

High Performance Browser Networking What Every Web Developer Should Know About Networking And Web Performance

Summary Netty in Action introduces the Netty framework and shows you how to incorporate it into your Java network applications. You'll learn to write highly scalable applications without the need to dive into the low-level non-blocking APIs at the core of Java. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Netty is a Java-based networking framework that manages complex networking, multithreading, and concurrency for your applications. And Netty hides the boilerplate and low-level code, keeping your business logic separate and easier to reuse. With Netty, you get an easy-to-use API, leaving you free to focus on what's unique to your application. About the Book Netty in Action introduces the Netty framework and shows you how to incorporate it into your Java network applications. You will discover how to write highly scalable applications without getting into low-level APIs. The book teaches you to think in an asynchronous way as you work through its many hands-on examples and helps you master the best practices of building large-scale network apps. What's Inside Netty from the ground up Asynchronous, event-driven programming Implementing services using different protocols Covers Netty 4.x About the Reader This book assumes readers are comfortable with Java and basic network architecture. About the Authors Norman Maurer is a senior software engineer at Apple and a core developer of Netty. Marvin Wolfthal is a Dell Services consultant who has implemented mission-critical enterprise systems using Netty. Table of Contents PART 1 NETTY CONCEPTS AND ARCHITECTURE Netty-asynchronous and event-driven Your first Netty application Netty components and design Transports ByteBuffer ChannelHandler and ChannelPipeline EventLoop and threading model Bootstrapping Unit testing PART 2 CODECS The codec framework Provided ChannelHandlers and codecs PART 3 NETWORK PROTOCOLS WebSocket Broadcasting events with UDP PART 4 CASE STUDIES Case studies, part 1 Case studies, part 2

Build fast and efficient Android apps that run as reliably as clockwork in a multi-device world About This Book Wide coverage of various topics that help in developing optimal applications Explore the concepts of Advanced Native Coding in depth A must-have for professional-standard Android developers for whom performance failures and the sloppy use of resources are simply unacceptable Who This Book Is For This book is aimed at developers with an advanced knowledge of Android and who want to test their skills and learn new techniques to increase the performance of their applications. We assume they are comfortable working with the entire Android SDK, and have been doing it for a few years. They need to be familiar with frameworks such as NDK to use native code, which is crucial for app performance What You Will Learn Create Android applications that squeeze the most from the limited resource capacity of devices Swap code that isn't performing Efficient memory management by identifying problems such as leaks Reap the benefits of multithreaded and asynchronous programming Maximize the security and encryption mechanisms natively provided by Android Perform efficient network operations and techniques to retrieve data from servers Master the NDK to write native code that can perform faster operations In Detail Performant applications are one of the key drivers of success in the mobile world. Users may abandon an app if it runs slowly. Learning how to build applications that balance speed and performance with functionality and UX can be a challenge; however, it's now more important than ever to get that balance right. Android High Performance will start you thinking about how to wring the most from any hardware your app is installed on, so you can increase your reach and engagement. The book begins by providing an introduction to state-of-the-art Android techniques and the importance of performance in an Android application. Then, we will explain the Android SDK tools regularly used to debug and profile Android applications. We will also learn about some advanced topics such as building layouts, multithreading, networking, and security. Battery life is one of the biggest bottlenecks in applications; and this book will show typical examples of code that exhausts battery life, how to prevent this, and how to measure battery consumption from an application in every kind of situation to ensure your apps don't drain more than they should. This book explains techniques for building optimized and efficient systems that do not drain the battery, cause memory leaks, or slow down with time. Style and approach The book follows a tutorial-based approach to take the reader from the basic fundamentals of debugging to advanced performance-improvement concepts.

High Performance Browser Networking What Every Web Developer Should Know about Networking and Web Performance "O'Reilly Media, Inc."

This book presents the state of the art in parallel numerical algorithms, applications, architectures, and system software. The book examines various solutions for issues of concurrency, scale, energy efficiency, and programmability, which are discussed in the context of a diverse range of applications. Features: includes contributions from an international selection of world-class authorities; examines parallel algorithm-architecture interaction through issues of computational capacity-based codesign and automatic restructuring of programs using compilation techniques; reviews emerging applications of numerical methods in information retrieval and data mining; discusses the latest issues in dense and sparse matrix computations for modern high-performance systems, multicores, manycores and GPUs, and several perspectives on the Spike family of algorithms for solving linear systems; presents outstanding challenges and developing technologies, and puts these in their historical context.

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, dhcpcd, 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 M 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 dhcpcd 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.

