

Unix Network Programming Volume 1 The Sockets Networking Api 3 E

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Advanced Programming in the UNIX Environment - W. Richard Stevens 2008-01-01

The revision of the definitive guide to Unix system programming is now available in a more portable format.

The UNIX-haters Handbook - Simson Garfinkel 1994

This book is for all people who are forced to use UNIX. It is a humorous book--pure entertainment--that maintains that UNIX is a computer virus with a user interface. It features letters from the thousands posted on the Internet's "UNIX-Haters" mailing list. It is not a computer handbook, tutorial, or reference. It is a self-help book that will let readers know they are not alone.

Linux Socket Programming by Example - Warren Gay 2000

This guide for beginning to intermediate programmers offers step-by-step instructions as well as advice on protecting servers from attack, writing programs to determine socket buffer sizes, setting the TCP/IP keep-alive feature, understanding the differences between connection- and connectionless-oriented protocols, and selecting the most effective client and server interface.

Java Network Programming - Elliotte Rusty Harold 2000

A guide to developing network programs covers networking fundamentals as well as TCP and UDP sockets, multicasting protocol, content handlers, servlets, I/O, parsing, Java Mail API, and Java Secure Sockets Extension.

Computer Networks - Larry L. Peterson 2011-03-02

Computer Networks: A Systems Approach, Fifth Edition, explores the key principles of computer networking, with examples drawn from the real world of network and protocol design. Using the Internet as the primary example, this best-selling and classic textbook explains various protocols and networking technologies. The systems-oriented approach encourages students to think about how individual network components fit into a larger, complex system of interactions. This book has a completely updated content with expanded coverage of the topics of utmost importance to networking professionals and students, including P2P, wireless, network security, and network applications such as e-mail and the Web, IP telephony and video streaming, and peer-to-peer file sharing. There is now increased focus on application layer issues where innovative and exciting research and design is currently the center of attention. Other topics include network design and architecture; the ways users can connect to a network; the concepts of switching, routing, and internetworking; end-to-end protocols; congestion control and resource allocation; and end-to-end data. Each chapter includes a problem statement, which introduces issues to be examined; shaded sidebars that elaborate on a topic or introduce a related advanced topic; What's Next? discussions that deal with emerging issues in research, the commercial world, or society; and exercises. This book is written for graduate or upper-division undergraduate classes in computer networking. It will also be useful for industry professionals retraining for network-related assignments, as well as for network practitioners seeking to understand the workings of network protocols and the big picture of networking. Completely updated content with expanded coverage of the topics of utmost importance to networking professionals and students, including P2P, wireless, security, and applications Increased focus on application layer issues where innovative and exciting research and design is currently the center of attention Free downloadable network simulation software and lab experiments manual available

Code Connected Volume 1 - Pieter Hintjens 2013-01-07

"Even connecting a few programs across a few sockets is plain

nasty when you start to handle real life situations. Trillions? The cost would be unimaginable. Connecting computers is so difficult that software and services to do this is a multi-billion dollar business. So today we're still connecting applications using raw UDP and TCP, proprietary protocols, HTTP, Websockets. It remains painful, slow, hard to scale, and essentially centralized. To fix the world, we needed to do two things. One, to solve the general problem of "how to connect any code to any code, anywhere." Two, to wrap that up in the simplest possible building blocks that people could understand and use easily. It sounds ridiculously simple. And maybe it is. That's kind of the whole point." If you are a programmer and you aim to build large systems, in any language, then Code Connected is essential reading. Code Connected Volume 1 takes you through learning ZeroMQ, step-by-step, with over 80 examples. You will learn the basics, the API, the different socket types and how they work, reliability, and a host of patterns you can use in your applications. This is the Professional Edition for C/C++.

Python Network Programming - Abhishek Ratan 2019-01-31

Power up your network applications with Python programming Key Features Master Python skills to develop powerful network applications Grasp the fundamentals and functionalities of SDN Design multi-threaded, event-driven architectures for echo and chat servers Book Description This Learning Path highlights major aspects of Python network programming such as writing simple networking clients, creating and deploying SDN and NFV systems, and extending your network with Mininet. You'll also learn how to automate legacy and the latest network devices. As you progress through the chapters, you'll use Python for DevOps and open source tools to test, secure, and analyze your network. Toward the end, you'll develop client-side applications, such as web API clients, email clients, SSH, and FTP, using socket programming. By the end of this Learning Path, you will have learned how to analyze a network's security vulnerabilities using advanced network packet capture and analysis techniques. This Learning Path includes content from the following Packt products: Practical Network Automation by Abhishek Ratan Mastering Python Networking by Eric Chou Python Network Programming Cookbook, Second Edition by Pradeeban Kathiravelu, Dr. M. O. Faruque Sarker What you will learn Create socket-based networks with asynchronous models Develop client apps for web APIs, including S3 Amazon and Twitter Talk to email and remote network servers with different protocols Integrate Python with Cisco, Juniper, and Arista eAPI for automation Use Telnet and SSH connections for remote system monitoring Interact with websites via XML-RPC, SOAP, and REST APIs Build networks with Ryu, OpenDaylight, Floodlight, ONOS, and POX Configure virtual networks in different deployment environments Who this book is for If you are a Python developer or a system administrator who wants to start network programming, this Learning Path gets you a step closer to your goal. IT professionals and DevOps engineers who are new to managing network devices or those with minimal experience looking to expand their knowledge and skills in Python will also find this Learning Path useful. Although prior knowledge of networking is not required, some experience in Python programming will be helpful for a better understanding of the concepts in the Learning Path.

