# Network Programming With Go Essential Skills For Using And Securing Networks

In this practical guide, four Kubernetes professionals with deep experience in distributed systems, enterprise application development, and open source will guide you through the process of building applications with this container orchestration system. Based on the experiences of companies that are running Kubernetes in production successfully, many of the methods are also backed by concrete code examples. This book is ideal for those already familiar with basic Kubernetes concepts who want to learn common best practices. You'll learn exactly what you need to know to build your best app with Kubernetes the first time. Set up and develop applications in Kubernetes Learn patterns for monitoring, securing your systems, and managing upgrades, rollouts, and rollbacks Understand Kubernetes networking policies and where service mesh fits in Integrate services and legacy applications and develop higher-level platforms on top of Kubernetes Run machine learning workloads in Kubernetes

Function literals, Monads, Lazy evaluation, Currying, and more About This Book Write concise and maintainable code with streams and high-order functions Understand the benefits of currying your Golang functions Learn the most effective design patterns for

functional programming and learn when to apply each of them Build distributed MapReduce solutions using Go Who This Book Is For This book is for Golang developers comfortable with OOP and interested in learning how to apply the functional paradigm to create robust and testable apps. Prior programming experience with Go would be helpful, but not mandatory. What You Will Learn Learn how to compose reliable applications using high-order functions Explore techniques to eliminate sideeffects using FP techniques such as currying Use first-class functions to implement pure functions Understand how to implement a lambda expression in Go Compose a working application using the decorator pattern Create faster programs using lazy evaluation Use Go concurrency constructs to compose a functionality pipeline Understand category theory and what it has to do with FP In Detail Functional programming is a popular programming paradigm that is used to simplify many tasks and will help you write flexible and succinct code. It allows you to decompose your programs into smaller, highly reusable components, without applying conceptual restraints on how the software should be modularized. This book bridges the language gap for Golang developers by showing you how to create and consume functional constructs in Golang. The book is divided into four modules. The first module explains the functional style of programming; pure functional programming (FP), manipulating collections, and using high-order functions. In the second module, you will learn design patterns that you can use to build FP-style applications. In the next module, you will

learn FP techniques that you can use to improve your API signatures, to increase performance, and to build better Cloud-native applications. The last module delves into the underpinnings of FP with an introduction to category theory for software developers to give you a real understanding of what pure functional programming is all about, along with applicable code examples. By the end of the book, you will be adept at building applications the functional way. Style and approach This book takes a pragmatic approach and shows you techniques to write better functional constructs in Golang. We'll also show you how use these concepts to build robust and testable apps. 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 startedM Basic configuration Configuring the interface Configuring routing Configuring DNS Configuring network servers Configuring sendmail Configuring Apache Network security Troubleshooting Appendices include dip, ppd, 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.

Dive deep into the Go language and become an expert Go developer Key Features Second edition of the bestselling guide to advanced Go programming, expanded to cover machine learning, more Go packages and a range of modern development techniques Completes the Go developer's education with real-world guides to building high-performance production systems Packed with practical examples and patterns to apply to your own development work Clearly explains Go nuances and features to

remove the frustration from Go development Book Description Often referred to (incorrectly) as Golang, Go is the high-performance systems language of the future. Mastering Go, Second Edition helps you become a productive expert Go programmer, building and improving on the groundbreaking first edition. Mastering Go, Second Edition shows how to put Go to work on real production systems. For programmers who already know the Go language basics, this book provides examples, patterns, and clear explanations to help you deeply understand Go's capabilities and apply them in your programming work. The book covers the nuances of Go, with in-depth guides on types and structures, packages, concurrency, network programming, compiler design, optimization, and more. Each chapter ends with exercises and resources to fully embed your new knowledge. This second edition includes a completely new chapter on machine learning in Go, guiding you from the foundation statistics techniques through simple regression and clustering to classification, neural networks, and anomaly detection. Other chapters are expanded to cover using Go with Docker and Kubernetes, Git, WebAssembly, JSON, and more. If you take the Go programming language seriously, the second edition of this book is an essential guide on expert techniques. What you will learn Clear guidance on using Go for production systems Detailed explanations of how Go internals work, the design choices behind the language, and how to optimize your Go code A full guide to all Go data types, composite types, and data structures Master packages, reflection, and interfaces for