Android High Performance Programming

Performance and Quality of Service

A Vertical Approach

High Performance Boards

Testing and Analyzing Using Open Source and Low-Cost Tools

Build Faster Web Application Interfaces

High Performance Python

Take your application to the next level of high performance using the extensive capabilities of Node.js About This Book Analyze, benchmark, and profile your Node.js application to find slow spots, and push it to the limit by eliminating performance bottlenecks Learn the basis of performance analysis using Node.js Explore the high performance capabilities of Node.js, along with best practices In Detail Node.js is a tool written in C, which allows you to use JavaScript on the server-side. High performance on a platform like Node.js is knowing how to take advantage of every aspect of your hardware, helping memory management act at its best, and correctly deciding how to architect a complex application. Do not panic if your applications start consuming a lot of memory; instead spot the leak and solve it fast with Node.js by monitoring and stopping it before it becomes an issue. This book will provide you with the skills you need to analyze the performance of your application and monitor the aspects that can and should be. Starting with performance analysis concepts and their importance in helping Node.js developers eliminate performance bottlenecks, this book will take you through development patterns to avoid performance penalties. You will learn the importance of garbage collection and its behaviour, and discover how to profile your processor, allowing better performance and scalability. You will then learn about the different types of data storage methods. Moving on, you will get to grips with testing and benchmarking applications to avoid unknown application test zones. Lastly, you will explore the limits that external components can impose in your application in the form of bottlenecks. By following the examples in each chapter, you will discover tips to getting better performing applications by avoiding anti-patterns and stretching the limits of your environment as much as possible. What You Will Learn Develop applications using well-defined and well-tested development patterns Explore memory management and garbage collection to improve performance Monitor memory changes and analyze heap snapshots Profile the CPU and improve your code to avoid patterns that force intensive processor usage Understand the importance of data and when you should cache information. Learn to always test your code and benchmark when needed Extend your application's scope and know what other elements can influence performance Who This Book Is For This book is for Node.js developers who want a more in-depth knowledge of the platform to improve the performance of their applications. Whether you have a base Node.js background or you are an expert who knows the garbage collector and wants to leverage it to make applications more robust, the examples in this book will benefit you. Style and approach This is a practical guide to learning high performance, which even the least experienced developer will comprehend. Small and simple examples help you test concepts yourself and easily adapt them to any application, boosting its performance and preparing it for the real-world.

Summary Web Performance in Action is your companion guide to making websites faster. You'll learn techniques that speed the delivery of your site's assets to the user, increase rendering speed, decrease the overall footprint of your site, as well as how to build a workflow that automates common optimization techniques. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Nifty features, hip design, and clever marketing are great, but your website will flop if visitors think it's slow. Network conditions can be unpredictable, and with today's sites being bigger than ever, you need to set yourself apart from the competition by focusing on speed. Achieving a high level of performance is a combination of front-end architecture choices, best practices, and some clever sleight-of-hand. This book will demystify all these topics for you. About the Book Web Performance in Action is your guide to making fast websites. Packed with "Aha!" moments and critical details, this book teaches you how to create performant websites the right way. You'll master optimal rendering techniques, tips for decreasing your site's

footprint, and technologies like HTTP/2 that take your website's speed from merely adequate to seriously fast. Along the way, you'll learn how to create an automated workflow to accomplish common optimization tasks and speed up development in the process. What's Inside Foolproof performance-boosting techniques Optimizing images and fonts HTTP/2 and how it affects your optimization workflow About the Reader This book assumes that you're familiar with HTML, CSS, and JavaScript. Many examples make use of Git and Node.js. About the Author Jeremy Wagner is a professional front-end web developer with over ten years of experience. Foreword by Ethan Marcotte. Table of Contents Understanding web performance Using assessment tools Optimizing CSS Understanding critical CSS Making images responsive Going further with images Faster fonts Keeping JavaScript lean and fast Boosting performance with service workers Fine-tuning asset delivery Looking to the future with HTTP/2 Automating optimization with gulp

How prepared are you to build fast and efficient web applications? This eloquent book provides what every web developer should know about the network, from fundamental limitations that affect performance to major innovations for building even more powerful browser applications—including HTTP 2.0 and XHR improvements, Server-Sent Events (SSE), WebSocket, and WebRTC. Author Ilya Grigorik, a web performance engineer at Google, demonstrates performance optimization best practices for TCP, UDP, and TLS protocols, and explains unique wireless and mobile network optimization requirements. You'll then dive into performance characteristics of technologies such as HTTP 2.0, client-side network scripting with XHR, real-time streaming with SSE and WebSocket, and P2P communication with WebRTC. Deliver superlative TCP, UDP, and TLS performance Speed up network performance over 3G/4G mobile networks Develop fast and energy-efficient mobile applications Address bottlenecks in HTTP 1.x and other browser protocols Plan for and deliver the best HTTP 2.0 performance Enable efficient real-time streaming in the browser Create efficient peer-to-peer videoconferencing and low-latency applications with real-time WebRTC transports

Want your web site to display more quickly? This book presents 14 specific rules that will cut 25% to 50% off response time when users request a page. Author Steve Souders, in his job as Chief Performance Yahoo!, collected these best practices while optimizing some of the most-visited pages on the Web. Even sites that had already been highly optimized, such as Yahoo! Search and the Yahoo! Front Page, were able to benefit from these surprisingly simple performance guidelines. The rules in High Performance Web Sites explain how you can optimize the performance of the Ajax, CSS, JavaScript, Flash, and images that you've already built into your site -- adjustments that are critical for any rich web application. Other sources of information pay a lot of attention to tuning web servers, databases, and hardware, but the bulk of display time is taken up on the browser side and by the communication between server and browser. High Performance Web Sites covers every aspect of that process. Each performance rule is supported by specific examples, and code snippets are available on the book's companion web site. The rules include how to: Make Fewer HTTP Requests Use a Content Delivery Network Add an Expires Header Gzip Components Put Stylesheets at the Top Put Scripts at the Bottom Avoid CSS Expressions Make JavaScript and CSS External Reduce DNS Lookups Minify JavaScript Avoid Redirects Remove Duplicates Scripts Configure ETags Make Ajax Cacheable If you're building pages for high traffic destinations and want to optimize the experience of users visiting your site, this book is indispensable. "If everyone would implement just 20% of Steve's guidelines, the Web would be a dramatically better place. Between this book and Steve's YSlow extension, there's really no excuse for having a sluggish web site anymore." -Joe Hewitt, Developer of Firebug debugger and Mozilla's DOM Inspector "Steve Souders has done a fantastic job of distilling a massive, semi-arcane art down to a set of concise, actionable, pragmatic engineering steps that will change the world of web performance." -Eric Lawrence, Developer of the Fiddler Web Debugger, Microsoft Corporation

