

## Ikev2 Ipv6 Virtual Private Networks Pearsoncmg

A detailed guide for deploying PPTP, L2TPv2, L2TPv3, MPLS Layer-3, AToM, VPLS and IPsec virtual private networks.

In 1994, W. Richard Stevens and Addison-Wesley published a networking classic: TCP/IP Illustrated. The model for that book was a brilliant, unfettered approach to networking concepts that has proven itself over time to be popular with readers of beginning to intermediate networking knowledge. The Illustrated Network takes this time-honored approach and modernizes it by creating not only a much larger and more complicated network, but also by incorporating all the networking advancements that have taken place since the mid-1990s, which are many. This book takes the popular Stevens approach and modernizes it, employing 2008 equipment, operating systems, and router vendors. It presents an ?illustrated? explanation of how TCP/IP works with consistent examples from a real, working network configuration that includes servers, routers, and workstations. Diagnostic traces allow the reader to follow the discussion with unprecedented clarity and precision. True to the title of the book, there are 330+ diagrams and screen shots, as well as topology diagrams and a unique repeating chapter opening diagram. Illustrations are also used as end-of-chapter questions. A complete and modern network was assembled to write this book, with all the material coming from real objects connected and running on the network, not assumptions. Presents a real world networking scenario the way the reader sees them in a device-agnostic world. Doesn't preach one platform or the other. Here are ten key differences between the two: Stevens Goralski's Older operating systems (AIX,svr4,etc.) Newer OSs (XP, Linux, FreeBSD, etc.) Two routers (Cisco, Telebit (obsolete)) Two routers (M-series, J-series) Slow Ethernet and SLIP link Fast Ethernet, Gigabit Ethernet, and SONET/SDH links (modern) Tcpdump for traces Newer, better utility to capture traces (Ethereal, now has a new name!) No IPsec IPsec No multicast Multicast No router security discussed Firewall routers detailed No Web Full Web browser HTML consideration No IPv6 IPv6 overview Few configuration details More configuration details (ie, SSH, SSL, MPLS, ATM/FR consideration, wireless LANS, OSPF and BGP routing protocols New Modern Approach to Popular Topic Adopts the popular Stevens approach and modernizes it, giving the reader insights into the most up-to-date network equipment, operating systems, and router vendors. Shows and Tells Presents an illustrated explanation of how TCP/IP works with consistent examples from a real, working network configuration that includes servers, routers, and workstations, allowing the reader to follow the discussion with unprecedented clarity and precision. Over 330 Illustrations True to the title, there are 330 diagrams, screen shots, topology diagrams, and a unique repeating chapter opening diagram to reinforce concepts Based on Actual Networks A complete and modern network was assembled to write this book, with all the material coming from real objects connected and running on the network, bringing the real world, not theory, into sharp focus.

Document from the year 2018 in the subject Computer Science - IT-Security, grade: A, language: English, abstract: This book encompasses virtual private network technologies theoretical as well as practical. In this project, it demonstrates how to VPNs actually work and their practical implementation with different lab scenarios step by step. The objective of this book is to teach the students and professionals in an easy way. The reader does not learn the theoretical knowledge of VPNs, but he also learns the practical implementation of several types of VPN in his home and office. There are several types of VPN with different scenarios. After the study of this book, the reader will be familiar with almost all types of VPN and can perform with different scenarios in his office and home.

This book constitutes the refereed proceedings of the 6th IFIP WG 2.14 European Conference on Service-Oriented and Cloud Computing, ESOC 2017, held in Oslo, Norway, in September 2017. The 6 short and 10 full papers presented in this volume were carefully reviewed and selected from 37 submissions. The volume also contains one invited talk in full paper length. The contributions were organized in topical sections named: microservices and containers; security; cloud resources; services; internet of things and data streams; and industrial applications of service and cloud computing.