effective Go programming Build high-performance systems networking code, including server and client-side applications Interface with other systems using WebAssembly, JSON, and gRPC Write reliable, high-performance concurrent code Build machine learning systems in Go, from simple statistical regression to complex neural networks Who this book is for Mastering Go, Second Edition is for Go programmers who already know the language basics, and want to become expert Go practitioners. In just 24 sessions of one hour or less, Sams Teach Yourself Go in 24 Hours will help new and experienced programmers build software that's simpler, more reliable, and far more scalable. This book's straightforward, step-by-step approach guides you from setting up your environment through testing and deploying powerful solutions. Using practical examples, expert Go developer George Ornbo walks you through Go's fundamental constructs, demonstrates its breakthrough features for concurrent and network programming, and illuminates Go's powerful new idioms. Every lesson builds on what you've already learned, giving you a rock-solid foundation for real-world success. Step-by-step instructions carefully walk you through the most common Go programming tasks and techniques Quizzes and exercises help you test your knowledge and stretch your skills Practical, hands-on examples show you how to apply what you learn Notes and Tips point out shortcuts, solutions, and problems to avoid Two bonus chapters available online: Hour 25, "Creating a RESTful JSON API," and Hour 26 "Creating a TCP Chat Server" Learn how to... · Get productive guickly with Go

development tools and web servers · Master core features, including strings, functions, structs, and methods · Work with types, variables, functions, and control structures · Make the most of Go's arrays, slices, and maps · Write powerful concurrent software with Goroutines and channels · Handle program errors smoothly · Promote code reuse with packages · Master Go's unique idioms for highly effective coding · Use regular expressions and time/date functions · Test and benchmark Go code · Write basic command-line programs, HTTP servers, and HTTP clients · Efficiently move Go code into production · Build basic TCP chat servers and JSON APIs Register your book at informit.com/register for convenient access to the two bonus chapters online, downloads, updates, and/or corrections as they become available. Explore the fundamentals of systems programming starting from kernel API and filesystem to network programming and process communications Key Features Learn how to write Unix and Linux system code in Golang v1.12 Perform inter-process communication using pipes, message queues, shared memory, and semaphores Explore modern Go features such as goroutines and channels that facilitate systems programming Book Description System software and applications were largely created using low-level languages such as C or C++. Go is a modern language that combines simplicity, concurrency, and performance, making it a good alternative for building system applications for Linux and macOS. This Go book introduces Unix and systems programming to help you understand the components the OS has to offer, ranging from

the kernel API to the filesystem, and familiarize yourself with Go and its specifications. You'll also learn how to optimize input and output operations with files and streams of data, which are useful tools in building pseudo terminal applications. You'll gain insights into how processes communicate with each other, and learn about processes and daemon control using signals, pipes, and exit codes. This book will also enable you to understand how to use network communication using various protocols, including TCP and HTTP. As you advance, you'll focus on Go's best feature-concurrency helping you handle communication with channels and goroutines, other concurrency tools to synchronize shared resources, and the context package to write elegant applications. By the end of this book, you will have learned how to build concurrent system applications using Go What you will learn Explore concepts of system programming using Go and concurrency Gain insights into Golang's internals, memory models and allocation Familiarize yourself with the filesystem and IO streams in general Handle and control processes and daemons' lifetime via signals and pipes Communicate with other applications effectively using a network Use various encoding formats to serialize complex data structures Become well-versed in concurrency with channels, goroutines, and sync Use concurrency patterns to build robust and performant system applications Who this book is for If you are a developer who wants to learn system programming with Go, this book is for you. Although no knowledge of Unix and Linux system programming is necessary, intermediate knowledge of Go will help you understand the

#### concepts covered in the book

Today, networks must evolve and scale faster than ever. You can't manage everything by hand anymore: You need to automate relentlessly. YANG, along with the NETCONF, RESTCONF, or gRPC/gNMI protocols, is the most practical solution, but most implementers have had to learn by trial and error. Now, Network Programmability with YANG gives you complete and reliable guidance for unlocking the full power of network automation using model-driven APIs and protocols. Authored by three YANG pioneers, this plain-spoken book guides you through successfully applying software practices based on YANG data models. The authors focus on the network operations layer, emphasizing model-driven APIs, and underlying transports. Whether you're a network operator, DevOps engineer, software developer, orchestration engineer, NMS/OSS architect, service engineer, or manager, this guide can help you dramatically improve value, agility, and manageability throughout your network. Discover the value of implementing YANG and Data Model-Driven Management in your network Explore the layers and components of a complete working solution Build a business case where value increases as your solution grows Drill down into transport protocols: NETCONF, RESTCONF, and gNMI/gRPC See how telemetry can establish a valuable automated feedback loop Find data models you can build on, and evaluate models with similar functionality Understand models, metadata, and tools from several viewpoints: architect, operator, module author, and application developer Walk through a complete

automation journey: business case, service model, service implementation, device integration, and operation Leverage the authors' experience to design successful YANG models and avoid pitfalls