Covers topics including HTTP methods and status codes, optimizing proxies, designing web crawlers, content negotiation, and load-balancing strategies.

High-performance Communication Networks

What Every Web Developer Should Know About Networking

An Interdisciplinary Approach to Designing Fast Networked Devices

High-speed Networks and Internets

Network Performance Modeling and Simulation

High-Performance Web Databases

High-performance Browser Networking

This book demystifies the amazing architecture and protocols of computers as they communicate over the Internet. While very complex, the Internet operates on a few relatively simple concepts that anyone can understand. Networks and networked applications are embedded in our lives. Understanding how these technologies work is invaluable. This book was written for everyone - no technical knowledge is required! While this book is not specifically about the Network+ or CCNA certifications, it is a way to give students interested in these certifications a starting point.

Isomorphic JavaScript, often described as the holy grail of web application development, refers to running JavaScript code on both the browser client and web application server. This application architecture has become increasingly popular for the benefits of SEO, optimized page load and full control of the UI, and isomorphic libraries are being used at companies like Walmart, Airbnb, Facebook, and Netflix. With this practical book, authors Jason Strimpel and Maxime Najim provide the knowledge you need to build

and maintain your own isomorphic JavaScript apps. This book includes: Part 1 identifies different classifications of isomorphic JavaScript apps, and shows you how to set up a development environment Part 2 takes you from theory to practice by showing you how to build out your own isomorphic app Part 3 takes you through existing solutions in the market today, providing you with the knowledge you need to bring isomorphic solutions into your development workflow

High-Performance Data Network Design contains comprehensive coverage of network design, performance, and availability. Tony Kenyon provides the tools to solve medium- to large-scale data network design problems from the ground up. He lays out a practical and systematic approach that integrates network planning, research, design, and deployment, using state-of-the-art techniques in performance analysis, cost analysis, simulation, and topology modeling. The proliferation and complexity of data networks today is challenging our ability to design and manage them effectively. A new generation of Internet, e-commerce, and multimedia applications has changed traditional assumptions on traffic dynamics, and demands tight quality of service and security guarantees. These issues, combined with the economics of moving large traffic volumes across international backbones, mean that the demands placed on network designers, planners, and managers are now greater than ever before. High-Performance Data Network Design is a "must have" for anyone seriously involved in designing data networks. Together with the companion volume, Data Networks: Routing, Security, and Performance Optimization, this book gives readers the guidance they need to plan, implement, and optimize their enterprise infrastructure. · Provides real insight into the entire design process · Includes basic principles, practical advice, and examples of design for industrial-strength enterprise data networks · Integrates topics often overlooked—backbone optimization, bottleneck analysis, simulation tools, and network costing

William Stallings offers the most comprehensive technical book to address a wide range of design issues of high-speed TCP/IP and ATM networks in print to date. "High-Speed Networks and Internets" presents both the professional and advanced student an up-to-date survey of key issues. The Companion Website and the author's Web page offer unmatched support for students and instructors. The book features the prominent use of figures and tables and an up-to-date bibliography. In this second edition, this award-winning and best-selling author steps up to the leading edge of integrated coverage of key issues in the design of high-speed TCP/IP and ATM networks to include the following topics: Unified coverage of integrated and differentiated services. Up-to-date and comprehensive coverage of TCP performance. Thorough coverage of next-generation Internet protocols including (RSVP), (MPLS), (RTP), and the use of Ipv6. Unified treatment of congestion in data networks; packet-switching, frame relay, ATM networks, and IP-based internets. Broad and detailed coverage of routing, unicast, and multicast. Comprehensive coverage of ATM; basic technology and the newest traffic control standards. Solid, easy-to-absorb mathematical background enabling understanding of the issues related to high-speed network performance and design. Up-to-date treatment of gigabit Ethernet. The first treatment of self-similar traffic for performance assessment in a textbook on networks (Explains the mathematics behind self-similar traffic and shows the performance implications and how to estimate performance parameters.) Up-to-date coverage of compression. (A comprehensive survey.) Coverage of gigabit networks. Gigabit design issues permeate the book.

