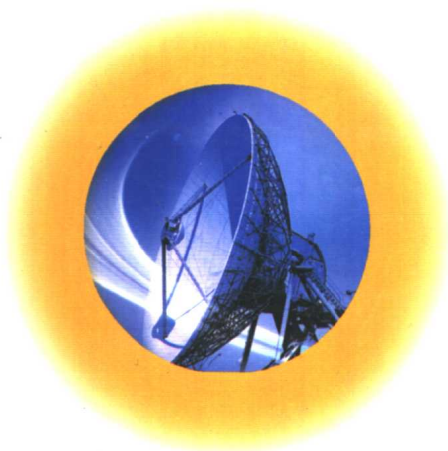


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■ 高宝虹 主编

信息科学

华中科技大学出版社

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内 容 提 要

本书汇编了二十多篇涉及计算机基础知识、网络、数码技术、无线通信技术、电子商务等 IT 领域的文章，每篇文章由正文、相关图片、生词和短语、背景知识简介、注释、专业术语简释、难句翻译和练习等构成。文章选自美、英最新出版的报章杂志、教材或网上发布的材料，具有内容新、语言地道、可读性和实用性强等特点，是一本不可多得的有关信息科学的科技英语阅读书籍。

本书可作为大专院校计算机、电信、光电、电子等信息技术专业本科中、高年级学生的专业英语阅读教材，也可作为其他专业大学生、广大的 IT 从业人员和爱好者的科普阅读书籍或参考书。

前 言

人类已经进入新的世纪，而这个新的世纪是信息化的世纪。信息技术的发达与否已成为社会时尚和这个时代的标志。人们的生活方式、生产方式和思维方式等都因为迅速发展的信息技术的冲击，而正在发生着并将继续发生巨大的变化。

站在信息化新世纪的门槛上，中国的IT界应做出怎样的准备，来迎接扑面而来的机遇和挑战，这是每一个IT人，每一个中国人都应该认真思考的重要问题。随着信息技术的迅猛发展和日益普及，各行各业越来越多的人每天都在与IT打交道。然而，我们不得不承认和面对的一个事实是：大多数的IT用户并不具备必要的英语水平。在高等学校，许多大学生已经较多地接触和使用计算机、网络等信息技术，但他们的英语水平却远远没有达到准确、完整地掌握这些IT技术所需要的程度。在社会上，为数不少的IT从业人员和其他相关人员也因为英语水平不够高而在事业之旅上遭遇坎坷，时常有一种“心有余而力不足”的感觉。反之，少数优秀的IT人士由于具备良好的英语水平而如鱼得水，如虎添翼，在事业发展上一帆风顺。由此可见，良好的英语水平和一定的IT技术的有机结合对广大的IT从业人员和用户是非常必要和重要的。而要实现这种有机结合，则有赖于大学生和其他相关人士在平时的阅读中多接触与IT知识相关的英语资料和书籍，具备坚实的IT科普英语基础。

基于以上的考虑，我们在编写本书时既考虑了内容

的可读性和实用性，同时也尽可能地跟踪IT领域的最新技术和进展，力求兼顾不同层次读者的需求。书中素材选自美、英最新出版的报章杂志、教材或网上发布的文章，内容涉及计算机基础知识、网络知识、数码技术、无线通信技术、电子商务等诸多方面，深入浅出，实用性强。每篇文章由正文、相关图片、生词和短语、背景知识简介、注释、专业术语简释、难句翻译和练习等部分构成。其中生词和短语部分对课文中出现的生词和短语加注了国际音标、词性和中文释义；背景知识简介部分介绍了与该文章话题相关的专业背景知识，以帮助读者拓宽视野，更好地理解文章；注释部分则就文章中的疑难短语、句子、语法及生僻的专业用词等进行了解释，并给出了必要的例句和例词，以帮助读者理解文章和熟悉重要的语言点和语法点；专业术语简释部分对文章中出现的重要专业术语进行了介绍和解释；难句翻译部分对文章中少数长而语法结构复杂的句子进行了中文翻译；练习部分设计了与文章主题、重要词汇以及细节理解相关的练习，以检验读者是否真正读懂了文章。本书的结尾还给出了所有练习的参考答案。