ABCs of IBM z/OS System Programming - Lydia Parziale 2018-04-07

The ABCs of IBM® z/OS® System Programming is a 13-volume collection that provides an introduction to the z/OS operating

system and the hardware architecture. Whether you are a beginner or an experienced system programmer, the ABCs collection provides the information that you need to start your research into z/OS and related subjects. If you want to become more familiar with z/OS in your current environment or if you are evaluating platforms to consolidate your e-business applications, the ABCs collection can serve as a powerful technical tool. This volume describes the basic system programming activities related to implementing and maintaining the z/OS installation and provides details about the modules that are used to manage jobs and data. It covers the following topics: Overview of the parmlib definitions and the IPL process. The parameters and system data sets necessary to IPL and run a z/OS operating system are described, along with the main daily tasks for maximizing performance of the z/OS system. Basic concepts related to subsystems and subsystem interface and how to use the subsystem services that are provided by IBM subsystems. Job management in the z/OS system using the JES2 and JES3 job entry subsystems. It provides a detailed discussion about how JES2 and JES3 are used to receive jobs into the operating system, schedule them for processing by z/OS, and control their output processing. The link pack area (LPA), LNKLST, authorized libraries, and the role of VLF and LLA components. An overview of SMP/E for z/OS. An overview of IBM Language Environment® architecture and descriptions of Language Environment's full program model, callable services, storage management model, and debug information. Other volumes in this series include the following content: Volume 1: Introduction to z/OS and storage concepts, TSO/E, ISPF, JCL, SDSF, and z/OS delivery and installation Volume 3: Introduction to DFSMS, data set basics, storage management, hardware and software, catalogs, and DFSMStvs Volume 4: Communication Server, TCP/IP, and IBM VTAM® Volume 5: Base and IBM Parallel Sysplex®, System Logger, Resource Recovery Services (RRS), global resource serialization (GRS), z/OS system operations, automatic restart management (ARM), IBM Geographically Dispersed Parallel Sysplex™ (IBM GDPS®) Volume 6: Introduction to security, IBM RACF®, Digital certificates and PKI, Kerberos, cryptography and z990 integrated cryptography, zSeries firewall technologies, LDAP, and Enterprise Identity Mapping (EIM) Volume 7: Printing in a z/OS environment, Infoprint Server, and Infoprint Central Volume 8: An introduction to z/OS problem diagnosis Volume 9: z/OS UNIX System Services Volume 10: Introduction to IBM z/Architecture®, the IBM Z platform and IBM Z connectivity, LPAR concepts, HCD, and the DS Storage Solution Volume 11: Capacity planning, performance management, WLM, IBM RMFTM, and SMF Volume 12: WLM Volume 13: JES3, JES3 SDSF

Understanding Linux Network Internals - Christian Benvenuti 2006

Benvenuti describes the relationship between the Internet's TCP/IP implementation and the Linux Kernel so that programmers and advanced administrators can modify and fine-tune their network environment.

TCP/IP Clearly Explained - Pete Loshin 2003-01-04

With over 30,000 copies sold in previous editions, this fourth edition of TCP/IP Clearly Explained stands out more than ever. You still get a practical, thorough exploration of TCP/IP networking, presented in plain language, that will benefit newcomers and veterans alike. The coverage has been updated, however, to reflect new and continuing technological changes, including the Stream Control Transmission Protocol (SCTP), the Blocks architecture for application protocols, and the Transport Layer Security Protocol (TLS). The improvements go far beyond the updated material: they also include an all-new approach that examines the TCP/IP protocol stack from the top down, beginning with the applications you may already understand and only then moving deeper to the protocols that make these applications possible. You also get a helpful overview of the "life" of an Internet packet, covering all its movements from inception to final disposition. If you're looking for nothing more than information on the protocols comprising TCP/IP networking, there are plenty of books to choose from. If you want to understand TCP/IP networking - why the protocols do what they do, how they allow applications to be extended, and how changes in the environment necessitate changes to the protocols—there's only the one you

hold in your hands. Explains clearly and holistically, but without oversimplification—the core protocols that make the global Internet possible Fully updated to cover emerging technologies that are critical to the present and future of the Internet Takes a top-down approach that begins with the familiar application layer, then proceeds to the protocols underlying it, devoting attention to each layer's specifics Divided into organized, easy-to-follow sections on the concepts and fundamentals of networking, Internet applications, transport protocols, the Internet layer and infrastructure, and practical internetworking

