore a new infrastructure for cooperative library collections of serials and monographs. Can we use electronic environments to archive, share, and circulate materials, and can it be done in a legal manner?
- This Working Group will focus on:
 - Creating an infrastructure for network-based noncommercial publishing. We can do this by encouraging the producers of electronic journals and by encouraging faculty to use them;
 - Examining how we will build electronic archives and deal with the questions of preservation and access; and
 - Discovering how we can use print-on-demand technology right now to help build an infrastructure.

A model of print-on-demand technology

- Currently we have a mainframe model of journal publication: both the fixed and variable costs of production are centralized, and the revenues to recover them are centralized. As we move into the electronic environment, we must separate those concepts.
- There are serious implications of the fact that we do not control the dissemination of the intellectual content produced by universities.
- The solution is for higher education to take control of its own assets. We need to work with commercial publishers and other professional societies to define a model that is viable and in the interest of our own institutions.
- The key is to change from the mainframe model to a distributed economic model. In the distributed model, the publisher incurs fixed costs of production and recovers them through site licenses to franchises. The franchisee, e.g. the university, incurs variable costs of production and distribution and recovers its costs through a variety of local mechanisms.
- The distributed model will provide for a transition mechanism as institutions gradually subscribe to site licenses and, over time, shift from the classical model to the site license model.
- Some key points in the understanding of this model are:
 - This is a conceptualization not of electronic journals, but of electronic distribution of finished printed documents;
 - Individuals need a transitional mechanism to adjust to new technologies; and
 - This is only one of many possible models.

Concluding remarks

- There are strong opinions that the Non-commercial and Commercial Working Groups should continue to

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Summary of Working Group Discussion
Fall 1990 Meeting of the Task Force

WORKING GROUP ON NON-COMMERCIAL PUBLISHING

meet together and also strong opinions that they should not.

- In the Non-commercial Working Group, there were three broad themes:
 - Identifying a medium for information exchange among ourselves about such topics as significant experiments, prototypes, uses of the network; and sharing the knowledge base of Coalition members with our partners in scholarly societies and publishing;
 - Encouraging an online environment of scholarly communication, both in the area of electronic scholarly journals and in data sets and other types of information;
 - Beginning an experiment using print-on-demand technology on the Internet, possibly using publications from the Coalition's parent organizations.
- At this point, the Non-commercial Working Group will work separately from the Commercial group, but we will keep the channels of communication open.

Handouts

A Model For Journals

A Model for the Production and Distribution of Journals

CNI Working Group
on
Non-Commercial Publishing

November, 1990

CNI

1

A Model For Journals

Components of Cost

- Fixed with respect to circulation
 - Authorship
 - Editorial
 - Composition and Artwork, etc
- Variable with respect to circulation
 - Printing
 - Distribution
 - Inventorying
 - Subscription Fulfilment, etc

CNI

2

Handouts

A Model For Journals

The Problem

- Journal Subscription Costs Skyrocketing
- Commercial Publishers Avoiding the Issue
 - Profit from manufacturing and distribution
- Professional Societies Use Income for Other Activities
- Centralized Recovery of Fixed and Variable Costs (Mainframe Model)
- Higher Education Losing Its Assets
 - Produces intellectual content
 - Gives it away
 - Buys it back

CNI

3

A Model For Journals

The Solution

- Higher Education Take Control
 - Publish our way or perish
 - Now publish 15% of journals
- Change to Distributed Economic Model
 - Centralize fixed costs and revenues
....and profits
 - Distribute variable costs and revenues
- Publishers as Publishers, not Manufacturers

CNI

4

Handouts

A Model For Journals

Essence of Model

- **Publisher Incurs Fixed Costs**
 - Recovers through site licenses to franchisees
- **Franchisee Incurs Variable Costs**
 - Recovers through variety of local mechanisms
- **Publisher Incurs Variable Costs of Production and Distribution to "Disenfranchised"**
 - Recovers through normal subscription mechanisms
 - Establishes ceiling price

CNI

5

A Model For Journals

Transition Mechanism

- **Start a Journal**
 - Establish editorial board
 - University press as publisher
- **Start with Classical "Mainframe" Model**
 - Individual subscriptions
- **Transition to Distributed Model**
 - Offer site licenses
 - Facilitated by CUPID
 - Individual subscriptions available to disenfranchised

CNI

6

Handouts

A Model For Journals

Key Points

- **Electronic Distribution of "Finished" Printed Documents**
 - Not electronic journals
 - The Gutenberg Principle
- **Facilitated by New Technologies, CUPID**
- **Facilitates "Print-on-Demand"**
 - Eliminates distribution, inventorying and other costs
- **Open to Commercial Publishers, Professional Societies**
- **Site licenses less than current subscriptions**
 - Reduce library, individual subscriptions

CNI

7



SUMMARY OF WORKING GROUP DISCUSSION FALL 1990 MEETING OF THE TASK FORCE

WORKING GROUP ON COMMERCIAL PUBLISHING

Role of commercial publishers

- As representatives from commercial publishing, my colleague and I are here because we respect the powerful changes and forces that are happening in scholarly communication. We hope to participate as partners in these changes.
- A large number of commercial publishers are ready and willing to participate in the Working Group discussions, but we also need participation from the university community in order to have a dialogue.
- The essence of commercial publishing is the desire and intent to make a profit. Under this definition, many scholarly societies and nonprofit organizations are, in fact, commercial publishers. Present boundaries between commercial and non-commercial publishers are rather artificial, and will be tested over and over again in the future.

Focus of the Working Group

- The priorities of this Working Group are:
 - To keep the channels of communication open between universities, university libraries, university communities, and commercial publishers;
 - To ensure that commercial publishers are not shut out of the networks;
 - To be involved in policy discussions regarding under what terms and conditions commercial entities will make use of networks;
 - To examine pricing models for optimal information transfer and administrative feasibility;
 - To be concerned with electronic publishing from an international perspective;
 - To encourage the adoption of standards in the electronic environment;
 - To address the concerns of scholars as producers and users of information; and
 - To address copyright concerns.
- In the coming year, some of the specific challenges that the Working Group will address are:
 - Defining the relationship of commercial publishers to the networks;
 - Developing pricing models that can be technically implemented and that serve the needs of the commercial and scholarly sectors;
 - Projecting a timetable for product acceptance which publishers can rely on for making investment

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Summary of Working Group Discussion
Fall 1990 Meeting of the Task Force

WORKING GROUP ON COMMERCIAL PUBLISHING

decisions;

- Working with other groups regarding conventions;
- Doing some market research to learn the preferences and needs of scholars; and
- Airing and discussing copyright concerns.

