

21世纪高等教育计算机规划教材

COMPUTER

实用科技英语

Practical English for Science and Technology

■ 陈兵 主编

■ 李燕 李蕾 吴玲 刘芳 副主编

— 包含听力、阅读、写作等训练，教学循序渐进

— 素材与生活密切相关，内容新颖、涉及面广



人民邮电出版社
POSTS & TELECOM PRESS

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人民邮电出版社

北京

图书在版编目(CIP)数据

实用科技英语 / 陈兵主编. — 北京: 人民邮电出版社, 2015. 2

21世纪高等教育计算机规划教材

ISBN 978-7-115-38238-2

I. ①实… II. ①陈… III. ①科学技术—英语—高等学校—教材 IV. ①H31

中国版本图书馆CIP数据核字(2015)第016876号

内 容 提 要

本书是为高等院校信息技术相关专业学生编写的专业英语教材, 融合了对“听、说、读、写”各项技能的训练。本书以学生留学作为主线展开, 选取的“听、说、写”等方面的素材都是与学生日常生活相关的内容, 如: 选课、课堂交流、购物、学生社团、实习、面试和就业等, 这些素材让学生有感同身受的体会, 容易将自己带入其中, 主动讲英语、听英语、用英语思维, 达到强化训练的效果。本书选取的“读”方面的素材主要是信息技术相关新技术的专业文献, 涵盖面广泛, 有助于帮助学生学习和理解专业的英语文献。

本书有 15 个单元, 前 10 个单元适合课堂教学, 有完整的“听、说、读、写”环节, 每一个环节都配有完善的练习, 老师可以用作课堂测试或者是课后作业, 学生也可以用于自测; 后 5 个单元是为有志于出国留学的学生提供专业的参考意见, 这部分可以作为课堂的专题进行讨论和学习, 也可以作为课外阅读的材料。

本书可以作为高等院校信息技术相关专业的“科技英语”或者“专业英语”课程的教材, 也可作为英语爱好者进行英语学习的教辅, 还可作为英语专业学生的英语课外阅读材料。

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 - ◆ 人民邮电出版社出版发行 北京市丰台区成寿寺路 11 号
 - 邮编 100164 电子邮件 315@ptpress.com.cn
 - 网址 <http://www.ptpress.com.cn>
 - 北京圣夫亚美印刷有限公司印刷
 - ◆ 开本: 787×1092 1/16
 - 印张: 10.75 2015 年 2 月第 1 版
 - 字数: 282 千字 2015 年 2 月北京第 1 次印刷
-

定价: 32.00 元

读者服务热线: (010) 81055256 印装质量热线: (010) 81055316
反盗版热线: (010) 81055315

前言

英语是信息技术行业的重要工具，其重要性不言而喻。学习新技术，查阅技术文献和资料，使用新的科技产品和服务，都离不开科技英语。另外，在国际化趋势愈演愈烈的今天，英语作为一门世界性的语言，在各个领域都有着广泛的应用。

很多院校开设了科技英语课程，将课程设置在大学英语课程的后面，务求让学生持续学习英语，并在原有的英语基础上，加强他们对英文专业文献的理解，提高他们的英文专业文献的写作能力，强化他们听、说方面的训练。

本书是为开设科技英语课程而编写的面向世界、面向未来的教材。本书的特点主要有以下几个方面。

1. 在内容方面，本书的选材表现出两个方向，在“听、说、写”方向，比较侧重于学生的日常对话，目的是让学生能够在课堂的训练中有代入感，能迅速地融入各个环节的学习中去，同时也能将上课所学到的“听、说、写”的知识和技能运用到生活中并加以强化；在“读”这个方向，本书主要选取的是科技领域的一些主流方向的新型技术文献，内容涵盖了互联网、电子技术、电信技术、通信技术、应用开发、系统结构、信息安全、电子商务以及其他深刻影响我们日常生活的科技，同时提供了丰富的阅读材料以供学生学习和理解专业知识。

