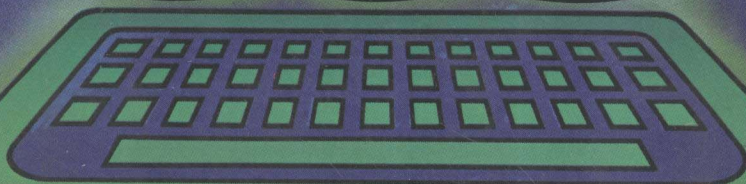


Using Computer Information Services



Larry Sturtz
& Jeff Williams

USING COMPUTER INFORMATION SERVICES

by

Larry W. Sturtz and Jeffrey R. Williams

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Preface

This book is meant by its authors to be practical. The book gives the reader a clear, working understanding of computer information services. In the book we discuss the major services that are available, along with the microcomputers and their terminal software that are needed to use these services.

This is the first edition of the book, so we are writing it without the benefit of many readers' comments. In future editions it would benefit the book greatly if we could include material from our readers. We would particularly welcome information about readers' terminal systems (microcomputers, terminal programs, modems, storage devices, printers, and other peripherals). Comments about the information services listed in this book and other services are also welcome. For those readers who would like to pass along their comments, it would help to direct your comments to the author responsible for each chapter. Chapters 1, 3, 5, and 6 were written by Jeff Williams and Chapters 2, 4, 8, and 9 were written by Larry Sturtz. Chapter 7 was written by both authors.

We would like to thank our friends at Howard W. Sams & Co., Inc., and at CompuServe Information Services who helped with this book by carefully reading the manuscript and by offering their insightful comments. These comments were heavily relied upon in preparing the final manuscript.

John Losco helped us a great deal by creating, from sketches, the illustrations for this book. His help is very much appreciated.

LARRY W. STURTZ AND JEFF WILLIAMS

Dedication by L. Sturtz .
To Heather—
You make my world complete.
Love, Dad

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Chapter 1

Introduction

COMMUNICATING WITH COMPUTERS

In the last thirty years, computers have proven to be among the most useful of man's inventions. They now take care of some of mankind's most routine, repetitive, and tedious work. Computers process billions of accounting records on a daily basis, and when acting on their programmed instructions, they routinely monitor and control millions of other machines.

Many business uses for computers have been found. They do bookkeeping, word processing, and mailing list maintenance effectively. Computers also produce form letters, as well as monitor heat and light requirements in office buildings. Modern manufacturing and processing plants use computers to control production machinery and equipment.

Most recently, smaller computers have been put to work in the home doing businesslike record-keeping tasks, but home computers are also used for entertainment and education. Now that computer prices have dropped considerably, millions of families are buying them.

These developments have been described collectively as the "Computer Revolution," and it can be safely assumed that the reader has already heard plenty of discussion about it. For the pur-

pose of this book, however, it is important to understand that all of these uses for computers can be called *stand-alone applications*. These stand-alone applications, where one computer is programmed to do a specific task, have accounted for most of these developments.

The purpose of this book is to explore possible new uses for computers when the computers are linked together, in other words, when they are made to communicate with each other. These are communication uses that, when put together with existing data-processing techniques, provide new and interesting applications for the computer. Compared with the stand-alone applications, these uses are not so well known, but as time goes on more and more practical benefits of computer-data communication will be found.

The Talking Microcomputer

When communication takes place between computers, the computer becomes not only a data-processing tool, but a communications tool, as well. As a communications tool it can augment the telephone and mail service by opening up a new communications channel into the office or home. Computers can send or receive textual messages, personal, or business mail, financial and accounting statistics, weather information, address lists, demographic data, flight schedules, news . . . you name it. Using widely agreed upon computer communication standards (called *protocol*), practically any computer can be made to "talk" to any other computer. They can transmit information over regular telephone lines or over publicly accessible computer networks, or they can use whatever other wire link that might be available.

Microcomputers and terminals are becoming less expensive. A person can now acquire the necessary hardware for about \$300, this is assuming that the person already owns a television set. Fig. 1-1 shows a basic home-computer system.