Advanced Linux Programming - CodeSourcery LLC 2001-06-11

This is the eBook version of the printed book. If the print book includes a CD-ROM, this content is not included within the eBook version. Advanced Linux Programming is divided into two parts. The first covers generic UNIX system services, but with a particular eye towards Linux specific information. This portion of the book will be of use even to advanced programmers who have worked with other Linux systems since it will cover Linux specific details and differences. For programmers without UNIX experience, it will be even more valuable. The second section covers material that is entirely Linux specific. These are truly advanced topics, and are the techniques that the gurus use to build great applications. While this book will focus mostly on the Application Programming Interface (API) provided by the Linux kernel and the C library, a preliminary introduction to the development tools available will allow all who purchase the book to make immediate use of Linux.

Linux in a Nutshell - Ellen Siever 2005-07-27

Contains an introduction to the operating system with detailed documentation on commands, utilities, programs, system configuration, and networking.

Linux TCP/IP Networking for Embedded Systems - Thomas F. Herbert 2007

Accompanying CD-ROM includes all RFC files mentioned in the book, the Linux source tree and sample protocol family module programs for running, configuring, and testing the NADA protocol family discussed in Ch. 10.

Network Programming with Windows Sockets - Patrice Bonner 1996

Complete information for developers designing network programs using the Windows Sockets standard. This book's easy-to-understand explanations and sample programs simplify working with the Windows Sockets API. Expert Patrice Bonner presents methods and tools for designing robust network applications, including sample stream and datagram client and server applications.

Beej's Guide to Network Programming - Brian "beej Jorgensen" Hall 2019-12-12

Back in the mid 90s, Beej got tired of all his friends asking him how to do this stuff with networking programming in C, so he put pen to paper on the early World Wide Web and wrote down everything he knew just to get them off his back. Since then, the Guide has expanded significantly, with plenty of examples, and covers IPv6. Inside you'll find such diverse topics as: Sockets programming in the C programming language, client/server, IPv4 and IPv6, data encoding, lots of manual pages rewritten in a friendlier format with examples, and goats! Actually no goats, but goats will be with you in spirit! Beej's Guide to Network Programming is also freely available for PDF download online in US Letter and A4 sizes, in its entirety, and always will be--Google for it. The bound version here is provided as a service to those who still prefer the analog printed word. (And to those who want to kick back a few bucks to the author.)

TCP/IP Network Administration - Craig Hunt 2002-04-04

This complete guide to setting up and running a TCP/IP network is essential for network administrators, and invaluable for users of home systems that access the Internet. The book starts with the fundamentals -- what protocols do and how they work, how addresses and routing are used to move data through the network, how to set up your network connection -- and then covers, in detail, everything you need to know to exchange information via the Internet. Included are discussions on advanced routing protocols (RIPv2, OSPF, and BGP) and the gated software package that implements them, a tutorial on configuring important network services -- including DNS, Apache, sendmail, Samba, PPP, and DHCP -- as well as expanded chapters on troubleshooting and

security. TCP/IP Network Administration is also a command and syntax reference for important packages such as gated, pppd, named, dhcpd, and sendmail. With coverage that includes Linux, Solaris, BSD, and System V TCP/IP implementations, the third edition contains: Overview of TCP/IP Delivering the data Network services Getting started Basic configuration Configuring the interface Configuring routing Configuring DNS Configuring network servers Configuring sendmail Configuring Apache Network security Troubleshooting Appendices include dip, pppd, and chat reference, a gated reference, a dhcpd reference, and a sendmail reference This new edition includes ways of configuring Samba to provide file and print sharing on networks that integrate Unix and Windows, and a new chapter is dedicated to the important task of configuring the Apache web server. Coverage of network security now includes details on OpenSSH, stunnel, gpg, iptables, and the access control mechanism in xinetd. Plus, the book offers updated information about DNS, including details on BIND 8 and BIND 9, the role of classless IP addressing and network prefixes, and the changing role of registrars. Without a doubt, TCP/IP Network Administration, 3rd Edition is a must-have for all network administrators and anyone who deals with a network that transmits data over the Internet.

