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The Cheapest Way
to Make Phone Calls,
Send Faxes or Use the Internet

David A. Berger

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ACKNOWLEDGMENTS

I am convinced that this is the first book anywhere that explains so many *useful* ways to save money on telephone bills without all the usual technical gobbledygook, and I am proud of this achievement. But one thing is certain: This book would not have been completed without the help of several fine people.

First and foremost, special thanks to my wife, Kumiko, for all her love and understanding and for allowing me to devote so much valuable time to this book. I promise to make up for all the lost time after the book is printed.

I met Charles Azer, a freelance editor, after he heard me on the radio promoting my first book, *Tele-communication Techniques*. He purchased the book and afterwards called me to ask some questions and offer his feedback. I'd like to thank him for his assistance on this project, as well.

Finally, my thanks go out to all my family and friends who have given me additional support. . .and to everyone who helped me build the knowledge and experience this book represents. I'm especially grateful that I've had the opportunity to share the past several years with my dear friends Bill Willis, Parker Field, Gilbert B. Cross, and Paul Buczkowski.

David A. Berger

ABOUT THE AUTHOR AND EDITOR

About the author:

David Berger was educated in business and industrial technology at Eastern Michigan University, Ypsilanti, Mich. He began his research for his original book, *Tele-communication Techniques*, more than seven years ago. The focus of that book, published in 1990, was on saving money on local zone long-distance calls using loopholes inherent with cellular phones.

His information has been published in communications industry magazines, newspapers, and other publications. He has also been interviewed on talk radio and television.

For information about on-site corporate classes, seminars, and consulting, contact David Berger at the address given in the *Need More Help?* section of this book.

About the editor:

Charles Azer, a freelance editor for ten years, received a degree in communications from the University of Michigan, Ann Arbor, Mich., while also studying business and psychology. He operated a word processing service for several years and edited marketing presentations for an advertising agency in Boston. He has provided assistance based on his practical knowledge of telephony and his own independent research on long-distance services.

He is currently setting up a consulting business which will specialize in long-distance services.

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TELEPHONE SYSTEMS DIFFER THROUGHOUT THE UNITED STATES, AND NEW DEVELOPMENTS AND CHANGES OCCUR FREQUENTLY. THEREFORE, YOU SHOULD CONSULT WITH ANY APPLICABLE TELEPHONE COMPANIES ABOUT THE SERVICES THEY OFFER AND THE RATES THEY CHARGE. YOU SHOULD QUESTION THEM CLOSELY ABOUT HOW THE NUMEROUS MONEY-SAVING TECHNIQUES DESCRIBED IN THIS BOOK MAY BE IMPLEMENTED IN YOUR AREA. THE INFORMATION CONTAINED IN THIS BOOK IS SUBJECT TO CHANGE WITHOUT NOTICE. ***THE AUTHOR DISCLAIMS ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, TO THIS MATERIAL.***

INTRODUCTION

Have you been searching for ways to save money on your telephone bills? If so, you're about to find the answers. Regardless of whether you operate a small, large, or home-based business, or are simply an individual who is tired of paying through the nose, you will benefit from this book.

The telecommunications industry is evolving rapidly. For example, in the near future, you will have several choices for local phone service providers. Similarly, your choices for long-distance services are practically unlimited. There are an estimated 500 to 1,000 long-distance providers and resellers.

Here are some facts you will learn from reading this book:

- You can make *local zone long-distance calls for 3¢ per minute—even 8¢ per call* in some areas.
- You can make long-distance calls to anyone, 24 hours a day, anywhere in the country, for *less than 13¢ per minute*. So, that special “30% off” or “50% off” deal you always hear about costs *40% more than what you ought to pay!*
- With the proper knowledge, you can pay as little as *8¢ per minute* on your interstate long-distance calls.
- By paying a low monthly fee to be on the Internet, you can send electronic mail and *talk to anyone in the world without paying any long-distance charges*.
- You can improve the quality of your faxes, while *reducing costs by as much as 50%*.
- Consider all the facts before you make a long-term cellular service commitment. Economy cellular services are being developed and will bring new competition to

the market. Instead of paying expensive airtime by the minute, you could be charged a *low per-call rate*.

- When you renew your cellular contract, you can obtain *thousands of free minutes*. Another way to earn *free airtime* is by simply enrolling in a cellular rewards program.
- You can benefit from virtual dedicated phone numbers *without paying* for separate phone lines—all through a little Distinctive Ringing switch that your local phone company supposedly doesn't know anything about.
- While long-distance companies spend hundreds of millions of dollars per year to lure new customers and offer competitive rates, their existing customers usually pay much *higher rates* unless they switch to a different company or call their own company to negotiate a better savings plan.
- You can save money by blocking 976/900 calls. You can also avoid the aggravation of being put on junk mailing lists by blocking Caller ID.

A better understanding of the telephone industry will help you save hundreds—even thousands—of dollars. You will learn how to tap into this pool of huge savings including billions of dollars per year in freebies, incentives, reduced rates, and *free* communication. The author of this book certainly has gotten his fair share of that money—*over \$2,000 and 2,000 free minutes of airtime* during the past year on combined long-distance and cellular phone service.

In order to save money on your telephone bills, you need information in four key areas:

- incentives;
- loopholes;
- new technologies;
- negotiation strategies.

***The Cheapest Way to Make Phone Calls, Send Faxes or Use the Internet* separates the facts from the hype.**

Although phone companies offer money-saving services and tips, they are generally unwilling or unable to share information of real value. The money-saving aspects of their services are underplayed, and the information most commonly available to the general public doesn't even begin to scratch the surface of actual savings possibilities. A lot of phone companies would rather milk their cash cows for as long as possible. Under the present system, millions of consumers miss money-saving opportunities every day. Despite any rhetoric to the contrary, the phone companies' genuine reluctance to give up any revenue can be illustrated in an article in the 3/31/95 *New York Times*' business section: "Phone Companies Protest Fee Cut."

The purpose of this book is to serve as an alternative, unbiased resource of information to help you *tame the phone companies*. It boldly presents facts that the phone companies may not necessarily want the general public to know. The common denominator of the information is that the resultant savings will be real, measurable, and substantial. The purpose of this book is not to name or endorse particular companies, products, or services—in fact, the author will avoid doing so—but to provide the most pertinent facts in the most objective manner.

***The Cheapest Way to Make Phone Calls, Send Faxes or Use the Internet* also covers:**

- local service options;
- calling cards;
- pay phones;
- incoming toll-free calls;
- fax/modem communications;
- using the Internet;
- voice mail;
- paging.

You will find *Quick Tips* and *Quick References* at the end of many sections for additional information related to the topic just discussed. The *Quick Tips* will

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show you how to start saving money immediately in the areas that matter most to you.

Although this book provides a wealth of information based on years of research, the author promises you won't need to wade through torrents of technobabble; everything is presented in a readable and easy-to-understand format. Additional assistance is available in case you have questions or would like to obtain the very latest information in any particular area—just refer to the *Need More Help?* section in the back of the book. This section also provides access to the latest industry news, so that you can stay up to date.

Enough talk! Let's get started.

Local Phone Service

Overview

Chapter 1 describes money-saving features, services, and discount rate programs you can obtain from your local phone company for your home or business phone.

Section 1 focuses on long-distance calls within a LATA (the geographical calling zone served by your local phone company, which includes one or more area codes). These types of calls are referred to as *local zone long-distance* calls throughout this book. You may also see these calls referred to as local toll, zone, or intraLATA calls.

Section 2 focuses on custom calling features that can save you money on your local bill, and provides tips on starting new service.

SECTION 1 — LOCAL ZONE LONG-DISTANCE CALLS

Hot off the Press: 3¢/minute Calls!!

Just before this book went to press, the author found a brand new way to save money on local zone long-distance calls. His cellular phone service provider, in conjunction with his local phone company, offers a service called Smart Number. (This service may be called something different by various phone companies.)

Smart Number is an advanced voice mail system that includes features such as voice messaging, paging, and direct connect paging (for additional information, see p. 55). If you obtain a Smart Number accessible as a local call, you can save a bundle of money by simply placing outgoing calls through its voice mail/paging network. Here's how easy it is:

- 1) Dial your Smart Number.
- 2) Enter your personal identification number (PIN).
- 3) Press "9" to access an outside line.
- 4) Dial the number you wish to call for just 3¢ per minute—
regardless of the distance in the LATA or time of day.

In order to qualify for a Smart Number, you must be either a pager or cellular phone customer; however, this service does not require the use of your pager or cellular phone. The basic service fee is just \$6 per month.

Quick Tip #2: By using the memory/autodial feature of your phone, you can easily route all your local zone long-distance calls through your Smart Number.

Quick Tip #3: For a more detailed explanation of LATA or other terms used throughout this book, see the glossary beginning on p. 107.

Discount Plans

A variety of discount plans are available to reduce your phone charges. These savings programs vary widely: Different types of services are available in different areas; furthermore, even the same service may be called by a different name by some local telephone companies. Some of the plans incur a monthly charge, which may be offset by an allotted amount of toll-free calling. Here are a few examples:

- *Metropolitan Service* — Enables you to call a metropolitan region near you that would normally involve placing a toll call. This plan typically includes unlimited toll-free calling within the metropolitan area.
- *Extended Local Calling Area* — Enables you to obtain a wider local calling area.
- *IntraLATA service* — This service is useful if you make a lot of local toll calls in the calling area served by your local phone company. One program, offered by a major phone company in Michigan, charges businesses a flat rate of 12 cents per minute.
- *Circle Calling* — Enables you to save money when calling within a certain radius.
- *Intrastate service* — This service is similar to the above service, except that it applies anywhere in your state.

Quick Tip #4: You can place local zone long-distance calls through a long-distance phone company by first dialing 10XXX.

Call Forwarding

You can make calls without paying local zone long-distance charges by using Call Forwarding. Here are the steps:

- (1) Call a friend who lives between you and the person you are calling, and ask your friend to program his or her phone to forward calls to your destination.
- (2) Wait a minute or so, and then call your friend's number.

Here is a typical example: You would like to call your sister in a town 20 miles away; the call is normally a toll call. However, you have a friend who lives in a town between where you and your sister live, and he has Call Forwarding on his home phone. He can reach either you or your sister locally.

Instead of calling your sister directly, you dial your friend's phone number. The call is forwarded from your friend's phone to your destination, and no local zone long-distance charge is incurred—either by you or by your friend. Once you are connected, you can talk as long as you want without affecting your friend's telephone. In fact, once he hears the call go through (his phone will ring once), he can immediately disable Call Forwarding and/or place a call; likewise, his use of the phone will not affect the call you just placed.

Quick Tip #5: By utilizing the Call Forwarding feature of a cellular phone, you may be able to eliminate local zone long-distance charges altogether. See CALL FORWARDING TRICKS, p. 60, for a full explanation of this exciting new breakthrough.

Quick Tip #6: Have a friend forward his or her phone for you at predetermined times to eliminate the hassle of constantly having to coordinate “Call Forwarding sessions.” For example: Every Wednesday between 8:00 and 8:05 p.m.

Quick Tip #7: You can contact your friends or family all over the area code to help set up a forwarding network. This is especially helpful for anyone who needs to remain connected for long periods, such as computer users. Your phone book should list neighboring exchanges local to each other. Otherwise, you can call your operator.

Remote Access to Call Forwarding

Remote Access to Call Forwarding, also known as Flexible Call Forwarding, is a new feature for your home or business phone. It is similar to regular Call Forwarding in that you may be able to avoid paying local zone long-distance charges. However, the newer feature is more convenient; it permits you to control the forwarding of your phone from another phone while away from home using a personal identification number, or PIN.

Obviously, this feature gives you greater flexibility than regular Call Forwarding because with the more conventional feature, your phone remains set to a particular number until you or someone else is *physically* there to change it. If this type of flexibility is important to you, then it makes sense to obtain this feature.

Remote Access to Call Forwarding can be used to avoid local zone long-distance calls in the following way: When the number you want to reach is local to your home or office phone, and your home phone is a local call from where you are, then this feature essentially enables your home phone to serve as an “extension ladder” to the local calling area.

Quick Tip #8: Remote Access to Call Forwarding can help you avoid paying for local zone long-distance calls. However, when using this feature from a pay phone, you will have to pay for three local calls: one to set the forwarding, one to place the long-distance call, and finally one to cancel the Call Forwarding, thereby adding 75¢ to the cost of your call. Nevertheless, the added cost will be justified if you can avoid paying by the minute.

WARNING: Be sure to cancel Call Forwarding after you use it. Otherwise, your phone will remain forwarded to the number you called, and anyone trying to call you will reach the same number you just called.

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Remote Call Forwarding

Remote Call Forwarding is a cost-effective means for businesses to be accessible as a local call to customers in a remote area.

The local telephone company assigns a phone number at the central office (exchange) of your choice, and all incoming calls are forwarded to the phone number you designate at your location. Unlike a foreign exchange, Remote Call Forwarding does not give you the ability to *call* that remote area toll-free.

This service is most cost-effective if the exchange of the Remote Call Forwarding number is local to your own exchange. In that case, you would pay a monthly fee and perhaps an additional amount per call forwarded.

If the Remote Call Forwarding number is not local to your exchange, you would also pay toll charges. If you are in that situation, it would make more sense for you to obtain 800 service.

QUICK REFERENCE

<i>Topic related to Remote Call Forwarding</i>	<i>Page</i>
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Pay Phones

Always try to place a call for twenty-five cents first before using a calling card. In many situations, you can avoid paying local zone long-distance charges simply by using a pay phone instead of your home or business phone. The reason is that calling zones are often set up differently for pay phones than for other phones.