This second edition of Foundations of Python Network Programming targets Python 2.5 through Python 2.7, the most popular production versions of the language. Python has made great strides since Apress released the first edition of this book back in the days of Python 2.3. The advances required new chapters to be written from the ground up, and others to be extensively revised. You will learn fundamentals like IP, TCP, DNS and SSL by using working Python programs; you will also be able to familiarize yourself with infrastructure components like memcached and message queues. You can also delve into network server designs, and compare threaded approaches with asynchronous event-based solutions. But the biggest change is this edition's expanded treatment of the web. The HTTP protocol is covered in extensive detail, with each feature accompanied by sample Python code. You can use your HTTP protocol expertise by studying an entire chapter on screen scraping and you can then test lxml and BeautifulSoup against a real-world web site. The chapter on web application programming now covers both the WSGI standard for component interoperability, as well as modern web frameworks like Django. Finally, all of the old favorites from the first edition are back: E-mail protocols like SMTP, POP, and IMAP get full treatment, as does XML-RPC. You can still learn how to code Python network programs using the

Telnet and FTP protocols, but you are likely to appreciate the power of more modern

alternatives like the paramiko SSH2 library. If you are a Python programmer who needs to learn the network, this is the book that you want by your side. One of 2021's Most Highly Anticipated New Books—Newsweek One of The 20 Leadership Books to Read in 2020—Adam Grant One of The Best New Wellness Books Hitting Shelves in January 2021—Shape.com A Top Business Book for January 2021—Financial Times A Next Big Idea Club Nominee Social Chemistry will utterly transform the way you think about "networking." Understanding the contours of your social network can dramatically enhance personal relationships, work life, and even your global impact. Are you an Expansionist, a Broker, or a Convener? The answer matters more than you think. . . . Yale professor Marissa King shows how anyone can build more meaningful and productive relationships based on insights from neuroscience, psychology, and network analytics. Conventional wisdom says it's the size of your network that matters, but social science research has proven there is more to it. King explains that the quality and structure of our relationships has the greatest impact on our personal and professional lives. As she shows, there are three basic types of networks, so readers can see the role they are already playing: Expansionist, Broker, or Convener. This network decoder enables readers to own their network style and modify it for better alignment with their life plans and values. High-quality connections in your social network strongly predict cognitive functioning, emotional

resilience, and satisfaction at work. A well-structured network is likely to boost the quality of your ideas, as well as your pay. Beyond the office, social connections are the lifeblood of our health and happiness. The compiled results from dozens of previous studies found that our social relationships have an effect on our likelihood of dying prematurely—equivalent to obesity or smoking. Rich stories of Expansionists like Vernon Jordan, Brokers like Yo-Yo Ma, and Conveners like Anna Wintour, as well as personal experiences from King's own world of connections, inform this warm, engaging, revelatory investigation into some of the most consequential decisions we can make about the trajectory of our lives.

Go is rapidly becoming the preferred language for building web services. While there are plenty of tutorials available that teach Go's syntax to developers with experience in other programming languages, tutorials aren't enough. They don't teach Go's idioms, so developers end up recreating patterns that don't make sense in a Go context. This practical guide provides the essential background you need to write clear and idiomatic Go. No matter your level of experience, you'll learn how to think like a Go developer. Author Jon Bodner introduces the design patterns experienced Go developers have adopted and explores the rationale for using them. You'll also get a preview of Go's upcoming generics support and how it fits into the language. Learn how to write idiomatic code in Go and design a Go project Understand the reasons for the design decisions in Go Set up a Go development environment for a solo developer or team

Learn how and when to use reflection, unsafe, and cgo Discover how Go's features allow the language to run efficiently Know which Go features you should use sparingly or not at all

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.

A valuable programming reference provides a complete introduction to the Go programming language, covering all of Go's clean and easy to understand syntax and its built-in arrays, maps, slices and Unicode strings. Original.