Professional iOS Network Programming - Jack Cox 2012-10-09

Learn to develop iPhone and iPad applications for networked enterprise environments The iPhone and iPad have made a powerful impact on the business world. Developers creating iOS apps for the enterprise face unique challenges involving networking, system integration, security, and device management. This Wrox guide provides everything you need to know to write iOS apps that integrate with enterprise network resources, providing options for networking iOS devices to enterprise systems and to each other. Offers a complete compendium of methods and techniques for networked communication between iOS applications and other platforms and devices Includes instruction on incorporating synchronous and asynchronous HTTP requests, security, communication issues, and more Covers payload handling, network security, GameKit and Bonjour communications, and low-level network communications Professional iOS Network Programming focuses on the networking aspects of iOS and its relationship to remote data sources, offering a truly unique approach.

TCP/IP Illustrated - Kevin R. Fall 2011

TCP/IP Illustrated, Volume 1, Second Edition, is a detailed and visual guide to today's TCP/IP protocol suite. Fully updated for the newest innovations, it demonstrates each protocol in action through realistic examples from modern Linux, Windows, and Mac OS environments. There's no better way to discover why TCP/IP works as it does, how it reacts to common conditions, and how to apply it in your own applications and networks. Building on the late W. Richard Stevens' classic first edition, author Kevin R. Fall adds his cutting-edge experience as a leader in TCP/IP protocol research, updating the book to fully reflect the latest protocols and best practices.

TCP for Transactions, HTTP, NNTP, and the UNIX Domain Protocols - W. Richard Stevens 1996

Hands-On Network Programming with C - Lewis Van Winkle 2019-05-13

A comprehensive guide to programming with network sockets, implementing Internet protocols, designing IoT devices, and much more with C Key Features Leverage your C or C++ programming skills to build powerful network applications Get to grips with a variety of network protocols that allow you to load web pages, send emails, and do much more Write portable network code for operating systems such as Windows, Linux, and macOS Book Description Network programming, a challenging topic in C, is made easy to understand with a careful exposition of socket programming APIs. This book gets you started with modern network programming in C and the right use of relevant operating system APIs. This book covers core concepts, such as hostname resolution with DNS, that are crucial to the functioning of the modern web. You'll delve into the fundamental network protocols, TCP and UDP. Essential techniques for networking paradigms such as client-server and peer-to-peer models are explained with the help of practical examples. You'll also study HTTP and HTTPS (the

protocols responsible for web pages) from both the client and server perspective. To keep up with current trends, you'll apply the concepts covered in this book to gain insights into web programming for IoT. You'll even get to grips with network monitoring and implementing security best practices. By the end of this book, you'll have experience of working with client-server applications, and be able to implement new network programs in C. The code in this book is compatible with the older C99 version as well as the latest C18 and C++17 standards. Special consideration is given to writing robust, reliable, and secure code that is portable across operating systems, including Winsock sockets for Windows and POSIX sockets for Linux and macOS. What you will learn Uncover cross-platform socket programming APIs Implement techniques for supporting IPv4 and IPv6 Understand how TCP and UDP connections work over IP Discover how hostname resolution and DNS work Interface with web APIs using HTTP and HTTPS Acquire hands-on experience with Simple Mail Transfer Protocol (SMTP) Apply network programming to the Internet of Things (IoT) Who this book is for If you're a developer or a system administrator who wants to enter the world of network programming, this book is for you. Basic knowledge of C programming is assumed.

