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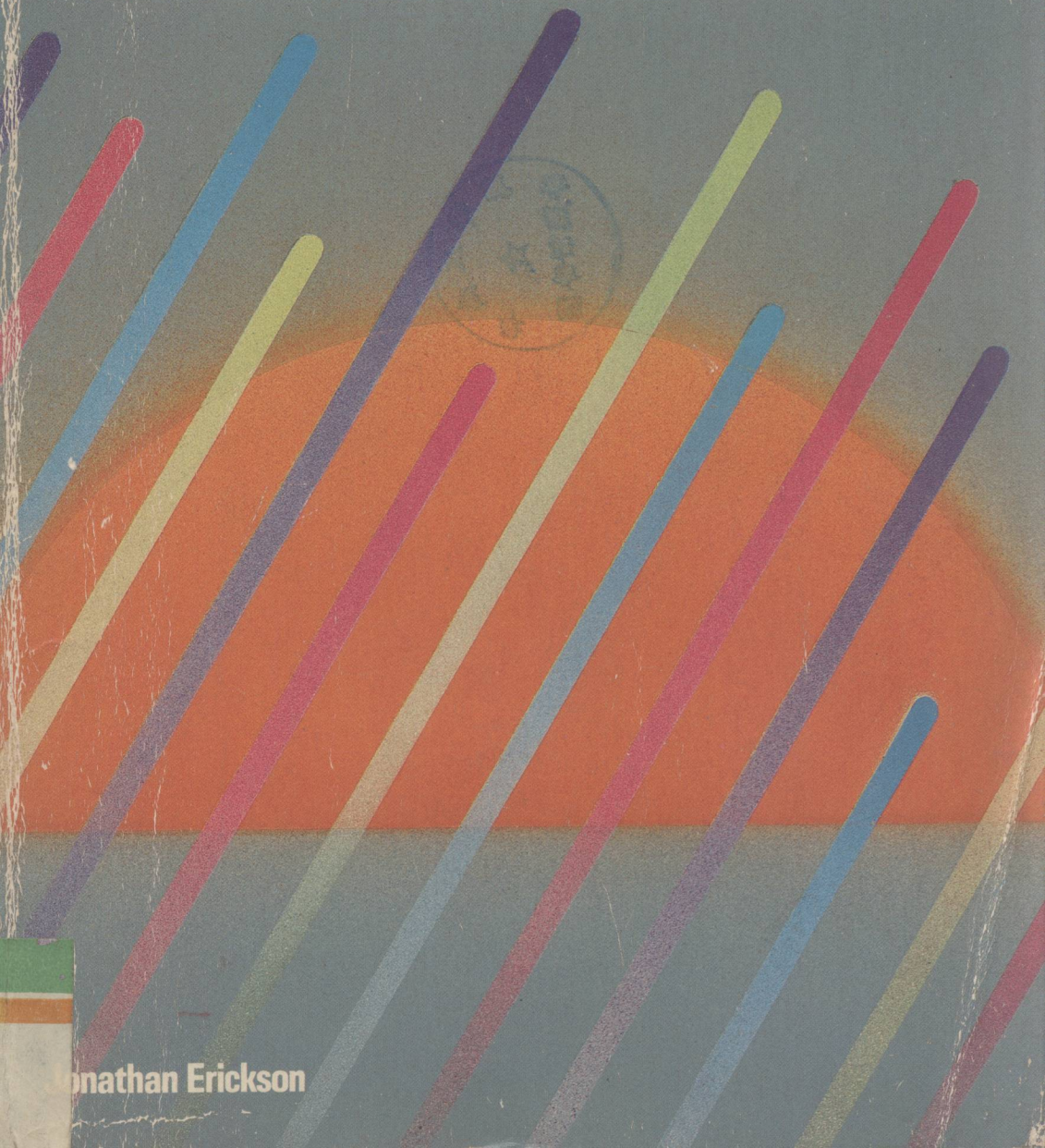
TELECOMMUNICATIONS



