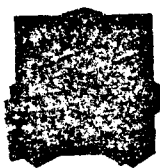


NETWORKING PCs

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Featuring NetWare by
 **NOVELL**



DAVID STEVENS

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DEDICATION

Networking PCs is dedicated to my dear parents, John and Betty Stevens; to Jane, my sister (still surviving in Detroit—the “Motor City” and my hometown); and to my best friend, Pete.

PREFACE

Personal computers have a permanent place in business as well as in the home, and users are applying them in more and more ways. Because networking enhances the power, the versatility, and the communications ability of desktop computers, it is a cost-effective solution for promoting greater productivity in almost any organization.

This book was written both for those who want to network and for those who are now networking—that is, connecting two or more desktop personal computers for sharing files, application programs, and peripheral devices such as printers, scanners, and modems. To those who would like to implement networking into their work environments, this book will unlock technology secrets and help remove the mystery surrounding the subject. And to those who are currently networking, it will provide more insight and tips.

Today there are hundreds, perhaps thousands of PC networks in various stages of installation. Unfortunately, many of these systems will neither be installed correctly nor maintained properly. Some computer vendors engaged in installing these systems have only enough expertise to get the system operational on a very basic level—leaving it up to you to operate and maintain the network on your own.

Many firms fail to recognize the importance of proper local area network (LAN) support and maintenance after installation. In the “old” days, a multiterminal system was not operated without a full-time data processing manager or, depending on the system size, a complete data processing department.

Historically, corporate management correlated the need for computer management staffing directly with the cost of the computer equipment. For example, for every \$50,000 spent on the computer, 20 man-hours per week were forecasted to manage the system properly. Depending on your viewpoint, this method may or may not be justified. Some believe that it merely provides job security for computer personnel and point out that some mainframe facilities have hundreds of full-time employees just to keep the system going.

Preface

With today's low-cost multiterminal computer systems, known as personal computer networks, such staffing formulas are no longer applicable. After all, if an entire network system costs less than \$30,000 for equipment and software, there should be no need to place qualified staff members in charge of the new system. "This new cost-effective technology is so good that it will run itself." Right? Realistically, the answer is "No."

Networking a group of PCs and peripherals not only requires careful planning before the installation but also proper on-going support to derive full benefit from the investment. This book will help you to determine the correct configuration for your PC network. Further, it will help you to plan its on-going support and maintenance so that the process of networking your PCs becomes a smooth and painless process.

Networking PCs is not a buyer's guide for networking products, nor is it strictly a "how-to-do-it" publication. It is simply an attempt to translate much of the computer technical jargon into plain business English so that you can make intelligent decisions in designing and implementing your own network.

If you have been tasked with networking the PCs in your office, this book should help make your LAN installation successful and productive.

David Stevens
Your Computer Time Company
San Diego, CA

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INTRODUCTION

NET-WORK (noun): 1. a fabric or structure of cords or wires that cross at regular intervals and are knotted or secured at the crossings. 2. a system of lines, channels, or other elements resembling a network. 3. an interconnected or interrelated chain, group, or system; esp. a group of radio or television stations linked by wire or radio relay; esp. a group of two or more computer devices connected together for a long or short distance with the capability of exchanging data and/or programs through wires or optical fibers up to or at the speed of light. (modified from *Webster's New and Ideal Dictionary*, 1978)

LOCAL AREA NETWORKS

In terms of the microcomputer, the Local Area Network (LAN) is one of the most important developments since the floppy disk drive.

The LAN has grown into a successful tool for increasing the effectiveness of personal computers (PC) in the workplace. Properly designed and installed, it can become an important part of the information management program for any firm. A correctly implemented and maintained LAN can bring enhanced organization and productivity to an office. An improperly installed LAN, however, will bring only frustration.

By definition, a LAN is a locally connected computer system that allows two or more PCs to share common data files, application programs, and peripheral devices such as printers and modems. It can be very small or it can be one part of several other LANs, all *bridged* together via standard voice-grade phone lines, coaxial cable, or twisted-pair phone wires. *Bridging* is the industry term for the physical connection between multiple LANs that are located either in the same building or at remote sites. Each LAN is connected to the bridge through a communication device such as a *modem*. A modem is the unit that allows computers to talk to each other through the phone lines. Not only can your PC communicate with other computers around the office, but it can also connect to large IBM, VAX, and other mainframe computers in the same building or across the world. The primary term for this expanded functionality is *data communications*, and it allows you to create Wide Area Networks (WANs.)

Data communications, however, is a subject and an industry in itself. All of the technical issues surrounding this specialized industry will not be addressed in this book. It has given us the standards and the methodologies of data transfer, phone lines, microwaves, satellites systems, and fiber optic networks. These standards in turn allow the connection of dissimilar types of computers and networks. The industry is now moving information from PC networks at close to the speed of light all over the planet to businesses just like yours.