ABCs of z/OS System Programming: - Paul Rogers 2011-02-10

This IBM® Redbooks® publication describes the functions of z/OS® Communications Server. z/OS Communications Server provides a set of communications protocols that support peer-to-peer connectivity functions for both local and wide-area networks, including the most popular wide-area network, the Internet. z/OS Communications Server also provides performance enhancements that can benefit a variety of TCP/IP applications. z/OS Communications Server provides both SNA and TCP/IP networking protocols for z/OS. The SNA protocols are provided by VTAM® and include Subarea, Advanced Peer-to-Peer Networking, and High Performance Routing protocols. z/OS Communications Server exploits z/OS UNIX® services even for traditional MVSTMs environments and applications. Prior to utilizing TCP/IP services, therefore, a full-function mode z/OS UNIX environment including a Data Facility Storage Management Subsystem (DFSMSdftp), a z/OS UNIX file system, and a security product (such as Resource Access Control Facility, or RACF®) must be defined and active before z/OS Communications Server can be started successfully. The ABCs of z/OS System Programming is a 13-volume collection that provides an introduction to the z/OS operating system and the hardware architecture. Whether you are a beginner or an experienced system programmer, the ABCs collection provides the information that you need to start your research into z/OS and related subjects. If you want to become more familiar with z/OS in your current environment, or if you are evaluating platforms to consolidate your e-business applications, the ABCs collection will serve as a powerful technical tool. The contents of the volumes are as follows: Volume 1: Introduction to z/OS and storage concepts, TSO/E, ISPF, JCL, SDSF, and z/OS delivery and installation Volume 2: z/OS implementation and daily maintenance, defining subsystems, JES2 and JES3, LPA, LNKLST, authorized libraries, SMP/E, Language Environment® Volume 3: Introduction to DFSMS, data set basics storage management hardware and software, catalogs, and DFSMSdfts Volume 4: Communication Server, TCP/IP, and VTAM Volume 5: Base and Parallel Sysplex®, System Logger, Resource Recovery Services (RRS), global resource serialization (GRS), z/OS system operations, automatic restart management (ARM), Geographically Dispersed Parallel Sysplex™ (GDPS®) Volume 6: Introduction to security, RACF, Digital certificates and PKI, Kerberos, cryptography and z990 integrated cryptography, zSeries® firewall technologies, LDAP, and Enterprise identity mapping (EIM) Volume 7: Printing in a z/OS environment, Infoprint Server and Infoprint Central Volume 8: An introduction to z/OS problem diagnosis Volume 9: z/OS UNIX System Services Volume 10: Introduction to z/Architecture®, zSeries processor design, zSeries connectivity, LPAR concepts, HCD, and HMC Volume 11: Capacity planning, performance management, RMFTM, and SMF Volume 12: WLM Volume 13: JES3

UNIX - Syed Mansoor Sarwar 2016-11-03

UNIX: The Textbook, Third Edition provides a comprehensive introduction to the modern, twenty-first-century UNIX operating system. The book deploys PC-BSD and Solaris, representative

systems of the major branches of the UNIX family, to illustrate the key concepts. It covers many topics not covered in older, more traditional textbook approaches, such as Python, UNIX System Programming from basics to socket-based network programming using the client-server paradigm, the Zettabyte File System (ZFS), and the highly developed X Windows-based KDE and Gnome GUI desktop environments. The third edition has been fully updated and expanded, with extensive revisions throughout. It features a new tutorial chapter on the Python programming language and its use in UNIX, as well as a complete tutorial on the git command with Github. It includes four new chapters on UNIX system programming and the UNIX API, which describe the use of the UNIX system call interface for file processing, process management, signal handling, interprocess communication (using pipes, FIFOs, and sockets), extensive coverage of internetworking with UNIX TCP/IP using the client-server software, and considerations for the design and implementation of production-quality client-server software using iterative and concurrent servers. It also includes new chapters on UNIX system administration, ZFS, and container virtualization methodologies using iocage, Solaris Jails, and VirtualBox. Utilizing the authors' almost 65 years of practical teaching experience at the college level, this textbook presents well-thought-out sequencing of old and new topics, well-developed and timely lessons, a Github site containing all of the code in the book plus exercise solutions, and homework exercises/problems synchronized with the didactic sequencing of chapters in the book. With the exception of four chapters on system programming, the book can be used very successfully by a complete novice, as well as by an experienced UNIX system user, in both an informal and formal learning environment. The book may be used in several computer science and information technology courses, including UNIX for beginners and advanced users, shell and Python scripting, UNIX system programming, UNIX network programming, and UNIX system administration. It may also be used as a companion to the undergraduate and graduate level courses on operating system concepts and principles.

Foundations of Python Network Programming - John Goerzen 2004-08-16

* Covers low-level networking in Python —essential for writing a new networked application protocol. * Many working examples demonstrate concepts in action -- and can be used as starting points for new projects. * Networked application security is demystified. * Exhibits and explains multitasking network servers using several models, including forking, threading, and non-blocking sockets. * Features extensive coverage of Web and E-mail. Describes Python's database APIs.

Network Programming with Perl - Lincoln D. Stein 2001

A text focusing on the methods and alternatives for designed TCP/IP-based client/server systems and advanced techniques for specialized applications with Perl. A guide examining a collection of the best third party modules in the Comprehensive Perl Archive Network. Topics covered: Perl function libraries and techniques that allow programs to interact with resources over a network. IO: Socket library ; Net: FTP library -- Telnet library -- SMTP library ; Chat problems ; Internet Message Access Protocol (IMAP) issues ; Markup-language parsing ; Internet Protocol (IP) broadcasting and multicasting.

UNIX Network Programming: The sockets networking API - W. Richard Stevens 2004

To build today's highly distributed, networked applications and services, you need deep mastery of sockets and other key networking APIs. One book delivers comprehensive, start-to-finish guidance for building robust, high-performance networked systems in any environment: UNIX Network Programming, Volume 1, Third Edition.