This is Cisco's official, comprehensive self-study resource for Cisco's SVPN 300-730 exam (Implementing Secure Solutions with Virtual Private Networks), one of the most popular concentration exams required for the Cisco Certified Network Professional (CCNP) Security certification. It will thoroughly prepare network professionals to deliver secure solutions based on Cisco VPN technologies. Designed for all CCNP Security candidates, CCNP Security Virtual Private Networks SVPN 300-730 Official Cert Guide covers every SVPN #300-730 objective concisely and logically, with extensive teaching features designed to promote retention and understanding. You'll find: Pre-chapter quizzes to assess knowledge upfront and focus your study more efficiently Foundation topics sections that explain concepts and configurations, and link theory to practice Key topics sections calling attention to every figure, table, and list you must know Exam Preparation sections with additional chapter review features Final preparation chapter providing tools and a complete final study plan A customizable practice test library CCNP Security Virtual Private Networks SVPN 300-730 Official Cert Guide offers comprehensive, up-to-date coverage of all SVPN #300-730 topics related to: Secure communications Architectures Troubleshooting

The definitive design and deployment guide for secure virtual private networks Learn about IPsec protocols and Cisco IOS IPsec packet processing Understand the differences between IPsec tunnel mode and transport mode Evaluate the IPsec features that improve VPN scalability and fault tolerance, such as dead peer detection and control plane keepalives Overcome the challenges of working with NAT and PMTUD Explore IPsec remote-access features, including extended authentication, mode-configuration, and digital certificates Examine the pros and cons of various IPsec connection models such as native IPsec, GRE, and remote access Apply fault tolerance methods to IPsec VPN designs Employ mechanisms to alleviate the configuration complexity of a large- scale IPsec VPN, including Tunnel End-Point Discovery (TED) and Dynamic Multipoint VPNs (DMVPN) Add services to IPsec VPNs, including voice and multicast Understand how network-based VPNs operate and how to integrate IPsec VPNs with MPLS VPNs Among the many functions that networking technologies permit is the ability for organizations to easily and securely communicate with branch offices, mobile users, telecommuters, and business partners. Such connectivity is now vital to maintaining a competitive level of business productivity. Although several technologies exist that can enable interconnectivity among business sites, Internet-based virtual private networks (VPNs) have evolved as the most effective means to link corporate network resources to remote employees, offices, and mobile workers. VPNs provide productivity enhancements, efficient and convenient remote access to network resources, site-to-site connectivity, a high level of security, and tremendous cost savings. IPsec VPN Design is the first book to present a detailed examination of the design aspects of IPsec protocols that enable secure VPN communication. Divided into three parts, the book provides a solid understanding of design and architectural issues of large-



volume also outlines problems and opportunities in computer security research, recommends ways to improve the research infrastructure, and suggests topics for investigators. The book explores the diversity of the field, the need to engineer countermeasures based on speculation of what experts think computer attackers may do next, why the technology community has failed to respond to the need for enhanced security systems, how innovators could be encouraged to bring more options to the marketplace, and balancing the importance of security against the right of privacy.