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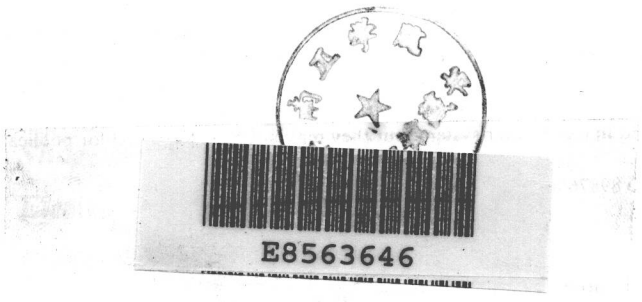
C-64® Telecommunications

Jonathan Erickson



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C-64® Telecommunications

This is for Asher.

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Introduction

If you are like people everywhere who own and use a C-64, you've probably done all of the things people do with their home computers: play video games, balance checkbooks, write letters, learn how to program. Yet you still may be asking the same question millions of other people are asking: "Yes, but what else can I do with my home computer?" The answer to that question (or at least part of it) can be summed up in one word — *telecommunications*.

What is telecommunications? It is the "talking" between two computers over the telephone lines. Actually, the computers don't talk any more than telephones talk. You do the talking, but instead of speaking into a microphone, you "talk" by typing on the C-64 keyboard.

What do computers have to talk about? Well, that's what this book is about. They talk (or more precisely, they let you talk) about everything from sports to the stock market, or from programming to politics. But when computers are connected to the telephone, a lot more than just "idle digital chatter" can take place. You can also send mail to an acquaintance, do your Christmas shopping, go to college, play a game with someone on the other side of the country, and more.

Before any computer-to-computer communication can take place, however, your C-64 must be outfitted with certain hardware and software. The primary hardware required is a *modem* that connects the telephone to your computer. A

special computer program, called *communications software*, is also needed. *C-64® Telecommunications* focuses on the use of the Commodore Automodem 1650 and the CompuServe C-64 Vidtex communications program. These two products were chosen because they are reliable and they have the most widely used C-64 communications options. Nevertheless, Appendixes A and B of this book describe other hardware and software communications devices available to you.

This book begins with a general introduction to telecommunications: what it is, what you need, and what you can do. Next, *C-64® Telecommunications* will show you how to get started, including hardware connections and telephone dialing instructions. After that, specific telecommunication applications will be introduced along with step-by-step procedures. Finally, hardware and software options are provided.

Telecommunications information services and telephone networks described in this book (such as CompuServe, The Source, and others) require specific procedures and display specific prompts and menus. At the time of this book's publication, this is the way the screens appear. However, the prompts and menus used by a specific service can and do change. Therefore, a screen or procedure may not be the same as described in this book, but don't worry. Just use the service's "help" feature to learn how to use the prompts and menu.

About the Author

Jonathan Erickson, a senior editor at Osborne/McGraw-Hill, is a former newspaper reporter and technical writer. He is co-author of *The Model 100 Book: A Guide to Portable Computing, The ImageMaker: Graphics on the IBM® PCjr,* and *MacTelecommunications.* He has also written numerous magazine articles on a variety of topics and contributed to the *McGraw-Hill Computer Handbook.*

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Table of Contents

1	*Telecommunications Overview*	1
2	*Components of a Telecommunications System*	7
3	*Making the C-64 Teleconnection*	21
4	*Information Services and Telephone Networks*	41
5	*Home Banking*	47
6	*Home Shopping*	53
7	*Shopping at the Electronic Mall*	65
8	*Electronic Mail*	73
9	*Home University Courses*	89
10	*Using Computerized Libraries*	97
11	*Vacation Schedules, Fares, and Reservations*	105
12	*Getting Stock Quotes*	113
13	*Buying and Selling Stock at Home*	121
14	*Bulletin Board Systems*	131

15	*Getting Programs for Free*	141
16	*Playing Telegames*	149
17	*Communicating With Other Computers*	159
A	*C-64 Telecommunications Hardware Options*	163
B	*C-64 Telecommunications Software Options*	169
C	*Specialized Information Services*	173
	Index	181