Concluding remarks

- This Working Group will:
 - Help traditional publishers learn to put information on the networks; and
 - Help commercial publishers learn to let others put our information up on the networks and share resources in a new way.
- As an action item, we need to develop an outreach program which emphasizes that commercial publishers have a role in the Coalition. This needs to be communicated to both commercial and academic audiences.
- The members of the Working Group want an emphasis on action and on projects.
- Two specific areas where we can begin our work are on the issue of pricing models and on the implementation of print-on-demand projects.



SUMMARY OF WORKING GROUP DISCUSSION FALL 1990 MEETING OF THE TASK FORCE

WORKING GROUP ON ARCHITECTURES AND STANDARDS

Need for architecture and standards

- A major emphasis of the Coalition is to make information accessible to facilitate communication. That makes absolutely essential the use of standards. They are the basic essence of distributed communication, distributed computing, and distributed information.
- More than isolated standards, we need what we are calling architectures. Even beyond that, we need conceptual frameworks for how we are going to integrate and organize resources to accomplish the purposes that the Coalition has set out to achieve.
- We need to clarify basic assumptions regarding, for example, what is the environment and what is the minimum level of hardware investment that an institution has to make to play effectively in this arena.

Focus of the Working Group

- While this Working Group will not undertake the actual writing of standards, it can :
 - Identify the need for standards in various areas;
 - Draft working agreements regarding standards;
 - Support prototypes that can become the basis for standards; and
 - Communicate to Task Force members what is developing in the larger, complex standards world.
- Some of the issues the Working Group will examine are:
 - Full text technologies relating to printing, display, and networking technologies;
 - The relationship of campus information systems to the larger network environment;
 - Billing and fee-for-service functions on the network; and
 - Support systems for flexible and autonomous policy development.
- Activities of the Working Group will include:
 - Looking at the important prototype projects currently in place to see if we can generalize some frameworks from them;
 - Identifying new projects which might come together to form ad hoc consortia;
 - Drafting documents that move from vision to framework to architecture to discussion of where standards fit.

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Summary of Working Group Discussion
Fall 1990 Meeting of the Task Force

WORKING GROUP ON ARCHITECTURES AND STANDARDS

- The Working Group will need technical expertise from member institutions. Much of the work will be carried out by small groups whose members can give a significant commitment of time over a period of a few months.

Concluding remarks

- The Working Group wants first to clarify a vision and then to focus on an architecture which would follow from the vision. Then we would like to move into pilot projects that fit into the strategies of the Coalition. As architectures are introduced, we will discover what standards are missing and what pilot projects are needed.
- Our discussion revolved around four main issues:
 - Scalability, in the amount of data, the kind of users who will access it, and the type of individuals who will contribute to the data;
 - Describing the data we wish to access;
 - Concerns with protocol architectures that are currently inadequate and also require too much computing power at the individual desktop level; and
 - Preservation of data.
- We began to discuss some concrete problems:
 - Links between indexes and sources of information;
 - The appropriate structure for abstracting and indexing databases in a broader network context;
 - Multi-media databases; and
 - Ways individuals search for information on the network.
- Some procedural issues that we discussed were:
 - How to adequately inform ourselves; and
 - How do we share resources among members of the Coalition?



SUMMARY OF WORKING GROUP DISCUSSION FALL 1990 MEETING OF THE TASK FORCE

WORKING GROUP ON LEGISLATION, CODES, POLICIES, AND PRACTICES

Purpose and definitions

- This Working Group provides the Coalition with a mechanism for bringing together all of our voices so that they will be audible at the national legislative level and in other forums.
- The Working Group will include issues related to legislation on the federal and perhaps on the state level; codes, which represent statements about formalized, individual behaviors; policies, which represent formalized corporate, institutional behaviors; and practices, which refer to individual behaviors.

Focus of the Working Group

- Some of the concerns that this Working Group will address are:
 - To make the influence of the educational community's perspective on network activities more visible. We should be able to come to mutual agreements in areas where there have been no agreements in the past, and that will make a very strong impression as we deal with information in our society;
 - To see that legislation does not ignore the values held by the scholarly community;
 - To examine whether the copyright mechanism can be tweaked yet another time to support another new technology or set of technologies;
 - To devise widely acceptable assumptions about information and access to information;
 - To ensure that information policies do not create groups of the "information haves" and the "information have-not's"; and
 - To consider policies or codes for responsible use of the network.
- A useful activity which the Working Group may wish to undertake would be the compilation and publication of existing legislation, practices, position papers, principles, guidelines, models, and codes related to networked information.

Concluding remarks

- Some of the issues that we discussed were:
 - A need for an information exchange or clearinghouse for existing policies and codes, and a need for a directory of legislation;
 - The Coalition's advocacy role for the NREN legislation; and
 - The possibility of providing input for the July White House Conference on Library and Information Services.

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Summary of Working Group Discussion
Fall 1990 Meeting of the Task Force

WORKING GROUP ON LEGISLATION, CODES, POLICIES, AND PRACTICES

- The steps that we will take are the following:
 - We will create a directory/clearinghouse, possibly by January, that will enable Coalition members and others to look at what exists in terms of codes and policies;
 - We will formulate for the March meeting a list of policy issues that will be necessary for NREN implementation; we will also use that document as our input into the White House Conference;
 - We will formulate some draft policies based on our list of policy issues.
- We discussed some logistical issues:
 - The importance of a Coalition server or electronic communication vehicle; and
 - The governance process of the Coalition for passing or endorsing our recommendations.



SUMMARY OF WORKING GROUP DISCUSSION FALL 1990 MEETING OF THE TASK FORCE

WORKING GROUP ON DIRECTORIES AND RESOURCE INFORMATION SERVICES

Need for directories

- It is extremely difficult to get a handle on electronic resources because they range from databases on faculty members' workstations to commercial files available through RLIN or Dialog.
- In order to find out about resources, faculty rely on the "invisible college" -- word of mouth. This is not effective in increasingly complex environments and results in some becoming disenfranchised.