Like sysadmins before them, network engineers are finding that they cannot do their work manually anymore. As the field faces new protocols, technologies, delivery models, and a pressing need for businesses to be more agile and flexible, network automation is becoming essential. This practical guide shows network engineers how to use a range of technologies and tools—including Linux, Python, JSON, and XML—to

automate their systems through code. Network programming and automation will help you simplify tasks involved in configuring, managing, and operating network equipment, topologies, services, and connectivity. Through the course of the book, you'll learn the basic skills and tools you need to make this critical transition. This book covers: Python programming basics: data types, conditionals, loops, functions, classes, and modules Linux fundamentals to provide the foundation you need on your network automation journey Data formats and models: JSON, XML, YAML, and YANG for networking Jinja templating and its applicability for creating network device configurations The role of application programming interfaces (APIs) in network automation Source control with Git to manage code changes during the automation process How Ansible, Salt, and StackStorm open source automation tools can be used to automate network devices Key tools and technologies required for a Continuous Integration (CI) pipeline in network operations

What will you learn from this book? Go makes it easy to build software that's simple, reliable, and efficient. Andthis book makes it easy for programmers like you to get started. Googledesigned Go for high-performance networking and multiprocessing, but—like Python and JavaScript—the language is easy to read and use. With this practical hands-on guide, you'll learn how to write Go code using clear examples that demonstrate the language in action. Best of all, you'll understandthe conventions and techniques that employers want entry-level Godevelopers to know. Why does this book

look so different? Based on the latest research in cognitive science and learning theory, HeadFirst Go uses a visually rich format to engage your mind rather than a textheavyapproach that puts you to sleep. Why waste your time struggling withnew concepts? This multisensory learning experience is designed for theway your brain really works.

When critics decry the current state of our public discourse, one reliably easy target is television news. It's too dumbed-down, they say; it's no longer news but entertainment, celebrity-obsessed and vapid. The critics may be right. But, as Charles L. Ponce de Leon explains in That's the Way It Is, TV news has always walked a fine line between hard news and fluff. The familiar story of decline fails to acknowledge real changes in the media and Americans' news-consuming habits, while also harking back to a golden age that, on closer examination, is revealed to be not so golden after all. Ponce de Leon traces the entire history of televised news, from the household names of the late 1940s and early '50s, like Eric Sevareid, Edward R. Murrow, and Walter Cronkite, through the rise of cable, the political power of Fox News, and the satirical punch of Colbert and Stewart. He shows us an industry forever in transition, where newsmagazines and celebrity profiles vie with political news and serious investigations. The need for ratings success—and the lighter, human interest stories that can help bring it—Ponce de Leon makes clear, has always sat uneasily alongside a real desire to report hard news. Highlighting the contradictions and paradoxes at the heart of TV news, and

telling a story rich in familiar figures and fascinating anecdotes, That's the Way It Is will be the definitive account of how television has showed us our history as it happens. Network Programming with GoEssential Skills for Using and Securing NetworksApress The web services architecture provides a new way to think about and implement application-to-application integration and interoperability that makes the development platform irrelevant. Two applications, regardless of operating system, programming language, or any other technical implementation detail, communicate using XML messages over open Internet protocols such as HTTP or SMTP. The Simple Open Access Protocol (SOAP) is a specification that details how to encode that information and has become the messaging protocol of choice for Web services. Programming Web Services with SOAP is a detailed guide to using SOAP and other leading web services standards--WSDL (Web Service Description Language), and UDDI (Universal Description, Discovery, and Integration protocol). You'll learn the concepts of the web services architecture and get practical advice on building and deploying web services in the enterprise. This authoritative book decodes the standards, explaining the concepts and implementation in a clear, concise style. You'll also learn about the major toolkits for building and deploying web services. Examples in Java, Perl, C#, and Visual Basic illustrate the principles. Significant applications developed using Java and Perl on the Apache Tomcat web platform address real issues such as security, debugging, and interoperability. Covered topic areas include: The Web Services Architecture SOAP

envelopes, headers, and encodings WSDL and UDDI Writing web services with Apache SOAP and Java Writing web services with Perl's SOAP::Lite Peer-to-peer (P2P) web services Enterprise issues such as authentication, security, and identity Up-and-coming standards projects for web services Programming Web Services with SOAP provides you with all the information on the standards, protocols, and toolkits you'll need to integrate information services with SOAP. You'll find a solid core of information that will help you develop individual Web services or discover new ways to integrate core business processes across an enterprise.

Explore software engineering methodologies, techniques, and best practices in Go programming to build easy-to-maintain software that can effortlessly scale on demand Key Features Apply best practices to produce lean, testable, and maintainable Go code to avoid accumulating technical debt Explore Go's built-in support for concurrency and message passing to build high-performance applications Scale your Go programs across machines and manage their life cycle using Kubernetes Book Description Over the last few years, Go has become one of the favorite languages for building scalable and distributed systems. Its opinionated design and built-in concurrency features make it easy for engineers to author code that efficiently utilizes all available CPU cores. This Golang book distills industry best practices for writing lean Go code that is easy to test and maintain, and helps you to explore its practical implementation by creating a multi-tier application called Links 'R' Us from scratch. You'll be guided through all the steps