For example, a call to a city 20 miles away that might be billed on your home or business phone as a local zone long-distance call may be a local call on the pay phone, requiring only 25¢. Just by stepping outside, you can save a lot of money. Keep a reference list of any pay phones where this applies.

Quick Tip #9: Some pay phones are not owned by the local phone company, and the owners can charge whatever they want for the call. Whenever possible, use the pay phones that are owned and operated by the local phone company. Dial “0” to check!

QUICK REFERENCE

<i>Topic related to pay phones</i>	<i>Page</i>
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Foreign Exchange

You can have a phone number assigned to you with an exchange (the first three digits of your phone number) from a remote area that would normally be a local zone long-distance call from where you are based. Therefore, any calls that you either *make* or *receive* are local to this remote area, so no long-distance charges are assessed.

If you're already paying \$150 to \$300 per month in long-distance charges to call this remote area and you need to be locally accessible to people in that area, you would benefit from a foreign exchange.

In addition to saving money on local zone long-distance calls, there is another reason why it may be feasible to obtain a foreign exchange. By their very nature, certain exchanges are identifiable with particular areas. Having a foreign exchange connected with a prestigious area (such as a downtown exchange) may provide additional intangible value to your business.

Typically, the monthly charge for a foreign exchange is about \$100, plus \$2 for every mile separating the foreign exchange from your actual location. The phone company will normally locate the exchange that is both closest to you and local to the calling area you want, to minimize the mileage charges for which you would be assessed. In some areas, you can obtain a foreign exchange from a location in your state outside the calling area served by your local phone company.

Feature Group A (FGA) Lines

FGA lines can practically eliminate your outgoing intrastate long-distance charges—the rate is just \$.000199 per minute-mile.

These lines are designed for outgoing calls only and cost about \$400-\$800 for the installation of each line and possibly a small monthly fee. The lines are set up to save you money on calls made within your LATA, the area served by your local telephone company. The cost of the call is determined by multiplying \$.000199 by both the distance of the call in miles, and the duration of the call in minutes. The time of day is not a factor. Sample calls are given below:

<i>Time of Day</i>	<i>Distance</i>	<i>Minutes</i>	<i>Rate/Min.-Mile</i>	<i>Total</i>
Day	36 miles	23	\$.000199	16¢
Evening	21 miles	61	\$.000199	25¢
Night	41 miles	16	\$.000199	13¢

If you have many people who need to make a lot of calls simultaneously, you will need more than one outgoing line. This could become an expensive installation startup cost; still, it may be justifiable depending on the total volume of your calls. And if you need *two-way* local access to a remote calling area, a foreign exchange would be more suitable to your needs.

FGA lines were used exclusively by long-distance telephone companies before deregulation occurred. Because of a loophole in telecommunication tariffs, consumers in the affected areas had a window of opportunity to benefit from these lines. Call your local phone company to determine if FGA lines are available in your area.

SECTION 2 — MONTHLY CHARGES

When Beginning New Phone Service or Adding New Optional Features

When you start up your phone service, you can add optional features for no additional fee. Once service is established, however, your local telephone company will normally assess a fee each time you add a new feature.

Therefore, the ideal time to try out any optional features is when you order new service. If you decide you do not want to keep a feature, you can cancel it anytime at no charge. However, it does not work the other way.

Quick Tip #10: Most telephone companies charge one set fee regardless of how many calling options you add. Always add your options simultaneously, including any option you might want to try out; there is no charge for canceling—only for adding.

Quick Tip #11: Your local phone company may offer one or more calling features without a startup charge to entice customers to sign up for optional services. You can contact your local telephone company to ask when the next promotion will be.

Measured vs. Flat Rate Service

Most local telephone companies offer you the choice of either measured or flat rate service for local calls. Most people will save money with flat rate service, but if you make very few local calls, measured service is preferable.

With measured service, the number of local calls is tallied, and once a monthly allowance of local calls is exceeded, the phone company will bill you for each additional call. The length of time the call is in effect is usually irrelevant; what counts is simply that a call was made. The cost of each additional call can range from 6-10 cents.

With flat rate service, the monthly rate is higher, but there is unlimited local calling (or the calling limit is set much higher). Most local phone companies will not charge you to switch from one service option to the other.

Quick Tip #12: When comparing measured versus flat rate service, be sure to calculate how many calls beyond the allowance that you can make before you exceed the flat rate. Example: The measured service includes 50 calls per month, but it takes an additional 38 calls to make your bill match the flat rate. If you know you regularly make fewer than 88 calls per month—not necessarily fewer than 50—then measured service will save you money.

Lifeline (Reduced Rate Due to Special Circumstances)

You may be able to receive a discount ranging anywhere from \$7 per month all the way up to half your local monthly bill. Furthermore, the charge to start up your telephone service is often reduced by 50% or even waived entirely.

Many phone companies offer discounted local service—often known as Lifeline—to people with disabilities, as well as those who qualify by such programs as Aid to Families with Dependent Children (AFDC); Emergency Aid to the Elderly, Disabled, and Children; Supplemental Security Income (SSI); Medicaid; food stamps; and fuel assistance. Some local phone companies simply require that your annual income not exceed a certain amount.

Contact your local telephone company to see whether they offer such a discount program and, if so, what the qualifications are.

Distinctive Ringing Service

You can have different phone numbers assigned for each purpose, such as a home, business, and fax number—but pay only slightly more than the cost of a single line with just one phone number. Typical monthly charges for Distinctive Ringing are \$3 to \$7, depending on how many additional numbers you add.

This feature has many names: Distinctive Ringing, MultiRing, and RingMaster are just a few. A total of up to three or four phone numbers are allocated to a single phone line. You can identify which phone number was called by the number of rings. The main number will ring normally (with one long ring). The second number will produce two shorter rings, and the third and fourth number will have slightly different patterns of three rings.

This feature can also be used to identify whether the call is for your children or for other adults. (Of course, if you have any nonstop talkers at home—especially teenagers—you may still need a separate phone line.)

If you had to be present to distinguish the incoming calls, then this feature would have little utility as an alternative to separate phone lines. The *true* purpose of Distinctive Ringing is realized by following the next *Quick Tip*.

Quick Tip #13: A Distinctive Ringing switch, easily connected to your phone jack, can be installed to distinguish the rings and route calls to the appropriate device (i.e., home phone, business answering machine, or fax machine). The switch usually costs between \$65 and \$85, depending on how many numbers it is capable of handling, and is very reliable. If you have a fairly new computer fax/modem or fax machine, this feature may be built in.

Quick Tip #14: Distinctive Ringing service is a highly useful tool to help you avoid unwanted sales calls—which always seem to occur during the middle of dinner or in the last two minutes of a two-hour movie. Give out only your additional number(s) to friends and colleagues. Anytime the main phone number rings, you can let the answering machine take it. Also, there is no additional fee either for listing or not listing your additional numbers.

Caller ID Service

Caller ID is a service that provides a digital readout of the phone number of the person calling you, as well as the date and time of the call. A more advanced version of this service also displays the name of the person calling. Some benefits of this service are: (1) if someone does not leave a message, you still have all the essential information—who called and when the call was received; and (2) you can get the phone number of a prank caller.

The service usually costs around \$7 per month, plus the installation cost; furthermore, you may have to spend between \$40 and \$70 to purchase the Caller ID display, or pay an additional monthly cost to lease the device. Often, your local phone company will offer the equipment free or waive the startup fee as an incentive to sign up for the service.

If it is essential for you to know who called, regardless of whether the caller leaves a message, then there is really no substitute for this service. Otherwise, there are some viable alternatives to this service which would save you a lot of money. Most answering machines have a time stamp. Another service, Call Return, enables you to call back the last person who called you just by dialing the *69 sequence. This is useful if you are temporarily away from the phone and someone calls but leaves no message. And to deal with harassing calls, many local phone companies have a tracing service which you activate, such as by dialing *57 (after which you would then notify the company about the unwanted caller).

Caller ID Blocking Service

Caller ID Block is useful when you call a business or charitable organization and do not care to have your name given to any annoying direct marketing companies. Beware: Even when you order pizza over the phone, the company may be using Caller ID.

This service is free; furthermore, it does not require being subscribed to Caller ID service. Typically, this service is activated in one of two ways, depending on your local telephone company: (1) on a call-by-call basis by dialing a sequence such as *67; (2) on a permanent basis by informing your local phone company that you want Caller ID Block.

Also, you can purchase a blocking device from an electronics store. One type can be installed out of the way in the basement, with all the phone lines leading out from the device. A different version replaces a phone jack with the device built-in.

Quick Tip #15: Caller ID Block will not work if you're calling an 800 number. If you're calling to inquire about a product or service, you may subsequently find yourself deluged with junk mail. To avoid this problem, use a pay phone to call 800 numbers.

Quick Tip #16: It may be necessary to contact your long-distance provider to block Caller ID on calls outside your local calling area.

Suspending Your Service

If you will be out of town for an extended period—perhaps traveling abroad for 6 months or a year—you may be able to suspend your local telephone service. Typically, you will save half your normal monthly bill during the period service is suspended.

To qualify for suspension of service, you will need to meet one or more prerequisites. For example, the service must be reestablished at the same location with the same phone number. There may be a minimum or maximum time span allowed to suspend service, and there will be a fee to restore it—perhaps equal to a month's service.

***Quick Tip #17:* If you will not be away long enough to make suspension of service a viable choice, another option would be to reduce service in the following areas:**

- Choosing measured instead of flat rate service;
- Removing calling options, such as Call Waiting and Caller ID (especially if you have several options or can avoid a subsequent startup charge).

2

Long-distance Phone Service

Overview

Chapter 2 focuses on calls handled only by a long-distance carrier, rather than by a local phone company. These include all interstate calls and intrastate calls to areas outside your LATA, the calling area served by your local phone company.

Section 1 provides examples of various credits and incentive plans that can put *immediate* cash into your pocket.

Section 2 details the various rates and explains how you can use the service most suited to your calling patterns to minimize your monthly bill.

Section 3 explains some added-value features such as 6-second billing, 800 service, and calling cards.

SECTION 1 — CREDITS, INCENTIVES, AND KICKBACKS

Turning a \$50 Incentive Check into \$100

It is well known that competition among long-distance phone companies is fierce. Every month, the top three phone companies alone spend millions of dollars in advertising to lure new customers. Sending checks to prospective customers is one of today's most popular sales tactics.

A typical incentive check may start small—\$20 or \$25—but if you hold out, you may be sent larger checks—\$50 or even \$75. So if you are interested in switching but are not in a rush, it may be worth the wait. To speed things up, however, you may want to call that company to negotiate a better deal. It helps to specify any checks you've received from competing long-distance companies.

Seldom are there any strings attached to these checks—such as how long the person receiving the check must remain a customer of the company sending the check. However, there will always be a statement on the check which boils down to this: When you cash the check, you will simultaneously be switching to the long-distance company which sent the check. That company will contact your local telephone company to initiate that switch.

You can also use these checks to negotiate your deal from your *own* long-distance provider. For example, if a competitive provider sends you a check for \$50, call your own long-distance provider and inform them of that fact. Tell them it's a temptation that's hard to resist and ask whether they can meet or exceed the offer to keep you as their customer. One long-distance carrier will actually double the offer, as long as the customer commits to using their service for an additional year.

NOTE: Phone companies keep a record of when you switch long-distance services.

Quick Tip #18: The lure of a check may be tempting, but you may want

to consider the long-term savings that another long-distance provider can offer you. Example: You save 6¢ per minute in the daytime from a company that does not provide a check. If you switch, the initial \$50 savings will be exhausted after 14 hours' worth of daytime calls, and thereafter you would be receiving a negative return. Low volume users, therefore, stand to gain the most from a check incentive. Conversely, high-volume users should steer away from it entirely.

Earning \$125 Referral Credit on Your Long-distance Bill

Here's how the author received \$125 credit by referring his grandmother to his long-distance provider:

- (1) He explained to the customer service representative that he was happy with the service—in fact, whenever he had a problem, the company took care of it right away, exceeding his expectations in every way.
- (2) He asked whether there were any promotions at that time because he had thought about recommending the service to his grandmother. The promotion that they offered was a \$50 credit, but he explained that his grandmother had received a comparable credit offer from her existing service provider to remain a customer.
- (3) He asked the representative if she could consult with her supervisor for approval of a \$150 credit, spread over three months, and said he would continue to recommend that long-distance service. After speaking with her supervisor, she said that the maximum amount the company could offer was \$125. He had this money applied to her account as a gift.

His grandmother receives one statement for both local and long-distance service; payment for any bill is made solely to the local telephone company. For this reason, the credit was applicable to the total bill, including the local service portion. As a result, she enjoyed eight months of free phone service.

Earning \$1,000 Credit on Your Long-distance Bill

Why limit your credit to \$125 when there is a long-distance service that offers a free month of long-distance service up to \$1,000?

The editor found out about this special offer by calling the business department of a long-distance service and inquiring about any incentives being offered. The author is expecting to conduct a significant portion of the marketing efforts of this book during that free month.

The purpose of listing all these incentives is to make an important point: *The deals are out there.* Most of them won't be given to you unless you inquire.

Transferring Coupons and Other Incentives

If a friend or family member receives any type of coupon or certificate specifically listing the recipient's name, it may be transferable to you—or vice versa if you want to give it out as a gift. It pays to ask.