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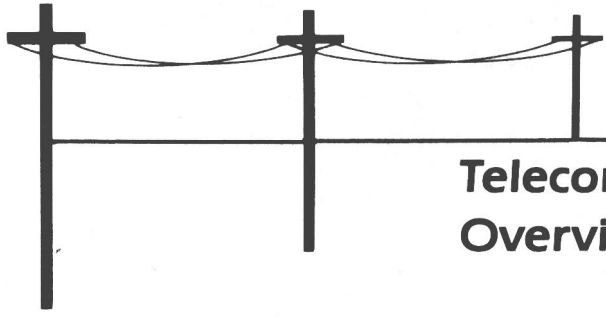

1 Telecommunications Overview

Telecommunications is the exchange of information that occurs when two or more computers are "talking" to each other over telephone lines. The type of computers they are and the distance between them doesn't matter. Your C-64 can just as easily communicate with a multi-million-dollar mainframe computer located on the other side of the country as it can with another C-64 down the block.

When you look at the rear panel of your C-64, you see connectors for a television, disk drive, game controllers, and other devices. What you don't see, however, is a connector for a telephone. That's because a phone does not directly connect to a C-64. Instead you must first connect a *modem* (a device that converts information the computer understands to information the telephone understands) to the computer and then connect a telephone line to the modem. And although you can't see it, you can be sure that the computer on the other end has a similar setup no matter what type of computer it is. Figure 1-1 illustrates a typical telecommunications system.

In addition to the modem, the only other requirement for C-64 telecommunications is a *communications program* that contains instructions (such as the speed

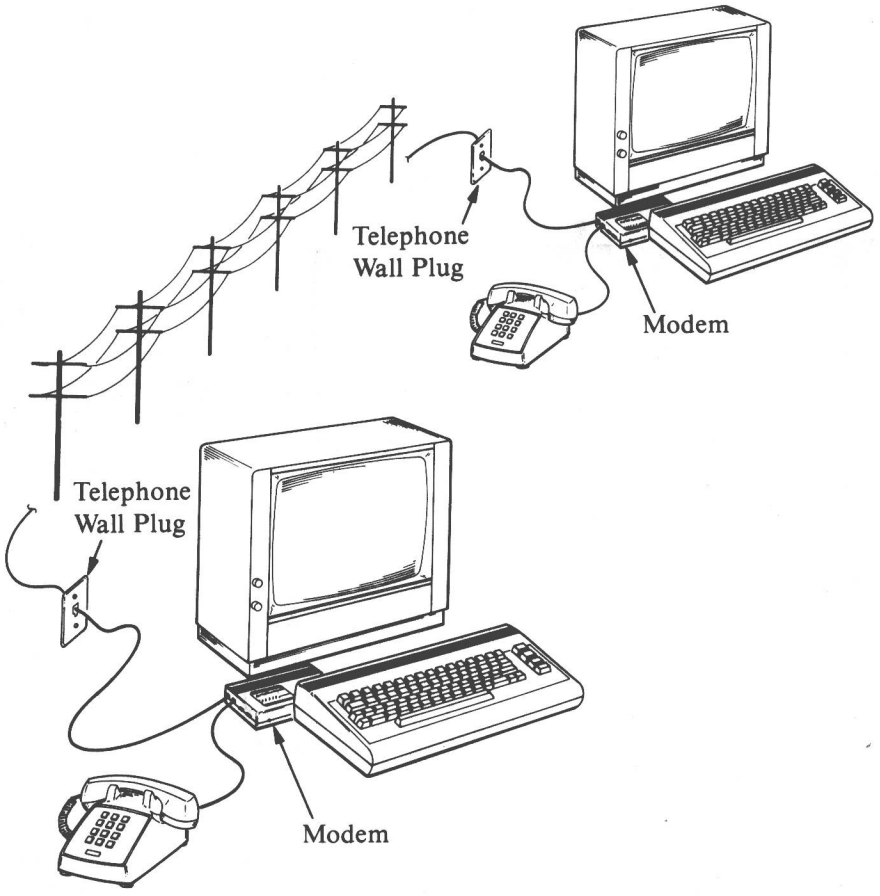

Figure 1-1. *C-64 telecommunications*

at which information travels over the telephone line) needed for your C-64 to communicate with other computers. The medium on which the instructions are stored takes different forms. The Term 64 program that comes with Commodore's Automodem, for instance, is stored on a cassette tape, while CompuServe's Vidtex program is on a 5 1/4-inch diskette. Chapter 2 describes the features of typical communications programs.

