Library LANs

Case Studies in Practice and Application

EDITED BY MARSHALL BREEDING

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To
Marsha, Michelle, and Amanda

Preface

Networked microcomputers represent a logical advancement in automation beyond that of stand-alone systems. Over the years, libraries have grown to depend on computers to automate many functions. As individual computers proliferate throughout the library, there eventually comes a point when the computers need to be linked together in a network in order to get the best use out of them.

Many librarians may perceive computer networks as overly complicated and therefore may be tempted to avoid the process altogether. Although dealing with networks may indeed be one level of complexity beyond that of stand-alone microcomputers, I believe that the task of installing and maintaining local area networks within the library is a manageable task. The majority of the networks described in this book were implemented and are managed by staff within their libraries.

This book aims to provide information about local area networks in libraries through a case studies approach. The case studies in this volume represent successfully implemented LANs in various library settings. Each of the authors demonstrates how their library has gone about the process of selecting, implementing, and maintaining a library microcomputer network. The contributors offer a great deal of practical information regarding the process of installing each of the hardware, software and human components that must cohere together to form a successful network. These articles describe the function that the network was designed to perform, who the main users of the network are, and how well the network has lived up to expectations. Most of the articles also reveal how much funding was required for the project and suggest ways that their network might evolve in the future. The majority of the contributions include diagrams of the network described in the case study to illustrate the components involved and the overall structure.

It is my hope that the articles in this book will help those involved with library microcomputers to discover how local area networks can be useful, and further, to provide a practical guide in selecting and implementing networks. Although these articles are not intended as step-by-step instructions on how the various networks were installed, the reader should, in many cases, be able to find a network in the volume with many similar features to the reader's own environment.

The case studies that follow cover a wide range of networks in the library environment and should give the reader a feel for the many options that the current technology avails. Some of the networks exist solely for the purpose of providing access to databases on CD-ROM. Others serve more administrative functions, allowing library staff microcomputer to share printers, software, and disk storage space and to communicate amongst themselves through electronic mail. The size of the networks in this volume span from ones consisting of as few as three

microcomputers, to ones that connect scores of systems. Some of the networks are quite simple, while others demonstrate the complexity encountered in large interconnected networks.

In chapter 1 of this volume, I have written an introduction to the general concepts and terminology related to microcomputer local area networks. This chapter intends to provide the reader with sufficient background information to place the case studies that follow into perspective and to offer relatively nontechnical explanations of some of the terms that are widely used in network literature.

I have organized the remainder of the book into four sections. The case studies in Part I deal with Macintosh LANs, Part II covers networks devoted to CD-ROM applications, Part III includes case studies of relatively small general-purpose networks, and Part IV describes larger, more complex networks.

Part I includes four case studies that deal with Macintosh networks. Henry Harken begins this section with a description of a relatively large Macintosh at the University of Arizona, West, and how it was planned and implemented along with the new campus and library building. The network described consists of over 50 nodes, including network printers, file servers, modems, and a gateway to TCP/IP networks. In chapter 3, James Alloway and Robert Schwarzwalder describe a simple Macintosh network which they implemented to support a Hypercard application that provides reference and instructional information in the reference area of the Engineering/Transportation Library at the University of Michigan. Though they envision further expansion, the network they describe consists of a single AppleShare server and two client Macintosh stations. Robert Skinner continues this section by presenting the various Macintosh networks associated with a newly-constructed Arts library at Southern Methodist University. Skinner writes about some of the design considerations involved in cabling a new building in addition to the discussions about implementing the Macintosh networks themselves. These Macintosh networks support staff microcomputer use, including access to their NOTIS system, a microcomputer laboratory, and will eventually include a public access LAN which will offer an array of information services. Lois Bellamy and John Silver conclude this section with a case study of a more complex Macintosh network at the Health Science Library at the University of Tennessee, Memphis. This network performs a variety of functions within the library and interconnects with many other Macintosh LANs through a campus-wide network. It includes items such as CD-ROM, gateways to TCP/IP networks, shared modems, network printers, and file servers.

One of the most popular reasons for establishing a local area network in a library relates to providing access to CD-ROM products. Part II consists of case studies of networks created specifically for this purpose. In the opening chapter of this section C. Anne Turhollow and Michael Perkins describe the process that led to the decision to implement a CD-ROM network at the San Diego State University Library. The case study then outlines the process of selecting a Meridian Data system and how they used a consultant to provide the initial installation of the network. The University of Hawaii at Manoa employs two different CD-ROM networks: one uses MultiPlatter

and the other Artisoft's LANtastic. Martha Chantiny devotes her case study to the selection and implementation of the LANtastic CD-ROM network. She provides much practical information on how to install and configure the LANtastic software to access CD-ROM applications. In Chapter 8, Bonnie Nelson debates the options of either implementing a CD-ROM LAN from component parts or relying on a ready-built turnkey system, and how the John Jay College of Criminal Justice opted for the latter. Her case study proceeds to describe their implementation of a CD-ROM network using SilverPlatter's MultiPlatter product. Harry Kriz, Nikhil Jain, and E. Alan Armstrong provide a second case study using LANtastic to network CD-ROMs. In this network, eight public workstations access sixteen CD-ROM drives. An additional workstation on the network provides access to the network through an interface to the campus digital voice/data network. The article describes the hardware and software they used to support this remote access workstation. David Lewis and Terry Plum describe a do-it-yourself CD-ROM network that the University of Connecticut Library constructed partially from funding received from basketball revenues. Components of this network include Novell NetWare, Token Ring hardware, and CBIS CD-ROM servers. Concluding the CD-ROM network section, Thomas Wilson and Charles Bailey describe the Intelligent Reference Information System project at the University of Houston Libraries. Their network uses Meridian Data CD-ROM servers, Novell NetWare, and Token Ring hardware. Wilson and Bailey discuss the details of selecting and implementing such a system, as well as how they dealt with specific problems that arose in the process.