Perspectives

- There is a proliferation of resources.
- There is an inability of individuals to locate resources.
- Most of us do not know what exists on our own campuses!
- Existing models for identifying resources probably won't work.
- Agencies are developing their own directories for resources within their own area of interest, e.g. the GENBANK-SERVER and the BITNET List of Listservers.
- Some positive elements do already exist: standards and controlled vocabulary.
- New models such as Knowbots and network scouts are not yet realistic.
- Who will take the responsibility for creating an infrastructure for bibliographic control?
 - This has been a library function for print and other materials.
 - Libraries are hesitant to take responsibility for information that is not housed in their physical facilities.

Focus of the Working Group

- Our objective is to facilitate the ability to locate resources that are relevant.
- We will address issues that are related to technical and descriptive standards.
- In examining solutions, we will discuss:
 - The purpose of a directory;
 - Whether different approaches should be used depending on the type of resources;

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Coalition for Networked Information

Summary of Working Group Discussion
Fall 1990 Meeting of the Task Force

WORKING GROUP ON DIRECTORIES AND RESOURCE INFORMATION SERVICES

- Design issues involved in a directory system;
- Appropriate information applications; and
- The need for descriptive standards.
- As an outcome, there should be a sense of control.
- As a priority, we would like to determine what the Coalition's role should be in reaching our objectives. Should the Coalition find solutions itself, should it find the proper home for solutions, and/or should it facilitate improved communication among groups that are working towards this goal independently?

Concluding remarks

- We discussed how to define "directory" and what a directory should encompass.
- By March, we hope to prepare a vision statement that addresses where we are now and where we want to be in five years. The statement will address both short and long term objectives and will describe issues that we will deal with in the Working Group.
- In terms of a directory of online resource applications, we discussed:
 - Where it should be;
 - Whether it should be centralized or distributed;
 - Whether we use existing frameworks and infrastructures or create new ones;
 - What it should look like; and
 - Whether we use existing standards.
- There was a consensus that we have to pull together existing initiatives.
- We are setting up a Working Group mail reflector.
- As a short-term goal, we are going to set up a directory of directories.
- We would like the Coalition to be an advocate for developing a resource group of individuals who can speak about network resources.
- We discussed issues relating to standards.



SUMMARY OF WORKING GROUP DISCUSSION FALL 1990 TASK FORCE MEETING

WORKING GROUP ON TEACHING AND LEARNING

The electronic learning environment

- I have a personal perspective of what we should be doing in CNI. We should be looking for a special kind of space, the new teaching library.
 - This will be a new type of educational shelter, to house a student-driven learning culture that has been occasioned by the convergence of instructional and informational technologies.
 - In my experience, professionals in academic computing, teaching faculty who are interested in instructional technologies, and librarians can accomplish much in collaboration when the creation of a new space is the driving factor.

Focus of the Working Group

- This Working Group will attempt to shape the Coalition's agenda to give as much energy to the NREN's implications for teaching and learning as it will give to research.
- My objectives for this Working Group can be framed as questions:
 - Where is learning taking place? How can the NREN and the Coalition serve the teaching and learning community which stretches geographically and electronically across the land?
 - How can we develop an agenda that addresses the national priorities of information literacy and lifelong learning?
 - How can we develop a strategy which addresses the needs of the primary, secondary, and higher education teaching and learning communities?
 - How can we reach out to those sectors of the learning community where collaborative learning, information literacy, lifelong learning, and technology in support of teaching and learning have taken root and produced significant change?
 - How can we involve key individuals who would never appear in this forum?
 - How can we achieve parity between research and education when we speak of the NREN?
- We may wish to adopt as a symbol the "people's work station," which represents lifelong learning in the electronic environment.

Concluding remarks

- We attempted to cast our reflections in a context that had a map of at least the United States as background. On it we positioned hundreds of blinking lights that we identified as sponsored learning environments to transcend all kinds of barriers, to underline affiliations with all of the institutions and

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Summary of Working Group Discussion
Fall 1990 Meeting of the Task Force

WORKING GROUP ON TEACHING AND LEARNING

sponsoring organizations, but to remain untrapped by the metaphor of the classroom.

- We want to look at sponsored learning environments for a user population from K through 90.
- The goals of our Working Group are:
 - To survive and succeed within the Coalition;
 - To focus on the "E" in NREN;
 - To avoid an elitist image or an elitist agenda; and
 - To be very conscious of the potential for growth in network access by the constituency.
- In our activities, we want to focus on those that will have quality, attractiveness, and payoff for people.
- We would like to maintain dialogue with the other Working Groups and develop collaborative efforts with them.
- We discussed factors that might lead to failure, including raising unrealistic, conflicting, and threatening expectations; having a non-adaptive agenda; ignoring the complexity of the issues; and limiting our programs to the fate of any individual legislative initiative.
- Some of our agenda items are:
 - Expanding student-to-student communication;
 - Access to instructional software through the network;
 - Information literacy;
 - The need for new structures for the integration of information;
 - Multimedia communications;
 - Improving teaching;
 - Self-adaptive learning and alternative learning styles;
 - Designing user-friendly databases and directories;
 - Negotiating standards with teaching and learning environments in mind; and
 - Developing a strategy for reaching out and finding others who will participate in this dialogue.



SUMMARY OF WORKING GROUP DISCUSSION FALL 1990 MEETING OF THE TASK FORCE

WORKING GROUP ON MANAGEMENT AND PROFESSIONAL AND USER EDUCATION

Note: Transparencies used during this presentation appear in this section after the concluding remarks.

Issues and challenges

- It is our belief that at the nexus of our being successful, either as a Coalition or as individual institutions, is our ability to organize our resources, especially the professional and staff personnel, to make the technical vision of the network become a reality.
- The challenges that we are concerned with are:
 - Molding existing personnel into service personnel for the future; and
 - Training users to use the technology that we will have to offer in the future.
- We need to focus on opportunities for resource sharing.
- We may need to look at new structures and relationships for academic computing, administrative systems, telecommunications, libraries, media services, institutional research, reprographics, and mail services.
- We need to see the development of campus information services as parallel to the development of personnel and public relations services, which are conceived of as an integrated, enterprise-wide service vehicle.
- In order to succeed in this arena, you need to have a vision, a goal, processes, an understanding of an institution's culture, and leadership.
- Our primary goal is to increase the individual intellectual productivity of our students, faculty, and staff.
- Our strategic objectives are concerned with access to information, and access to information through connectivity to that information, wherever it may reside.

Focus of the Working Group

- This Working Group will address management's challenge of integrating the electronic computer based sources and services into the essential identity of the institution.
- We must address our challenge of managing change through:
 - Executive level leadership;
 - Management level integration; and
 - Professional and staff level amalgamation.