2. 在结构方面，本书共分为 15 个单元，前 10 个单元的每个单元都包含如下 7 个部分，后 5 个单元是为有志于出国留学的学生提供专业的参考意见。

(1) 听力练习：包括了热身练习和听写填空。

(2) 对话练习：有 4~5 段与主题相关的对话作为范例，每段对话下都设置了对话练习的任务。

(3) 专业词汇和词组：针对课文中出现的专业名词或词组进行解释。

(4) 课文：选取信息技术行业领域中一个方向作为该单元的主题，课文就是围绕主题展开的一篇专业文献，附有完整的课后练习。

(5) 阅读材料：每个单元设置了 1~3 篇，可以看作是课文的补充，每一篇后都有完整的课后练习。

(6) 写作：每个单元都设置了不同体裁和方向的写作练习，附有范文和讲解。

(7) 辅助听力：相对听力练习而言，篇幅更长，难度更大，可以根据需要在强化听力能力的时候使用。

3. 在配套资源方面，本书配有完整的听力材料和一些科技新技术/产品的参考视频，可以穿插在教学过程中进行选择性的使用。

4. 在应用方面，本书已经在一些院校中率先被使用，学生反应比基础英语教学时还要强化对听、说方面的训练，效果很好。

5. 适用范围：本书可以作为高等院校信息技术相关专业的“科技英语”或者“专业英语”课程的教材，也可作为英语爱好者进行英语学习的教辅，还可以供相关专业的工程技术人员学习和参考。

6. 使用方法：可以根据自身的实际情况选择使用本书并分配课时。通常前 10

个单元的每个单元 (unit) 可分为 3 次课进行: 第 1 次课是听说练习, 使用单元中的听力和对话部分的资料, 让学生分组进行模拟场景的对话; 第 2 次课是阅读理解和练习, 选取单元中的课文或者阅读材料中的某一篇作为精讲内容, 对其中的单词、语法、构句、专业背景和翻译方法进行比较深入的解析, 完成后让学生做一做课后练习来进行巩固; 第 3 次课主要是写作练习和习题讲解, 选取单元中的写作题材让学生练习, 并给予评析。后 5 个单元可以根据需要穿插在教学过程中不定时地进行学习。

本书的部分阅读材料和内容选自国内外经典著作、教辅书籍以及著名期刊或者杂志, 涉及面广、信息量大、知识性强、词汇丰富、表达清晰, 对开阅读者的知识面和视野大有裨益。在此, 编者向原始专业文献的作者表示衷心感谢。

科技的发展日新月异, 新词汇和术语层出不穷, 专业文献的翻译和理解很多尚无定论, 编者水平有限, 书中难免有不尽如人意和疏漏之处, 望各位专家与读者不吝指正, 帮助编者不断完善这本教材。

编 者

2014 年 11 月

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UNIT 1

Enrolling in Courses

Text 1 Listening and Speaking

PART I Warm-up Exercises

Listen to the conversation. Try to understand the general idea. Then answer the following questions.

Question:

1. Who is looking at different courses?
2. Who shows interest in American History?
3. What about Professor White's lesson?

PART II Dictation

Listen to another two conversations. Fill in the blanks with the words you have heard, and try to understand the general idea of the conversations.

Sample 1

A: What ____ are you planning to take?

B: I ____ take the Comparative Literature course. I like ____ very much.

A: I want to get into " ____ ". But I'm afraid it's all ____ .

B: I'm thinking of taking the course in Psychology.

A: Are there ____ in this class?

B: Sorry! This class is already ____ .

A: In which classroom is the ____ class located?

B: You can find the ____ classrooms on the class ____ .

Sample 2

In the U.S., ____ education are free to everyone. Usually, fourteen-year-olds attend high school for a four year program. There are many high school ____ , which are very important because they ____ in getting students future jobs and university ____ .

The most important educational goals are extracurricular activities, reading for fun, and

learning ____ . The U.S. educational system emphasizes ____ choices. It is easy for those high school students, who decide to take difficult classes in ____ they're interested in, to get into a college or university. But it is hard to complete all the required courses and get enough ____ to earn an associate or ____ degree. American education begins to get very ____ in college. One thing you should pay special attention to is that you must try your best to ____ what the professors mean about the subject not just what he/she teaches. Besides, you are not forced to attend any class, but your ____ will have their role in your final grades.

Text 2 Conversation

The following conversations are concerning enrolling in courses, you may learn some about the course enrollment in the life of studying abroad. Try to understand each conversation and finish your turn with your partner or group member.

PART I

A: How many courses do you have for this semester?

B: Eight altogether.

A: How are they proportioned?

B: Six are compulsory, two optional.

Your turn: Discuss the course plan this semester with your partner.

PART II

A: Guess what came in the mail today?

B: What?