在编写本书的过程中，华中科技大学出版社的英文编辑给予了大力的支持和帮助，在此一并致以最诚挚的谢意。

由于成书仓促，书中疏漏和不妥之处在所难免，敬请读者朋友批评指正。

编 者

2003年10月

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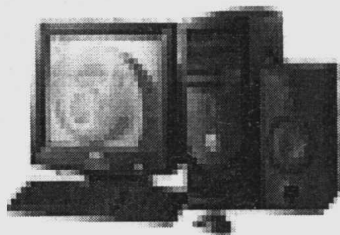
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1. Immunizing Your System

增强你的电脑系统免疫力



1 “There are now over 62 000 viruses and we see about 500 to 550 new viruses each and every month,” says Graham Cluley, senior technology consultant at Dr. Solomon’s. “The big growth has been in macro viruses. Most of these infect Microsoft Word documents, but there are also some which infect Excel spreadsheets and Access databases.”

2 Macro viruses spread much faster than traditional viruses because people exchange data—i.e. doc files—much more readily than executable files. Because the nature of viruses has changed over the last few years, so has the way of spreading a virus. Most viruses these days are spread via e-mail and groupware systems. Groupware

is great for sharing information, which means it's great for spreading viruses too. Leading anti-virus vendors have developed solutions to combat this threat.

3 It was only recently that floppy disks represented the only serious threat for the spread of computer viruses. Protecting a corporate network was as simple as installing a desktop anti-virus scanner on every client workstation. Today, it's nigh impossible for network administrators to combat the threat of a rapid virus infection without protecting multiple points of entry. The widespread adoption of network computing, along with new technologies such as simple-document macro scripting, group-ware, and the Internet, have made it vital to establish a complete multi-tier virus defence system.

4 Network Associate's McAfee offers a single integrated defence against viruses at the desktop, server and Internet gateway, consisting of three product suites: virus scan security suite to provide multi-platform protection for all desktop clients; net-shield security suite to protect all files, application and groupware servers; and Internet security suite to lock out viruses and hostile applets at the Internet gateway. The company's total virus defence (TVD) package has over 30 million users worldwide, including 80 percent of the Fortune 100.

5 Network Associates released PGP (pretty good privacy) encryption technology as the cornerstone of its

total network security (TNS) suite this year. The TNS suite employs 128 bit encryption and is based on widely available published source code that was legally exported from the US. No US technical assistance has been provided ensuring full compliance with US export laws. PGP costs \$ 50 for single users. Corporate pricing depends on the number of users.

6 “E-commerce has not been a viable option for many businesses due to the lack of guaranteed protection for confidential information,” says Bernhard van der Feen, European product marketing manager for Network Associates’ anti-virus and network security products. “We now have a solution to this problem with PGP software, which guarantees safe communications over the Internet and the safe delivery of confidential documents via e-mail.”

7 IBM’s business recovery services, headquartered in New York, manages the company’s central computer emergency response team (CERT) and also markets IBM anti-virus products and services to customers. CERTs were spawned in the wake of the “Internet Worm” in 1989 and government and industry have employed them to deal with hackers, network attacks and PC viruses.

8 Alan Fedeli, program manager of IBM emergency response services, based in New York, says: “IBM Research’s massively distributed systems group is

working on a computer-immune system for cyberspace. Client machines running the group's software detect the presence of a new virus and send a sample over the Internet back to the anti-virus headquarters. There, computers dissect it, analyze it, and identify the means for completely removing it from the infected computer. The system will then communicate the method for identifying and removing the virus to computers worldwide—in effect immunizing them within minutes of the initial appearance of the virus.”

9 The viral problems and the cure have been changing over the past few years and could conceivably change again. As Solomon's Cluley points out, there are some 62 000 viruses today, compared with 10 000 in 1996, and 6 in 1989. With the entire world networked, viruses can potentially spread faster than humans can keep up. Hence the IBM work.

10 Computer viruses may be the most malicious agents wreaking havoc on the Internet, but they won't be the only ones. Computer networks will also be vulnerable to an entirely new kind of threat, say IBM researchers at the Thomas J. Watson research center. “Maelstroms” is the term coined by the workers, referring to a condition that can occur whenever computers are programmed to forward e-mail automatically. It's one of many things that can happen when computers handle information and send

it on without direct human intervention.

11 For example, a computer might automatically send e-mails onto a distributed mailing list. If any of the receiving computers is programmed to do the same, e-mails can begin to circulate endlessly. The result: exponentially increasing vortices of e-mails, with “billions of e-mail messages”. The network gets completely clogged with mail no-one wants. There’s gridlock and traffic jams, and nothing works.