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Summary of Working Group Discussion
Fall 1990 Meeting of the Task Force

WORKING GROUP ON MANAGEMENT AND PROFESSIONAL AND USER EDUCATION

- The Working Group will:
 - Direct user education at or through each of the three management levels;
 - Examine skills, develop models for training, and develop orientation and workshop techniques;
 - Share public relations information;
 - Share models of successful efforts at executive leadership and governance activities;
 - Share models of organization; and
 - Define standards for responsible use of networks and computer based resources.

Concluding remarks

- We identified topics in two major categories:

Education

- Accrediting issues;
- Professional development and staff training;
- The values, cultures, roles, and responsibilities of our professions;
- User education;
- Coordinating efforts between libraries and computing centers to integrate information and information technology into the undergraduate curriculum;
- Informing and educating our senior university officials about new developments and what is required for support for the future.

Management and Service

- Assessing staff and user satisfaction with technologies and electronic resources;
- Identifying related service activities between libraries and computing services and looking at how activities might be merged;
- Using examples of collaboration and cooperation between libraries and computer centers to demonstrate what is currently being done;
- Teaching managers to be more effective in a collaborative or team-based environment;
- Learning how to network librarians and computing people nationally;

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**Summary of Working Group Discussion
Fall 1990 Meeting of the Task Force**

WORKING GROUP ON MANAGEMENT AND PROFESSIONAL AND USER EDUCATION

- Addressing the issue of the development of "have" and "have not's" with regard to access to technology;
- Defining who our clients are and understanding the needs of individual users;
- Looking at strategic planning on a cooperative basis; and
- Identifying or developing organizational paradigms.

Challenges and
Opportunities
in
Information Resources
Management



1

Challenges



- Applications Currency
- Applications Integration
- Technology Compatibility
- Networking Campus
- Personnel
- User Training

2

Opportunities



- Resource Sharing
- Standards
- Inter-Institutional Networking

3

IRM SCOPE

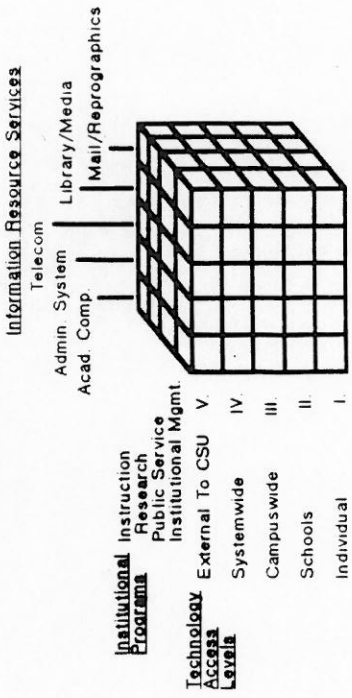


- Academic Computing
- Administrative Systems
- Telecommunications

-
- Library
 - Media Services
 - Institutional Research
 - Reprographics
 - Mail

4

The California State University
Information Resources and Technology Program:
A Framework



5

Keys to Success



- Goal
- Vision/Strategic Objectives
- Processes
- Institutional Culture
- Leadership

6

Goal



- Individual Intellectual Productivity and Effectiveness
 - Students
 - Faculty
 - Staff

7

NEEDS OF INDIVIDUALS



- Access To Information
- Information Technology Literacy

8

Strategic Objectives



- Infusion of Information and Technologies
- Universal Connectivity and Access

9

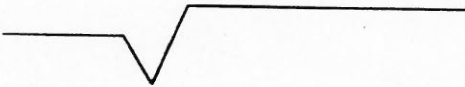
INFORMATION TECHNOLOGY MANAGEMENT CRITICAL SUCCESS FACTORS



- Adaptive Planning
- Effective Management as Corporate Resource
- Productive Uses of Resources
- Stable Technological Environment
- Quality Systems Applications
- Adequate Personal Staff
- Employee Satisfaction

10

IRT MANAGEMENT



- Executive Level Leadership
- Management Level Integration
- Professional/Staff Level Amalgamation

11

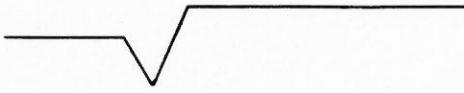
EXECUTIVE LEADERSHIP



?

12

MANAGEMENT INTEGRATION



- Switch Assignments
- New Hires
- Abolish Traditional Roles

STAFF AMALGAMATION



- Cross Training
- Shared Assignments
- Transfer and Mix
- Formal Education
- New Hires



SUMMARY OF PROJECT PRESENTATIONS FALL 1990 MEETING OF THE TASK FORCE

Note: Presentations were given on the following four projects. The most up-to-date information on these projects can be obtained by contacting their associated presenters as well as other people involved with each project. In addition, materials related to each of these projects are on file at the Coalition Secretariat and are available on request.

CLASS (COLLEGE LIBRARY ACCESS AND STORAGE SYSTEM) PROJECT

A study of the applicability of digital technology to the preservation of brittle texts. A joint effort of The Commission for Preservation and Access, Cornell University Library, Cornell Information Technologies, and the Xerox Corporation, the project scans, stores, and prints text of a test collection of research volumes that have high priority for preservation. Also included are full production equipment for printing the stored texts. Issues to be addressed include: production requirements and characteristics, comparative benefits, startup and continuing costs, comparable cost effectiveness, hardcopy/microform requirements, stored document structure requirements, bibliographic access requirements, collection/selection characteristics, copyright compliance implications, and "Digital Library" design implications.

KNOWLEDGE MANAGEMENT: REFINING ROLES IN SCHOLARLY AND SCIENTIFIC COMMUNICATION

Librarians form partnerships with scholars and scientists to structure and build databases, create modules for database currency and integrity, and then develop information products and services. The long term knowledge management vision is to create (1) an integrated electronic environment of systems and services, (2) online tools to collaboratively build, maintain, share, and use databases, (3) communications for the conduct of scientific and scholarly work at the local, national, and international levels, and (4) high-quality, dynamic databases critical to the daily work of scientists and scholars. Working under this model, the Laboratory for Applied Research in Academic Information at the Welch Medical Library, The Johns Hopkins University has developed the OMIM (Online Mendelian Inheritance in Man) database and the Genome Database. Under a Council on Library Resources grant, the project is now attempting to diffuse its knowledge management model.