Deliver rich audio and video real-time communication and peer-to-peer data exchange right in the browser, without the need for proprietary plug-ins. This concise hands-on guide shows you how to use the emerging Web Real-Time Communication (WebRTC) technology to build a browser-to-browser application, piece by piece. The authors' learn-by-example approach is perfect for web programmers looking to understand real-time communication, and telecommunications architects unfamiliar with HTML5 and JavaScript-based client-server web programming. You'll use a ten-step recipe to create a complete WebRTC system, with exercises that you can apply to your own projects. Tour the WebRTC development cycle and trapezoid architectural model Understand how and why VoIP is shifting from standalone functionality to a browser component Use mechanisms that let client-side web apps interact with browsers through the WebRTC API Transfer streaming data between browser peers with the RTCPeerConnection API Create a signaling channel between peers for setting up a WebRTC session Put everything together to create a basic WebRTC system from scratch Learn about conferencing, authorization, and other advanced WebRTC features

Performance Best Practices for Web Developers

High Performance Images

Improving and Energizing your Governance

Web Performance in Action

Concepts, Issues, and Solutions

Learning HTTP/2

Chapter 8. Debugging h2; Web Browser Developer Tools; Chrome Developer Tools; Firefox Developer Tools; Debugging h2 on iOS Using Charles Proxy; Debugging h2 on Android; WebPagetest; OpenSSL; OpenSSL Commands; nghttp2; Using nghttp; curl; Using curl; h2i; Wireshark; Summary; Chapter 9. What Is Next?; TCP or UDP?; QUIC; TLS 1.3; HTTP/3?; Summary; Appendix A. HTTP/2 Frames; The Frame Header; DATA; DATA Frame Fields; DATA Frame Flags; HEADERS; HEADERS Frame Fields; HEADERS Frame Flags; PRIORITY; PRIORITY Frame Fields; RST_STREAM; SETTINGS; SETTINGS Parameters; PUSH_PROMISE

High-quality images have an amazing power of attraction. Just add some stunning photos and graphics to your website or app and watch your user engagement and conversion numbers climb. It can be tricky, but with this practical guide, you'll master the many facets of delivering high performance images on the internet—without adversely affecting site performance. You'll learn the nuts and bolts of color theory, image formats, storage and management, operations delivery, browser and application behavior, the responsive web, and many other topics. Ideal for developers, this book also provides useful tips, tricks, and practical theory for processing and displaying powerful images that won't slow down your online product. Explore digital image theory and the different formats available Dive into JPEGs, SVG and vector images, lossless compression, and other formats Use techniques for downloading and rendering images in a browser, and for loading images on mobile devices and cellular networks Examine specific rendering techniques, such as lazy loading, image processing, image consolidation, and responsive images Take responsive images to the next level by using content negotiation between browser and server with the Client Hints HTTP standard Learn how to operationalize your image workflow Contributors include Colin Bendell, Tim Kadlec, Yoav Weiss, Guy Podjarny, Nick Doyle, and Mike McCall from Akamai Technologies.

Performance is critical to the success of any web site, and yet today's web applications push browsers to their limits with increasing amounts of rich content and heavy use of Ajax. In this book, Steve Souders, web performance evangelist at Google and former Chief Performance Yahoo!, provides valuable techniques to help you optimize your site's performance. Souders' previous book, the bestselling High Performance Web Sites, shocked the web development world by revealing that 80% of the time it takes for a web page to load is on the client side. In Even Faster Web Sites, Souders and eight expert contributors provide best practices and pragmatic advice for improving your site's performance in three critical categories: JavaScript—Get advice for understanding Ajax performance, writing efficient JavaScript, creating responsive applications, loading scripts without blocking other components, and more. Network—Learn to share resources across multiple domains, reduce image size without loss of quality, and use chunked encoding to render pages faster. Browser—Discover alternatives to iframes, how to simplify CSS selectors, and other techniques. Speed is essential for today's rich media web sites and Web 2.0 applications. With this book, you'll learn how to shave precious seconds off your sites' load times and make them respond even faster. This book contains six guest chapters contributed by Dion Almaer, Doug Crockford, Ben Galbraith, Tony Gentilcore, Dylan Schiemann, Stoyan Stefanov, Nicole Sullivan, and Nicholas C. Zakas.

If you want to build your organization's next web application with HTML5, this practical book will help you sort through the various frameworks, libraries, and development options that populate this stack. You'll learn several of these approaches hands-on by writing multiple versions of a sample web app throughout the book, so you can determine the right strategy for your enterprise. What's the best way to reach both mobile and desktop users? How about modularization, security, and test-driven development? With lots of working code samples, this book will help web application developers and software architects navigate the growing number of HTML5 and JavaScript choices available. The book's sample apps are available at <http://savesickchild.org>. Mock up the book's working app with HTML, JavaScript, and CSS Rebuild the sample app, first with jQuery and then Ext JS Work with different build tools, code generators, and package managers Build a modularized version of the app with RequireJS Apply test-driven development with the Jasmine framework Use WebSocket to build an online auction for the app Adapt the app for both PCs and mobile with responsive web design Create mobile versions with jQuery Mobile, Sencha Touch, and PhoneGap

Technological Advances and Problems of High Performance Communications An ecosystem of solutions along a stack of technology layers Cohesively collecting state-of-the-art contributions from leading researchers in industry, national laboratories, and academia, Attaining High Performance Communications: A Vertical Approach discusses various issues pertaining to high performance communications in a particular layer of a vertical stack. It explores efficient interconnection hardware, the architectural aspects of network adapters and their integration with processor cores, the design of scalable and robust high performance end-to-end communications services and protocols, and system services and tools for new multi-core environments. No single solution applied at one particular layer can help applications solve all performance-related issues with communication services. Instead, this book shows that a coordinated effort is needed among the layers. It covers many different types of technologies and layers across the stack, from the architectural features of the hardware, through the protocols and their implementation in operating system kernels, to the manner in which application services and middleware are using underlying platforms. The book also describes key developments in high-end platforms, high performance interconnection fabrics and communication libraries, and multi- and many-core systems. This volume addresses the challenges involved in emerging types of communications applications, platforms, and services. Examining each layer in the vertical stack, it illustrates how to eliminate bottlenecks and provide optimization opportunities.

