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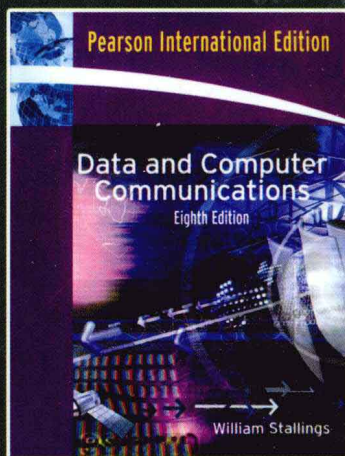
# 数据与计算机通信

## (第八版)

Data and Computer Communications  
Eighth Edition

英文版

[美] William Stallings 著



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## 内 容 简 介

本书是著名计算机专业作家 William Stallings 的经典著作之一,内容涉及最基本的数据通信原理、各种类型的计算机网络及多种网络协议和应用。这一版对原有内容做了彻底的修订和重组,使新版对通信各专题的阐述更全面、更清晰。同时,新版更新了吉比特以太网、10 Gbps 以太网的内容,对 WiFi/IEEE 802.11 无线局域网、性能监控、服务水平约定、服务质量等根据新的标准进行了修订。此外,本书还涉及 TCP Tahoe、Reno 以及 New Reno 拥塞控制算法的描述,对多媒体组网的内容也进行了扩充。每章都附有习题和建议,以便读者进一步阅读。本书包含的大量扩展性知识包含在配套网站 <http://WilliamStallings.com/DCC/DCC8e.html> 中,供教师和学生参考。

本书可供通信或计算机、信息技术专业的本科生或研究生使用,同时也可供广大通信或计算机领域相关人员参考。

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# 导 读

通信与计算机科学的融合与相互促进是现代信息技术发展的一个基本主题。计算机的处理能力日益增强之后,在计算机之间实现信息共享就成为了必需,由此促进了数据通信的发展。伴随着新技术的不断涌现,计算机之间的通信从局域网扩展到广域网,以至因特网;从有线扩展到无线,以至漫游。这是近半个世纪以来科学技术发展最快的一个领域。除传统的数据通信基本理论贯穿其中之外,还汇集了庞杂繁多的新概念、新技术和协议标准。作为一本有关数据与计算机通信方面的通用教材,要在涵盖该领域各个技术环节的同时保持一个清晰明了的层次结构以便于初学者理解,绝非易事。所幸的是,著名计算机专业作家 William Stallings 所著《数据与计算机通信》一书在这方面做得颇为成功,因此成为了不少高校通信和计算机专业本科相关课程教学的首选教材。基于同样的理由,我们在为本校国际学院相关专业本科生确定英文原版教材时也选择了该书。

《数据与计算机通信》一书由浅入深,从最基本的数据通信原理入手,全面阐述了各种类型的计算机网络及多种网络协议和应用。全书共分六大部分:概述、数据通信、广域网、局域网、网际协议和运输协议、因特网应用。全书结构完整,层次清晰,编排合理。每个部分的各章均采用模块化的结构,每章集中讨论某项技术,彼此相对独立。这种编排方式的好处是非常便于不同层次的读者自学以及在课程教学中灵活使用,作者在前言中也给出了一些相应的使用建议。例如,对于没有任何通信基础的读者可以选择前两部分和后续的一些基本技术章节学习;有一定通信基础的读者则可以直接阅读通信网络或因特网部分的相关章节,有针对性地去了解各项技术细节。

在内容上,《数据与计算机通信》一书除覆盖面广以外,对新技术的跟踪也非常及时。该书第八版的推出与第七版相隔不到4年的时间,在对因特网相关协议以及应用的阐述方面明显有所加强。对于尚处在发展变化中的吉比特/10 Gbps 以太网、IEEE 802.11 无线局域网、多媒体应用等技术以及 IP 性能度量、服务水平约定等概念,新版本根据业界最新标准和研究成果及时进行了补充和修订,使读者对于本领域技术前沿和发展动态也能有所了解。

该书的另一大特色是叙述深入浅出,语言平实易懂。与一些技术书籍和参考手册的明显不同在于,作者总是试图从原理上讲清楚一些根本的技术问题,而不是拘泥于相关协议和标准的细节。这更有助于读者从本质上去把握和理解每项技术的内涵。同时在内容组织上,该书以及在线附录提供了大量的应用实例,非常便于读者对照理解相关原理。例如在第2章讨论比较抽象的协议的构成要素时,该章附录中就给出了一个完整的简单文件传输协议(TFTP)作为实例。这种叙述方式对于一个初次涉足该领域的学习者来说尤为重要,既能充分把握要点,又能通过了解细节加深对问题的理解。

作为一本通用教材,《数据与计算机通信》一书还为教师和学生提供了强大的教学支持。书中每章都附有一个关键词列表以及大量有针对性的思考题和习题,教师还可获得解题手册、PowerPoint 幻灯片等教辅材料。每章附录给出了相关推荐读物及网站,也便于兴趣更为深入的读者进一步阅读。