USCINFO: A CAMPUS-WIDE LIBRARY INFORMATION SYSTEM AT THE UNIVERSITY OF SOUTHERN CALIFORNIA

Providing workstation access to multiple information resources. USC's strategy is to create a unified, online information system, provide access to a wide selection of information resources, focus on "gateway" to an information rich environment, and emphasize public access. The Library and Academic Computing jointly created and funded a Center for Scholarly Technology which focuses on user interface development and system architecture and infrastructure. Future projects include the capability to distribute and update software via the network, to provide access to full-text resources on a different host system, to incorporate serials control, and to provide access to the Internet.

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**Summary of Project Presentations
Fall 1990 Meeting of the Task Force**

NEW PATHWAYS TO A DEGREE

An Annenberg/CPB Project designed to (1) provide a mix of models that many colleges will find useful as they try to serve more students with new combinations of technologies, and (2) develop a corps of educators who can be a resource and catalyst for colleges considering using combinations of technologies to serve their current and potential students. Participants are University of Maine at Augusta on behalf of the Community College of Maine, the Oregon State System of Higher Education, West Virginia University, College of St. Catherine, Indiana University - Purdue University of Indianapolis, Northern Virginia Community College, and Rochester Institute of Technology. While the New Pathways institutions are pioneers employing networking for both instruction and access to resources, they feel the need for a telecommunications infrastructure to bring the right to education and information to all people when and where they need it.



SUMMARY OF SYNERGY SESSION FALL 1990 MEETING OF THE TASK FORCE

STRATEGIC ALLIANCES: THE DATABASE PRODUCERS' ROLE

Overview

- The purpose of this session is to open a dialogue between database producers and users, to review the role of database producers, and to offer solutions to challenges.
- The National Federation of Abstracting and Indexing Services (NFAIS) has 70 organizational members who are nonprofit, for-profit, and governmental database producers.
- A question that we face is how we can apply current technology to use and develop knowledge.

Database producers

- Database producers acquire information, select information, abstract the contents, index the contents, catalog the document, provide quality control, and structure information for retrievability and utility.
- They publish/disseminate their products, train information seekers, promote awareness of information resources, and add value, e.g. quality, integrity, and utility, based on content.
- Database producers work with educators by assisting teachers to identify materials, by assisting researchers through current awareness and retrospective searches, and by promoting awareness and retrieval of researchers' publications.

The issues

- Networks are the prime motivator for facing up to the challenges ahead.
- Challenges include:
 - Standards - so that databases can readily be loaded into new environments;
 - Data quality - a link between users and database producers is an important aspect of quality;
 - Intellectual property - the value and integrity of effort of database producers needs protection, issues realting to what happens when information is extracted and transferred to others need to be resolved, and there is a need for fair use guidelines;
 - Liability - who is responsible in the networked environment;
 - Economics - how widely some databases are used, what if print products are cancelled, site licences, and pricing are issues that need much discussion;
 - Packaging - will every user environment want a tailored package; and
 - Access to users - how will database producers maintain feedback and educational relationships if there

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Summary of Synergy Session
Fall 1990 Meeting of the Task Force

STRATEGIC ALLIANCES: THE DATABASE PRODUCERS' ROLE

is a centralized host.

Concerns of database producers (from a statement by Tim King)

- There is a need for information/data entered into systems to remain unaltered, unless so authorized.
- There is a need for attribution regarding the source of information to stay with the information when in the system.
- There is a need for financial incentives for authors and publishers to put information in the system.
- There is a need for the system to anticipate the inclusion and use of privately owned information.
- There is a need to ensure that the system does not use its potential monopoly position to coerce free enterprise to participate in the system on unfavorable terms.

Finding solutions

- Database producers and users need to continue to talk to each other.
- The *NFAIS Gateway Code of Practice*, which defines rights and responsibilities, needs to be updated for networks.
- The Coalition and NFAIS could hold a joint workshop to result in recommended actions for both parties (e.g. standards for databases, pricing approaches).



**SUMMARY OF SYNERGY SESSION
FALL 1990 MEETING OF THE TASK FORCE**

ACADEMIC LIBRARY STATISTICS

- Gathering meaningful statistical data has become more difficult for libraries in the electronic environment.
- Simply counting volumes and dollars does not provide an adequate reflection of the value of the library.
- Those present at the discussion did not feel that the IPEDS statistics were an important topic.
- Library management needs statistics that establish how effectively the library provides access to the information demanded by its clientele.



SUMMARY OF SYNERGY SESSION FALL 1990 MEETING OF THE TASK FORCE

INTEGRATING CD-ROM AND MAINFRAME-BASED NETWORKED INFORMATION RESOURCES

- When integrating CD-ROM and mainframe-based networked information resources on campus, a variety of issues must be addressed. These include:

Hardware issues

- Access method:
 - One CD-ROM per PC is inefficient;
 - Local network access is preferable;
 - Access over remote networks is even better;
 - Databases on the library's timesharing system have some advantages; and
 - Issues such as timing, performing updates, and providing backups need to be addressed.
- Response time:
 - What is the capability for the number of simultaneous users;
 - What are the response time advantages of disk versus CD;
 - How much contention is there for CD devices; and
 - There is a need for appropriate communications speeds.
- Expandability

Database issues

- Ownership:
 - Who owns the data and who owns the database: the creator, vendor, library, or user.
- Database storage format:
 - What are the advantages of standards versus the advantages of competition;
 - Who sets the standards; and
 - What role can the Coalition play.
- User interface/search software:

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Summary of Synergy Session
Fall 1990 Meeting of the Task Force