Quick Tip #19: A general rule applies for promotions: Companies offering special incentives for new customers do not inform their current customers. You have to call the company if you want to receive the incentive. One phone call can result in lower long-distance rates, free cellular airtime, etc.

QUICK REFERENCE

Topic related to credits, incentives, and kickbacks on your long-distance service

Page

Ch. 3, Sec. 1 — CREDITS, INCENTIVES, AND

KICKBACKS (on cellular service) -----46

Frequent Flier Miles

Some long-distance providers offer Frequent Flier mileage based on your long-distance usage. A typical plan might give you 4 or 5 miles' credit for every dollar's worth of long-distance usage.

Quick Tip #20: You may want to combine your different phone lines—residential, home-based business, cellular—under the same Frequent Flier program. By doing so, you will shorten the time it takes to earn a free flight.

Quick Tip #21: Don't let the Frequent Flier incentive tail wag the rate-per-minute dog. You still might get a better deal from a company that has lower rates but doesn't offer Frequent Flier mileage. Example: A company with a Frequent Flier incentive program offering 4 miles' credit for every dollar spent charges 18¢ per minute in the daytime. Another company without such an incentive charges only 15¢ per minute. If 20,000 miles must be accumulated to earn a free flight worth \$600, it would take \$5,000 worth of long-distance usage, or 27,778 minutes at 18¢ per minute, to save up for a free flight. The company that charges the lower rate would provide an accumulated

savings of \$833 over the course of 27,778 minutes, so the “free” flight actually costs \$233 more than the one paid for in cash.

Receiving Credit for Bad Connections and Wrong Numbers

Whenever you get a poor connection on a long-distance call, hang up right away and inform the operator or the customer service department of the appropriate company about the trouble.

Calls made within the LATA, the calling area served by the local phone company, are under the jurisdiction of that local phone company. All other long-distance calls are the responsibility of a long-distance carrier. This rule applies whether a call is placed directly or through a calling card pertaining to a local phone company, such as one of the Regional Bell Operating Companies. When a call is made through a calling card issued by a long-distance carrier, that carrier is responsible for the call, even if it is a local zone long-distance call.

Usually, you'll receive immediate credit. In other cases, you may have to go through the trouble of remembering when the call was made, noting it on your next bill, and deducting the amount pertaining to that call. At any rate, when your bill arrives, confirm that the charges were removed.

SECTION 2 — OBTAINING THE BEST RATES

Choosing Your Long-distance Carrier

Although price is obviously one of the most important criteria for choosing a long-distance service, there are other factors to consider. Find a company that offers as many advantages as possible, including (of course) price.

Here are some helpful hints about choosing your long-distance provider.

- Regard claims like “30% off” or “50% off” as meaningless—unless the context is clear. The operative question is, “Off what?” Almost always, these stated percentages are compared with the highest rates, which can approach 30¢ per minute in the daytime. Any company that operates under such a pretext clearly has an incentive to raise its regular rates: The higher the rates, the bigger the discounts will appear to be!
- Shop around. You have 500 to 1,000 long-distance providers and resellers to choose from. Many local phone directories publish the name, toll-free customer service numbers, and 5-digit access codes of various long-distance providers. If yours doesn't, contact Southern Bell; their directories have that information.
- Find a reseller if possible. You will receive the same high-quality connections and similar customer service—perhaps even better service. The only major difference is that you will be billed at a lower rate.

Obtaining the Best Long-distance Rates

Your first step in reducing your long-distance charges is to realize that you have a lot more than three choices for your long-distance carrier.

The process of comparing rates can be difficult for a few reasons. First, many of the smaller companies offering highly competitive rates can do so because their advertising budget is minuscule compared with the major three's. An obvious benefit to consumers from companies' smaller advertising budgets is the savings they can pass along. But for the very same reason, these companies are obscure. Most people don't know about them; in fact, it may take considerable effort to hunt some of them down.

Another factor complicating the rate comparison process is that one company may offer better rates under one certain set of circumstances, whereas another long-distance provider may be more competitive in another area. When you review your previous long-distance bills, focus on the calls that are made most frequently and/or for the longest duration. Almost any company can offer a better rate than another for a *particular* call; what counts is how much you save *overall* based on your individual calling pattern.

Most long-distance companies base the cost of a call on either (1) three rate periods—day, evening, and night/weekend, (2) two rate periods—day and non-day, or (3) flat rate—regardless of the time of day. To obtain a comparison, you may need to provide them with the area code and exchange (and possibly the phone numbers) for both your phone and the destination point.

The idea that you have to pay 20 to 30 cents per minute for a daytime interstate call is a pure myth. In fact, if you're paying more than 15 cents per minute, you're paying too much. Here are some typical rates that you should be able to obtain for various calls:

- 13 to 15 cents per minute flat rate for interstate calls (including 800 service);
- 8 to 10 cents per minute flat rate for interstate calls with a T-1 dedicated access line (including 800 service);
- 8 to 10 cents per minute for nighttime interstate calls.

All of these rates mentioned apply anywhere in the 48 contiguous states.

Here are some tips to follow:

- 1) A free deal doesn't necessarily save you money. A company that offers free airline tickets or checks may cost you *more* than one that simply provides lower rates. See *Quick Tip #18* (p. 23) and *Quick Tip #21* (p. 27) for some examples with calculations.
- 2) Find a service with 6-second billing to avoid paying for time you're not actually using.
- 3) Flat rates are easier to calculate than time-sensitive rates. However, whether they will actually save you money depends on your calling patterns.

- 4) Do not charge your long-distance calls to a credit card simply because free airline mileage or cash back is offered. You will pay a lot more in interest than you would save—unless you pay the total balance due right away.
- 5) Avoid operator-assisted calls. If you *must* make such a call, find out the charge ahead of time. Rates can vary widely.
- 6) When placing a long-distance call in your LATA (the calling area served by your local phone company), if you want to use the same long-distance provider that you use for interstate calls, you must first dial the long-distance company's 5-digit access code (10XXX).
- 7) Periodically reassess your calling patterns and long-distance service every six months or so.

Consult the *Need More Help?* section if you would like to receive a free analysis of your phone bill.

Quick Tip #22: Whenever you receive offers from competitive long-distance companies, inform your current long-distance carrier. They may match or exceed the offer to prevent you from switching. If you don't call them, you'll continue to pay a higher rate for no reason.

Obtaining the Best International Long-distance Rates with Call Back

If you have friends or family members who live overseas and make international calls, it may be advantageous for them to contact a Call Back long-distance service provider to obtain an access number and personal identification number (PIN). Here are the steps to placing overseas calls:

- 1) Dial the U.S.-based phone number, then enter a PIN and the overseas number.
- 2) Hang up the phone and wait for a returned call from the Call Back service provider.

The two parties actually talk via a conference call established by the Call Back provider. The reason this system can save your friend or relative money is because it is usually less expensive to place both an international and an interstate call from the U.S. than to make a single international call to the U.S. from abroad. The savings are simply passed to the consumer.

QUICK REFERENCE

<i>Topic related to Call Back</i>	<i>Page</i>
Personal Identification Number (PIN) Security	99

SECTION 3 — VALUE-ADDED FEATURES

6-second-increment Billing

Six-second billing can save both residential and business customers a lot of money. If your long-distance provider bills you in 6-second (1/10 minute) increments, your bill will more accurately reflect your actual calling time; you will not be charged nearly as much for the time that you did *not* talk. Six-second billing can also apply to 800 service, international calling, or local zone long-distance calls—even calling card calls.

An example: If you place a call for one minute and three seconds, standard one-minute billing would calculate that as a two-minute call, billing you for 100% of the second minute. On the other hand, with 6-second billing, the call would be rounded to 1 minute and six seconds; here you would be paying for only 1/10 of the second minute (saving 45%).

Needless to say, 6-second increments can save you money—assuming all else is equal. But watch out for the hype. Such hype can include higher rates just for the “privilege” of having 6-second billing.

Example: Using the interstate rate table below from a long-distance company, how much does it cost to make a 5-minute evening call to someone 700 miles away?

Mileage Band	----- DAY -----		----- EVE -----		----- NIGHT -----	
	1st	Ad'l	1st	Ad'l	1st	Ad'l
293-430	0.0571	0.0217	0.0383	0.0175	0.0287	0.0131
431-925	0.0592	0.0228	0.0385	0.0175	0.0335	0.0155
926-1910	0.0592	0.0228	0.0407	0.0186	0.0335	0.0155
1911-3000	0.0592	0.0228	0.0407	0.0186	0.0335	0.0155

Rounding is 18 seconds for initial period and 6 seconds for additional period.

If you calculated anything other than 86¢ (such as 11¢), then you can understand how information like this could be interpreted in more than one way. The *1st* refers to the first 18 seconds, not the first minute; and the *Ad'l* refers to each 6-second increment, not each additional minute. Overall, this call costs a whopping 17¢ per minute in the evening.

Why wasn't the answer obvious? Because most people have seen charts that show the cost of calls for the first minute and for each additional minute. This company apparently takes advantage of that fact in its promotions; it's all part of the hype.

800 Service

Many long-distance providers now offer 800 service with *no* service charge and *no* minimum usage requirement. You pay only for the incoming calls—and these rates are becoming very competitive, as well.

A breakthrough came in 1993 when the government ruled that various 800 exchanges are no longer the property of long-distance phone companies. Thus, a company that is searching for a particular 800 number is no longer limited to a particular long-distance company. This 800 portability has helped to open up competition, as well as bring down the price.

Quick Tip #23: 800 service has money-saving applications for residential as well as business purposes. Unless you never foresee needing 800 service for the uses depicted in the next two *Quick Tips*, get an 800 service with no service charge and no minimum usage requirement.

Quick Tip #24: Businesses and residential customers alike can use 800 service to avoid calling card expenses and hotel surcharges. 800 service is a savings tool that can be used by *employees*—not just customers.

Quick Tip #25: Here is a money-saving application for residential 800 service: Your children in college can call you home free (from their perspective), even if their dormitory doesn't provide them with long-distance service. And, in fact, if they don't have long-distance service, then you're saving a considerable amount over the cost of a collect call that would otherwise be incurred.

QUICK REFERENCE

<i>Topics related to 800 service</i>	<i>Page</i>
Remote Call Forwarding	9
Foreign Exchange	11
Toll-free Calls	61

Calling Cards and Pay Phones

Most calling cards offered by the smaller long-distance service providers do not have any surcharge. Sometimes, they may have a small surcharge, perhaps 25¢. Typically, their rate per minute is between 20-25 cents. The companies issuing cards with a 75¢ or 80¢ surcharge usually charge the same long-distance rate that you pay on your home or business line. A no-surcharge calling card will usually save you money, unless you only make lengthy nighttime calls.

Some calling cards include voice mail and fax mail. With one card, you have the convenience of receiving all of your messages and faxes wherever you are—and using the same card to place your calls.

Obscure companies abound with the sole purpose of providing local and long-distance service on pay phones at astronomical rates to unsuspecting customers. The author would like to share a story about almost using his local phone company calling card to place a *local* call (just three blocks away) from a pay phone because he didn't have any coins with him. Before using the calling card, he dialed the operator to inquire about the rates; this local call would have cost \$5 for the first ten minutes. By going to a nearby store and getting change instead, he placed the call for 25¢. In this case, the information obtained was worth \$4.75 (or 95%) off the cost of a single call.

If your long-distance company provides an 800 number for the calling card it issues, you're safe from price gouging by the pay phone long-distance services. It is when you initiate a calling card or collect call by dialing 0 + the number that you have to be careful. *Always know which long-distance company a pay phone uses.* You can dial 0-700-555-4141 toll-free to find out the long-distance carrier. Also, dialing 0 will give you access to the local phone company operator, and dialing 00 will give you access to the operator of the long-distance carrier.

Do not assume, just because you place a call in your own LATA or in the same area code that the pay phone is in, that your local telephone company will be the one billing you for the call. To save time and ensure you're using the long-distance carrier of your choice, use a 5-digit access code before you place a call, even if there is a label on the phone stating which company is the carrier. Labels can deceive.

Quick Tip #26: Calling card calls should only be made when less expensive alternatives are not available to you. Here are some less costly options:

- Using pay phones that charge \$1 for a 3- or 4-minute call to anywhere in the country (unless your calling card is even a better deal);

- Calling your home or business 800 number;

- Using Call Forwarding on your cellular phone or Remote Access to Call Forwarding to avoid local zone long-distance calls.

Quick Tip #27: Some pay phones are not owned by the local phone company, and the owners may set up the phone so that it does not accept 5-digit long-distance access codes. Even 800 numbers are not foolproof. The company operating the pay phone may block particular 800 numbers—highly illegal, but it may happen nonetheless. Whenever possible, use the pay phones that are owned and operated by the local phone company.

QUICK REFERENCE

<i>Topics related to calling cards and pay phones</i>	<i>Page</i>
Pay Phones-----	10
Toll-free Calls -----	61
Personal Identification Number (PIN) Security -----	99

T-1 Dedicated Access Lines

A T-1 line is a digital dedicated access line capable of handling 24 simultaneous voice grade transmissions. Often a T-1 line is less expensive than several ordinary phone lines and uses the same dial “1” to access your long-distance carrier. Long-distance rates on a T-1 are very inexpensive—ranging from 8-10 cents per minute flat rate.