Most microcomputers can be made to communicate if they are attached to a *modem* (which stands for MODulator-DEModulator) and if they run communications programs (sometimes called *terminal emulator* or *executive programs*). The modem can cost less than \$150, and the program can cost as little as \$20.00. Most microcom-

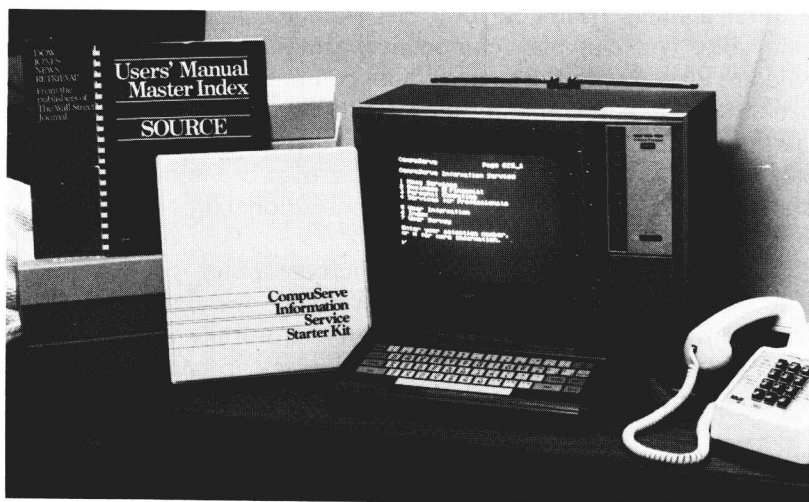


Fig. 1-1. A basic home-computer system.

puters today are designed so that modems can easily be added to the basic computer system to allow for telephone communication.

In many cases, even after a computer is equipped for communications, its work applications remain the same. For instance, computers are often used to process accounting data, receipts and expenses, or to print out bills for the customers. A computer that communicates may still do these jobs, but it may use wires instead of the mail to transmit reports to branch offices. It might collect reports of daily cash receipts from the same offices by wire, in a process that involves keying in the data only once at the branch office site. The word-processing computer formerly used to type letters on letter-head might instead transmit the same messages by wire, thus saving all the effort involved in printing, addressing, and mailing a hard-copy letter.

If the computer is in the home, and if it is being used for entertainment and educational purposes, without communications it is limited to the use of those programs that the owner happens to have in his personal collection. When it is connected through the telephone lines to other computers, the owner then has access to all of the electronic games and educational programs on the other computers, as well—a much wider choice. The owner can play these games

without actually having to buy the programs; but, perhaps more enjoyable, you can play competitive games against other players who are logged onto the same remote computer at the same time. A person who uses a computer for educational purposes may want to take a particular quiz or test only once. Over a remote computer a user can do that, and by taking the quiz over the network he does not actually have to buy the particular educational program.

By sending messages through the microcomputer, you can join a club that operates a computer bulletin board. Through this bulletin board program you can communicate electronically with the other members. You can shop in on-line electronic catalogs and place orders for the goods that are for sale or retrieve data from any one of hundreds of on-line data bases and capture that data onto a storage media for future reference. You can also transfer files from your machine to a remote computer, or from the remote computer to your machine, all at electronic speeds. Directories and documentation are widely available for all these services. Some of these directories are shown in Fig. 1-2.

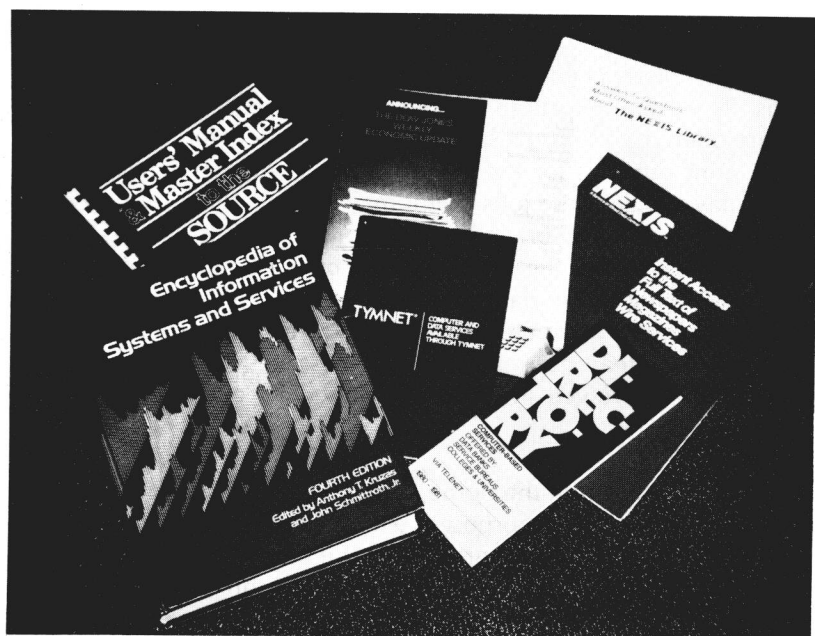


Fig. 1-2. Directories of on-line services.