Advanced UNIX Programming - Marc J. Rochkind 2004-04-29

The classic guide to UNIX® programming-completely updated! UNIX application programming requires a mastery of system-level services. Making sense of the many functions-more than 1,100 functions in the current UNIX specification-is a daunting task, so for years programmers have turned to Advanced UNIX Programming for its clear, expert advice on how to use the key functions reliably. An enormous number of changes have taken place in the UNIX environment since the landmark first edition. In

Advanced UNIX Programming, Second Edition, UNIX pioneer Marc J. Rochkind brings the book fully up to date, with all-new, comprehensive coverage including: POSIX Solaris™ Linux® FreeBSD Darwin, the Mac™ OS X kernel And more than 200 new system calls Rochkind's fully updated classic explains all the UNIX system calls you're likely to need, all in a single volume! Interprocess communication, networking (sockets), pseudo terminals, asynchronous I/O, advanced signals, realtime, and threads Covers the system calls you'll actually use-no need to plow through hundreds of improperly implemented, obsolete, and otherwise unnecessary system calls! Thousands of lines of example code include a Web browser and server, a keystroke recorder/player, and a shell complete with pipelines, redirection, and background processes Emphasis on the practical-ensuring portability, avoiding pitfalls, and much more! Since 1985, the one book to have for mastering UNIX application programming has been Rochkind's Advanced UNIX Programming. Now completely updated, the second edition remains the choice for up-to-the-minute, in-depth coverage of the essential system-level services of the UNIX family of operating systems.

TCP/IP Illustrated, Volume 3 - W. Richard Stevens 2016-01-29

Expert C Programming - Peter Van der Linden 1994
Software -- Programming Languages.

TCP/IP Illustrated, Volume 1 - Kevin R. Fall 2011-11-08

"For an engineer determined to refine and secure Internet operation or to explore alternative solutions to persistent problems, the insights provided by this book will be invaluable." —Vint Cerf, Internet pioneer TCP/IP Illustrated, Volume 1, Second Edition, is a detailed and visual guide to today's TCP/IP protocol suite. Fully updated for the newest innovations, it demonstrates each protocol in action through realistic examples from modern Linux, Windows, and Mac OS environments. There's no better way to discover why TCP/IP works as it does, how it reacts to common conditions, and how to apply it in your own applications and networks. Building on the late W. Richard Stevens' classic first edition, author Kevin R. Fall adds his cutting-edge experience as a leader in TCP/IP protocol research, updating the book to fully reflect the latest protocols and best practices. He first introduces TCP/IP's core goals and architectural concepts, showing how they can robustly connect diverse networks and support multiple services running concurrently. Next, he carefully explains Internet addressing in both IPv4 and IPv6 networks. Then, he walks through TCP/IP's structure and function from the bottom up: from link layer protocols—such as Ethernet and Wi-Fi—through network, transport, and application layers. Fall thoroughly introduces ARP, DHCP, NAT, firewalls, ICMPv4/ICMPv6, broadcasting, multicasting, UDP, DNS, and much more. He offers extensive coverage of reliable transport and TCP, including connection management, timeout, retransmission, interactive data flow, and congestion control. Finally, he introduces the basics of security and cryptography, and illuminates the crucial modern protocols for protecting security and privacy, including EAP, IPsec, TLS, DNSSEC, and DKIM. Whatever your TCP/IP experience, this book will help you gain a deeper, more intuitive understanding of the entire protocol suite so you can build better applications and run more reliable, efficient networks.

Programming from the Ground Up - Jonathan Bartlett 2009-09-24

Programming from the Ground Up uses Linux assembly language to teach new programmers the most important concepts in programming. It takes you a step at a time through these concepts: * How the processor views memory * How the processor operates * How programs interact with the operating system * How computers represent data internally * How to do low-level and high-level optimization Most beginning-level programming books attempt to shield the reader from how their computer really works. Programming from the Ground Up starts by teaching how the computer works under the hood, so that the programmer will have a sufficient background to be successful in all areas of programming. This book is being used by Princeton University in their COS 217 "Introduction to Programming Systems" course. *UNIX Network Programming* - W. Richard Stevens 1990
The Unix model; Interprocess communication; A network primer; Communication protocols; Berkeley sockets; System V transport

layer interface; Library routines; Security; Time and date routines; Ping routines; Trivial file transfer protocol; Line printer spoolers; Remote command execution; Remote login; Remote tape drive access; Performance; Remote procedure calls.