Notwithstanding, this service is designed specifically for high-volume users. The breakeven point, compared with a regular line, is \$3,000 to \$4,000 per month because of the startup and monthly costs. It costs about \$500 to set up the line, and the monthly rate is also about \$500, not including the long-distance calls. Furthermore, a T-1 line requires special equipment to convert digital signals to analog and vice versa, which can bring the monthly cost to \$700 to \$1000.

500 and 700 Service

Two relatively new services available are 500 and 700 service. Both are essentially feature-laden long-distance Call Forwarding services that cost 25¢ per minute in the day and 15¢ at all other times. The monthly rate is low—between \$3 and \$7. You can select your own personal phone number and keep it for life. The numbers include voice mail and several other features accessed by using a personal identification number (PIN).

One important difference exists between these two services: 500 is compatible with all phone systems. It can be accessed through any long-distance company by first dialing either 0 or 1. The 700 service, on the contrary, is severely limited. Accessible only through the long-distance company handling the 700 number, it requires your placing a call either by dialing an access code, an 800 number, or 0-700. So if you're considering one of these services, get 500 because the price structure is similar.

Depending on the level of service you choose, you may have a reverse billing option: You choose whether you will pay for a call you received or make the caller pay for the call.

Various Call Forwarding options are available, as well. You can select a phone number that remains permanently forwarded to your home or one that can be reset at any time. One advanced option lets you forward your number to four different numbers at one time; if there is no answer at the first number, it will automatically proceed through the additional numbers until it reaches one where there is an answer. This option is especially useful for people continually on the move, such as salespeople and truck drivers.

Collect Calls

When you make a collect call, you will save substantial money by using an 800 collect calling service rather than placing the call through either your local phone company or a long-distance service operator.

Before you place a collect call, dial the various toll-free numbers to investigate how much the call would cost. If you need more specific information, call the toll-free directory, (800) 555-1212, or consult the *Need More Help?* section.

Quick Tip #28: Avoid placing a collect call if you can. The rate per minute is usually better than when you use a calling card, but there is a much bigger surcharge—although of course *you're* not paying for it!

How to Avoid Paying for Operator-assisted Calls

Make sure you're not paying for an operator-assisted call if that is not your intent. This mishap can occur when you are placing a calling card call.

After you enter the calling card number, if an operator appears, verify that you will be assessed the normal calling card rate, not the operator-assisted rate. The same holds true if you are having the operator place the call because it did not go through when you dialed it directly.

Cellular Phone Service

Overview

Section 1 provides examples of various credits and incentive plans that can put *immediate* cash into your pocket.

Section 2 details the various discount rate plans and explains how you can use the one most suited to your calling patterns to minimize your monthly bill.

Section 3 explains some added-value features of a cellular phone that can save you money as well.

Section 4 lists some money- and time-saving features of your cellular service. For example, you can use a cellular phone to make local zone long-distance calls at huge savings and also eliminate needing to using a calling card.

SECTION 1 — CREDITS, INCENTIVES, AND KICKBACKS

Earning \$500 Credit on Your Cellular Bill

You may be able to receive a purchase credit of up to \$500 for a new cellular phone. This figure was *not* pulled out of a hat: The author actually negotiated a purchase credit for that amount last year! The reason some service providers are willing to make such an offer is they'll be guaranteed to have you as a customer for another year or two.

Here is a typical scenario: You bought a phone several years ago, and your needs have changed (for example, you need a data-compatible phone). Often, competing cellular phone companies will offer you a purchase allowance or even a free cellular phone to entice you to switch to their service. If you contact your present cellular provider and show them the competitor's deal you are considering, they may be willing to match or exceed the incentive in order to keep you as their customer.

Even if you are not currently a cellular customer, you can still apply the above principles and possibly obtain a free cellular phone.

Earning 2,000 Free Minutes of Airtime

When you renew or negotiate a multiple-year service contact with a provider, ask a customer service representative how many minutes of airtime the company is willing to give you. This approach can apply regardless of whether you are staying with your provider or changing to a new one.

If you're a heavy cellular user and can provide proof such as old phone bills, you can usually obtain more free minutes than someone who uses his cellular phone very little or has never owned a cellular phone. The author negotiated 2,000 free minutes of airtime and all the custom calling features he wanted at no extra charge. In addition, he was offered a very low daytime rate: 20 cents per minute.

If you need help with reducing your cellular phone rates, see the *Need More Help?* section at the back of the book.

Referral Credits and Cellular Rewards

Often you can receive a referral credit on your account simply by notifying your cellular service provider of a friend to whom you would like to recommend the service. Typical credits are \$35.00 or 100 free minutes of airtime.

Another common program offered is Cellular Rewards, whereby you can earn a point for every dollar spent. After you accumulate a certain amount of points, you can redeem them for free airtime, merchandise, or travel. Call your cellular service provider to find out whether they offer either of these programs.

QUICK REFERENCE

Topic related to credits, incentives, and kickbacks on your cellular service

Page

Ch. 3, Sec. 1 — *CREDITS, INCENTIVES, AND KICKBACKS* (on long-distance service)-----

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Receiving Credit for Bad Connections and Wrong Numbers

Whenever you get a poor connection on a cellular phone call, hang up right away and inform the customer service department about the trouble. You will be credited for the call.

Quick Tip #29: If your cellular service provider is down, call their customer service department and inform them of the trouble. Some companies have a policy of crediting their customers for a whole day's worth of service, regardless of whether the problem lasts for a day or for just a few minutes. Also, you may be able to negotiate a credit if you can persuade your cellular provider you have lost business or otherwise have been inconvenienced.

SECTION 2 — OBTAINING THE BEST RATES

Choosing the Best Service Rate Plan

Choosing the right rate plan is essential to saving money on your cellular service. Several rate plans are available. Here are some examples:

Base Charge	Minutes Included	Additional Minutes Charged at
\$ 25	15	60¢ Daytime
\$ 50	100	33¢ Daytime
\$ 89	250	30¢ Daytime
\$ 149	500	27¢ Daytime
\$ 189	750	24¢ Daytime

Two important facts are apparent from this chart. First, the more you talk, the less you pay per minute. The 100-minute plan costs 50¢ per minute, whereas the 500-minute plan costs 29.8¢ per minute. Even more importantly, regardless of the number of minutes you talk, you will pay more than you have to if you do not choose a rate plan that closely reflects the amount of time you talked. For example, if you are on a 100-minute rate plan but talk for 500 minutes during a month, you will pay \$182, \$33 or 18% more than you would if you were on the more appropriate 500-minute plan. Similarly, you will pay more than necessary if you use far fewer minutes than what your rate plan includes.

Of course, your calling time will vary from month to month, so how can you be sure you're maximizing your savings? The answer is that many cellular providers have no restriction about *when* you choose a rate plan. Regardless of which plan you originally chose, you can often modify your plan *retroactively* near the end of the billing cycle to reflect the actual usage of that month. You can keep track of how many minutes you are actually using between billing cycles through the built-in cumulative call timer or by calling your service provider.

Example: The billing cycle of your cellular service coincides with the calendar month. Before March began, you had chosen the 500-minute rate plan. However, by March 28, you have used only 200 minutes of airtime. This would be the perfect time to contact the cellular phone company and ask them to

change your rate plan for that month from the 500-minute plan to the 250-minute plan. *Your savings from this one phone call: \$60!*

Quick Tip #30: If you are a high-volume user, you may be eligible for a special long-term contract with daytime rates as low as 20¢ per minute.

Quick Tip #31: Make sure you reduce your basic cellular rate plan before you go away on vacation.

Roaming

Whenever you use your cellular telephone outside the home calling area served by your local cellular phone company, you are “roaming.” The charge for roaming can range from 50¢ to over \$1 per minute, plus a daily usage fee of up to \$3 or more. Furthermore, you are responsible for all applicable long-distance charges. Consequently, a ten-minute call while roaming could cost you around \$15-\$20 if you are not careful. To avoid roaming accidentally, you can set your cellular phone to function only with your home carrier.

Before you roam, call *611 or *711 from your cellular phone to find out the roaming rate for that particular calling area. Your own cellular provider should also have roaming rates. And there are books that outline these rates on a state-by-state basis.

Roaming is less expensive if the cellular company in the area in which you are roaming has any business ties with your own cellular service provider. For example: Ameritech and Bell Canada, because they are both regional Bell companies that serve customers in a single region (Detroit, Mich. and Windsor, Ont.), provide relatively inexpensive roaming charges, around 50¢ per minute. You should consider the areas you are most likely to call from before selecting your cellular service provider because each provider has different roaming areas.

Your cellular phone has a “roam” indicator light to alert you whenever you are out of your home calling area. There is no need to be concerned about incurring a roaming charge just because the “ROAM” light went on: Roaming charges accrue only when you actually place a call.

Personal Communications Services (PCS) and Economy Cellular

Cellular service is becoming increasingly competitive: Several companies offer free activation and low-cost or even free weekend calling. Personal Communications Services (PCS) industry insiders state that their service will cost as little as \$10-12 per month and 25¢ *per call*. The price advantage is offset by a limited calling area. Nonetheless, beware of being locked into a very long-term cellular plan, as prices could fall.

PCS may function as a useful supplement to existing cellular services, serving to augment the more traditional coverage offered today. This new technology is expected to include an array of “follow-me” gadgets. For example, wristwatch phones will allow communication virtually anywhere—home, office or car—all through one phone number.

As of mid-1995, it is unclear whether PCS will be a viable competitor of cellular service providers. The technology involved to set up the service is expensive. For example, just to compete with cellular operators in any market on an even basis, PCS providers will need to set up five times as many radio towers as their more traditional counterparts. Building is just about to get under way, as radio licenses were recently approved.

SECTION 3 — VALUE-ADDED FEATURES

Voice Mail Services

Cellular phone companies offer voice mail as a service to their customers. This electronic message service allows you to retrieve your messages remotely, usually without paying toll charges.

Voice mail can be a money-saving tool for any business because it eliminates the need for an expensive full-time secretary, and it is accessible toll-free in the LATA, the area served by your local telephone company. Therefore, this service is very useful if you are on the road a lot because you can check your messages from any pay phone owned by your local phone company without incurring any credit card charges.

The newest cellular phones are equipped with a built-in voice mail feature, capable of recording messages of up to 75 seconds in length.

Quick Tip #32: You may want to forward your office phone to your cellular phone whenever you plan to be on the road. Whenever your cellular phone is busy or turned off, the call will automatically be directed to the voice mailbox, so you will never miss an important call.

Advanced Voice Mail/Paging Services

The newest type of voice mail/paging service enables people to reach you by calling just one phone number. Costing from \$6 to \$17 per month, this service offers several benefits such as:

- Enabling a caller to select from a voice menu to (1) leave a message, (2) be transferred to your home, office, car, or fax machine, (3) page you, or (4) be put on hold until the system locates you and connects you with the caller automatically;
- Permitting you to reduce your roaming charges by screening out unnecessary calls to your car phone;
- Eliminating calling card expenses by allowing you to place an outside call for 3 cents per minute plus applicable toll charges.

QUICK REFERENCE

<i>Topics related to advanced voice mail and paging services</i>	<i>Page</i>
Hot off the Press: 3¢/minute Calls!!-----	2
Personal Identification Number (PIN) Security -----	99

Remote Message Transfer Answering Machines

When a message is left on an answering machine with a remote message transfer feature, the machine then dials a number you programmed into it and plays back the incoming message after you enter a personal identification number (PIN). With this type of answering machine, you can immediately screen the message and promptly return the call via your cellular or regular phone.

A remote message transfer answering machine works hand in hand with a cellular phone for people who are on the road a lot. Furthermore, you can avoid paying for airtime. The next page tells you how.

QUICK REFERENCE

<i>Topic related to remote message transfer answering machines</i>	<i>Page</i>
Personal Identification Number (PIN) Security	99

Using Your Cellular Telephone as a Beeper

If your cellular telephone rings and you do not answer it, you are not billed for that attempted call. Therefore, you can essentially use your cellular telephone as a beeper, without paying a pager service monthly fee and without incurring any airtime charges. Simply follow the steps below:

- (1) Contact your cellular service provider to activate Call Forwarding.
- (2) Program your cellular phone to forward calls to your answering machine (unless you are already using a voice mail service through your cellular provider).
- (3) Hang up the phone.
- (4) Anytime the phone rings, call your answering machine or voice mailbox to retrieve and screen any messages. If you are using the No Answer/Busy Transfer feature rather than immediate Call Forwarding, the display on your cellular phone will indicate a call has been received.

Quick Tip #33: If you are retrieving your messages from an answering machine, you can save money by using a regular phone and having your cellular phone forward this call, as described in *Toll-free Calls*, p. 61.

Quick Tip #34: Some of the newer hand-held cellular phones are equipped with a vibrating mode, just like a pager. This is a great feature for those times when you're in a meeting. This mode can also be used in cases when you anticipate being in a rough neighborhood where you do not feel comfortable revealing that you have an expensive device on your person. Other new ultra-lightweight models of cellular phones are actually equipped with an alphanumeric pager.

Three-way (Conference) Calling

Most cellular phone companies offer Three-way Calling, allowing you to talk with two other parties simultaneously. Although you might expect to pay twice the airtime, many companies in fact charge you the same as they would for a single call.

If your cellular provider bills a three-way call as a single call, there are times when this feature can save you money on your airtime. For example, when you need to contact several people to tell them the same information, you can spend half the airtime by using Three-way Calling. Consult the various cellular phone companies for rate comparisons.