12 The researchers have learned how to prevent the formation of maelstroms as part of a broad study of emergent phenomena in computer networks. In such phenomena, the collective behaviors of a myriad of agents interact and reinforce to produce a potentially monumental effect. They arise in everything from economies and biological systems (e.g. consciousness in the human brain) to computer networks.

Emergent Phenomena

13 The key to such emergent phenomena is the autonomy of the agents doing the forwarding. Small mail loops were discovered in 1996 among a handful of computers, but human operators were able to close them down quickly. But in the future, cautions IBM, most users will have intelligent autonomous agents reading and forwarding their mail. Hence the number and intensity of emergent phenomena will be all that much worse. With

everyone hooked up to the Internet and agents working on their behalf, things like that will be showing up regularly. IBM is hoping to get round the problem.

14 IBM's anti-virus team is refining its immune system. It will also address a new species of virus that appeared on the Internet "with a vengeance". Hitherto, viruses always embedded themselves in conventional programs to ensure they were executed. The new viruses camp out in macros—tiny programs embedded in files such as spreadsheets or word processing documents, where they execute simple commands.

Network Intrusion

15 "What makes these macro viruses so pernicious is they can spread whenever documents are exchanged on the Internet, which is often," says Fedeli. "Two separate but related concerns have grown with the rise of network connectivity—the increased spread of viruses and the increase in unauthorized network intrusions and attacks."

16 The differences: viruses are self-replicators, with innocent spread, i.e. after the first deliberate spread that gives the virus life. With network intrusions, it's mostly a live person active, seeking unauthorized entry through someone's network.

17 The similarities: viruses and network break-ins may be different to technical experts, but to the business person they represent essentially the same thing—unauthorized

network and system usage.

18 “A business doesn’t care if it is at risk by the rapid spread of malicious code or by a hacker intrusion. In either case, there’s a risk the customer may have to shut down his network, or have it shut down for him, and lose data, customer service, or both,” says Fedeli.

19 There are products and services to deal with these two growing cyber problems. For viruses, companies deploy anti-virus software on desktops and servers, and expend much effort keeping the anti-virus current. For protection against attacks, companies connect to the Internet through firewall, gravitate toward encrypted services, test firewalls and web sites regularly for vulnerabilities, and increasingly deploy intrusion detection capabilities.

20 A new security culture has been born. Companies are providing managed operations for firewalls and intrusion detection monitoring. Companies are finding a real need to rely on outside help and expertise to insure against emergency situations.

21 “With the explosive growth of the Internet, the CERT phenomenon is more important than ever,” says Fedeli.

New Words and Expressions

spreadsheet ['spredʃi:t] *n.* 电子数据表

combat ['kɒmbət] *v. & n.* 战斗

- nigh [nai] *adv.* 接近, 近于
- multi-tier ['mʌlti'tiə] *adj.* 多层次的
- suite [swi:t] *n.* 一套, 一组
- applet ['æplit] *n.* Java 的小应用程序
- encryption [in'kripʃən] *n.* 加密
- cornerstone ['kɔ:nəstəʊn] *n.* 基础
- confidential [kənfi'denʃəl] *adj.* 机密的
- hacker ['hækə] *n.* 电脑黑客
- spawn [spɔ:n] *v.* 产卵, 繁殖
- cyberspace ['saibəspeɪs] *n.* 网络空间
- dissect [di'sekt] *v.* 解剖, 分析
- viral ['vaɪrəl] *adj.* 病毒的, 由病毒引起的
- malicious [mə'liʃəs] *adj.* 怀恶意的
- wreak [ri:k] *v.* 发泄, 报仇
- havoc ['hævək] *n.* 大破坏, 浩劫 *vt.* 严重破坏
- vulnerable ['vʌlnərəbl] *adj.* 易受……攻击的
- maelstrom ['meɪlstrəʊm] *n.* 大旋涡
- coin [kɔɪn] *v.* 编造, 杜撰
- exponentially [ˌekspəʊ'nənʃəli] *adv.* 指数地
- vortices ['vɔ:tisi:z] *n.* vortex 的复数, 旋涡
- clog [klɒg] *v.* 塞满
- gridlock ['grɪdlɒk] *n.* 网络信息堵塞
- myriad ['miriəd] *adj.* 无数的
- vengeance ['vendʒəns] *n.* 报复
- address [ə'dres] *v.* 对付, 处理
- hitherto [hiðə'tu:] *adv.* 迄今