The third part of this volume contains a collection of case studies about relatively simple general-purpose local area networks. These networks, though fairly small in size, provide a variety of services in the library, unlike the CD-ROM networks of the preceding section that exist for a single function. Dave Bloomberg opens the section with his discussion of a library network built upon Digital Equipment Corporation's PCSA network system. Bloomberg writes this case study more from the network user's point of view rather than that of the implementor. He discusses some of the issues that arise when many of the networking decisions are made by groups outside the library. Mary Ann Chappell, Dan O'Brien, and Sharon Gasser collaborated to produce a case study of a LAN that supports automation in the Acquisitions Department of the Carrier Library at James Madison University. This network exemplifies the use of Novell NetWare ELS, a scaled-down version of Novell's Advanced NetWare product. In chapter 14, James Huesmann describes the selection and implementation of departmental LAN in Serials based on IBM's PC LAN product. Next, Laurie Potter's case study of the networks at the Savitt Medical Library at the University of Nevada School of Medicine describes the abandonment of a 10-NET system in favor of a Novell NetWare Ethernet LAN. To round out this section, Dan Marmion describes how the Edmon Low Library at the Oklahoma State University uses a Token Ring LAN primarily to provide access to a newly-implemented NOTIS library management system.

Part IV contains the larger and more complex networks. The networks in this section represent major implementations of networking technology within the library environment. Ellen Watson and Stephen Patrick begin this section with their discussion of the Bradley Library Information Support System (BLISS). This project exemplifies a cooperative effort between a library and computing services within a university to create an integrated electronic information system. The networks described in this case study employ a number of UNIX-based servers to provide general computing services and information resources both within the library and throughout the campus.

John Rutherford describes a Novell Ethernet at Central Connecticut State University designed both as a CD-ROM network and as one to provide access for microcomputers in a faculty computing center located within the library to network software and print resources. This network uses Novell NetWare, CBIS CD-ROM servers, and a Zenith file server. This case study is a good example of the processes involved in implementing a relatively large multi-purpose network within the library.

T. Scott Plutchak's case study covers a local area network within the medical library at St. Louis University and its relationships to other networks within the broader medical center. This network is the only one in the volume that uses Arcnet network interface cards and cabling.

The University of California, Long Beach uses Novell NetWare as the basis for its interconnected Ethernet and Token Ring networks that offer CD-ROM, file and printer sharing, as well as access to BITNET and Internet resources throughout the library. Maria Sugranes and Jonothon Cone skillfully describe these networks in their case study.

Tim Bucknall, Rikki Mangrum, and Will Owen collaborate to describe the network at the Davis Library at the University of North Carolina at Chapel Hill. This network, primarily designed for a CD-ROM access, also performs file and printer sharing, and provides access to other campus Novell networks and mainframe systems. One of the unique services on this network is a system that patrons use to schedule times that they can use the public CD-ROM stations. This article includes discussion in problems that arose in the process of implementing the network and how they resolved the difficulties.

Barbara Burke's case study describes the Banyan/VINES network implemented in the Colorado State University's Libraries. This network combines CD-ROM access, file and printer sharing, and communications with other networks for all the microcomputers in the library. Burke clearly describes the implementation and functions of this network as well as the characteristics of Banyan/VINES, as its only representative in this volume.

The next group of three case studies describe large 3Com networks in differing library environments. Susan Bateman and Sanjay Chadha together discuss the 3Com 3+Open networks used in the Houston Academy of Medicine, Texas Medical Center Library. The case study describes the migration to this system from a 3Com EtherSeries network to its current configuration. In addition to general office

automation services, this network offers a Paradox database application for the management of information services on the network.

Another 3Com network case study follows--however, more complex. Ellen Moy Chu describes the networks implemented at the Division of Computer Research and Technology Library of the National Institutes of Health. This multi-purpose network offers a wide range of services to its users including CD-ROM access, file and printer sharing, electronic mail, and interconnectivity with other networks and mainframe systems.

Michael Ridley and Paul Lavell devote their case study to the 3Com network at the Health Science Library at McMaster University and its interconnections with other networks in the Health Science Centre. This full-featured network also illustrates a large, complex network, and the case study discusses many of the details involved in implementing and managing this type of network.

Drew University has made significant efforts toward providing microcomputers throughout the campus. Each of the students and faculty have access to their own microcomputer system, most of which connect to a campus-wide asynchronous network. Pamela Snelson provides us with a general description of this network and how the library takes advantage of this valuable resource.

It is always helpful when embarking on a project, such as implementing a LAN, to be able to learn from the experiences of individuals who have successfully completed similar projects. Each of these authors have endured the trials imposed upon them through the process of installing or managing a Library LAN. In sharing their experiences in this book, it is my hope that the readers will benefit from their knowledge and insight.

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