SECTION 4 — CALL FORWARDING TRICKS

Saving Cash on Local Zone Long-distance Calls

A remarkable loophole exists in the telephone network. By utilizing the Immediate Call Forwarding or No Answer/Busy Transfer feature of your cellular phone, you can possibly eliminate your local zone long-distance charges assessed on a regular phone (home, business or pay phone). At least, you can save significant amounts of money each month on these charges.

Toll-free Calls

To make toll-free calls anywhere within your LATA, the calling area served by your local phone company, simply follow the steps below:

- (1) Contact your cellular service provider to activate Call Forwarding.
- (2) Program your cellular phone to forward calls to the number you'd like to reach. A typical example: Press *68 and enter the number you want to forward your calls to. Press the SND (send) key. You should hear two confirmation tones. (Because the exact sequence to program Call Forwarding can vary, it is best to obtain instructions from your local cellular phone company.)
- (3) Hang up the cellular phone by pressing the END key.
- (4) Pick up any regular phone and dial the number of the cellular phone.
- (5) Once you are connected with your party, immediately cancel the Call Forwarding or reprogram it to another phone number; it will not affect the current connection. That way, you won't forget to do it later.

Although this call is toll-free anywhere in the LATA, some cellular providers charge a low per-minute forwarding fee. Most of the time, however, these calls are made without paying any local zone long-distance charges, regardless of the time of day, length of the call, or destination. More details and examples are provided in the next section, *How Cheap is Cheap?* on p. 63.

The procedure for receiving toll-free calls using your cellular phone is virtually identical. The only difference is you program your cellular phone to forward calls to your home or business number, and have your friends and associates reach you by calling your cellular phone number.

By setting your cellular phone to forward calls permanently, you can ignore step 5 above and save yourself the trouble of constantly reprogramming the phone. You can use this toll-free line for receiving calls, faxes, and messages from employees. From the perspective of the caller, it's like an 800 number—the call is free anywhere in the LATA. From your perspective, the cost is much lower than using an 800 service. This technique can also be used to link two regional offices permanently through a dedicated line.

There are two types of call forwarding you can order for your cellular service. Both can be used to save money on local zone long-distance calls: with the No Answer/Busy Transfer feature, the cellular phone will not forward calls immediately; instead, it will ring four or five times before forwarding calls to your programmed number. This gives you a choice between answering an incoming call or allowing the phone to ring a few times and then to forward the call. With Immediate Call Forwarding, on the other hand, anytime you want to receive incoming calls, you must disable the feature.

How Cheap is Cheap?

Here are some examples of how much money you can put in your pocket simply by using cellular Call Forwarding the next time you make a call within your local calling area.

<i>Distance of Call within the LATA</i>	<i>Time Called</i>	<i>Duration of Call</i>	<i>Forwarding & Land Line Charges</i>	<i>Toll Charges</i>	<i>Total Charges</i>
45 miles	10:59 a.m.	38 min.	\$ 0.08	\$ 0.00	\$ 0.08
The same call using a conventional phone (based on daytime charge of 15¢/min.):			\$ 0.00	\$ 5.70	\$ 5.70

In the previous example, no forwarding fee is assessed. You can stay on the phone indefinitely and pay just 8¢. In the next example, the company has modified the loophole, which eliminates your being able to pay only 8¢ regardless of how many minutes the call lasts.

<i>Distance of Call within the LATA</i>	<i>Time Called</i>	<i>Duration of Call</i>	<i>Forwarding & Land Line Charges</i>	<i>Toll Charges</i>	<i>Total Charges</i>
37 miles	2:49 p.m.	25 min.	\$ 1.58 (\$ 0.08 + \$ 0.06/min.)	\$ 0.00	\$ 1.58
The same call using a conventional phone (based on daytime charge of 15¢/min.):				\$ 3.75	\$ 3.75

Even with this scenario, you're saving a lot of money. Compared with regular airtime, the 6-cents-per-minute forwarding fee saves 90%. Compared with a typical local zone long-distance rate of 15¢ per minute in the daytime, it saves almost 60%. In addition, the low forwarding rate applies regardless of the time of day and, in most cases, regardless of the distance. All in all, it's still a great deal—especially if you already have a cellular phone.

Quick Tip #35: You may even find it worthwhile to obtain cellular service just for the savings described in this section. Before you do so, see *Earning \$500 Credit on Your Cellular Bill*, p. 46, to learn how you may be

able to obtain a free cellular phone. And make sure you keep that cellular phone with you as much as possible.

Quick Tip #36: If you need to know which cellular providers in your area still do not charge a per-minute forwarding fee, see the *Need More Help?* section.

Quick Tip #37: If you signed a cellular service contract for a specific period of time, and if the cellular provider increased its charges for forwarded calls in the middle of your contract period, you have the right to be charged under the old system until your contract expires. If you are in that situation, contact your cellular provider to confirm its billing methods.

QUICK REFERENCE

<i>Topic related to Call Forwarding tricks</i>	<i>Page</i>
6-second-increment Billing	34

Fax/Modem Communications

Overview

Section 1 provides information you need to know in order to purchase the best fax/modem for your needs.

Section 2 provides comprehensive information about faxing, including fax servers, broadcast fax services, batch sending, and fax-on-demand.

Section 3 shows you how to save significantly on your communication costs by using the Internet. It provides basic information to start up an Internet shell or SLIP/PPP account and use the most important features—e-mail, talk, and FTP—to communicate with people and send files anywhere in the world without incurring any long-distance charges. For more detailed information about the Internet, you may want to visit a computer store or bookstore, or consult the *Need More Help?* section at the back of the book.

SECTION 1 — HOW TO CHOOSE A FAX/MODEM

General Recommendations

- (1) *Purchase a fax/modem that supports standardized protocols* such as V.34, V.42bis/MNP-5, and V.32bis. The V.32bis standard is designed for communication at 14,400 bps (bits per second), and V.34 is the current standard for 28,800 bps connections. V.42bis/MNP-5, by using compression, increases the data transfer rate by up to 4 times that of fax/modems without this protocol, and it includes error correction. All of these protocols meet ITU standards, ensuring greater reliability and interchangeability with fax/modems of different brands. It is better to look for these internationally recognized “V.##” (V followed immediately by a 2-digit number) standards than to rely on claims from individual vendors about effective throughput up to some number, such as 115,200 bps. In and of themselves, these figures are meaningless because they are contingent upon two fax/modems of the same brand and type being connected together—which seldom occurs in real life.
- (2) *Purchase a V.34, 28,800 bps fax/modem with V.42bis/MNP-5*; the prices are dropping quickly. If your budget doesn't permit a 28,800 bps fax/modem with these features, you can obtain a V.32bis, 14,400 bps fax/modem for under \$50—so inexpensive it makes no sense to get anything slower.

(3) *Other considerations based on the primary intended use:*

- For transferring files, buy a V.34, 28,800 bps fax/modem with V.42bis/MNP-5. Of course, make sure you can find a provider that either supports or will support this speed.
- For faxing, a brand-name fax/modem with all the standard protocols and a speed of at least 14,400 bps is optimum. However, even if you don't anticipate using your fax/modem often for data transmissions, consider purchasing a V.34, 28,800 bps fax/modem with V.42bis/MNP-5; it's the best long-term value. Higher-speed fax/modems are always backwards-compatible; they can adjust to slower speeds if necessary, including the current fax speeds of 14,400 bps and 9,600 bps. There are two classes of fax/modems to consider: Class 1, which is software-driven and includes error correction, and Class 2, a more intelligent, yet not as widely used, version which is hardware-driven. Either type is acceptable.
- Fax/modems with voice-messaging capabilities are relatively inexpensive and, combined with appropriate software, turn your computer into a sophisticated answering machine with private mailboxes for hundreds of callers. Each caller can be prompted by voice either to leave a message in the appropriate mailbox or to retrieve information automatically. As of mid-1995, 28,800 bps voice/fax/modems are beginning to be sold.

Comparing Fax/modems

Here are some additional choices to consider when shopping for a fax/modem. The general recommendations mentioned previously should be kept in mind when you compare the following attributes:

- (1) *Brand-name vs. generic:* In most cases, generic fax/modems will work fine. The most important consideration is whether they include the standard communication protocols. The latest protocols, such as V.32bis, V.34, and V.42bis/MNP-5, are more likely to be found on brand-name rather than generic fax/modems. An important advantage of brand-name versions is that the ROM can be upgradable—which means your fax/modem won't become obsolete as standards improve. For example, the newest upgrade (V.34⁺) increases the top speed for a 28,800 bps fax/modem to 33,600 bps, and V.34bis (36,000 bps) is in development. The more expensive brand-name fax/modems are compatible with almost every communication protocol—including nonstandard ones developed in the interim.

- (2) *Internal vs. External:* Internal fax/modems are preferable because typically they are more reliable than their external counterparts. Here are some pros and cons to consider:
 - External fax/modems require an RS-232 serial cable to be connected externally for installation; however, a special buffered serial port incorporating a UART 16550-compatible chip is necessary for optimum high-speed communication. If your computer doesn't have this type of serial board, you'll have to purchase and install one that does.

- Internal fax/modems should have a buffered UART serial port built in. Before installing the fax/modem, make sure you change a simple jumper setting on the *I/O* (input-output) board to disable the external *COM* (communication) port that will be used by the device.
- (3) *PCMCIA/PC vs. full-sized*: PCMCIA/PC fax/modems can be equipped with built-in features such as voice mail and interfaces for cellular phones and local area networks (LANs). Unfortunately, these credit-card-sized fax/modems are subject to hazards seldom encountered by full-sized internal fax/modems. For example, digital PBX phone systems, often found in hotels, can fry a PC fax/modem. A device used to check the line voltage before you plug in your fax/modem can be purchased at a computer or phone store. If you have a notebook/laptop computer and need to use a fax/modem for heavy use, such as broadcast faxing, a full-sized external version is recommended.
- (4) *Flash ROM vs. regular ROM*: Digital Signal Processing (DPS), often called flash ROM capability, allows you to upgrade your fax/modem by simply replacing a master circuit chip—almost as easy as replacing a battery in your cordless phone. Fax/modems based on this technology are programmable and may even be upgraded by copying a software file into the flash ROM of the device, just as you can upgrade a computer program, such as a word processing application, to a newer version without changing any hardware.

Quick Tip #38: If you have a 28,800 bps fax/modem but are always connecting at slower speeds, the most common reasons are limited line capacity or excessive line noise. If you want guaranteed 28,800 bps or higher speed communication, it will be necessary to obtain an ISDN digital line.

Quick Tip #39: If you have a high-speed fax/modem and are experiencing communication problems, consult your fax/communications software manual to learn how to reduce the speed of the fax/modem to see if the problem disappears. If it does, then line noise may be the culprit; high-speed communications are particularly vulnerable to line noise.

Quick Tip #40: A cellular phone with an interface can be used for faxing or e-mail, although this approach is not recommended for high-speed communications. (When your regular phone lines are down, your cellular phone can be used as a backup.)

SECTION 2 — FAXING

Eight Important Faxing Tips

- 1) Always send important faxes to yourself or to a friend for review before sending them to others. The margins of the document often fax differently from how they appear on the screen, and colors may come out black instead of gray.
- 2) Use sans serif fonts such as Arial, Univers, or Helvetica for best results. An exception to that rule is Lucida Fax, a serif font specifically designed for faxing. **Boldfacing** the text can also improve its readability.
- 3) Avoid using pictures, screens, and colors in any of your documents because (1) they often come out solid black when faxed from a machine, and (2) the transmission time from a computer can be several minutes for a single page if the software faxes the image in fine detail.
- 4) For long-distance—especially international—faxing, send urgent faxes during the day and more routine faxes at night when phone rates are less expensive.
- 5) After you fax a contract or any other important document, be sure that you mail a printed copy, too. Sometimes, there is no substitute for an original, especially if a signature is required.

- 6) If you are using a fax machine, keep it clean. You may want to fax yourself a letter periodically to see what your recipients are getting. It's a good idea to clean your fax machine once a month or so.
- 7) If you receive faxes from overseas, you will need an A4 (21 x 29.7 cm) paper tray to accommodate Asian and European paper sizes.
- 8) Reduce costs by finding a good deal on a long-distance carrier that bills in 6-second increments. Consult the *Need More Help?* section if you would like to receive a free analysis of your fax bill.

QUICK REFERENCE	
<i>Topics related to faxing tips</i>	<u>Page</u>
Distinctive Ringing Service (virtual fax line) -----	16
6-second-increment Billing -----	34
Sending Faxes Free-----	88

Computer Faxing vs. Manual Faxing

If you have a choice between faxing a document directly from a computer fax/modem or doing so from a fax machine, it is usually preferable to choose the computer. The quality will be better than a comparable resolution fax sent from a machine.

Another advantage of faxing from a fax/modem is that the time of transmission will probably be less—depending on the type of fax/modem you have—saving you money if the fax is going long-distance. Here are the benchmark results of an actual test:

# of Pages	Transmitted by	Resolution	Density	Total Time
1	Machine	Fine	High	1:02
1	Computer	Fine	High	0:50
2	Machine	Fine	High	3:08
2	Computer	Fine	High	2:58

These examples represent potential long-distance savings of 50% and 25% respectively if your long-distance company bills in one-minute increments. Even with 6-second billing (see p. 34), which more closely reflects the actual faxing time, the savings are 18% and 6%.

Fax software is a bargain with street prices ranging from \$70 to \$90 and with features available only on the most expensive fax machines. The bottom line: using a fax/modem will pay for itself very quickly.