MAKING THE TELECOMMUNICATIONS CONNECTION

The steps you take to prepare for telecommunication are straightforward and relatively simple. First, connect a modem to your C-64; then connect a telephone to the modem. Next, turn on your computer's power and load the communications program. Once the program's opening message is on the screen, set the communication instructions to match those of the computer that you are going to talk to. Finally, dial the phone number of the other computer and begin communicating (or *telecomputing,* as it is sometimes called).

What you do after that depends on the other computer. If you are communicating with a friend down the street, you may begin typing to each other on the keyboard. However, if you are talking to an information service, you'll more than likely be required to type in a *password* before you can continue. Obviously, if you don't have a password or if you type an incorrect one, you can't gain "entry" to the information the other computer is storing.

WHAT YOU CAN DO WITH TELECOMMUNICATIONS

Making that initial teleconnection is like opening a door to a new world for your C-64. At your fingertips are literally thousands of computerized *databases* (organized collections of information or data) containing an almost unbelievable amount and variety of information and services. Everything from free computer games to highly specialized scientific data is available. (For a description and directory of computerized databases, see *Answers Online: Your Guide to Informational Databases* by Barbara Newlin [Osborne/McGraw-Hill, 1985].)

Generally there are two types of computerized databases: those providing information and those offering services. Some provide both. A typical information-only database might give you the latest stock quotes and nothing more. A service-oriented database, on the other hand, might let you actually buy and sell stocks from your C-64 keyboard.

Many databases are "free," so accessing the other computer's information or services doesn't cost you anything. Free databases are usually computer-based *bulletin boards* that serve as message or software-exchange centers. In most cases, these systems are set up and monitored by an individual or club. Their phone numbers are rarely toll-free, however, so even though these bulletin boards are free, you'll have to pay for long-distance calls.

The large, commercial databases charge you for their information and services. These charges are usually based on the amount of time you spend *on-line* (that is, the time you are connected to the database's computer) just as the telephone company charges you for long-distance calls. Typically, you don't have to make a

long-distance call to access the service's computer since most services provide a local access number (even though the actual computer may be far away).

For the most part, computerized databases provide information and services that fall into one of the following categories: bulletin board systems, general information services, specialized information databases, library or encyclopedic databases, and specialized commercial services.

Bulletin Board Systems

Computerized bulletin boards are an ideal introduction to telecommunicating. Although the information and services they provide are sometimes limited or specialized, the format in which you use them is generally the same. Once you've used one bulletin board, you shouldn't have any trouble using another.

Most local bulletin board systems (BBS) are operated by computer users groups, computer stores, or individuals who simply enjoy telecommunicating. A computer store, for instance, might provide a classified message board for customers who want to sell or trade used computer equipment and for advertising new products of its own. Sometimes you can even place an order for items and have them mailed to you via the bulletin board. (Chapter 14 lists several bulletin board systems that will let you contact other people who are interested in C-64 telecommunicating.)

One advantage of local bulletin boards is that they can usually be accessed free of charge, so experimentation is cheap. Most boards request that you limit your on-line time to 20 or 30 minutes per session so that other people can use the system too. Still, it is sometimes hard to find a local bulletin board (check with a local computer users group or store), and when you do find one, the phone line is often busy or a long-distance call is required to access it.

General Information Services

There are two giants in the general information service category: CompuServe and The Source. Both of these databases provide the widest range of information and services available to the general public (hence, they are often referred to as *information utilities*). Once on-line with either service, you can play games, read the newspaper, "talk" with other telecommunications enthusiasts, buy a car, send electronic mail, make airline or hotel reservations, and much, much more.