Wireless Network Performance Enhancement via Directional Antennas: Models, Protocols, and Systems

High-performance Networking Unleashed

Essential Knowledge for Front-End Engineers

Socket. IO Real-Time Web Application Development

A Practical Guide for Beginners

Node.js High Performance

Integrated Innovations, Practices, and Applications

This book makes the argument that performance modeling and simulation have become central issues in computer science and engineering, in part due to applications to the structures comprising the Internet. Dealing primarily with theory, tools and techniques as related to communications systems, the volume provides tutorials and surveys and relates new important research results. Each chapter presents

background information, describes and analyzes important work done in the field and provides direction to the reader on future work and further readings. The topics covered include traffic models for ATM networks, simulation environments, analytical methods, interprocessor communications, and an evaluation of process architectures.

Build Extraordinary Trust and Lead Your Team to a Higher Plane For former US Air Force Thunderbirds' commander and demonstration leader JV Venable, inspiring teamwork was literally a matter of life and death. On maneuvers like the one pictured on the cover, the distance between jets was just eighteen inches. Closing the gaps to sustain that kind of separation requires the highest levels of trust. On the ground or in the air, from line supervisor to CEO, we all face the same challenge. Our job is to entice those we lead to close the gaps that slow the whole team down—gaps in commitment, loyalty, and trust. Every bit of closure requires your people to let go of biases and mental safeguards that hold them back. The process the Thunderbirds use to break that barrier and craft the highest levels of trust on a team with an annual turnover of 50 percent is nothing short of phenomenal. That process is packaged here with tips and compelling stories that will help you build the team of a lifetime.

Compiling the most influential papers from the IEICE Transactions in Communications, High-Performance Backbone Network Technology examines critical breakthroughs in the design and provision of effective public service networks in areas including traffic control, telephone service, real-time video transfer, voice and image transmission for a content delivery network (CDN), and Internet access. The contributors explore system structures, experimental prototypes, and field trials that herald the development of new IP networks that offer quality-of-service (QoS), as well as enhanced security, reliability, and function. Offers many hints and guidelines for future research in IP and photonic backbone network technologies

How prepared are you to build fast and efficient web applications? This eloquent book provides what every web developer should know about the network, from fundamental limitations that affect performance to major innovations for building even more powerful browser applications—including HTTP 2.0 and XHR improvements, Server-Sent Events (SSE), WebSocket, and WebRTC. Author Ilya Grigorik, a web performance engineer at Google, demonstrates performance optimization best practices for TCP, UDP, and TLS protocols, and explains unique wireless and mobile network optimization requirements. You'll then dive into performance characteristics of technologies such as HTTP 2.0, client-side network scripting with XHR, real-time streaming with SSE and WebSocket, and P2P communication with WebRTC.

Deliver superlative TCP, UDP, and TLS performance Speed up network performance over 3G/4G mobile networks Develop fast and energy-efficient mobile applications Address bottlenecks in HTTP 1.x and other browser protocols Plan for and deliver the best HTTP 2.0 performance Enable efficient real-time streaming in the browser Create efficient peer-to-peer videoconferencing and low-latency applications with real-time WebRTC transports.

Socket.io Real-time Web Application Development.

How Leaders Close the Gaps for High Performance

Real-Time Communication with WebRTC

How the Internet Works

From Concept to Implementation to Real-World Solutions

Attaining High Performance Communications

High Performance Data Network Design

Practical Performant Programming for Humans

Directional antenna technologies have made significant advancements in the last decade. These advances have opened the door to many exciting new design opportunities for wireless networks to enhance quality of service (QoS), performance, and network capacity. In this book, experts from around the world present the latest research and development in wireless networks with directional antennas. Their contributed chapters provide detailed coverage of the models, algorithms, protocols, and applications of wireless networks with various types of directional antennas operating at different frequency bands. Wireless Network Performance Enhancement via Directional Antennas: Models, Protocols, and Systems identifies several interesting research problems in this important field, providing an opportunity to learn about solid solutions to these issues. It also looks at a number of practical hardware designs for the deployment of next-generation antennas, as well as efficient network protocols for exploitation of directional communications. The book is organized into six sections: Directional Antennas - covers the hardware design of different types of antennas Directional MAC - focuses on the principles of designing medium access control (MAC) protocols for directional networks Millimeter Wave - explores different design aspects of millimeter wave (mm-Wave) systems, which operate in higher-frequency bands (such as 60 GHz) MIMO - explains how to establish a multiple-input, multiple-output (MIMO) antenna system and describes how it operates in a cognitive radio network Advanced Topics - looks at additional topics such as beamforming in cognitive radio networks, multicast algorithm development, network topology management for connectivity, and sensor network lifetime issues Applications - illustrates some important applications, such as military networks and airborne networking, that benefit from directional networking designs With this book, researchers and engineers will be well-equipped to advance the research and development in this important field. If you're new to this field, you will find this book to be a valuable reference on basic directional networking principles, engineering design, and challenges.