Batch Sending

Most fax machines have a batch mode setting, which enables you to store your faxes into memory and send them out simultaneously at key times throughout the day or to delay them until the rates are cheapest.

A typical example of the money you can save by using batch sending for three-page international faxes is given below. The figures below assume a one-minute-per-page fax transmission using fine resolution.

# of 3-page faxes sent each day	5	10	20
Cost of sending the faxes individually	\$17.85	\$35.70	\$71.40
Cost of sending the total number of faxes using a single overnight batch transmission	\$9.75 (15 pages)	\$19.50 (30 pages)	\$39.00 (60 pages)

In this example, the first-minute rate is no higher than for each additional minute; nonetheless, batch faxing at night reduced the cost by almost one half. This price differential between daytime and nighttime calls is critical for companies sending international faxes. A typical daytime rate to Japan is \$1.19 per minute, whereas the nighttime rate is \$.65. (Note: We have found rates both significantly higher and lower than these, some that incorporate higher first-minute charges, and some that charge the same rate 24 hours a day.)

If you send several faxes to a particular long-distance number at the same time by batch, rather than making separate phone calls throughout the day, you will save a *substantial* amount in charges that would be incurred because it takes time for fax machines to establish communication. Again, the savings can be especially pronounced for companies that send international faxes (e.g., to an overseas branch or main office) because of the often higher first-minute charges.

QUICK REFERENCE	
<i>Topic related to batch sending</i>	<i>Page</i>
Ch. 2, Sec. 2 — OBTAINING THE BEST RATES-----	29

Fax Mail Services

Fax mail works similarly to voice mail: Both are computerized message centers with menu-driven voice prompts instructing you how to leave and retrieve messages—except that in this case faxes, rather than voice messages, are transmitted.

The benefit of this service is that no matter how much you travel, you can easily access your faxes. The stored fax can be retrieved at your convenience by calling an 800 number with a fax machine or fax/modem.

This service can be either standalone or included as an additional feature of calling cards. There are two advantages of finding a calling with fax mail: (1) This service is often included at no extra charge; and (2) you can enjoy the convenience of using just one card to retrieve any messages—voice or fax—and to make calls.

QUICK REFERENCE

<i>Topics related to fax mail services</i>	<i>Page</i>
Calling Cards and Pay Phones	38
Voice Mail Services.....	54
Advanced Voice Mail/Paging Services	55

Fax Service Bureaus

If you have a large number of identical faxes to send out, you may want to use an outside fax-service company that has broadcast faxing capabilities. This will save you a tremendous amount of time: Instead of sending hundreds or even thousands of faxes, you just send one.

You can save money on international faxing by using companies with a different type of service. They connect a small device to your fax machine which compresses the fax data before it reaches the phone lines, thereby reducing the overall transmission time. The savings can add up to 50% or more, and the device can be hidden away for your convenience. Consult the *Need More Help?* section for more information.

Fax Servers: Faxing Using a Network

A fax server is a computer that provides faxing capability to supporting computers in a network. It is capable of automatically routing incoming faxes and holding outgoing faxes in a queue, freeing up the sending computers. It works similarly to a printer network that hooks up a printer to several computers.

If you usually need to send hundreds of faxes simultaneously, you may want to operate your own fax server with several fax/modems. Each server is capable of handling up to 24 fax/modems: The more cards and lines available, the more faxes that can be sent simultaneously.

If you do not want to invest in setting up an in-house fax server, outside fax services are available.

Here are seven advantages of using a fax server:

- 1) Saves time by sending faxes directly from any computer connected to your network.
- 2) Eliminates waiting for your fax machine to become available.
- 3) Enhances the fax image resolution and readability.

- 4) Simplifies fax reporting using a computer-generated log. Also keeps an archive of the transmitted and received faxes.
- 5) Routes incoming faxes without manual intervention. This enables secure, confidential receipt of faxes to individual users.
- 6) Includes fax mail capability. The stored faxes can also be forwarded to any other location such as your home or hotel.
- 7) Allows you to automatically schedule non-urgent faxes to be sent during the night when the phone rates are the lowest. This can save you at least 25%—even up to 50%.

Quick Tip #41: A convenient and highly cost-effective method of sending faxes to different corporate branches is to use a fax gateway system compatible with your e-mail package.

QUICK REFERENCE

<i>Topic related to fax servers</i>	<i>Page</i>
Batch Sending	74

Fax-on-Demand and Fax-back

Fax-back and fax-on-demand are automated approaches to faxing which allow you to obtain information 24 hours a day via a fax machine or fax/modem.

They approaches are becoming increasingly important business tools for cutting employee and mail costs and increasing productivity. Not only can they can help your business reach potential customers, but they are also valuable tools for your own staff such as when they need specific information during sales presentations. The following chart illustrates the savings that can be achieved with fax-on-demand and fax-back:

# of Faxes/Day	Cost of Employee	Cost of Fax-on-Demand	Annual Savings
20	\$50/day	\$18/day	\$8,320

Based on an employee that earns \$35,000/year, and the time involved to send twenty 2-page faxes per day, plus other costs.

With fax-on-demand, a fax is obtained by placing a call, selecting the appropriate fax from a menu of options, and then immediately receiving it. Fax-back is similar, except that the fax is received in a subsequent phone call.

If you need either fax-on-demand or fax-back, it may be less expensive to utilize a service rather than investing in the equipment and/or software. The amount of usage you anticipate will be the key factor in deciding whether it is worthwhile for you to invest in the equipment. Consult the *Need More Help?* section for more information.

SECTION 3 — INTRODUCTION TO THE INTERNET

What is the Internet?

The purpose of this section is to show key ways the Internet can be used as a money-saving tool for communication. The Internet is a network of computer networks interconnected using a standard communication protocol called TCP/IP, so that it does not matter whether the computer connected to it is a Macintosh, PC (or compatible), or is UNIX-based. There are different ways to connect to the Internet: (1) either directly using an Internet access provider, or through an online service that has a gateway, or access, to the Internet; (2) either by using a shell account, whereby you are operating the host computer with a VT-100 terminal program, or by using a SLIP/PPP account, whereby the applications are run on your own computer.

A UNIX-based shell account is not as user-friendly as a SLIP/PPP account; however, it is much easier to set up, is usually less expensive (never more expensive), and has crucial easy-to-operate money-saving features that often have to be obtained separately with a SLIP/PPP account. SLIP/PPP software can sometimes be difficult to set up, and the instructions for doing so are best obtained from a local service provider or an Internet book. But once set up, it is easy to use.

If you want full Internet access—which means you are *on the Internet*, accessing a host computer continually connected to the Internet—use a local Internet provider. If you are only interested in *accessing the Internet* for limited use such as e-mail, a commercial online service provider will work just fine.

Quick Tip #42: All communications on the Internet have one thing in common: There is no long-distance charge whatsoever to reach anyone who also has access to the Internet, as long as you have local dialup access.

Quick Tip #43: The Internet is a wonderful tool for international business, especially for e-mail and sending files. Information such as product specifications, pricing, and service delivery, can be sent instantaneously to an overseas branch office, where it can be downloaded and printed from the original file. No more duplication, retyping, or tying up fax machines!

Quick Tip #44: You can obtain the best of both worlds—the speed of using the host computer for certain functions like reading UseNet news, and the user-friendly graphical interface for other functions like browsing the “Web”—by obtaining SLIP emulation software that operates from your shell account. Make sure your Internet provider permits this arrangement. For more information about SLIP emulation, see *Need More Help?* in the back of the book.

How to Set up an Internet Account

To use the Internet, besides phone service you will need the following:

- (1) *Local dialup access*: Free access can be obtained through Freenets, nonprofit organizations, or individuals who run BBSs with Internet access. Free access comes at a price, however: Often, there aren't enough phone lines to get through easily, and the system can be slow due to overload. Typically, the monthly access cost for a commercial shell account ranges from \$12 to \$20. The monthly cost for a SLIP/PPP account ranges from \$15 to \$25 and includes 10 to 40 hours of usage. A dedicated SLIP/PPP connection costs \$200 or more per month. Any large or medium-sized city should have an Internet provider with local dialup access.

If you live in an area with no local Internet access, then your potential to save money is limited to international communication because it would cost less to connect to a long-distance domestic provider than to make a direct international call.

- (2) *A fax/modem or modem*.
- (3) *Software*: A terminal software program is required for a shell account. Windows includes Terminal, a basic communication program; also, most fax/modems include communication software. You can obtain shareware or commercial SLIP/PPP or shell software, as well.

If you are using a shell account, there are a few basic rules about UNIX commands that should be pointed out:

- (1) UNIX is case-sensitive (i.e., it differentiates capital and small letters). Therefore, use the command exactly as it is specified in italics.

- (2) These commands are entered at the prompt level, i.e., there will be a prompt such as “%” or “\$” that precedes your blinking cursor.

The next few sections describe the major functions and uses of the Internet and their related commands.

Quick Tip #45: If you would like to receive a comprehensive list of Internet providers in your area, see the *Need More Help?* section.

Quick Tip #46: Before you log on, if you want to cancel Call Waiting (so you're not bumped off line by an incoming call), program your software to dial the code (usually *70) before the phone number.

E-Mail

Several programs capable of handling electronic mail are available. For shell accounts, they include *mail*, *pine*, and *elm*, and for SLIP/PPP, Eudora and Chameleon. All e-mail readers are interchangeable—they can communicate with one another.

Pine is one of the most user-friendly mail readers for shell accounts. It is easy to send and receive mail, as well as save mail. You can interrupt the composition of your e-mail; *pine* will even automatically save a letter you are working on if you are bumped off your account. That could happen either by a host error or by an incoming call if you have Call Waiting and forgot to cancel it by using a code such as *70.

To use *pine*, just type *pine* at the Unix prompt and follow the online instructions.

If you are using a SLIP/PPP, just click on the e-mail/mail icon.

Talking Via the Keyboard Free

Talk is an easy-to-use program that establishes a keyboard “talk” session on the Internet. Everything you then type appears on the upper half of the screen, and your partner's words appear on the lower half of the screen under a dashed line. This feature requires you to be *on the Internet*, not just accessing the Internet.

The beauty of *talk* is that it doesn't matter how far away you are from someone to “talk” with that person. You can communicate on the keyboard with someone from another country for as long as you want and pay absolutely no long-distance charges.

One variation of *talk* is *ytalk*, which permits you to talk with more than one person at the same time. Not all Internet providers have *ytalk*. Another variation is *ntalk*, which works almost exactly like *talk*. If you attempt to establish a talk session and *talk* doesn't work, try *ntalk*.

To use talk with a shell account, at the Unix prompt just type *talk [person's e-mail address]*

Example: talk quake@scec.gps.caltech.edu

If you are using a SLIP/PPP, just click on the talk icon and enter the person's Internet address at the appropriate location. The talk client, or software, is usually not included with SLIP/PPP software; however, it can be easily obtained from SimTel using FTP, described on the next page.

If the other person is not logged on, *talk* will mention that fact on the screen. To terminate the talk session, type *Ctrl-c* (either you or your partner can do so).

Sending and Receiving Files Free

You can send files free to anyone on the Internet, anywhere in the world. Furthermore, because of the universal protocol that the Internet adheres to, it does not matter what type of file you are sending: It can be text or binary and pertain to any type of computer system or software program. File transfer protocol, or FTP, refers both to the protocol and the program that you use to send or receive files. It requires you to be *on the Internet*. With a shell account, the command is: *ftp [host computer]*

Example: ftp oak.oakland.edu

This address is for the SimTel software repository based in Rochester, Mich. Once you are in *ftp* mode; *dir* lists the contents of a particular directory; *cd [new directory]* changes to a new directory; *get [filename]* downloads (or gets) any files from the remote computer to your host computer; *put [filename]* uploads any files from your host computer to the remote computer; *binary* sets the program to handle binary files, such as formatted documents or applications; and *ascii* sets the program to handle ASCII or text files.

Once a file is in your shell account directory, you need to send the file to your home computer. Just type *sz [filename]* if you are using the z-modem protocol, or *sx [filename]* if you are using x-modem protocol. Then go into your software and begin the download process. Uploading a file is similar: Type *rz*, then set your communications program to send the file to the host.

If you have a SLIP/PPP account, open your FTP icon. Files will be transferred directly from the remote computer to your own computer and vice versa.

Sending Faxes Free

Fax servers are another type of computer hooked up to the Internet. These servers permit you to send an e-mail message directly to someone's fax machine the same way you would send other e-mail.

This service is often free. The Internet Multicasting Service is a non-profit organization that operates a *free* e-mail-to-fax service. They rely on volunteers from the U.S., Australia, Canada, Denmark, Germany, Greece, Hong Kong, South Korea, New Zealand, Portugal, Sweden, Taiwan, and the United Kingdom, who maintain fax servers in their particular areas, so all phone calls to fax machines are local.

To send a fax to someone, first create the e-mail message. Then send it using the following address, replacing the italicized variables with the actual person's name and phone number, but keeping the punctuation (including the underline) intact:

remote-printer.*First_Last*@13135551234.iddd.tpc.int

Note that the phone number is one continuous string of numbers, as shown in the example above, and must include the "1" and the area code, even if the fax is just being sent across town. The service automatically sends you an e-mail confirmation, stating either that the fax transmission was successful or that it did not go through because there is no local fax server in that area.

To learn more about this service, consult the *Need More Help?* section in the back of the book.

How to Receive E-mail Automatically on Your Fax Machine

If you live in an area covered by the Internet Multicasting Service, you can forward e-mail automatically, and at no cost, to your fax machine. If you would like assistance in setting it up, consult the *Need More Help?* section at the end of the book.