involved in designing, implementing, testing, deploying, and scaling an application. Starting with a monolithic architecture, you'll iteratively transform the project into a service-oriented architecture (SOA) that supports the efficient out-of-core processing of large link graphs. You'll learn about various cutting-edge and advanced software engineering techniques such as building extensible data processing pipelines, designing APIs using gRPC, and running distributed graph processing algorithms at scale. Finally, you'll learn how to compile and package your Go services using Docker and automate their deployment to a Kubernetes cluster. By the end of this book, you'll know how to think like a professional software developer or engineer and write lean and efficient Go code. What you will learn Understand different stages of the software development life cycle and the role of a software engineer Create APIs using gRPC and leverage the middleware offered by the gRPC ecosystem Discover various approaches to managing package dependencies for your projects Build an end-to-end project from scratch and explore different strategies for scaling it Develop a graph processing system and extend it to run in a distributed manner Deploy Go services on Kubernetes and monitor their health using Prometheus Who this book is for This Golang programming book is for developers and software engineers looking to use Go to design and build scalable distributed systems effectively. Knowledge of Go programming and basic networking principles is required.

tutorials available that teach Go's syntax to developers with experience in other programming languages. But tutorials aren't enough. They don't teach Go's idioms, so developers end up recreating patterns that don't make sense in a Go context. This practical guide provides the essential background you need to write clear and idiomatic Go. No matter your level of experience, you'll learn how to think like a Go developer. Author Jon Bodner reveals design patterns that experienced Go developers have adopted and the rationale for them. You'll learn how to structure your project and choose the proper tools and libraries to create successful software. Learn how to write idiomatic code in Go and design a Go project Understand the reasons for the design decisions in Go Set up a Go development environment for a solo developer or team Learn how and when to use reflection, unsafe, and CGo Learn how Go's features allow the language to run efficiently Know which Go features you should use sparingly, or not at all Learn the future of Go, including Generics

Written for developers who want build applications using Twisted, this book presents a taskoriented look at this open source, Python- based technology.

This book provides the reader with a comprehensive overview of the new open source programming language Go (in its first stable and maintained release Go 1) from Google. The language is devised with Java / C#-like syntax so as to feel familiar to the bulk of programmers today, but Go code is much cleaner and simpler to read, thus increasing the productivity of developers. You will see how Go: simplifies programming with slices, maps, structs and interfaces incorporates functional programming makes error-handling easy and secure simplifies concurrent and parallel programming with goroutines and channels And you will learn how to: make use of Go's excellent standard library program Go the idiomatic way using

patterns and best practices in over 225 working examples and 135 exercises This book focuses on the aspects that the reader needs to take part in the coming software revolution using Go.

Network Programming with Go teaches you how to write clean, secure network software with the programming language designed to make it seem easy. Go combines the best parts of many other programming languages. It's fast, scalable, and designed for high-performance networking and multiprocessing—in other words, it's perfect for network programming. Network Programming with Go is for developers ready to start leveraging Go's ease of use for writing secure, readable, production-ready network code. Early chapters establish a foundation of networking and traffic-routing know-how upon which the rest of the book builds. You'll put that knowledge to use as author Adam Woodbeck guides you through writing programs that communicate using TCP, UDP, Unix sockets, and other features that ensure reliable data transmission. As you progress, you'll explore higher-level network protocols like HTTP and HTTP/2, then build applications that securely interact with servers, clients, and APIs over a network using TLS. In addition, Woodbeck shows you how to create a simple messaging protocol, develop tools for monitoring network traffic, craft a custom web server, and implement best practices for interacting with cloud providers using their SDKs. Along the way, you'll learn: • IP basics for writing effective network programs, such as IPv4 and IPv6 multicasting, ports, and network address translation • How to use handlers, middleware, and multiplexers to build capable HTTP-based applications with minimal code • The OSI and TCP/IP models for layered data architectures • Methods for reading data from/writing data to a network connection, like the type-length-value encoding scheme • Tools for incorporating

authentication and encryption into your applications using TLS, like mutual authentication • How to serialize data for storage or transmission in Go-friendly formats like JSON, Gob, XML, and protocol buffers • How to Leverage Go's code generation support to efficiently communicate with gRPC-based network services So get ready to take advantage of Go's built-in concurrency, rapid compiling, and rich standard library. Because when it comes to writing robust network programs, it's Go time.