Written by best selling author, Raj Jain, and his authoritative co-author, this book features leading edge issues and solutions for high performance TCP/IP networking, this easy-to-read book provides a one-stop-shop for coverage of the many changes to the TCP protocol over the last two decades and all important research results. Professionals can keep themselves up-to-date with advances in this area and learn many potential performance problems and solutions for running TCP/IP in the emerging networking environment. An international expert in the field captures state of the art topics in each chapter in the five-part organization. Part I introduces the scope of the book, Part II provides detailed coverage of the tools and techniques for performance evaluation of TCP/IP networks, Part III examines the performance concepts and issues for running TCP/IP in the emerging network environment, Part IV discusses congestion control, and Part V explores the performance issues in implementing TCP/IP in the end system. For network engineers, R&D managers, research scientists, and network administrators.

Your Python code may run correctly, but you need it to run faster. Updated for Python 3, this expanded edition shows you how to locate performance bottlenecks and significantly speed up your code in high-data-volume programs. By exploring the fundamental theory behind design choices, High Performance Python helps you gain a deeper understanding of

Python's implementation. How do you take advantage of multicore architectures or clusters? Or build a system that scales up and down without losing reliability? Experienced Python programmers will learn concrete solutions to many issues, along with war stories from companies that use high-performance Python for social media analytics, productionized machine learning, and more. Get a better grasp of NumPy, Cython, and profilers Learn how Python abstracts the underlying computer architecture Use profiling to find bottlenecks in CPU time and memory usage Write efficient programs by choosing appropriate data structures Speed up matrix and vector computations Use tools to compile Python down to machine code Manage multiple I/O and computational operations concurrently Convert multiprocessing code to run on local or remote clusters Deploy code faster using tools like Docker

In designing a network device, you make dozens of decisions that affect the speed with which it will perform-sometimes for better, but sometimes for worse. Network Algorithmics provides a complete, coherent methodology for maximizing speed while meeting your other design goals. Author George Varghese begins by laying out the implementation bottlenecks that are most often encountered at four disparate levels of implementation: protocol, OS, hardware, and architecture. He then derives 15 solid principles-ranging from the commonly recognized to the groundbreaking-that are key to breaking these bottlenecks. The rest of the book is devoted to a systematic application of these principles to bottlenecks found specifically in endnodes, interconnect devices, and specialty functions such as security and measurement that can be located anywhere along the network. This immensely practical, clearly presented information will benefit anyone involved with network implementation, as well as students who have made this work their goal. FOR INSTRUCTORS: To obtain access to the solutions manual for this title simply register on our textbook website (textbooks.elsevier.com) and request access to the Computer Science subject area. Once approved (usually within one business day) you will be able to access all of the instructor-only materials through the "Instructor Manual" link on this book's academic web page at textbooks.elsevier.com. Addresses the bottlenecks found in all kinds of network devices, (data copying, control transfer, demultiplexing, timers, and more) and offers ways to break them Presents techniques suitable specifically for endnodes, including Web servers Presents techniques suitable specifically for interconnect devices, including routers, bridges, and gateways Written as a practical guide for implementers but full of valuable insights for students, teachers, and researchers Includes end-of-chapter summaries and exercises

With its comprehensive coverage of topics, "High Speed Networking Unleashed" is an indispensable tutorial and reference. Anyone with a need to set up a network and maximize network performance will benefit from these pages. The CD-ROM contains utilities and third party software.

Netty in Action

Network Algorithmics

Help for Unix System Administrators

Introduction to Networking

The Psychology of Time Perception in Software

Cybersecurity and High-Performance Computing Environments

Building Isomorphic JavaScript Apps

HTTP is the foundational protocol for exchanging information across the World Wide Web. With HTTP, you'll learn all about something you use on a daily basis, perhaps without realizing what goes on behind the scenes. You'll quickly learn about resources, requests and responses, safe and unsafe methods, connections, cookies, security, and so much more. Equipped with the information in this book, you'll be able to write better web apps and services, and debug them when something goes wrong. This updated and expanded second edition of Book provides a user-friendly introduction to the subject, Taking a clear structural framework, it guides the reader through the subject's core elements. A flowing writing style combines with the use of illustrations and diagrams throughout the text to ensure the reader understands even the most complex of concepts. This succinct and enlightening overview is a required reading for all those interested in the subject . We hope you find this book useful in shaping your future career & Business.