WARNING: This arrangement can be problematic if you often receive long e-mail messages, which, in this case, will be forwarded and will cause you to use up a lot of fax paper (unless you use a computer which stores your faxes on a hard disk). If you have your e-mail forwarded automatically, make sure your friends and business associates know, so that they don't send you trivial information.

Other Basic Internet Commands

When you use a SLIP/PPP account, it is easy to use the various Internet protocols such as FTP, talk, finger, and telnet because all of the programs are run using a graphical Windows or Macintosh interface. With a UNIX shell account, you need to know a few commands and the syntax, or the exact structure of each command. The good news is that you only need to know a little more than a dozen commands to do almost everything on the Internet. Many of the commands are similar to DOS commands; a few are even identical.

Already covered in previous sections of this chapter were *ftp*, *pine*, and *talk*. Here are some more:

bg—Put suspended program in background. See *Ctrl-z*. See also *fg*.

Syntax: *bg* [optional: [process number]]

Example: *bg [1]*

cd—Change directory (similar to DOS). The directories use forward slashes (i.e., the root directory is /). When specifying a directory, you can include the complete path if necessary.

Syntax: *cd* [directory]; *cd* by itself defaults to your main directory

Example: *cd /guest/my-name*

Example: *cd mail*

Example: *cd ..* (changes directory to parent, or previous, directory; unlike DOS, the space before the 2 periods is required)

cp—Copy a file (similar to *copy* in DOS). Wildcards such as “*” can be used. When specifying a file, you can include the complete path if necessary.

Syntax: *cp* [file from] [file to]

Example: *cp dave.txt /mail/chuck.txt*

Ctrl-c (holding down the *Ctrl* key and typing *c*)—Interrupt (cancel) the program that you are in and return to the shell prompt.

Ctrl-z (holding down the *Ctrl* key and typing *z*)—Suspend the program you are in and return to the shell prompt. See *bg* and *fg*.

fg—Resume a suspended process that was in the background (literally, stands for “foreground”). See *Ctrl-z*. See also *bg*.

Syntax: *fg* [optional: [process number]]

Example: *fg*

Example: *fg [1]*

finger—Check to see the status of another person's account, such as whether they are presently logged on.

Syntax: *finger* [account name]

Example: *finger quake@scec.gps.caltech.edu*

gopher—Begin Gopher. This easy-to-use program permits you to search the Internet for files and directories using keyword searches, including Archie and Veronica.

Syntax: *gopher* [optional: host]

Example: *gopher gopher.house.gov*

irc—Begin Internet Relay Chat, a protocol that allows 2 or more people to “talk” simultaneously over the Internet and is arranged by topics. The IRC is arranged by topics.

logout—Log out. That’s an easy one!

ls—List files (similar to *dir* in DOS).

Syntax: *ls* [optional: -parameter(s)]

Example: *ls -alt*

lynx—Begin Lynx, a text-based hypertext World Wide Web (www) program. Lynx does not support graphics.

Syntax: *lynx* [optional: URL address]

Example: *lynx http://www.house.gov*

mv—Move or rename file. When specifying a file, you can include the complete path if necessary.

Syntax: *mv* [file from] [file to]

Example: *mv /mail/chuck.txt dave.txt*

passwd—Change password. It will prompt you for the old password once and the new password twice.

rm—Remove file(s) (similar to *del* in DOS). You can remove several files simultaneously. Wildcards such as “*” can be used. When specifying a file, you can include the complete path if necessary.

Syntax: *rm* [file] [file]

Example: *rm dav* /mail/*xt outbox/goodbye-file*

telnet—Remotely log on to another host.

Syntax: *telnet* [host]

Example: *telnet whitehouse.gov* (if you try this actual address, the host will be unreachable.)

tin—An easy-to-use newsreader for UseNet news.

Quick Tip #47: If you want to learn more advanced functions, such as the World Wide Web, Gopher, and Archie, and more details about either SLIP/PPP or shell accounts, consult the *Need More Help?* section.

Voice Applications on the Internet

Software is available now that permits you to talk over the Internet. A high-speed modem or fax/modem (preferably 28,800 bps), sound card, and microphone are required for voice communication.

The latest technology involves a full-duplex connection, allowing you to talk and listen at the same time, similar to a regular telephone. This is preferable to half-duplex, which cuts off the speaker while you are talking.

When this technology is perfected, there will be far-reaching implications. Long-distance providers certainly are not eager for the use of this technology to become widespread.

QUICK REFERENCE

<i>Topic related to voice applications on the Internet</i>	<i>Page</i>
Ch. 4, Sec. 1 — HOW TO CHOOSE A FAX/MODEM	66

5

Phone Security and Fraud Control

Overview

The first four chapters of this book showed several ways to save you money. Chapter 5 is about keeping it. This chapter details security issues relating to home and business, regular and cellular phones. It also shows how deceptive language on the part of long-distance companies may result in your being slammed.

Blocking 900/976 Numbers and Call Restriction

There are a couple of ways to prevent *any* 900 and 976 calls from going out through your phone line without your permission.

Most phone companies offer a free call blocking service to certain extensions or service access codes (usually 976 and 900). Consult your local phone company for details.

Another option is to purchase a *call restrictor*, also known as a *call blocker*. This device can be installed in place of your existing phone jack, or installed out of sight in a basement or attic.

Avoiding Being Slammed

Slamming is the switching of your long-distance service by another provider without your knowledge or authorization. Most likely, this will result in your paying the highest long-distance rates. Any company that slams you almost certainly won't place you on a discount savings plan!

There are laws to protect you from being slammed. Nevertheless, a company, through vague or even deceptive language, may obtain your permission to switch long-distance carriers, even though switching was not your intent.

Example: You place a long-distance call from a pay phone using your calling card. The operator asks, "Do you want to use so-and-so company for your long-distance *calls*?" (not "*call*," i.e. this particular call), and asks for your home number for verification. You say yes and give out your home number, and the call is placed. When you look at your next bill, you find that your long-distance service was switched. While it may appear to be slamming, technically you authorized them to switch your home number to their service. So be very careful before giving verbal authorization, and always avoid giving out your phone number.

Example: Booths set up at fairs offering a free 5-minute long-distance call or "Win-a-free-vacation" boxes (often found in convenience stores) are typical scams. In either case, you fill out and sign a questionnaire. Somewhere on that form is a statement authorizing a switch in your long-distance carrier.

The previous examples differ from the routine practice by long-distance companies of sending out checks as an incentive to switch. When a phone

company sends you a check, there is a clear statement given. In fact, here is a check sitting on the editor's desk...“ENDORSEMENT OF THIS CHECK SWITCHES YOUR LONG-DISTANCE SERVICE TO [SO-AND-SO COMPANY].” That statement is obvious; certainly anyone who cashes such a check knows ahead of time that his or her long-distance service will be switched, so this would not qualify as slamming.

If you find that you have been slammed, contact your local phone company to reswitch the service. If you take the time to explain what happened, you should be able to avoid the fee that they normally impose whenever you choose a new long-distance carrier.

Quick Tip #48: For more discussion on checks given by long-distance companies, and how you can use them as negotiating tools, see *Turning a \$50 Incentive Check into \$100*, p. 22.

Personal Identification Number (PIN) Security

Several telephone services already mentioned in this book require a personal identification number for access. These include Call Back, 500 and 700 service, Remote Access to Call Forwarding, calling cards, and certain cellular services. In addition, many personal 800 services also require a PIN. Other common uses of PINs include automatic teller machine cards and credit cards.

If someone gets hold of your PIN, it could be costly. Protect the secrecy of your PIN by following these steps:

- (1) Do not write down the number; memorize it instead. If your number isn't easy for you to remember, select one that is.
- (2) If you choose your own PIN, always avoid obvious numbers such as your address, phone number, birthday, or anniversary. Avoid other giveaway patterns such as 1234 or 8888.
- (3) Make sure no one is looking while you enter the numbers.

For optimum security, change your PIN periodically. If your office issues calling cards to employees, the PIN should be changed anytime an employee leaves.

Cellular Phone Security

Cellular phones are equipped with a call restriction feature allowing you to block incoming or outgoing calls. You can restrict the phone usage of staff members or anyone else borrowing your phone.

Other security uses of your cellular phone are to:

- Report your car breakdown;
- Dial 911 to report a burglar;
- Avoid giving out your home phone number.

Some cellular service providers now offer roadside assistance package with their plans. However, you can probably purchase an equivalent plan for less money through your auto insurance company.

Cellular phone fraud costs the industry over \$1 million per *day*. The industry's latest strategy to combat this problem is offering a PIN in conjunction with a phone number. If someone clones your PIN, you simply get a new one. Otherwise, you would be forced to change your phone number. The author recommends that you obtain a PIN if possible; eventually, it may be required.

WARNING: Review your instruction manual to learn how to activate your cellular call restriction. More importantly, make sure you know how to deactivate it; otherwise, if you do not have the manual with you, you will be unable to use the cellular phone!

Warnings about Voice Mail Transfer

Many of today's businesses use sophisticated telephone systems that can forward calls to your home, car, or voice mail. It is also possible to forward these calls to any other phone in the world.

For example, while an employee is at work, he may forward his extension to his relative who lives in Florida. If his wife calls his extension while he is out for lunch, the call will be forwarded to Florida. Regardless of whether such a call occurred unintentionally or was deliberately set up by the employee, the outcome is the same: (1) The company pays for it, and (2) this type of call is very difficult to track because it looks like a legitimate business call.

If your company has such a phone system, monitor your phone bills carefully to make sure you are not paying for an employee's personal calls.

Insurance

Protect any expensive equipment, such as a computer or cellular phone, from risk of theft or damage. The best type of insurance to obtain is a rider on your homeowner's or renter's insurance. The cost is relatively cheap—about 69¢ per \$100. Insuring a typical computer system and feature-laden cellular phone would add only around \$14 per year, based on a total value of around \$2,000.

Your insurance should cover theft, fire, and damage caused by brownouts, lightning, and accidents. Even if you lose a cellular phone while hiking, you shouldn't have to undergo any hassle or pay any deductible to replace the equipment.

Avoid obtaining extended warranties from manufacturers. Often they cover only specific components under certain conditions—and at a cost that is disproportionately high in relation to the coverage offered. Furthermore, the author's experience is that it is easier to deal with an insurance agent rather than a retailer, service center, or manufacturer under special circumstances such as damage from lightning or power spikes.

PhoneNews — Upcoming Newsletter

Keep up on new and exciting developments about the telecommunications industry through our planned newsletter, *PhoneNews*.

PhoneNews will keep you informed about local, long-distance, and cellular services, computer and fax technologies, and the Internet—just to name a few.

To receive your free issue of *PhoneNews*, please refer to the *Need More Help?* section in the back of this book.

GLOSSARY

“0” or “0-”—Zero minus dialing. A caller can access the operator simply by dialing 0 (and nothing else).

“0+”—Zero plus dialing. A call that is placed by calling the operator.

“00+” or “00-”—Double zero dialing. Allows a caller to reach the long-distance operator rather than the local operator.

“1+” Dialing—The capability to dial “1” plus the long distance number for calls within the North American Numbering Plan Area. IntraLATA calls are carried by the local telephone company. InterLATA calls are carried by the caller's primary long-distance carrier.

“10-XXX” Dialing—The ability to place calls using a long-distance carrier other than a caller's primary carrier by first dialing “10-XXX” then “1” plus the long-distance number, where “XXX” is the 3-digit Carrier Code of the alternative long distance company. This service is available only to Equal Access customers. See also *PIC*.

800 Service—Service which allows callers to dial a long-distance telephone number without incurring a charge for the call. The call is paid for by the party that operates the 800 number. Synonym: Inward WATS service.

900 Service—A service that is charged to callers on a per-call or per-minute basis used for phone sex, horoscopes, lottery lines, etc.

976 Numbers—A service that is a joint venture between a service provider and the local telephone company. The charge is similar to that of 900 service.

Accessing the Internet—Using certain Internet features by connecting through a commercial online service provider. Such limited access can include Usenet news and e-mail. See *On the Internet*.

Archie—An Internet program used to search catalogs of public-access files.

Area Code—A three-digit number identifying more than 150 geographic areas of the United States and Canada, so that every telephone number is unique. A similar global numbering plan has been established for international subscriber dialing. Synonym: Numbering Plan Area (NPA).

Automatic Number Identification (ANI)—An automatic process by which the local phone company passes on the information about a long-distance call made to the appropriate long-distance carrier for billing, whether a “1+” or “10-XXX” call was made. With ANI a caller's long-distance carrier knows which phone number to bill the call to without requiring the caller to enter special digits for identification purposes. Call 1-800-MY-ANI-IS to find out the phone number you're calling from.

Baud Rate—The speed at which individual bits of information,

represented by sequences of 1 and 0, are sent.

Bit—Binary digit. A single digit representing on or off (one or zero).

Boolean Search—A search for specific data using conditions such as AND, OR, and NOT.

Byte—A common unit of computer storage, consisting of 8 bits, used to represent alphanumeric symbols.

BOC—Bell Operating Company. Any of 22 local telephone companies spun off from AT&T as a result of divestiture.

Call Back—See *International Call Back*.

Calling Zone—See *LATA*.

Carrier—A long-distance company which uses primarily its own transmission facilities, as opposed to resellers which lease or buy most or all transmission facilities from carriers. The distinction between those long distance companies that have networks versus those that do not has become blurred, so the term is not as restrictive as it once was.