UNIX, UNIX LINUX & UNIX TCL/TK. Write software that makes the most effective use of the Linux system, including the kernel and core system libraries. The majority of both Unix and Linux code is still written at the system level, and this book helps you focus on everything above the kernel, where applications such as Apache, bash, cp, vim, Emacs, gcc, gdb, glibc, Is, my, and X exist. Written primarily for engineers looking to program at the low level, this updated edition of Linux System Programming gives you an understanding of core internals that makes for better code, no matter where it appears in the stack. -- Provided by publisher. To facilitate scalability and resilience, many organizations now run applications in cloud native environments using containers and orchestration. But how do you know if the deployment is secure? This practical book examines key underlying technologies to help developers, operators, and security professionals assess security risks and determine appropriate solutions. Author Liz Rice, Chief Open Source Officer at Isovalent, looks at how the building blocks commonly used in container-based systems are constructed in Linux. You'll understand what's happening when you deploy containers and learn how to assess potential security risks that could affect your deployments. If you run container applications with kubectl or docker and use Linux command-line tools such as ps and grep, you're ready to get started. Explore attack

vectors that affect container deployments Dive into the Linux constructs that underpin containers Examine measures for hardening containers Understand how misconfigurations can compromise container isolation Learn best practices for building container images Identify container images that have known software vulnerabilities Leverage secure connections between containers Use security tooling to prevent attacks on your deployment A guide to Go describes how the programming language is structured and provides examples of code that demonstrate every stage of Go development, from creating a simple program to debugging and distributing code.

Like the best-selling Black Hat Python, Black Hat Go explores the darker side of the popular Go programming language. This collection of short scripts will help you test your systems, build and automate tools to fit your needs, and improve your offensive security skillset. Black Hat Go explores the darker side of Go, the popular programming language revered by hackers for its simplicity, efficiency, and reliability. It provides an arsenal of practical tactics from the perspective of security practitioners and hackers to help you test your systems, build and automate tools to fit your needs, and improve your offensive security skillset, all using the power of Go. You'll begin your journey with a basic overview of Go's syntax and philosophy and then start to explore examples that you can leverage for tool development, including common network protocols like HTTP, DNS, and SMB. You'll then dig into various tactics and problems that penetration testers encounter, addressing things like data pilfering, packet sniffing, and exploit development. You'll create dynamic, pluggable tools before diving into cryptography, attacking Microsoft Windows, and implementing steganography. You'll learn how to: • Make performant tools that can be used for your own security projects • Create usable

tools that interact with remote APIs • Scrape arbitrary HTML data • Use Go's standard package, net/http, for building HTTP servers • Write your own DNS server and proxy • Use DNS tunneling to establish a C2 channel out of a restrictive network • Create a vulnerability fuzzer to discover an application's security weaknesses • Use plug-ins and extensions to future-proof productsBuild an RC2 symmetric-key brute-forcer • Implant data within a Portable Network Graphics (PNG) image. Are you ready to add to your arsenal of security tools? Then let's Go!

Summary Go Web Programming teaches you how to build scalable, high-performance web applications in Go using modern design principles. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The Go language handles the demands of scalable, high-performance web applications by providing clean and fast compiled code, garbage collection, a simple concurrency model, and a fantastic standard library. It's perfect for writing microservices or building scalable, maintainable systems. About the Book Go Web Programming teaches you how to build web applications in Go using modern design principles. You'll learn how to implement the dependency injection design pattern for writing test doubles, use concurrency in web applications, and create and consume JSON and XML in web services. Along the way, you'll discover how to minimize your dependence on external frameworks, and you'll pick up valuable productivity techniques for testing and deploying your applications. What's Inside Basics Testing and benchmarking Using concurrency Deploying to standalone servers, PaaS, and Docker Dozens of tips, tricks, and techniques About the Reader This book assumes you're familiar with Go language basics and the general concepts of web development. About the Page 24/40

Author Sau Sheong Chang is Managing Director of Digital Technology at Singapore Power and an active contributor to the Ruby and Go communities. Table of Contents PART 1 GO AND WEB APPLICATIONS Go and web applications Go ChitChat PART 2 BASIC WEB APPLICATIONS Handling requests Processing requests Displaying content Storing data PART 3 BEING REAL Go web services Testing your application Leveraging Go concurrency Deploying Go