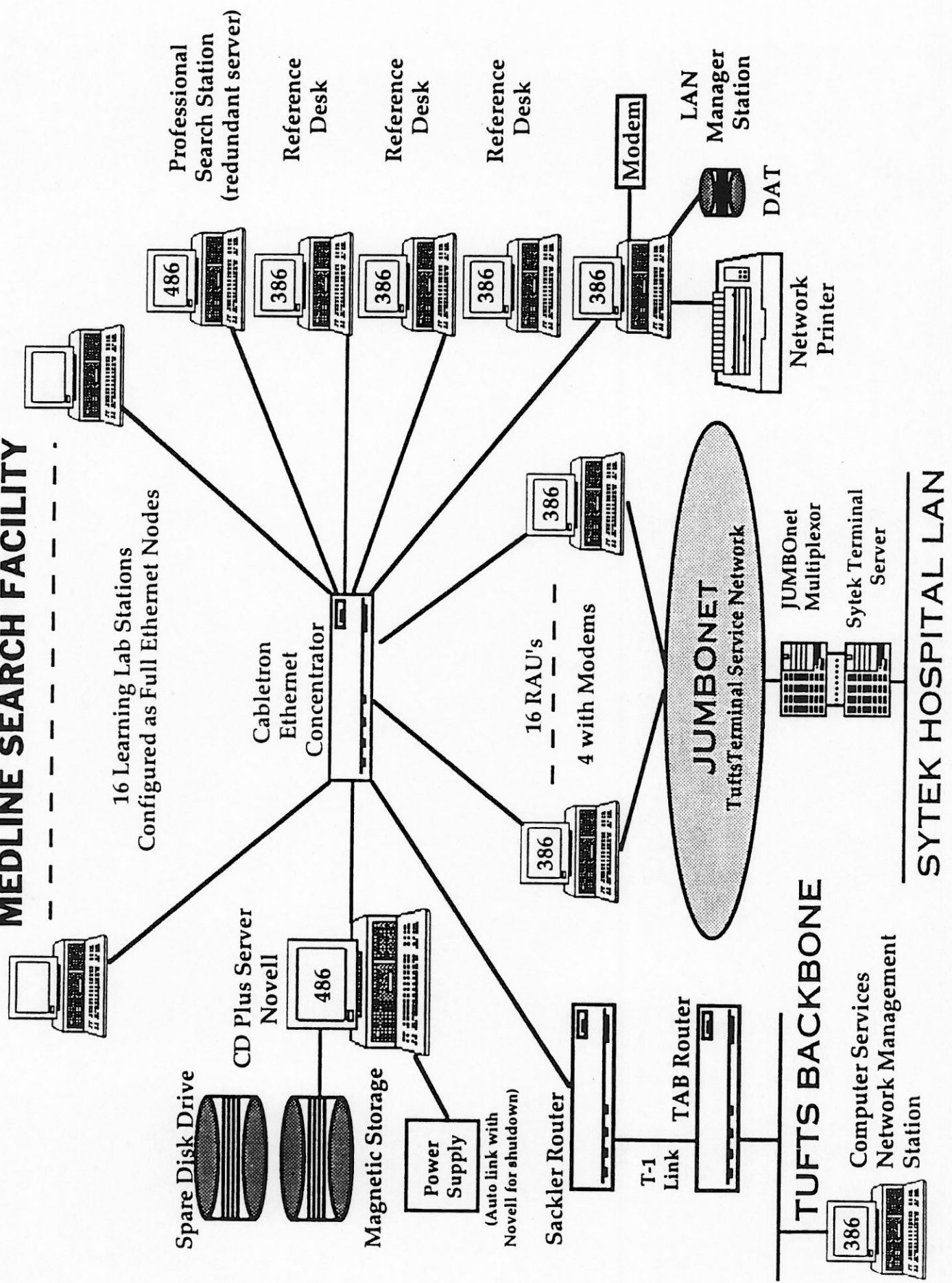
INTEGRATING CD-ROM AND MAINFRAME-BASED NETWORKED INFORMATION RESOURCES

- What are the advantages of standards versus the advantages of competition;
- Who sets the standards;
- Is a common user interface desirable and/or feasible; and
- What role can the the Coalition play.

Financial issues

- Costs:
 - What capital investments are needed;
 - What are the pros and cons of leasing;
 - What are the startup costs and training needs;
 - What are the annual costs; and
 - What are the staffing requirements.
- Charging mechanisms:
 - Should the "library" model apply;
 - Should a fee for service framework be implemented; and
 - The Tufts situation: existing remote vendor and charging mechanism.

TUFTS - NEMC MEDLINE SEARCH FACILITY





SUMMARY OF SYNERGY SESSION FALL 1990 MEETING OF THE TASK FORCE

MANAGING INTERNET-BASED ELECTRONIC BULLETIN BOARDS

Electronic bulletin boards

- Functions of traditional bulletin boards were discussed.
- Traditional functions of bulletin boards can be extended on the Internet.

The Extended Bulletin Board

- The Extended Bulletin Board (EBB) is an experimental bulletin board running on a UNIX-based computer at University of North Carolina. This system:
 - Provides traditional bulletin board functions such as merging discussion groups, filing up/down loads, and providing messaging; and
 - Provides such Internet functions as access to library catalogs, campus-side information systems, Internet news, and Internet mail.

Issues

- Standard access methods and protocols:
 - What is currently available;
 - When will needed standards and protocols be available; and
 - Who is working on these issues.
- Services:
 - Who is or should be providing mediation for the system;
 - How do user ID's need to be managed;
 - How should access be controlled and is controlled access necessary; and
 - Should a centralized reference point for networked resources be provided.



SUMMARY OF SYNERGY SESSION FALL 1990 MEETING OF THE TASK FORCE

COORDINATING PARTICIPATION IN THE COALITION

Need for campus coordination of information activities

- At MIT, an effort is being made to encourage coordination among the leaders of the MIT Libraries and the two campus-wide computing organizations: IS and Project Athena. Partnership possibilities rather than organizational distinctions among the three groups are being emphasized.
- Initial efforts were aimed at:
 - Identifying topics which could engage interest and participation;
 - Showing that meeting information resource and delivery challenges demands contributions from all three campus groups represented; and
 - Setting a forward-looking tone and generating enthusiasm for collaboration on innovative projects.
- The June 1990 Coalition Task Force Meeting provided additional impetus and helped establish a framework for campus action.
 - The Coalition's six themes were discussed and prioritized in light of local needs and perspectives. The themes invited productive discussion rather than passive reporting to each other.
 - Local working groups were established; each has its perspective and information to share.
 - The Coalition's collaborative approach and thematic based perspective facilitated the local effort.
 - The Coalition link informs campus efforts and, in turn, enhances MIT's participation in the Coalition.
 - The socialization opportunities at the campus level assist us in understanding our counterparts and lead to improved communications.



SUMMARY OF SYNERGY SESSION FALL 1990 MEETING OF THE TASK FORCE

THE SCOPE AND CONTENT OF UNIVERSITY INFORMATION POLICY

- A host of policy issues related to networked information need to be addressed at the campus level. They include:

Management issues

- How should access to networked information be organized, administered, and managed at the campus level?
- Who will provide user training, troubleshooting, support, and assistance?
- Who will develop policies for the privacy/confidentiality of users and records and how will these policies be implemented?
- What are campus responsibilities for ensuring security against vandalism and viruses in the networked environment and who will carry out those responsibilities?
- How will campuses provide equitable access to networked information resources given the costs involved; will all access be free or will fees be charged?