A: My acceptance letter to Yale!

B: Wow! Congratulation! Do you have to do many things before you leave?

A: Yes. I'll be very busy! I have to get a visa, buy a plane ticket, and pack my things. But first, I want to register for classes.

B: When can you do that?

A: Well, they sent me their course guide, so I can start looking now. Do you want to help me decide which classes to take?

B: Sure. What can you choose from?

A: Well, I have to take all the fundamental courses, plus a few from my major.

B: What is your major?

A: I hope to major in English literature, but the admissions counselor told me that many people change their major in their first year, so we'll see.

B: What are the fundamental courses?

A: In order to graduate, every student must take a certain number of classes in History, Math, English, Philosophy, Science and Art.

B: Interesting. That's very different from the Chinese education system.

A: Yes, it is.

Your turn: Supposed you are a freshman in college, discuss your course plan with your partner.

PART III

A: John, would you please give me some advice?

B: What advice?

A: Well, I've put off doing my science requirement till now. I haven't learned any science courses for three years.

B: And if you want to graduate this year, you've got to take a science course.

A: Right. Since you're majoring in science, I figure that you know well about science courses.

B: Well, I think what you need is a good introductory course for non-science majors.

A: Yes, and I'm really weak in maths. I didn't do it well in high school.

B: Then you'd better avoid chemistry and physics. How about biology?

A: The problem is the lab. I'm a little squeamish about dissecting things.

B: That is really a problem. Why don't you try geology? That's pretty interesting and cutting up rocks shouldn't bother you too much.

A: That's a good idea. It even fits in with my hobby of mountain climbing.

Your turn: Ask your partner some advice about enrolling courses.

PART IV

A: Have you decided what you are going to take next semester?

B: Well, I'm an English major, you know. So I came here to make sure I'm taking the right things.

A: Good. I think it's a good idea. Our department should require meetings like this.

B: I want to finish my degree in four years. So I don't want to forget to take classes I need. I have a friend who has to stay in college another year. She didn't know until recently. There were some classes she needed to take to graduate. She didn't know about them.

A: Yes, that happens.

B: I brought my transcript from my first year. Here. And here is the list of courses I plan to take in the fall.

A: Alright. Good. I see you've already taken six credits of your breadth requirements. You have one botany class and one chemistry class. And political science. So that's nine credits. Did you take English Composition 201?

B: No, I don't need to. I took Advanced Placement English in high school. So I'm not required to take composition.

A: Excellent. I see you have the 18th century poetry class for next semester. And the modern novel class. You haven't taken a Shakespeare class yet.

B: No, I thought I would take it later.

A: Actually, I recommend you take Shakespeare sooner rather than later.

B: Well, I suppose I could cross out the 18th century poetry class. I have to see when the

Shakespeare class meets.

A: Let me look at the timetable. Shakespeare meets Monday, Wednesday and Friday at 11: 00 AM.

B: I can take it then. I have that time slot free.

A: Good. I recommend it. Shakespeare is of course enormously important. We want our students to take the class as soon as they can. And Professor Friedman is an excellent teacher.

B: I'll take it then.

A: Tell me, Lisa, what made you decide to be an English major?

B: I want to be an English professor in the future. I love studying literature, and I want to teach it.

A: Really? That's great to know.

B: That's the reason I want to finish my B.A. in four years. Because I know I will be in school a long time. I want to start the M.A. and Ph.D. program as soon as possible.

Your turn: Make a course plan and try to say something about the reason why you make such a plan.

PART V

A: You look really happy today. Anything special happened?

B: Yes, I chose a really interesting class today.

A: What kind of interesting class has gotten you this up and about?

B: It's a four unit Applied Psychology class. I waited in line for so long before I was accepted. I almost didn't get in.

A: Is the professor the congenial type, the kind who will allow you guys to breeze through the course and get four units?

B: Don't put me down. The professor is a real terror. He's very strict, I heard.

A: Strict in what way? Does he call the roll every period? Or is he fond of giving surprise exams? Or is he strict in grading your papers?

B: I should say that he is really earnest in teaching his students. He gives his students a lot of course materials; the test questions are very in depth yet practical. Those who are used to memorizing the textbooks for the exams will probably flunk their exams.

A: Sounds like a lot of fun!

B: Oh, it is! This class will allow us understand, in theoretical and practical terms, the mentality of consumers, the reciprocal mentality of human interrelationships, and body language. I really can't wait to attend this class.