Learn to write servers and network clients using Rust's low-level socket classes with this guide Key Features Build a solid foundation in Rust while also mastering important network programming details Leverage the power of a number of available libraries to perform network operations in Rust Develop a fully functional web server to gain the skills you need, fast Book Description Rust is low-level enough to provide fine-grained control over memory while providing safety through compile-time validation. This makes it uniquely suitable for writing low-level networking applications. This book is divided into three main parts that will take you on an exciting journey of building a fully functional web server. The book starts with a solid introduction to Rust and essential networking concepts. This will lay a foundation for, and set the tone of, the entire book. In the second part, we will take an in-depth look at using Rust for networking software. From client-server networking using sockets to IPv4/v6, DNS, TCP, UDP, you will also learn about serializing and deserializing data using serde. The book shows how to communicate with REST servers over HTTP. The final part of the book discusses asynchronous network programming using the Tokio stack. Given the importance of  $\frac{Page}{25/40}$ 

security for modern systems, you will see how Rust supports common primitives such as TLS and public-key cryptography. After reading this book, you will be more than confident enough to use Rust to build effective networking software What you will learn Appreciate why networking is important in implementing distributed systems Write a non-asynchronous echo server over TCP that talks to a client over a network Parse JSON and binary data using parser combinators such as nom Write an HTTP client that talks to the server using request Modify an existing Rust HTTTP server and add SSL to it Master asynchronous programming support in Rust Use external packages in a Rust project Who this book is for This book is for software developers who want to write networking software with Rust. A basic familiarity with networking concepts is assumed. Beginner-level knowledge of Rust will help but is not necessary.

Take an in-depth tour of core Internet protocols and learn how they work together to move data packets from one network to another. With this concise book, you'll delve into the aspects of each protocol, including operation basics and security risks, and learn the function of network hardware such as switches and routers. Ideal for beginning network engineers, each chapter in this book includes a set of review questions, as well as practical, hands-on lab exercises. Understand basic network architecture, and how protocols and functions fit togetherLearn the structure and operation of the Eth.

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.

Go, commonly referred to as golang, is a programming language initially developed at Google in 2007. This book helps you to get started with Go programming. It describes all the elements of the language and illustrates their use with code examples. The following is highlight topics in this book: \* Development Environment \* Go Programming Language \* Arrays, Slices and Maps \* Functions \* Pointers \* Structs and Methods \* String Operations \* File Operations \* Error Handling and Logging \* Building Own Go Package \* Concurrency \* Encoding \* Hashing and Cryptography \* Database Programming \* Socket Programming

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. Network programming has always been a demanding task. With full-featured and well documented libraries all the way up the stack, Python makes network programming the enjoyable experience it should be. Starting with a walkthrough of today's major networking protocols, with this book you'll learn how to employ Python for network programming, how to request and retrieve web resources, and how to extract data in major formats over the Web. You'll utilize Python for e-mailing using different protocols and you'll interact with remote systems and IP and DNS networking. As the book progresses, socket programming will be covered, followed by how to design servers

and the pros and cons of multithreaded and event-driven architectures. You'll develop practical client-side applications, including web API clients, e-mail clients, SSH, and FTP. These applications will also be implemented through existing web application frameworks.

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 easyto-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 ByteBuf 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

An insightful guide to learning the Go programming language About This Book Insightful coverage of Go programming syntax, constructs, and idioms to help you understand Go code effectively Push your Go skills, with topics such as, data types, channels, concurrency, object-oriented Go, testing, and network programming Each chapter provides working code samples that are designed to help reader quickly understand respective topic Who This Book Is For If you have prior exposure to programming and are interested in learning the Go programming language, this book is designed for you. It will quickly run you through the basics of programming to let you exploit a number of features offered by Go programming language. What You Will Learn Install and configure the Go development environment to quickly get started with

your first program. Use the basic elements of the language including source code structure, variables, constants, and control flow primitives to quickly get started with Go Gain practical insight into the use of Go's type system including basic and composite types such as maps, slices, and structs. Use interface types and techniques such as embedding to create idiomatic object-oriented programs in Go. Develop effective functions that are encapsulated in well-organized package structures with support for error handling and panic recovery. Implement goroutine, channels, and other concurrency primitives to write highly-concurrent and safe Go code Write tested and benchmarked code using Go's built test tools Access OS resources by calling C libraries and interact with program environment at runtime In Detail The Go programming language has firmly established itself as a favorite for building complex and scalable system applications. Go offers a direct and practical approach to programming that let programmers write correct and predictable code using concurrency idioms and a full-featured standard library. This is a step-by-step, practical guide full of real world examples to help you get started with Go in no time at all. We start off by understanding the fundamentals of Go, followed by a detailed description of the Go data types, program structures and Maps. After this, you learn how to use Go concurrency idioms to avoid pitfalls and create programs that are exact in expected behavior. Next, you will be familiarized with the tools and libraries that are available in Go for writing and exercising tests, benchmarking, and code coverage. Finally, you will

be able to utilize some of the most important features of GO such as, Network Programming and OS integration to build efficient applications. All the concepts are explained in a crisp and concise manner and by the end of this book; you would be able to create highly efficient programs that you can deploy over cloud. Style and approach The book is written to serve as a reader-friendly step-by-step guide to learning the Go programming language. Each topic is sequentially introduced to build on previous materials covered. Every concept is introduced with easy-to-follow code examples that focus on maximizing the understanding of the topic at hand.