本书作者 William Stallings 拥有麻省理工学院计算机科学博士学位，目前作为独立顾问为计算机硬件制造商、软件开发商、政府研究机构提供咨询服务。他是一位世界知名的计算机学者和畅销教材作家，近 20 年来已撰写了 17 本著作，内容涉及操作系统、加密与网络安全、计算机网络和体系结构等多个领域。他曾 10 次荣获由美国教材与大学作者协会颁发的年度“最佳计算机科学与工程教材”奖，在帮助大众理解计算机网络和计算机体系结构领域技术发展方面作出了独特而广泛的贡献。《数据与计算机通信》正是 William Stallings 最具代表性的经典著作之一，该书的第五版和第八版分别荣获了 1997 年度和 2007 年度的“最佳计算机科学与工程教材”奖。因此，无论是对数据和计算机通信领域有兴趣的初学者，还是已有一定基础的学术研究和专业技术人员，相信都能从本书中获益良多。

北京邮电大学信息与通信工程学院教授

刘丹谱



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*For my scintillating wife*  
*ATS*





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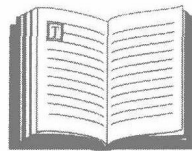
The Web site at [WilliamStallings.com/DCC/DCC8e.html](http://WilliamStallings.com/DCC/DCC8e.html) provides support for instructors and students using the book. It includes the following elements.



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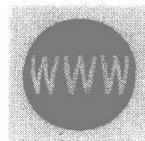
The course support materials include

- Copies of figures from the book in PDF format
- A detailed set of course notes in PDF format suitable for student handout or for use as viewgraphs
- A set of PowerPoint slides for use as lecture aids
- Computer Science Student Support Site: contains a number of links and documents that the student may find useful in his/her ongoing computer science education. The site includes a review of basic, relevant mathematics; advice on research, writing, and doing homework problems; links to computer science research resources, such as report repositories and bibliographies; and other useful links.
- An errata sheet for the book, updated at most monthly



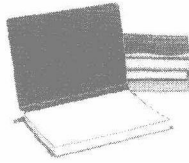
## **DCC Courses**

The DCC8e Web site includes links to Web sites for courses taught using the book. These sites can provide useful ideas about scheduling and topic ordering, as well as a number of useful handouts and other materials.



## **Useful Web Sites**

The DCC8e Web site includes links to relevant Web sites, organized by chapter. The links cover a broad spectrum of topics and will enable students to explore timely issues in greater depth.



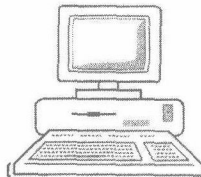
### **Supplemental Documents**

The DCC8e Web site includes a number of documents that expand on the treatment in the book. Topics include standards organizations, Sockets, TCP/IP checksum, ASCII, and the sampling theorem.



### **Internet Mailing List**

An Internet mailing list is maintained so that instructors using this book can exchange information, suggestions, and questions with each other and the author. Subscription information is provided at the book's Web site.



### **Simulation and Modeling Tools**

The Web site includes links to the *cnet* Web site and the *modeling tools* Web site. These packages can be used to analyze and experiment with protocol and network design issues. Each site includes downloadable software and background information. The instructor's manual includes more information on loading and using the software and suggested student projects.

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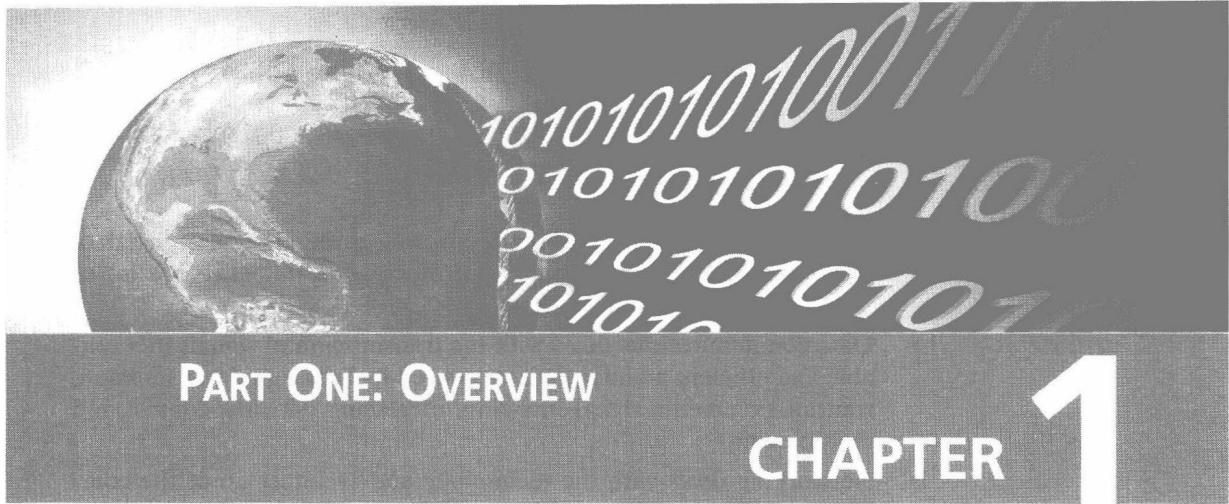
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