A: Can I sit in?

B: I'm really sorry; the class is not opened for sit ins. But tell you what, I can share what we discussed in class with you after class.

A: That's great! Psychological testing is something I like a lot. Does this class have a lot of psychological testing games?

B: Maybe. I haven't formally started going to the class, so I'm not sure about that aspect of the program.

A: Aside from this class, what other interesting classes have you signed up in?

B: There's management, marketing, accounting, statistics, and so on.

A: These classes sound like they can give one a real headache.

Your turn: Supposed you select an interesting course, discuss the course with your partner.

Text 3 Specified English Words

Internet ['intənət] n. 特指全球范围最大的互联网, 即: 因特网 (需要大写第一个字符)

internet ['intənət] n. 互联网, 泛指互相连接在一起的网络系统

enterprise ['entəpraɪz] n. 企(事)业单位

institution [,ɪnstɪ'tju:ʃn] n. (大学、银行等规模大的) 机构

in accordance with 根据

LAN local area network 局域网

interconnect [,ɪntəkə'nekt] vi. 互相连接, 互相联系; vt. 使互相连接, 使互相联系

FNC (Federal Networking Council) 联邦网络委员会

protocol ['prəʊtəkəl] n. (数据传递的) 协议

feature ['fi:tʃə(r)] n. 特征, 特点

switch [swɪtʃ] n. 交换机

subnet ['sʌbnet] n. 子[分支]网络

router ['raʊtə] n. 路由器

telecommunication [,telɪkə'mju:ni'keɪʃn] n. 电信

circuit switching 电路交换

utilization [,ju:təlaɪ'zeɪʃn] n. 利用, 使用

dedicated ['dedɪkeɪtɪd] adj. 专注的, 专用的

be broken down into 分解

reassemble [,ri:ə'sembl] v. 重新组装, 重新装配

topology [tə'pɒlədʒi] n. 地质学, 拓扑结构

stack [stæk] n. 栈

accomplish [ə'kʌmplɪʃ] vt. 完成, 达到(目的)

wherein [weər'in] adv. 其中, 在那里, 在哪方面

assembly [ə'sembli] n. 装配

implement ['ɪmpləmənt] vt. 实施, 执行

Text 4 What is Internet

Introduction

Nowadays, networks have become the most important part of today's information systems. They provide data transferring and resource sharing for people in enterprises, governments and scientific

groups.

These institutions build their own networks in accordance with their own needs. Each of these networks, usually called a LAN, is different. On a global scale, these physically separated LANs interconnect altogether to form a huge network system, which is called the Internet, a network of networks.

According to the definition of the term Internet given by FNC, the Internet has three important basic features: packet switching, TCP / IP communication protocol and Client / Server model.

1. Packet switching

The Internet can be divided into two parts: the core part and the edge part. The core part is called a communication subnet for data transmission, in which the main members are routers; meanwhile the edge part is called a resource subnet which is responsible for providing resources sharing, and the main members are hosts. Packet switching occurs in the communication subnet.

The traditional telecommunications networks adopt circuit switching technology to transmit data. A dedicated link needs to be established before the data transmission and be released after the transmission is completed. Circuit switching improves the quality of communication, but reduces the utilization of network lines. In contrast, the Internet uses packet switching technology, which does not require a dedicated line. Before transmission, the messages are broken down into several packets with address information, and then each packet select a currently free line to transfer. After all the packets arrive the destination, they will reassemble into the original data. Packet switching makes a full use of all available network communication lines and capabilities so that it improves the resource utilization and reduces the communication cost.

2. TCP / IP communication protocol

Since the interconnected networks on the Internet are built up according to their own standards, their hardware configurations, network topologies, the data transmission formats and so on vary greatly. In this case, if some host on the Internet sends data to other hosts, they need to overcome their differences, and the best way is to follow the same communication rules, which are called the network protocols.

TCP / IP communication protocol is the key protocol stack on the Internet. It must be noted that, TCP / IP does not only refer to the TCP and IP, but refers to a protocol stack, which can be applied to almost all existing physical networks. TCP / IP protocol stack is divided into four separate layers, with each layer handling a different aspect of the communication problem. In each layer there are different protocols to accomplish a specific function. Wherein, IP provides the Internet's addressing scheme. Every computer or router connected to the Internet must be assigned an IP address so that they can be possibly found on the Internet. TCP establishes the connections among sending and receiving Web computers, handles the assembly of packets at the point of transmission, and their reassembly at the receiving end.