Ownership issues

- Who will monitor compliance with copyright protection and respect for intellectual property rights?
- Who will have ownership/custodianship of information purchased or created for the university?
- Will licensing and permissions be negotiated centrally and according to a campus-wide policy?

Content issues

- How are decisions made on the acquisition of materials regarding whether they are purchased, leased, or accessed on a pay per use basis?
- Under what circumstances are materials duplicated?
- Who is responsible for the integrity of content of materials and their preservation and archiving?
- Will content be accessible by means of catalogs, directories, lists, and/or newsletters?



SUMMARY OF SYNERGY SESSION FALL 1990 MEETING OF THE TASK FORCE

NATIONAL ENGINEERING EDUCATION DELIVERY SYSTEM

National Engineering Education Coalition

- The National Engineering Education Coalition was organized to increase the number of engineering graduates and to improve the effectiveness of engineering education.
- The members of the National Engineering Education Coalition are California Polytechnic, San Luis Obispo, Cornell University, Hampton University, Iowa State University, Southern University, Stanford University, Tuskegee University, and University of California, Berkeley.

National Engineering Education Delivery System (NEEDS)

- A major activity of the coalition will be the development, testing, and dissemination of hardware and software tools for accessing and using electronic information which will result in the development of a National Engineering Education Delivery System (NEEDS).
- NEEDS will consist of a courseware curriculum matrix - an extensively cross-indexed repository of interactive software modules, video segments, pictures and graphics, and text material controlled by a software manager.
- NEEDS will be connected to a far-ranging network distribution system, ideally using the proposed NREN.
- The task at hand involves "putting the pieces together" via system integration and management software and demonstrating the effective integration of information technology in the engineering classroom and curriculum.
- Components of NEEDS will include:
 - The courseware curriculum matrix, which will consist of short, educational segments stored on video disc, CD-ROM, or other formats.
 - A national repository of engineering courseware will be stored in a central location and will be available to universities, industries, and government research laboratories.
 - A courseware matrix management software system will provide indexing and cataloging of all the elements in the courseware matrix.
 - Tutorial systems will allow individual study and access to the courseware matrix elements.
- The National Engineering Education Coalition will install at each member institution a standard high-technology classroom that will be able to reach the NEEDS system high-speed access and distribution system.



SUMMARY OF SYNERGY SESSION FALL 1990 MEETING OF THE TASK FORCE

PROPOSED: AN INTERNET-BASED FEDERAL ELECTRONIC INFORMATION DEPOSITORY

Background

- Access to the vast quantities of data in electronic formats produced by the federal government is severely limited. There is no effective and efficient distribution mechanism.
- Federal information in print form is distributed by means of the Federal Depository Library Program. Libraries are sent print materials at no cost and assume the responsibility for providing public access to the materials.
- There is interest within the federal government and within the university community to develop a distributed electronic federal depository which would reside within the Internet or NREN environment.
- Participating universities would agree to provide access to a subset of the federal databases and would gain access to those supported by other participating universities, creating a virtual, distributed electronic depository.

Proposal

- A study is needed to prepare a well-grounded proposal for a pilot project to implement and evaluate a distributed federal electronic depository.
 - In phase one, extant projects, policies, and studies will be reviewed and a survey of federally produced databases will be conducted.
 - In phase two, Coalition member institutions will be surveyed to measure levels of interest in various databases and to identify those who might participate in a pilot project.
 - In phase three, a proposal for a pilot distributed federal electronic depository will be written and submitted under Coalition sponsorship to the appropriate federal agencies.

Issues

- The size and format of existing databases needs to be assessed.
- The need for and usability of supporting documentation such as code books needs to be examined.
- The potential and existing users need to be profiled.
- Several options exist for providing access to electronic data, e.g. for tapes to be loaded directly into a campus mainframe or for controlled access to an agency computer to be provided. The feasibility of alternative access methodologies needs to be examined.



SUMMARY OF SYNERGY SESSION FALL 1990 MEETING OF THE TASK FORCE

EXTENDED ACCESS TO THE INTERNET: K - 12 AND AROUND THE GLOBE

- There is a growing market nationally in the K-12 area.
- The New Mexico Network for Educational Communications has several projects underway to address this audience, including the New Mexico Supercomputer Challenge, a competitive event for high school students.
- EDUCOM is interested in K-12 computing and networking. Their initiatives include:
 - Working with IBM to develop a national K-12 network;
 - Sylvia Charp's analysis of K-12 computing and networking needs; and
 - The national survey of K-12 networks.
- West Virginia has issued a report on K-12 networking efforts.
- Network mentoring programs involving teachers, principals, and superintendents exist.
- NSF and the Department of Education are creating more connections to the Internet and CREN from K-12.
- Difficulties of networking in K-12 include time, money, and politics.
- The Coalition needs to have a role in disseminating information about K-12 networking.