What People Are Doing Today

We do not need to speculate about the future to describe what people are doing with their computers through computer networks. People are using their microcomputers every day to send and receive data, to process business information, and for educational and entertainment purposes. As time goes on, these activities—far from seeming novel or revolutionary—will be as commonplace as talking on the telephone or watching television is today. For some who work in the computer business, it seems that way already.

For instance, it seems normal to me that I would be writing this introductory chapter at a terminal that is logged onto a computer two miles away. It also seems normal to me that in the middle of the last paragraph, I should log off of this program where I am entering in the text for this book, and then log onto a computer information service to look at the baseball scores. (I am distressed that the Detroit Tigers should have lost their last two games to the Toronto Blue Jays in extra innings.) It took only two minutes to retrieve and read today's box scores, so it didn't really interrupt my work. The game story has not come across the wire yet, so I'll go back in later to see what Sparky Anderson had to say about the game.

Part of this book was written on a TRS-80 Model III computer located in a condominium in Park City, Utah. It was then stored onto a 5¼-inch floppy disk. A week later the contents of the disks were uploaded to a computer information service mainframe located in Columbus, Ohio. This was accomplished over the telephone lines from Salt Lake City. While in Utah writing this book, the authors were able to keep in touch with their office, answering questions and solving problems using electronic mail.

It also seems perfectly reasonable that I should be able to keep in touch with my friends through electronic mail. Some of my friends that live on the West Coast keep unusual hours. The best way to get a message to them is to send it by electronic mail. I often like to answer correspondence in the morning, and at that hour I don't know if some of my friends are going to be awake yet, or if they are just going to bed from the previous night. Either way, it is unlikely that any telephone conversation carried on between us would be remembered.

Electronic mail is also used routinely to send messages to my coworkers. With four or five additional keystrokes, a copy of the message can be sent to any interested party. This certainly beats standing in line at the copy machine.

As it happens, like millions of others, I own a few shares of some very sluggishly moving stock. I consider it normal to log onto the computer to see how they did each day and to take a look at their lack of progress over the last year. Using the same MicroQuote data base, I can also look at the startling gains made by the stocks I didn't buy. With all this data, I keep thinking that one day I shall develop a computer program that will use price, volume, and earnings data to correctly predict stock market movements.

It is also normal to log onto the CB program and to type messages back and forth in conversation with the dozens of others who are also logged onto the same program. It may seem somewhat unusual that people would want to type messages to strangers who are identified only by an ID number and a CB "handle," but it is relatively easy to meet people on CB, and you can make friends quickly. Talking to your friends in this way soon becomes a perfectly normal thing to do. Fig. 1-3 shows a list of actual CB handles.

There have been several weddings that resulted from couples having met each other originally through a CB program. One such wedding was conducted over CB with about 45 invited guests simultaneously "tuned in."

On a fairly regular basis, CB parties are organized. A person will organize a CB party and people will travel considerable distances to attend it. These parties have been held in cities on both coasts, in Chicago, in Columbus, and in other U.S. cities. People who are interested in attending a CB party can leave messages in the CB bulletin board, called CBIG (the CB Interest Group), and by the number of responses they get they can figure out how many people are likely to be in attendance.

Around Christmas time, several CBers left Christmas cards in CBIG; the cards were pictures of Christmas scenes drawn in teletypewriter graphics. Nobody knows when the majority of Christmas cards might be transmitted electronically. But it might be only a matter of time.

70013, 141	FROGY
70013, 154	SPECIAL LADY
70013, 156	BOMBSHELL
70015, 231	BLUE JEAN QUEEN
70015, 231	SPATMAN
70015, 525	EASY
70015, 525	STARTECH
70020, 155	OL DAVE
70020, 164	WOODY
70020, 165	SUNBEAM
70025, 102	MONT. UFO
70025, 117	DRILLER
70025, 143	EAGLE
70025, 171	CAPTAIN VIDEO
70025, 175	MR. FIXIT
70025, 210	PACKER
70025, 231	MICRO-KID
70030, 164	BEEP
70030, 164	BOB
70030, 173	SILVER PRETZEL
70033, 104	** K **
70033, 104	LL
70033, 104	XERAC

Fig. 1-3. Some actual CB handles.

