An engineering approach to computer networking: ATM networks, the Internet, and the telephone network

Book

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This practical introduction to computer networking takes a unique and highly effective "engineering" approach that not only describes how networks operate but also offers insight into the principles of network design.

An Engineering Approach to Computer Networking simultaneously studies all three major network technologies-Asynchronous Transfer Mode (ATM), Internet, and telephony. You will find clear overviews of these technologies and extensive, up-to-date coverage of all essential networking topics: protocol layering; multiple access; switching; scheduling; naming, addressing, and routing; error and flow control; and traffic management. For each topic, the book identifies fundamental constraints and analyzes the pros and cons of several alternative solutions. Through detailed descriptions of common protocols used in telephone, Internet, and ATM networks-as well as a tour of system design and protocol implementation techniques-this book shows you how these concepts are put to use in real networks.

Practical in focus, ***An Engineering Approach to Computer Networking*** features many real-world examples and is supported with on-line material including:

- Microsoft PowerPoint slides covering the material in the book.
- A multithreaded, packet-level network simulator that allows users to simulate arbitrary protocols.
- Simulation exercises covering multiple access, error control, flow control, routing, and scheduling.
- A bibliography with links to Web sites referred to in the text.
- A searchable glossary.
- Solutions to all exercises.

With this deeper understanding of network structure and hands-on experience implementing protocols, you will have an excellent command of the field and be better equipped to design powerful and efficient networks and leading-edge networking software.

S. Keshav, Associate Professor of Computer Science at Cornell University, has employed the engineering approach with great success in networking courses he has taught at the Indian Institute of Technology, Delhi, and Columbia University. Formerly a Member of the Technical Staff at AT&T Bell Laboratories, Dr. Keshav

received his Ph.D. in 1991 from the University of California at Berkeley. He can be reached at keshav@ensim.com.

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