

Computer Networking: A Top-Down Approach Featuring the Internet

By James F. Kurose, Keith W. Ross

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By starting at the application-layer and working down to the protocol stack, Computer Networking: A Top-Down Approach Featuring the Internet provides a motivational treatment of important concepts for networking students. Based on the rationale that once a student understands the applications of networks they can understand the network services needed to support these applications, this book takes a "top-down" approach where students are first exposed to a concrete application and then drawn into some of the deeper issues of networking. Computer Networking: A Top-Down Approach Featuring the Internet focuses on the Internet as opposed to addressing it as just one of many computer network technologies. Students are enormously curious about what is "under the hood" of the Internet, creating an extremely motivational vehicle for teaching fundamental computer networking concepts. This text features a comprehensive companion website which includes the entire text online. It allows for direct access to some of the best Internet sites relating to computer networks and Internet protocols.The website has many interactive features, including direct access to the Traceroute program, direct access to search engines for Internet Drafts, Java applets that animate difficult concepts, and direct streaming audio. Finally, the website makes it possible to update the material to keep up-to-date with this rapidly changing field.

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Editorial Review

Amazon.com Review
Certain data-communication protocols hog the spotlight, but all of them have a lot in common. *Computer Networking: A Top-Down Approach Featuring the Internet* explains the engineering problems that are inherent in communicating digital information from point to point. The top-down approach mentioned in the subtitle means that the book starts at the top of the protocol stack--at the application layer--and works its way down through the other layers, until it reaches bare wire.

The authors, for the most part, shun the well-known seven-layer Open Systems Interconnection (OSI) protocol stack in favor of their own five-layer (application, transport, network, link, and physical) model. It's an effective approach that helps clear away some of the hand waving traditionally associated with the more obtuse layers in the OSI model. The approach is definitely theoretical--don't look here for instructions on configuring Windows 2000 or a Cisco router--but it's relevant to reality, and should help anyone who needs to understand networking as a programmer, system architect, or even administration guru.

The treatment of the network layer, at which routing takes place, is typical of the overall style. In discussing routing, authors James Kurose and Keith Ross explain (by way of lots of clear, definition-packed text) what routing protocols need to do: find the best route to a destination. Then they present the mathematics that determine the best path, show some code that implements those algorithms, and illustrate the logic by using excellent conceptual diagrams. Real-life implementations of the algorithms--including Internet Protocol (both IPv4 and IPv6) and several popular IP routing protocols--help you to make the transition from pure theory to networking technologies. --*David Wall*

Topics covered: The theory behind data networks, with thorough discussion of the problems that are posed at each level (the application layer gets plenty of attention). For each layer, there's academic coverage of networking problems and solutions, followed by discussion of real technologies. Special sections deal with network security and transmission of digital multimedia.

From the Publisher
Networking is much more than dry standards specifying message formats and protocol behaviors. Kurose and Ross focus on teaching the emerging principles of the field and then illustrate these principles with examples drawn from Internet architecture. The discussion is lively, engaging, topical, and up-to-date.

This book features a top-down organization with an early emphasis on applications. Studying application-level protocols first allows students to gain an intuitive feel for network protocols. The focus on application-layer paradigms (e.g., client server) and application programming interfaces allows students to get their "hands dirty" early-studying and implementing protocols in the context of applications they use daily. Proceeding though the layered network architecture in a top-down manner, one can first focus on the network services that are needed and then, in turn, study how these services can be provided.

This book provides a modern treatment of computer networking. 20 years ago, the HDLC protocol was considered "high-level." Today, there is an emphasis on services, applications and their transport needs, scalability, heterogeneity, performance, security, and manageability. This emphasis, which is driving today's advances, is woven throughout the book.

Each copy of this book comes with a prepaid six-month subscription to a companion website. This site

includes the full text with an advanced searching feature and a hyper-linked index, Java applets to help demonstrate difficult concepts, links to up-to-date material, and complete supplements for qualified instructors of courses.

From the Back Cover

This text, partially available online and accessible through any Web browser, puts Internet protocols in the spotlight in its coverage of computer network technologies, and uses this as motivation for studying some of the more fundamental computer networking concepts. It takes a top-down approach, first exposing students to a concrete application before discussing the network services needed to support these applications. This allows students to develop an intuitive feel for what protocols are in the context of network applications (e.g., the Web, ATM, and e-mail) which they use daily. The book also contains material on application programming development, which allows students to write actual application-level programs and gain first-hand experience in socket programming.

Features

- Includes many interactive features, such as direct access to the Traceroute program, direct access to search engines for Internet Drafts, Java applets that animate difficult concepts, and (in the near future) direct access to streaming audio
- Internet focus motivates students to learn more about other network technologies
- Discusses not only what networks can do, but also the principles behind them
- Well-suited for asynchronous online courses

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Users Review

From reader reviews:

Ebony Lower:

This book untitled Computer Networking: A Top-Down Approach Featuring the Internet to be one of several books which best seller in this year, that is because when you read this book you can get a lot of benefit upon it. You will easily to buy that book in the book shop or you can order it by way of online. The publisher on this book sells the e-book too. It makes you more readily to read this book, since you can read this book in your Cell phone. So there is no reason for your requirements to past this guide from your list.

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