Cisco® ASA All-in-One Next-Generation Firewall, IPS, and VPN Services, Third Edition Identify, mitigate, and respond to today's highly-sophisticated network attacks. Today, network attackers are far more sophisticated, relentless, and dangerous. In response, Cisco ASA: All-in-One Next-Generation Firewall, IPS, and VPN Services has been fully updated to cover the newest techniques and Cisco technologies for maximizing end-to-end security in your environment. Three leading Cisco security experts guide you through every step of creating a complete security plan with Cisco ASA, and then deploying, configuring, operating, and troubleshooting your solution. Fully updated for today's newest ASA releases, this edition adds new coverage of ASA 5500-X, ASA 5585-X, ASA Services Module, ASA next-generation firewall services, EtherChannel, Global ACLs, clustering, IPv6 improvements, IKEv2, AnyConnect Secure Mobility VPN clients, and more. The authors explain significant recent licensing changes; introduce enhancements to ASA IPS; and walk you through configuring IPsec, SSL VPN, and NAT/PAT. You'll learn how to apply Cisco ASA adaptive identification and mitigation services to systematically strengthen security in network environments of all sizes and types. The authors present up-to-date sample configurations, proven design scenarios, and actual debugs- all designed to help you make the most of Cisco ASA in your rapidly evolving network. Jazib Frahim, CCIE® No. 5459 (Routing and Switching; Security), Principal Engineer in the Global Security Solutions team, guides top-tier Cisco customers in security-focused network design and implementation. He architects, develops, and launches new security services concepts. His books include Cisco SSL VPN Solutions and Cisco Network Admission Control, Volume II: NAC Deployment and Troubleshooting. Omar Santos, CISSP No. 463598, Cisco Product Security Incident Response Team (PSIRT) technical leader, leads and mentors engineers and incident managers in investigating and resolving vulnerabilities in Cisco products and protecting Cisco customers. Through 18 years in IT and cybersecurity, he has designed, implemented, and supported numerous secure networks for Fortune® 500 companies and the U.S. government. He is also the author of several other books and numerous whitepapers and articles. Andrew Ossipov, CCIE® No. 18483 and CISSP No. 344324, is a Cisco Technical Marketing Engineer focused on firewalls, intrusion prevention, and data center security. Drawing on more than 16 years in networking, he works to solve complex customer technical problems, architect new features and products, and define future directions for Cisco's product portfolio. He holds several pending patents. Understand, install, configure, license, maintain, and troubleshoot the newest ASA devices Efficiently implement Authentication, Authorization, and Accounting (AAA) services Control and provision network access with packet filtering, context-aware Cisco ASA next-generation firewall services, and new NAT/PAT concepts Configure IP routing, application inspection, and QoS Create firewall contexts with unique configurations, interfaces, policies, routing tables, and administration Enable integrated protection against many types of malware and advanced persistent threats (APTs) via Cisco Cloud Web Security and Cisco Security Intelligence Operations (SIO) Implement high availability with failover and elastic scalability with clustering Deploy, troubleshoot, monitor, tune, and manage Intrusion Prevention System (IPS) features Implement site-to-site IPsec VPNs and all forms of remote-access VPNs (IPsec, clientless SSL, and client-based SSL) Configure and troubleshoot Public Key Infrastructure (PKI) Use IKEv2 to more effectively resist attacks against VPNs Leverage IPv6 support for IPS, packet inspection, transparent firewalls, and site-to-site IPsec VPNs

Virtual private networks (VPNs) based on the Internet instead of the traditional leased lines offer organizations of all sizes the promise of a low-cost, secure electronic network. However, using the Internet to carry sensitive information can present serious privacy and security problems. By explaining how VPNs actually work, networking expert Jon Snader shows software engineers and network administrators how to use tunneling, authentication, and encryption to create safe, effective VPNs for any environment. Using an example-driven approach, VPNs Illustrated explores how tunnels and VPNs function by observing their behavior "on the wire." By learning to read and interpret various network traces, such as those produced by tcpdump, readers will be able to better understand and troubleshoot VPN and network behavior. Specific topics covered include: Block and stream symmetric ciphers, such as AES and RC4; and asymmetric ciphers, such as RSA and ElGamal Message authentication codes, including HMACs Tunneling technologies based on gtnet SSL protocol for building network-to-network VPNs SSH protocols as drop-in replacements for telnet, ftp, and the BSD r-commands Lightweight VPNs, including VTun, CIPE, tinc, and OpenVPN IPsec, including its Authentication Header (AH) protocol, Encapsulating Security Payload (ESP), and IKE (the key management protocol) Packed with details, the text can be used as a handbook describing the functions of the protocols and the message formats that they use. Source code is available for download, and an appendix covers publicly available software that can be used to build tunnels and analyze traffic flow. VPNs Illustrated gives you the knowledge of tunneling and VPN technology you need to understand existing VPN implementations and successfully create your own.

This complete field guide, authorized by Juniper Networks, is the perfect hands-on reference for deploying, configuring, and operating Juniper's SRX Series networking device. Authors Brad Woodberg and Rob Cameron provide field-tested best practices for getting the most out of SRX deployments, based on their extensive field experience. While their earlier book, Junos Security, covered the SRX platform, this book focuses on the SRX Series devices themselves. You'll learn how to use SRX gateways to address an array of network requirements—including IP routing, intrusion detection, attack mitigation, unified threat management, and WAN acceleration. Along with case studies and troubleshooting tips, each chapter provides study questions and lots of useful illustrations. Explore SRX components, platforms, and various deployment scenarios Learn best practices for configuring SRX's core networking features Leverage SRX system services to attain the best operational state Deploy SRX in transparent mode to act as a Layer 2 bridge Configure, troubleshoot, and deploy SRX in a highly available manner Design and configure an effective security policy in your network Implement and configure network address translation (NAT) types Provide security against deep threats with AppSecure, intrusion protection services, and unified threat management tools