Dive into key topics in network architecture and Go, such as data serialization, application level protocols, character sets and encodings. This book covers network architecture and gives an overview of the Go language as a primer, covering the latest Go release. Beyond the fundamentals, Network Programming with Go covers key networking and security issues such as HTTP and HTTPS, templates, remote procedure call (RPC), web sockets including HTML5 web sockets, and more. Additionally, author Jan Newmarch guides you in building and connecting to a complete web server based on Go. This book can serve as both as an essential learning guide and reference on Go networking. What You Will Learn Master network programming with Go Carry out data serialization Use application-level protocols Manage character sets and encodings Deal with HTTP(S) Build a complete Go-based web server Work with RPC, web sockets, and more Who This Book Is For Experienced Go programmers

and other programmers with some experience with the Go language. 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.

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.

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 Page 35/40

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.

The free book "Fundamentals of Computer Programming with C#" is a comprehensive computer programming tutorial that teaches programming, logical thinking, data structures and algorithms, problem solving and high quality code with lots of examples in C#. It starts with the first steps in programming and software development like variables, data types, conditional statements, loops and arrays and continues with other basic topics like methods, numeral systems, strings and string processing, exceptions, classes and objects. After the basics this fundamental programming book enters into more advanced programming topics like recursion, data structures (lists, trees, hash-tables and graphs), highquality code, unit testing and refactoring, object-oriented principles (inheritance, abstraction, encapsulation and polymorphism) and their implementation the C# language. It also covers fundamental topics that each good developer should know like algorithm design, complexity of algorithms and problem solving. The

book uses C# language and Visual Studio to illustrate the programming concepts and explains some C# / .NET specific technologies like lambda expressions, extension methods and LINQ. The book is written by a team of developers lead by Svetlin Nakov who has 20+ years practical software development experience. It teaches the major programming concepts and way of thinking needed to become a good software engineer and the C# language in the meantime. It is a great start for anyone who wants to become a skillful software engineer. The books does not teach technologies like databases, mobile and web development, but shows the true way to master the basics of programming regardless of the languages, technologies and tools. It is good for beginners and intermediate developers who want to put a solid base for a successful career in the software engineering industry. The book is accompanied by free video lessons, presentation slides and mind maps, as well as hundreds of exercises and live examples. Download the free C# programming book, videos, presentations and other resources from http://introprogramming.info. Title: Fundamentals of Computer Programming with C# (The Bulgarian C# Programming Book) ISBN: 9789544007737 ISBN-13: 978-954-400-773-7 (9789544007737) ISBN-10: 954-400-773-3 (9544007733) Author: Svetlin Nakov & Co. Pages: 1132 Language: English Published: Sofia, 2013 Publisher: Faber Publishing, Bulgaria

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Master key features of Go, including advanced concepts like concurrency and working with JSON, to create and optimize real-world services, network servers, and clients Key Features Third edition of the bestselling guide to advanced Go programming, expanded to cover RESTful servers, the WebSocket protocol, and Go generics Use real-world exercises to build high-performance network servers and powerful command line utilities Packed with practical examples and utilities to apply to your own development work and administrative tasks Clearly explains Go nuances and features to simplify Go development Book Description Go is the language of the future for high-performance systems due to its simplicity and clear principles. Mastering Go shows you how to put Go to work on real production systems. This new edition has been updated to include topics like creating RESTful servers and clients, understanding Go generics, and developing gRPC servers and clients. Mastering Go, Third Edition explores the capabilities of Go in practice. You will become confident with advanced concepts, including concurrency and the operation of the Go Garbage Collector, using Go with Docker, writing powerful command-line utilities, working with JavaScript Object Notation (JSON) data, and interacting with databases. You will also improve your understanding of Go internals to optimize Go code and use data types and data structures in new and unexpected ways. This Go programming

book also covers the nuances and idioms of Go with exercises and resources to fully embed your newly acquired knowledge. Become an expert Go programmer by building Go systems and implementing advanced Go techniques in your projects. What you will learn Use Go in production Write reliable, high-performance concurrent code Manipulate data structures including slices, arrays, maps, and pointers Develop reusable packages with reflection and interfaces Become familiar with generics for effective Go programming Create concurrent RESTful servers, and build gRPC clients and servers Define Go structures for working with JSON data Who this book is for This book is for Go programmers with previous coding experience, who are familiar with the basics of the language and want to become expert Go practitioners.

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