C++ Network Programming, Volume I - Douglas Schmidt
2001-12-10

As networks, devices, and systems continue to evolve, software engineers face the unique challenge of creating reliable distributed applications within frequently changing environments. C++ Network Programming, Volume 1, provides practical solutions for developing and optimizing complex distributed systems using the ADAPTIVE Communication Environment (ACE), a revolutionary open-source framework that runs on dozens of hardware platforms and operating systems. This book guides software professionals through the traps and pitfalls of developing efficient, portable, and flexible networked applications. It explores the inherent design complexities of concurrent networked applications and the tradeoffs that must be considered when working to master them. C++ Network Programming begins with an overview of the issues and tools involved in writing distributed concurrent applications. The book then provides the essential design dimensions, patterns, and principles needed to develop flexible and efficient concurrent networked applications. The book's expert author team shows you how to enhance design skills while applying C++ and patterns effectively to develop object-oriented networked applications. Readers will find coverage of: C++ network programming, including an overview and strategies for addressing common development challenges The ACE Toolkit Connection protocols, message exchange, and message-passing versus shared memory Implementation methods for reusable networked application services Concurrency in object-oriented network programming Design principles and patterns for ACE wrapper facades With this book, C++ developers have at their disposal the most complete toolkit available for developing successful, multiplatform, concurrent networked applications with ease and efficiency.

Programming Persistent Memory - Steve Scargall 2020-01-09
Beginning and experienced programmers will use this comprehensive guide to persistent memory programming. You will understand how persistent memory brings together several new software/hardware requirements, and offers great promise for better performance and faster application startup times—a huge leap forward in byte-addressable capacity compared with current DRAM offerings. This revolutionary new technology gives applications significant performance and capacity improvements over existing technologies. It requires a new way of thinking and developing, which makes this highly disruptive to the IT/computing industry. The full spectrum of industry sectors that will benefit from this technology include, but are not limited to, in-memory and traditional databases, AI, analytics, HPC, virtualization, and big data. Programming Persistent Memory describes the technology and why it is exciting the industry. It covers the operating system and hardware requirements as well as how to create development environments using emulated or real persistent memory hardware. The book explains fundamental concepts; provides an introduction to persistent memory programming APIs for C, C++, JavaScript, and other languages; discusses RMDA with persistent memory; reviews security features; and presents many examples. Source code and examples that you can run on your own systems are included. What You'll Learn Understand what persistent memory is, what it does, and the value it brings to the industry Become familiar with the operating system and hardware requirements to use persistent memory Know the fundamentals of persistent memory programming: why it is different from current programming methods, and what developers need to keep in mind when programming for persistence Look at persistent memory application development by example using the Persistent Memory Development Kit (PMDK) Design and optimize data structures for persistent memory Study how real-world applications are modified to leverage persistent memory Utilize the tools available for persistent memory programming, application performance profiling, and debugging Who This Book Is For C, C++, Java, and Python developers, but will also be useful to software, cloud, and hardware architects across a broad spectrum of sectors, including cloud service providers, independent software vendors, high

performance compute, artificial intelligence, data analytics, big data, etc.

Computer Networking: A Top-Down Approach Featuring the Internet, 3/e - James F. Kurose 2005

Linux Device Drivers - Jonathan Corbet 2005-02-07

Provides information on writing a driver in Linux, covering such topics as character devices, network interfaces, driver debugging, concurrency, and interrupts.

Network Programming for Microsoft Windows - Anthony Jones 2002

Practical explanations are given of Microsoft's networking APIs. This definitive reference covers the network programming interfaces available on the Windows 98, Windows NT/200, and Windows CE platforms. The CD-ROM features reusable code examples in Visual C++.

Programming with POSIX Threads - David R. Butenhof 1993-05-15
With this practical book, you will attain a solid understanding of threads and will discover how to put this powerful mode of programming to work in real-world applications. The primary advantage of threaded programming is that it enables your applications to accomplish more than one task at the same time by using the number-crunching power of multiprocessor parallelism and by automatically exploiting I/O concurrency in your code, even on a single processor machine. The result: applications that are faster, more responsive to users, and often easier to maintain. Threaded programming is particularly well suited to network programming where it helps alleviate the bottleneck of slow network I/O. This book offers an in-depth description of the IEEE operating system interface standard, POSIXAE (Portable Operating System Interface) threads, commonly called Pthreads. Written for experienced C programmers, but assuming no previous knowledge of threads, the book explains basic concepts such as asynchronous programming, the lifecycle of a thread, and synchronization. You then move to more advanced topics such as attributes objects, thread-specific data, and realtime scheduling. An entire chapter is devoted to "real code," with a look at barriers, read/write locks, the work queue manager, and how to utilize existing libraries. In addition, the book tackles one of the thorniest problems faced by thread programmers—debugging—with valuable suggestions on how to avoid code errors and performance problems from the outset. Numerous annotated examples are used to illustrate real-world concepts. A Pthreads mini-reference and a look at future standardization are also included.