3. The Client / Server model

People can get a lot of services through the operation of the Internet, such as e-mail, newsgroups, shopping, research, instant messaging, music, videos, and news.

In fact, these services are implemented through the communication between the software running

on the Internet hosts. The way the network hosts software communications can be divided into two types: the most common is the client / server model. Both client and server refer to the applications process. The Client / Server model describes the relationship between the processes requesting for services and the processes providing services. In this model, the client refers to service requester while the server refers to the service provider. Another way to host software communication is P2P mode.

Exercises:

1. True or false

- (1) Different institutions build their networks according to the same rules. ()
- (2) In order to exchange information, hosts on the Internet must follow the same protocols. ()
- (3) Circuit switching transfers data in dedicated lines. ()
- (4) In the Client / Server model, client is a person, server is a machine. ()
- (5) The resource subnet is responsible for providing data transferring service. ()

2. Try to explain the following concepts in your own words:

- (1) Internet
- (2) Packet Switching
- (3) TCP / IP communication protocol
- (4) Client / Server model

3. Translate the following passage into Chinese:

A network in computer science is a group of computers and associated devices that are connected by communications facilities. A network can involve permanent connections, such as cables, or temporary connections made through telephone or other communications links. A network can be as small as a local area network consisting of a few computers, printers, and other devices, or it can consist of many small and large computers distributed over a vast geographic area. Small or large, a computer network exists to provide computer users with the means of communicating and transferring information electronically. Some types of communication are simple user-to-user message; others, of the type known as distributed processes, can involve several computers and the sharing of workload or cooperative efforts in performing a task.

Text 5 Reading Materials

PART I

The Internet and the Web

People may think the Internet is the Web, but they are different. The Internet is a worldwide network, while the Web is a multimedia interface. Internet uses include communication, electronic commerce, information gathering, entertainment and education.

1. Introduction

The Internet was launched in 1969 when the United States funded a project that developer a

national computer network called Advanced Research Project Agency Network (ARPANet). The web, also known as WWW and the World Wide Web, was introduced in 1992 at the Center for European Nuclear Research (CERN) in Switzerland. Prior to the web, the Internet was all text — no graphic, animation, sound or video. The Web provided a multimedia interface to resource available on the Internet. From these research beginnings, the Internet and the Web have evolved as tools for all of us to use.

It is easy to get the Internet and the Web confused, but they are not the same. The Internet is the actual physical network. It is made up of wires, cables, and satellites. It connects computers and resources throughout the world. The web is a multimedia interface to access the resource on the Internet. That is to say, we built the network (the Internet) first, and then, we enjoy the service (the Web) the network provides us.

2. What can we get from the Web in the Internet

Every day over a billion users from every country in the world use the Internet and the Web. What are they doing? The most common uses are the following.

- **Communicating** is by far the most popular activity. You can exchange e-mails with your family and friends located almost anywhere in the world. You can join and listen to discussions and debates on a wide variety of special-interest topics. You can chat “live” with others. You can even create your own personal Web page for friends and family to visit.

- **Shopping or using electronic commerce** is one of the fastest-growing Internet applications. You can visit a cybermall or window shop at the best stores, look for the latest fashions, search for bargains, and make purchases. You can purchase goods using checks, credit cards, or electronic cash.

- **Searching for information** has never been more convenient. You can access some of the world’s largest libraries from your home computer. You can visit virtual libraries, search through their stacks, read selected items, and even check out books.

- **Entertainment** options are nearly endless. You can find music, movies, magazines, and computer games. You will find live concerts, movie previews, book clubs, and interactive games.

- **Education or e-learning** is another rapidly emerging Web application. You can take classes on almost any subject. There are courses just for fun and there are courses for high school, college, and graduate school credit. Some cost nothing to take and others cost a lot.

3. How does the Web in the Internet work?

The first step to using the Internet and Web is to get connected, or to gain access to the Internet. The most common way to access the Internet is through a provider or host computer. The providers are already connected to the Internet and provide a path or connection for individuals to access the Internet. Your college or university most likely provides you with free access to the Internet either through their local area networks (LAN) or through a dial-up or telephone connection. Internet Service Provider (ISP) gives us access to the Internet, and Browsers provide access to Web resources.