Every day, dozens of groups and clubs conduct discussions through their keyboards into a computer bulletin board located hundreds of miles away. Some of these bulletin boards have over a thousand members, so they are already widely accepted. Indeed, if users have problems with their TRS-80®, Apple®, Heath®, Commodore®, or other microcomputers, they are well advised to ask their questions of the on-line user group before trying to get the information from local friends or computer salespeople. You can find more computer experts in the on-line group than you are likely to find in your local area.

Should it seem unusual that people would conduct an auction inside a computer? It happens every day. Each week Comp-U-Card of America, in their Comp-U-Store data base, puts a new item up for bids. By accessing that data base, a person can read a description of the item that is currently up for auction and can make a bid on it.

The Comp-U-Store data base is maintained by a company in Stamford, Connecticut, but the data base resides in Columbus, Ohio. Customers of the Dow Jones News/Retrieval Service (Princeton, New Jersey) and The Source (McLean, Virginia) all log onto the same data base to place their bids, in competition with the bids of customers of the CompuServe Information Service.

People who are accustomed to the idea of taking pages of manuscripts, blue-penciled and pasted together, to a typesetter might think it unusual to send the same text to the typesetter over the telephone lines. But the idea is easy to accept. Modern typesetting equipment, if given a text file from a word-processing computer, can automatically produce error-free pages of typeset copy. Typesetting commands, instructions for spacing and typeface, can be entered into the same file as the text. Thus the writer can, in effect, control the typesetting machine from his terminal screen. Errors that sneak in when text is re-entered manually are eliminated. Deadline-driven editors are also able to avoid the delay of hand-delivering manuscripts to the typesetter or sending them through the mail.

It is a common occurrence among microcomputer users, especially those in microcomputer clubs, to trade programs with each other. When one member writes a program, it is often made available to friends in a user group. This principle of sharing programs has been beneficial to the computer industry for many years. The SHARE organization that distributes IBM software, and the DECUS group that shares software for Digital Equipment computers, have made those machines more valuable by distributing useful programs that run on these machines free of charge.

Should it be required that these programs be shipped through the mail, though? Or does it seem more logical that the same programs should reside on a mainframe computer disk where they can be transmitted to the group members by wire? It would seem better that software users should be able to browse through a mainframe computer's library of programs, choose one, and then transfer a copy of it to the disks of their own machines.

Microcomputer programs are being downloaded every day to avoid delay and shipping expense. The day may soon arrive when it is a rarity that computer tapes and disks will show up in the mail.

But What Can It Do?

People use computers because computers can save them time and money. Computers also allow them to get information that they were formerly unable to have. And they are labor-saving devices. They save clerical time by doing accounting chores. They also save secretarial time by making it easier to edit, correct mistakes, make multiple copies, type form letters, and reuse blocks of text from stored files. Thus they make it easier to send standard business letters. The same computer can automatically address the letters and type out the mailing labels.

There is still some resistance to using computers for these purposes, but it tends to be of the type that is fairly easy for a competent salesperson to overcome. The argument for saving time is the same as the one used in the twenties to sell washing machines. In those years, many families felt that it was an extravagance to buy an electric washer, and housewives continued to use the same washboards and hand-cranked wringers that their grandmothers had used before them. At that time, an ingenious advertising agency came up with an ad that showed a woman with a washboard that said in prominent letters, "This woman is working for two cents an hour." This kind of argument soon persuaded even the most frugal families that the expenditure was worthwhile.

Many secretaries and accounting clerks are still working for today's equivalent of two cents an hour when they use old-fashioned adding machines or manually type multiple drafts of the same letter. It seems clear that these outmoded techniques are rapidly on their way out.

For home use, of course, if your household accounting is relatively simple and you send only a few letters, the labor savings of a computer probably will not justify its purchase at today's prices. But whenever the workload is large, the computer will certainly pay for itself.

It is less clear, in an age of increasingly rapid and inexpensive access to information of all kinds, how much additional information people will be willing to buy. It is estimated that the average American family spends one percent of their income for information, a