UNIX System V Network Programming - Stephen A. Rago 1993
"Steve Rago offers valuable insights into the kernel-level features of SVR4 not covered elsewhere; I think readers will especially appreciate the coverage of STREAMS, TLI, and SLIP." - W. Richard Stevens, author of UNIX Network Programming, Advanced Programming in the UNIX Environment, TCP/IP Illustrated Volume 1, and TCP/IP Illustrated Volume 2 Finally, with UNIX(R) System V Network Programming, an authoritative reference is available for programmers and system architects interested in building networked and distributed applications for UNIX System V. Even if you currently use a different version of the UNIX system, such as the latest release of 4.3BSD or SunOS, this book is valuable to you because it is centered around UNIX System V Release 4, the version of the UNIX system that unified many of the divergent UNIX implementations. For those professionals new to networking and UNIX system programming, two introductory chapters are provided. The author then presents the programming interfaces most important to building communication software in System V, including STREAMS, the Transport Layer Interface library, Sockets, and Remote Procedure Calls. So that your designs are not limited to user-level, the author also explains how to write kernel-level communication software, including STREAMS drivers, modules, and multiplexors. Many examples are provided, including an Ethernet driver and a transport-level multiplexing driver. In the final chapter, the author brings the material from previous chapters together, presenting the design of a SLIP communication package. 0201563185B04062001

Python Network Programming Cookbook - Pradeeban Kathiravelu 2017-08-09

Discover practical solutions for a wide range of real-world network programming tasks About This Book Solve real-world tasks in the

area of network programming, system/networking administration, network monitoring, and more. Familiarize yourself with the fundamentals and functionalities of SDN Improve your skills to become the next-gen network engineer by learning the various facets of Python programming Who This Book Is For This book is for network engineers, system/network administrators, network programmers, and even web application developers who want to solve everyday network-related problems. If you are a novice, you will develop an understanding of the concepts as you progress with this book. What You Will Learn Develop TCP/IP networking client/server applications Administer local machines' IPv4/IPv6 network interfaces Write multi-purpose efficient web clients for HTTP and HTTPS protocols Perform remote system administration tasks over Telnet and SSH connections Interact with popular websites via web services such as XML-RPC, SOAP, and REST APIs Monitor and analyze major common network security vulnerabilities Develop Software-Defined Networks with Ryu, OpenDaylight, Floodlight, ONOS, and POX Controllers Emulate simple and complex networks with Mininet and its extensions for network and systems emulations Learn to configure and build network systems and Virtual Network Functions (VNF) in heterogeneous deployment environments Explore various Python modules to program the Internet In Detail Python Network Programming Cookbook - Second Edition highlights the major aspects of network programming in Python, starting from writing simple networking clients to developing and deploying complex Software-Defined Networking (SDN) and Network Functions Virtualization (NFV) systems. It creates the building blocks for many practical web and networking applications that rely on various networking protocols. It presents the power and beauty of Python to solve numerous real-world tasks in the area of network programming, network and system administration, network monitoring, and web-application development. In this edition, you will also be introduced to network modelling to build your own cloud network. You will learn about the concepts and

fundamentals of SDN and then extend your network with Mininet. Next, you'll find recipes on Authentication, Authorization, and Accounting (AAA) and open and proprietary SDN approaches and frameworks. You will also learn to configure the Linux Foundation networking ecosystem and deploy and automate your networks with Python in the cloud and the Internet scale. By the end of this book, you will be able to analyze your network security vulnerabilities using advanced network packet capture and analysis techniques. Style and approach This book follows a practical approach and covers major aspects of network programming in Python. It provides hands-on recipes combined with short and concise explanations on code snippets. This book will serve as a supplementary material to develop hands-on skills in any academic course on network programming. This book further elaborates network softwarization, including Software-Defined Networking (SDN), Network Functions Virtualization (NFV), and orchestration. We learn to configure and deploy enterprise network platforms, develop applications on top of them with Python.

Computer Networking - Olivier Bonaventure 2016-06-10
Original textbook (c) October 31, 2011 by Olivier Bonaventure, is licensed under a Creative Commons Attribution (CC BY) license made possible by funding from The Saylor Foundation's Open Textbook Challenge in order to be incorporated into Saylor's collection of open courses available at: <http://www.saylor.org>. Free PDF 282 pages at <https://www.textbookequity.org/bonaventure-computer-networking-principles-protocols-and-practice/> This open textbook aims to fill the gap between the open-source implementations and the open-source network specifications by providing a detailed but pedagogical description of the key principles that guide the operation of the Internet. 1 Preface 2 Introduction 3 The application Layer 4 The transport layer 5 The network layer 6 The datalink layer and the Local Area Networks 7 Glossary 8 Bibliography