In general, Web resources are stored in many distributed servers as files. A server is a special computer connected directly to the Internet. Every server has a unique Internet protocol address or IP address, just like a postal address, IP address is helping computer find each other. But since 172.154.205.100, it doesn’t exactly roll off the tongue, we also give them names, like google.com, or

baidu.com. Your computer at home is not a server, because it's not connected directly to the Internet. It must ask the ISP to provide the access to the Internet. When you type www.baidu.com and press the "enter" key, your computer will send out a request to the server of Baidu and ask it to send back the homepage. Whenever an email, picture or web page travels across the Internet, computers break the information into smaller pieces called packets. When information reaches its destination, the packets are reassembled in their original order to make a picture, email, web page or twitter. So the use of Web is actually sending packets back and forth over the Internet.

Exercise

1. Multiple choice

(1) According to the passage, what kind of resource you CAN'T find in the Internet? ()

- A. Music
- B. Information
- C. Web sites
- D. Free lunch

(2) The WWW has all the functions EXCEPT () .

- A. Communication
- B. Publishing
- C. Packaging
- D. Multimedia

(3) As a physical network, the Internet is made up of the followings EXCEPT () .

- A. wires
- B. cables
- C. interfaces
- D. satellites

(4) About the Web, which of the following statement is NOT true? ()

- A. The Web has been used for selling products and services.
- B. Through E-commerce, people can shop online.
- C. The influence of the Web will possibly not be as big as it is.
- D. Remote education is enabled by Web technology.

2. Translation

The Internet provides only the physical and logical infrastructures that connects millions of computers together. Many believe that the World Wide Web (WWW, or simply the Web) provides the killer application for this global network. The Web is considered the content the Internet, providing all sorts of information by using a rich set of tools that manage and link text, graphics, sound, and video. Providing and viewing information on the Web is accomplished using server applications and client applications.

If you've already explored the Web, you'll recognize the client-side application as the Web browser. A Web browser receives, interprets, and displays pages of information from the Web. The user can navigate within pages, jump to other pages by clicking hypertext links, and point to just about any page

on the Web.

PART II

The Internet is a Window to the Rest of the World

The Internet is an international collection of computer networks that all understand a standard system of addresses and commands, connected together through backbone systems. It was started in 1969, when the U.S. Department of Defense established a nationwide network to connect a handful of universities and contractors. The original idea was to increase computing capacity that could be shared by users in many locations and to find out what it would take for computer networks to survive a nuclear war or other disaster by providing multiple path between users. People on the ARPNET (as this nationwide network was originally called) quickly discovered that they could exchange messages and conduct electronic “conferences” with distant colleagues for purposes that had nothing to do with the military industrial complex. If somebody else had something interesting stored on their computer, it was a simple matter to obtain a copy (assuming the owner did not protect it).

Over the years, additional networks joined which added access to more and more computers. The first international connections, to Norway and England, were added in 1973. Today thousands of networks and millions of computers are connected to the Internet. It is growing so quickly that nobody can say exactly how many users “On the Net”.

The Internet is the largest repository of information which can provide very large network resources. The network resources can be divided into network facilities resources and network information resources. The network facilities resources provide us the ability of remote computation and communication. The network information resources provides us all kinds of information services, such as science, education, business, history, law, art, and entertainment, etc.

The goal of your use of the Internet is exchanging messages or obtaining information. What you need to know is that you can exchange message with other computers on the Internet and use your computer as a remote terminal on distant computers. But the internal details of the link are less important, as long as it works. If you connect computers together on a network, each computer must have a unique address, which could be either a word or a number. For example, the address of Sam’s computer could be Sam or a number.

The Internet is a huge interconnected system, but it uses just a handful of method to move data around. Until the recent explosion of public interest in the Internet, the vast majority of the computers on the Net use the Unix operating system. As a result, the standard Unix commands for certain Internet services have entered the online community’s languages as both nouns and verbs to describe the services themselves. Some of the services that the Internet can provide are: Mail, Remote use of another computer (Telnet), File Transfer (FTP), News, and Live conversation.

The most commonly used network service is electronic mail (E-mail), or simply as mail. Mail permits network users to send textual messages to each other. Computers and networks handle delivering the mail, so that communicating mail users do not have to handle details of delivery, and do not have to be present at the same time or place.

The simplest way to access a file on another host is to copy it across the network to your local host.