CAS Modem—Communicating Applications Specification. A high-level programming interface for data communications that was a joint development between Digital Communications Associates and Intel. Software developers make calls to this universal public domain interface to add communications functions to their products. CAS depends on the presence of resident memory (TSR) to translate the application requests into actions.

Cello—An Internet World Wide Web browser.

Cellular Service—Mobile telephone service which uses many low-power retransmitters, or cells, to make the call accessible from a mobile cellular phone.

Central Office—Local telephone company office that houses the exchange and has switching equipment.

Centrex—A centrally located exchange off Central Office premises.

Class 1 Modem—A software-driven modem. It can perform additional functions, such as error correction.

Class 2 Modem—A hardware-driven modem.

Communications Parameters—Modem settings to permit transmission of data. These parameters include bit rate, parity, number of data bits, and number of stop bits (example: 14400 bps, no parity, 8 data bits, 1 stop bit).

Communications Program—Software that manages data communications between computers. Some programs enable a computer to hook up to a mainframe host computer and emulate a dumb terminal.

Communications Protocol—A communications standard governed by hardware or software that control data transmission. Some examples are Kermit, Xmodem and Zmodem, and TCP/IP.

Digital Signal—A signal represented by bits of information consisting of on and off sequences, or 1 and 0. See *Bit*.

Dumb Modem—A modem without processing capability. See *Intelligent Modem*.

Dumb Terminal—A terminal without processing capability. The processing is done by the host computer it is hooked up to.

E-Mail Fax Gateways—A system whereby all e-mail users can send and receive faxes from within the company's e-mail package.

Equal Access—Ability to dial a long-distance call from any carrier that a caller chooses, simply by dialing "1+". Equal access also provides "10-XXX" dialing for secondary and casual calling. Also called "Easy Access."

Error Correction—A protocol developed to counteract errors inserted into data and fax transmissions by line noise. Error correction may reduce transmission speed.

Exchange—A telephone switching center.

FCC—Federal Communications Commission.

Fax-back—A fax service accessed by dialing a number to select a document which is sent via fax on a subsequent phone call.

Fax-on-demand—A fax service accessed by dialing a number using a fax machine and retrieving the faxed document during the same call.

Feature Group A (FGA)—Line-side originating and terminating LATA access for which an originating subscriber dials an assigned telephone number that connects to a specific IC.

The IC returns a tone to signal the caller to input additional tone-generated digits of the called number.

Fiber Optics—High speed transmission using light to send images (in telecommunications: voice or data) through a flexible bundle of glass fibers.

Foreign Exchange—An exchange in a remote calling area.

FTP—File Transfer Protocol. Refers both to the protocol and program which is used to log onto a remote system, search directories, and copy files over the Internet.

Full-Duplex—A line or system that handles 2-way simultaneous communications. A regular telephone is full-duplex.

Gopher—A program that searches for file names and resources on the Internet and presents them in a menu with links to the actual files.

Group 1 Fax—Analog fax function that premiered in 1968. A one-page document used to take about 6 minutes to transmit.

Group 2 Fax—This analog fax protocol was released in 1976. A one-page document would take about 2-3 minutes to transmit.

Group 3 Fax—Digital fax protocol, originally released in 1980; reissued in 1984 and 1988; with a minor revision in 1990. Capable of a higher resolution than the previous versions. Speeds of 2400, 4800, 7200, 9600, and 12,000, and 14,400 bps can be used. A one-page document takes 30 seconds to a minute to transmit.

Half-duplex—A line or system that handles communications in only one direction at a time. A speaker phone is half-duplex.

HTML—Hypertext Markup Language. A standard for defining hypertext links used in the World Wide Web.

HTTP—Hypertext Transport Protocol. A communications protocol used for the World Wide Web.

Hypertext—Highlighted text that, when selected, establishes a connection to a related link. Used in the World Wide Web.

Intelligent Modem—A modem processing capability. See *Dumb Modem*.

Intelligent Terminal—A terminal with built-in processing capability but no data storage.

IC—Interconnect. (1) The arrangement that permits the connection of customer's telecommunications equipment to a communications common carrier network. (2) The industry name for manufacturers, excluding the Bell system, which provide telephone equipment for the customer premises.

International Call Back—An overseas caller dials a phone number located in the U.S., then enters a PIN and the number he wishes to call. He then hangs up the phone and waits for a returned call from the Call Back service provider. He is connected via a conference call which is established by the Call Back provider in the U.S.

Internet—A network of computer networks, linked together using the

TCP/IP communications protocol. Originally established for military and scientific research, the Internet has grown to include commercial entities and the general computer user.

Internet Address—A format for addressing an electronic message consisting of: *recipient@location.domain*. Some domains include com (commercial), gov (government), net (host or gateway), edu (educational), mil (military), and org (other organization).

Internet Provider—A service that provides full access to the Internet via a host computer continually connected to the Internet. See *On the Internet*.

InterLATA—Any connection made between two LATAs.

IntraLATA—Any connection made within a single LATA.

Interstate—Any connection made between two states.

Intrastate—Any connection within the boundaries of a single state.

IRC—Internet Relay Chat. A protocol that allows 2 or more people to “talk” simultaneously over the Internet. The IRC is arranged by topics. It can also be used for a private “conference call.”

ISDN—Integrated Services Digital Network. A collection of standards developed by carriers, equipment manufacturers, and international standards organizations which define interfaces for, and operation of, digital switching equipment. It is intended to form the basis for the next generation telephone network and is currently being implemented by carriers

throughout the world. Instead of one analog telephone line, there are two 64 Kbps bearer lines and one 16 Kbps data line. Each bearer line can carry voice, video, data images or combinations of these.

ITU—International Telecommunications Union, based in Geneva, Switzerland. It issues recommendations for standards applying to modems. Also see TSS.

IXC—Interexchange Carrier. A long-distance carrier that handles interLATA and interstate calls. See *PIC*.

Kb, KB—Kilobit, Kilobyte—one thousand bits or bytes.

Kbps, KBps—One thousand bits per second, one thousand bytes per second.

Land line—Non-cellular, conventional phone line.

LATA—Local Access and Transport Area. A geographic area within which a local phone company may offer its telecommunications services. A LATA often coincides with a local area code, but it is not the same thing. Sometimes referred to as “Local Calling Area” or “Calling Zone.” For example, the Detroit area LATA includes all of the 313 and 810 area codes and part of the 517 area code. The Atlanta area LATA includes all of the 404 and 770 area codes, portions of 706, and a couple of exchanges in Alabama’s 205 area code.

Local Calling Area—See LATA.

Local Exchange Carrier—Or LEC. A company that provides local telephone service. A BOC (Bell Operating Company) is a type of LEC.

Local Toll Call—A long-distance call made within a LATA. Also known as Local Zone Long-distance, Zone, or IntraLATA.

Local Zone Long-distance—A long-distance call made within a LATA. Also known as Local Toll, Zone, or IntraLATA.

Lynx—A text-only World Wide Web browser, commonly found on UNIX operating systems.

Mb, MB—Megabit, Megabyte—one million bits or bytes.

Mbps, MBps—One million bits per second, one million bytes per second.

MNP-5—Microcom Networking Protocol class 5, which uses a combination of adaptive Huffman encoding and run length to reduce highly compressible data to approximately 50 percent of its uncompressed size. The result is an effect transfer rate of twice the modem’s data rate.

Modem—MODulator/DEModulator. A device that modulates a digital signal into an analog signal so that it can be sent over a conventional phone line, and can demodulate the analog signal back into a digital signal on the other end.

Mosaic—A graphical World Wide Web browser for the Internet.

Network—An interconnection of hardware and software.

NNX Codes—The 3-digit code used historically for local Exchange Codes. “N” can be any number from 0 to 2, “X” can be any digit. The current

numbering plan allows for more variation in assigning Exchange Codes, and under it Exchange Codes are commonly referred to as “NXXs.”

Noise—Extraneous signal which interferes with an electrical transmission.

Numbering Plan Area (NPA)—Commonly referred to as “area code.” A geographical division within which no two telephones will have the same 7 digit number. Under the old system, “N” was any number between “2” and “9”; “P” was always “1” or “0”; and “A” was any number excluding “0”. The newer system allows for any “exchange-like” combinations, such as southern Alabama’s 334 area code, the northern suburban Detroit 810 area code, and the new suburban Atlanta 770 area code.

NXX Codes—The current general configuration for Exchange Codes within each Area Code. See also *NNX Codes*.

On the Internet—Being connected to the Internet through an Internet provider which gives full access.

PABX—Private Automatic Branch Exchange. Same as PBX.

PBX—Private Branch Exchange. An exchange that is set up at the customer's location. It may include such functions as Least-cost Routing, Call Forwarding, Conference Calling, and Call Accounting. Typically it is necessary to dial a 9 to access anywhere outside the PBX.

PC Card—A credit-card-sized module that may contain a hard disk, memory, input/output, or modem. Although this

term is used to describe any proprietary device, the term “PC Card” is a trademark of PCMCIA. Also referred to as PCMCIA Card.

PCMCIA—Personal Computer Memory Card International Association. A non-profit organization set up in 1989 to standardize the PC Card.

PIC—Primary Interexchange Carrier. The interexchange carrier designated by a customer to provide interLATA service automatically without requiring the customer to dial an access code for that carrier. It also refers to the 5-digit code for making an intraLATA call. (See “IOXXX.”) As a verb, it means “to choose your primary long-distance carrier.”

PIN—Personal Identification Number. Required to access such services as a calling card or Remote Access to Call Forwarding.

POP—See *Point of Presence*.

PPP—Point-to-Point Protocol. A TCP/IP protocol that provides Internet dial-up access.

Primary Area—A customer's local telephone calling area.

Primary Interexchange Carrier—See *PIC*.

Point of Presence—Or POP. A physical location within a LATA at which an IXC establishes itself for the purpose of obtaining LATA access and to which the local phone company provides access services.

Reseller—A long-distance company that purchases large amounts of transmission capacity or numbers of

calls from other carriers and resells them to smaller users.

Roaming—Using a cellular phone outside its designated home area.

Service Access Codes—Area codes ending in -00 which are usually reserved for special services, like 500, 700, 800 or 900.

Slamming—The illegal practice of a long-distance carrier switching your dial-1 access to their company without your prior consent.

SLIP—Serial Line Internet Protocol. A TCP/IP protocol that allows packets of information to be transmitted serially over phone lines.

SMTP—Simple Mail Transfer Protocol. A TCP/IP function used to provide e-mail over the Internet.

Switching—The operations involved in interconnecting circuits in order to establish communications.

Switching Center—A location where telephone traffic, either local or toll, is connected or switched from one circuit or line to another.

TCP/IP—Transmission Control Protocol/Internet Protocol. A communications protocol originally developed by the U.S. Department of Defense to interconnect dissimilar computer systems. TCP/IP is the standard protocol used by the Internet. FTP, SMTP, and Telnet are all TCP/IP functions.

Telnet—A TCP/IP protocol that allows a user to log onto a remote computer over the Internet.

Toll Call—Any call to a point outside the local service area.

TSS—Telecommunication Standardization Sector is one of four parts of the ITU. Until March 1, 1993, the TSS was known as the CCITT.

URL—Uniform Resource Locator. URLs define Internet resources with a consistent format. They can be used with for any type of Internet access, such as http, ftp, and gopher.

USENET—A public access network that provides user news over the Internet.

V.32—A ITU data communication standard that is internationally recognized for 9600 bps modems. It also provides fallback operation at 4,800 bps.

V.32bis—A data compression ITU standard that is internationally recognized for 14,400 bps modems. It provides backward compatibility with V.32 and includes a rapid change renegotiation feature for quick and smooth rate changes when line conditions change.

V.34—An advanced data compression ITU standard that is internationally recognized for 28,800 bps modems. This standard incorporates V.42bis/MNP-5 and V.42/MNP-1-4 and is backwards-compatible with standards such as V.32bis, V.32, etc.

V.34bis—A data compression ITU standard that improved upon MNP-5's compression ratio and is internationally recognized for 28,800 bps modems.

V.42—An error correction setup following standard ITU protocol and

incorporating MNP-1 through MNP-4. See also *Error Correction*.

V.42bis—A data compression setup following standard ITU protocol and incorporating MNP-5. See also *Error Correction*.

V.FAST or V.FC—A data compression standard that is *not* internationally recognized by ITU for 19,200 bps modems.

Veronica—An Internet search utility which can retrieve selected menus using Boolean searches.

WAIS—Wide Area Information Server. A database on the Internet containing indexes to documents residing on the Internet.

WATS—Wide Area Telecommunications Service. Permits customers to make outgoing (OUTWATS) or receive incoming (INWATS) long-distance calls and to have them billed on a bulk rather than individual call basis. The service is provided within selected service areas, or bands, by means of special private access lines connected to the public telephone network via WATS-equipped central offices. A single access line permits inward or outward service, but not both.

Windows—A graphical interface operating environment by Microsoft which resembles the Macintosh operating system. Windows 3.0 and 3.1 require DOS to operate; Windows 95 is truly an operating system rather than an operating environment.

Winsock API—Windows Sockets Application Program Interface. Specifically, this interface is used to

connect Windows applications with the TCP/IP protocol to allow users with SLIP or PPP to access the Internet.

World Wide Web—An Internet service that links documents to any other Internet server using hypertext. World Wide Web browsers such as Mosaic and lynx are used to browse the Web.

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