SUMMARY OF SYNERGY SESSION FALL 1990 MEETING OF THE TASK FORCE

DOCUMENT TRANSMISSION OVER THE INTERNET: FAX OR FRICTION

Overview

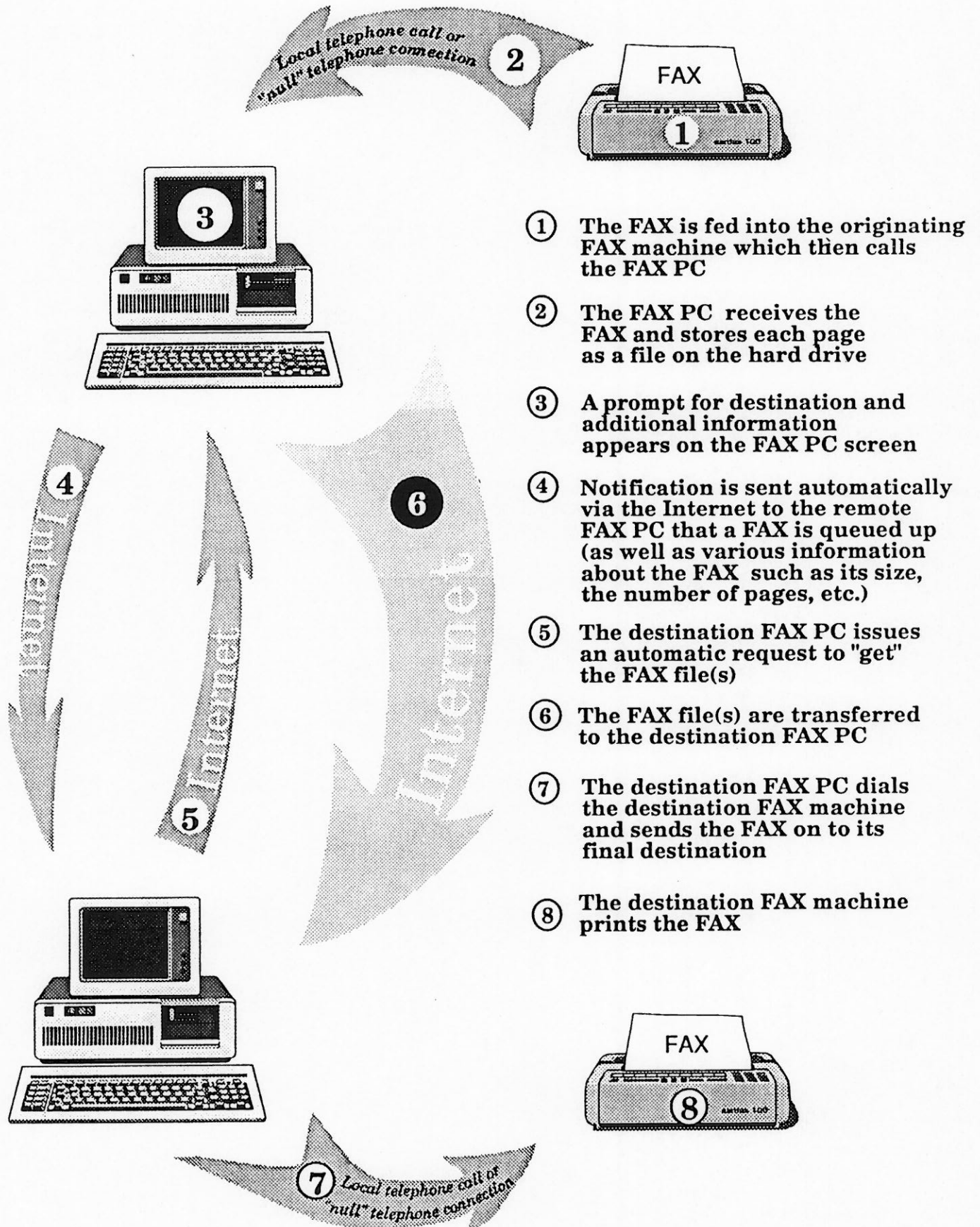
- The Instruction and Research Computer Center (IRCC) of the Ohio State University has an ongoing research and development initiative to explore issues in the transmission of facsimile (fax) images over Internet facilities.
- Early research demonstrated the feasibility of transmitting fax images at group 3 and group 4 standards over TCP/IP networks.
- The current project is integrating inexpensive off-the-shelf microcomputer and fax components with public domain TCP/IP software for use with any group 3 fax machine.

Current project

- The project will provide a model for an Internet/FAX gateway for use by libraries as an Interlibrary loan delivery mechanism.
- Internet delivery bypasses telephone line charges.
- The result of the project will be a low cost, easily procurable Internet/fax document transmission workstation operable by non-technical personnel.
- Prototype units have been built using inexpensive Hewlett-Packard Vectra PC/XT clones, Hayes/Quadram fax cards and software, and KA9Q TCP/IP software.
- Alpha tests will involve University of Cincinnati and other CICNET libraries.

Future possibilities

- This configuration could be used as an interlibrary loan delivery agent in OhioLink, a statewide library information system.
- More flexibility in delivery options, such as delivery to the scholar's desk could be developed.
- Technological capabilities could be developed for Group 4 FAX, alternative FAX boards, using a scanner as the input device, using a laser printer as an output device, and providing on-screen document preview.
- Project leaders are sensitive to the need for maintaining compatibility with new standards as they are developed.



- ① The FAX is fed into the originating FAX machine which then calls the FAX PC
- ② The FAX PC receives the FAX and stores each page as a file on the hard drive
- ③ A prompt for destination and additional information appears on the FAX PC screen
- ④ Notification is sent automatically via the Internet to the remote FAX PC that a FAX is queued up (as well as various information about the FAX such as its size, the number of pages, etc.)
- ⑤ The destination FAX PC issues an automatic request to "get" the FAX file(s)
- ⑥ The FAX file(s) are transferred to the destination FAX PC
- ⑦ The destination FAX PC dials the destination FAX machine and sends the FAX on to its final destination
- ⑧ The destination FAX machine prints the FAX



SUMMARY OF SYNERGY SESSION FALL 1990 MEETING OF THE TASK FORCE

PLANNING THE GOVERNANCE OF THE NREN

Issues

- We must sort out the financial accounting, charging, usage, and pricing policies for both research and education (not for profit) and commercial (for profit) traffic.
- What are the "full service" requirements for managing the network with end to end services in the future?
- We need a new infrastructure for integrated digital (data/voice/video) transport services, and a new concept for network based products and services.
- Will fiber optic cabling be required in the home before the advanced services emerge?
 - What role do the states play for developing the NREN (e.g. fiber to homes)?
 - What is the upper capacity limit for twisted pair copper wire?
 - What is the cost of fiber to the home?
- Is regulatory relief allowing telephone companies to offer network based information services an answer to NREN governance issues?
- Is there a rational way to stage the introduction of new NREN governance structures in different market segments?
- Privatization may accelerate the ways in which members bypass NREN offerings.
- Are some mid-level networks already privatized networks?
- RBOC switched networks may emerge as transport alternatives which are more easily measured, charged, tariffed, etc.
- Incidental commercial or developmental uses or traffic should not be a factor in designing, managing, or setting policy for the production NREN.
- Policy routing must be developed to separate the traffic flowing on the various TCP networks.
- The campus outreach activities imply that NREN must be accessible to all "outside" constituents.
- Security features must be added to ensure integrity or security of networked services.
- Robust security and billing services will take an undetermined amount of compute cycles.
- The Coalition should take a position on endorsing NSF as the NREN lead agency and encourage greater representation of research and education institutions on the Federal Networking Council (FNC).

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Coalition for Networked Information**

**Summary of Synergy Session
Fall 1990 Meeting of the Task Force**

PLANNING THE GOVERNANCE OF THE NREN

- The Coalition should evaluate proposed NREN legislation in light of the Coalition mission.
- K-12 institutions must be supported as a high priority.
- Sponsoring agencies must be sensitive to educational and research needs.
- Governance structures must be driven by the common goal of service quality for the common good of the research and education community.