If you're like most developers, you rely heavily on JavaScript to build interactive and quick-responding web applications. The problem is that all of those lines of JavaScript code can slow down your apps. This book reveals techniques and strategies to help you eliminate performance bottlenecks during development. You'll learn how to improve execution time, downloading, interaction with the DOM, page life cycle, and more. Yahoo! frontend engineer Nicholas C. Zakas and five other JavaScript experts—Ross Harmes, Julien Lecomte, Steven Levithan, Stoyan Stefanov, and Matt Sweeney—demonstrate optimal ways to load code onto a page, and offer programming tips to help your JavaScript run as efficiently and quickly as possible. You'll learn the best practices to build and deploy your files to a production environment, and tools that can help you find problems once your site goes live. Identify problem code and use faster alternatives to accomplish the same task Improve scripts by learning how JavaScript stores and accesses data Implement JavaScript code so that it doesn't slow down interaction with the DOM Use optimization techniques to improve runtime performance Learn ways to ensure the UI is responsive at all times Achieve faster client-server communication Use a build system to minify files, and HTTP compression to deliver them to the browser

As Web-based systems and e-commerce carry businesses into the 21st century, databases are becoming workhorses that shoulder each and every online transaction. For organizations to have effective 24/7 Web operations, they need powerhouse databases that deliver at peak performance-all the time. High Performance Web Databases: Design, Development, and

Highlights innovations for building even more powerful browser apps including HTTP 2.0, XHR improvements, Server-Sent Events (SSEs), WebSocket, and WebRTC.

Summary JavaScript Application Design: A Build First Approach introduces JavaScript developers to techniques that will improve the quality of their software as well as their web development workflow. You'll begin by learning how to establish build processes that are appropriate for JavaScript-driven development. Then,

you'll walk through best practices for productive day-to-day development, like running tasks when your code changes, deploying applications with a single command, and monitoring the state of your application once it's in production. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Book The fate of most applications is often sealed before a single line of code has been written. How is that possible? Simply, bad design assures bad results. Good design and effective processes are the foundation on which maintainable applications are built, scaled, and improved. For JavaScript developers, this means discovering the tooling, modern libraries, and architectural patterns that enable those improvements. JavaScript Application Design: A Build First Approach introduces techniques to improve software quality and development workflow. You'll begin by learning how to establish processes designed to optimize the quality of your work. You'll execute tasks whenever your code changes, run tests on every commit, and deploy in an automated fashion. Then you'll focus on designing modular components and composing them together to build robust applications. This book assumes readers understand the basics of JavaScript. What's Inside Automated development, testing, and deployment processes JavaScript fundamentals and modularity best practices Modular, maintainable, and well-tested applications Master asynchronous flows, embrace MVC, and design a REST API About the Author Nicolas Bevacqua is a freelance developer with a focus on modular JavaScript, build processes, and sharp design. He maintains a blog at ponyfoo.com. Table of Contents PART 1 BUILD PROCESSES Introduction to Build First Composing build tasks and flows Mastering environments and the development workflow Release, deployment, and monitoring PART 2 MANAGING COMPLEXITY Embracing modularity and dependency management Understanding asynchronous flow control methods in JavaScript Leveraging the Model-View-Controller Testing JavaScript components REST API design and layered service architectures Design, Development, and Deployment

The Tangled Web

HTTP

Designing and Engineering Time

High Performance Browser Networking

Shrink, Load, and Deliver Images for Speed

High Performance Web Sites

In this fast-paced global economy, academia and industry must innovate to evolve and succeed. Today's researchers and industry experts are seeking transformative technologies to meet the challenges of tomorrow. Cutting-edge technological advances in cybersecurity solutions aid in enabling the security of complex heterogeneous high-performance computing (HPC) environments. On the other hand, HPC facilitates powerful and intelligent innovative models for reducing time to response to identify and resolve a multitude of potential, newly emerging cyberattacks. Cybersecurity and High-Performance Computing Environments provides a collection of the current and emergent research innovations, practices, and applications focusing on the interdependence of cybersecurity and HPC domains for discovering and resolving new emerging cyber-threats. KEY FEATURES Represents a substantial research contribution to the state-of-the-art solutions for addressing the threats to confidentiality, integrity, and availability (CIA triad) in HPC environments Covers the groundbreaking and emergent solutions that utilize the power of the HPC environments to study and understand the emergent, multifaceted, anomalous, and malicious characteristics The content will help university students, researchers, and professionals understand how HPC research fits broader cybersecurity objectives and vice versa.

Rapid advances in networking technology have promoted a fully revised second edition of this successful introduction to communication networks.

Modern web applications are built on a tangle of technologies that have been developed over time and then haphazardly pieced together. Every piece of the web application stack, from HTTP requests to browser-side scripts, comes with important yet subtle security consequences. To keep users safe, it is essential for developers to confidently navigate this landscape. In The Tangled Web, Michal Zalewski, one of the world's top browser security experts, offers a compelling narrative that explains exactly how browsers work and why they're fundamentally insecure. Rather than dispense simplistic advice on vulnerabilities, Zalewski examines the entire browser security model, revealing weak points and providing crucial information for shoring up web application security. You'll learn how to: –Perform common but surprisingly complex tasks such as URL parsing and HTML sanitization –Use modern security features like Strict Transport Security, Content Security Policy, and Cross-Origin Resource Sharing –Leverage many variants of the same-origin policy to safely compartmentalize complex web applications and protect user credentials in case of XSS bugs –Build mashups and embed gadgets without getting stung by the tricky frame navigation policy –Embed or host user-supplied content without running into the trap of content sniffing For quick reference, "Security Engineering Cheat Sheets" at the end of each chapter offer ready solutions to problems you're most likely to encounter. With coverage extending as far as planned HTML5 features, The Tangled Web will help you create secure web applications that stand the test of time.