A general information service typically charges for on-line time the same way the telephone company does. If you call during *prime time* (normal business hours), the rates are higher than if you go on-line during *off hours* (in the evening or on weekends). Prime-time rates can be as high as $25 per hour, while off-hour usage can be as low as $5 per hour.

If you are new to telecommunicating, subscribing to a general information service like CompuServe or The Source is a good way to become acquainted with

on-line databases. However, you'll want to become familiar with the service's instruction manual before you go on-line, or you may end up spending your money in "wandering" around the maze of the service.

Specialized Information Databases

Many on-line services provide information that is much too specialized for the general public; consequently, these are referred to as *specialized information databases.* An example of a specialized database is WestLaw, a service that furnishes legal citations and information to lawyers. Among the many other specialized databases are Energynet, Pharmaceutical News Index, and World Aluminum Abstracts.

Obviously, databases like these usually don't have information that is of much interest to the layperson. Some even require that subscribers be members of a specialized technical group or organization. (Only members of the American Bar Association can subscribe to WestLaw, for instance.) Because there are fewer subscribers to specialized information services, their access rates are usually much higher than those of general utilities. Some, in fact, charge as much as $100 per hour.

Library or Encyclopedic Databases

Students and others in need of in-depth research information will find encyclopedic databases highly useful. Databases in this category can be thought of as card catalogs that store an incredible amount of information. Dialog, for instance, contains more than 75 million records in such areas as business, agriculture, medicine, science, and energy. Even considering the millions of entries, however, you can still search through Dialog's catalog much faster than a much smaller card catalog in a regular library. In most instances, these services provide only bibliographic data, citations, and abstracts. When an article interests you, a printed copy can often be mailed to you if it cannot be transmitted electronically.

While many encyclopedic databases are geared for serious research, Dialog and the Bibliographic Retrieval Service (BRS) provide services for the home-computer user at reasonable evening rates. Knowledge Index, for instance, is Dialog's home-computer service, while BRS offers BRS After Dark.

Commercial Services

Banks, department stores, stock brokerages, and other businesses are increasingly making their services available to home-computer users. Instead of distributing information, these businesses usually provide services. Telecommunicating with

stock brokerages like C.D. Anderson and Company, Texas Securities, or the Chemical Bank lets you buy and sell stocks or bonds and open IRAs directly from your C-64 keyboard. By communicating with the home-banking services of many banks, you can pay your mortgage, utilities, credit-card accounts, department store charges, and other bills. In a few large cities you can even call up a computerized food market, order your groceries over the C-64, transfer the money from your bank account to the market's, and have the goods delivered to your home by the end of the day.

The cost of these services varies. In most cases there is a minimum monthly charge (about $10) for having access to the service; in addition, you may also have to pay for on-line time.

OTHER TELECOMMUNICATIONS APPLICATIONS

Information and services are by no means the only applications for C-64 telecommunications. Another is *telecommuting,* which allows employees to stay at home and work on a computer instead of commuting to an office. An employee using a computer like the C-64 can either communicate on-line with an office computer or else perform work off-line (that is, before beginning communication) and then send it all at once over the modem to the office. Telecommuting offers advantages to both the employee and the employer. The employee doesn't have to fight traffic, worry about finding a babysitter, or arrive late for work. Employers, on the other hand, don't have to worry about providing valuable office space or whether or not a worker will show up on time.

Large corporations involved in data entry and information manipulation, including Blue Cross/Blue Shield, Control Data Corporation, and Aetna Insurance Company, have found that telecommuting is an efficient way to get work done. Telecommuting has also proven to be an ideal way of starting up a small business that doesn't require storefront contact with the public: overhead is low, hours are flexible, and the opportunity is great.

An even more recent development is on-line universities like the Electronic University. These "schools" allow you to earn college credits from your C-64 keyboard without leaving home. This is especially useful for handicapped people, for students who live far from colleges, and for part-time students in general.

As you read this book, you will discover that these applications are only an introduction to what may be the most interesting and practical way you can use your C-64. And since information services add new features almost daily, you and the world of C-64 telecommunications can grow together.

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