A comprehensive guide to transforming boards and achieving best-practice governance in any organisation. When practising good governance, the board is the vital driver of organizational success, while fostering positive social impact and economic value creation. At all levels, executives around the world are faced with complexities rising from disruptive business models, new technologies, socio-economic changes, shifting political circumstances, and an array of other sources. High Performance Boards is the comprehensive manual for attaining best-in-class governance, offering pragmatic guidance on improving board quality, accountability, and performance. This authoritative volume identifies the four dimensions, or pillars, which are crucial for establishing and maintaining best-practice boards: the people involved, the information architecture, the structures and processes, and the group dynamics and culture of governance. This methodology can be applied to any board in the world, corporate or non-profit organization, regardless of size, sector, industry, or context. Readers are introduced to a fictitious senior board member – an amalgamation of board members from well-known organisations – and follow her as she successfully handles real-life challenges with effective governance. Drawn from the author's 20 years of practice and confidential work with boards across the world, this book: Demonstrates how high-performance boards innovate and refine their practices Discusses examples of board failures and challenges, including case studies from both for-profit and non-profit organisations including international organizations and state-owned agencies or even ministries Provides a proven framework to create best-in-class governance Includes a companion website featuring tools for board assessment and board practice High Performance Boards has inspired more than 3000 board members around the world. This book is essential reading for professionals and managers interested in governance and board members, senior managers,

investors, lawyers, and students of governance.

Network Performance Security: Testing and Analyzing Using Open Source and Low-Cost Tools gives mid-level IT engineers the practical tips and tricks they need to use the best open source or low cost tools available to harden their IT infrastructure. The book details how to use the tools and how to interpret them. Network Performance Security: Testing and Analyzing Using Open Source and Low-Cost Tools begins with an overview of best practices for testing security and performance across devices and the network. It then shows how to document assets—such as servers, switches, hypervisor hosts, routers, and firewalls—using publicly available tools for network inventory. The book explores security zoning the network, with an emphasis on isolated entry points for various classes of access. It shows how to use open source tools to test network configurations for malware attacks, DDoS, botnet, rootkit and worm attacks, and concludes with tactics on how to prepare and execute a mediation schedule of the who, what, where, when, and how, when an attack hits. Network security is a requirement for any modern IT infrastructure. Using Network Performance Security: Testing and Analyzing Using Open Source and Low-Cost Tools makes the network stronger by using a layered approach of practical advice and good testing practices. Offers coherent, consistent guidance for those tasked with securing the network within an organization and ensuring that it is appropriately tested Focuses on practical, real world implementation and testing Employs a vetted "security testing by example" style to demonstrate best practices and minimize false positive testing Gives practical advice for securing BYOD devices on the network, how to test and defend against internal threats, and how to continuously validate a firewall device, software, and configuration Provides analysis in addition to step by step methodologies

Design Techniques and Tools

Enterprise Web Development

High Performance TCP/IP Networking

High Performance JavaScript

Building Fast Web Pages

TCP/IP Network Administration

Even Faster Web Sites

Build Applications, Websites, and Software Solutions that Feel Faster, More Efficient, and More Considerate of Users' Time! One hidden factor powerfully influences the way users react to your software, hardware, User Interfaces (UI), or web applications: how those systems utilize users' time. Now, drawing on the nearly 40 years of human computer interaction research—including his own pioneering work—Dr. Steven Seow presents state-of-the-art best practices for reflecting users' subjective perceptions of time in your applications and hardware. Seow begins by introducing a simple model that explains how users perceive and expend time as they interact with technology. He offers specific guidance and recommendations related to several key aspects of time and timing—including user tolerance, system responsiveness, progress indicators, completion time estimates, and more. Finally, he brings together proven techniques for impacting users' perception of time drawn from multiple disciplines and industries, ranging from psychology to retail, animal research to entertainment. • Discover how time and timing powerfully impact user perception, emotions, and behavior • Systematically make your applications more considerate of users' time • Avoid common mistakes that consistently frustrate or infuriate users • Manage user perceptions and tolerance, and build systems that are perceived as faster • Optimize "flow" to make users feel more productive, empowered, and creative • Make reasonable and informed tradeoffs that maximize limited development resources • Learn how to test usability issues related to time—including actual vs. perceived task duration Designing and Engineering Time is for every technology developer, designer, engineer, architect, usability specialist, manager, and marketer. Using its insights and techniques, technical and non-technical professionals can work together to build systems and applications that provide far more value—and create much happier users. Steven C. Seow has a unique combination of experience in both experimental psychology and software usability. He joined Microsoft as a User Researcher after completing his Ph.D. in Experimental Psychology at Brown University with a research focus on human timing and information theory models of human performance. Seow holds Bachelor's and Master's Degrees in Forensic Psychology from John Jay College of Criminal Justice, and wrote his master's thesis on distortions in time perception. For more information about Steven Seow and his research, visit his website at www.StevenSeow.com. informit.com/aw

High-Performance Scientific Computing

The Definitive Guide

A Guide to Securing Modern Web Applications

Algorithms and Applications

What Every Web Developer Should Know about Networking and Web Performance

Breaking the Trust Barrier

What every web developer should know about networking and web performance