The only complete guide to designing, implementing, and supporting state-of-the-art certificate-based identity solutions with PKI Layered approach is designed to help readers with widely diverse backgrounds quickly learn what they need to know Covers the entire PKI project lifecycle, making complex PKI architectures simple to understand and deploy Brings together theory and practice, including on-the-ground implementers' knowledge, insights, best practices, design choices, and troubleshooting details PKI Uncovered brings together all the techniques IT and security professionals need to apply PKI in any environment, no matter

how complex or sophisticated. At the same time, it will help them gain a deep understanding of the foundations of certificate-based identity management. Its layered and modular approach helps readers quickly get the information they need to efficiently plan, design, deploy, manage, or troubleshoot any PKI environment. The authors begin by presenting the foundations of PKI, giving readers the theoretical background they need to understand its mechanisms. Next, they move to high-level design considerations, guiding readers in making the choices most suitable for their own environments. The authors share best practices and experiences drawn from production customer deployments of all types. They organize a series of design "modules" into hierarchical models which are then applied to comprehensive solutions. Readers will be introduced to the use of PKI in multiple environments, including Cisco router-based DMVPN, ASA, and 802.1X. The authors also cover recent innovations such as Cisco GET VPN. Throughout, troubleshooting sections help ensure smooth deployments and give readers an even deeper "under-the-hood" understanding of their implementations.

Network threats are emerging and changing faster than ever before. Cisco Next-Generation Network Security technologies give you all the visibility and control you need to anticipate and meet tomorrow's threats, wherever they appear. Now, three Cisco network security experts introduce these products and solutions, and offer expert guidance for planning, deploying, and operating them. The authors present authoritative coverage of Cisco ASA with FirePOWER Services; Cisco Firepower Threat Defense (FTD); Cisco Next-Generation IPS appliances; the Cisco Web Security Appliance (WSA) with integrated Advanced Malware Protection (AMP); Cisco Email Security Appliance (ESA) with integrated Advanced Malware Protection (AMP); Cisco AMP ThreatGrid Malware Analysis and Threat Intelligence, and the Cisco Firepower Management Center (FMC). You'll find everything you need to succeed: easy-to-follow configurations, application case studies, practical triage and troubleshooting methodologies, and much more. Effectively respond to changing threat landscapes and attack continuums

Design Cisco ASA with FirePOWER Services and Cisco Firepower Threat Defense (FTD) solutions Set up, configure, and troubleshoot the Cisco ASA FirePOWER Services module and Cisco Firepower Threat Defense Walk through installing AMP Private Clouds Deploy Cisco AMP for Networks, and configure malware and file policies Implement AMP for Content Security, and configure File Reputation and File Analysis Services Master Cisco AMP for Endpoints, including custom detection, application control, and policy management Make the most of the AMP ThreatGrid dynamic malware analysis engine Manage Next-Generation Security Devices with the Firepower Management Center (FMC) Plan, implement, and configure Cisco Next-Generation IPS—including performance and redundancy Create Cisco Next-Generation IPS custom reports and analyses Quickly identify the root causes of security problems

Fully updated: The complete guide to Cisco Identity Services Engine solutions Using Cisco Secure Access Architecture and Cisco Identity Services Engine, you can secure and gain control of access to your networks in a Bring Your Own Device (BYOD) world. This second edition of Cisco ISE for BYOD and Secure Unified Access contains more than eight brand-new chapters as well as extensively updated coverage of all the previous topics in the first edition book to reflect the latest technologies, features, and best practices of the ISE solution. It begins by reviewing today's business case for identity solutions. Next, you walk through ISE foundational topics and ISE design. Then you explore how to build an access security policy using the building blocks of ISE. Next are the in-depth and advanced ISE configuration sections, followed by the troubleshooting and monitoring chapters. Finally, we go in depth on the new TACACS+ device administration solution that is new to ISE and to this second edition. With this book, you will gain an understanding of ISE configuration, such as identifying users, devices, and security posture; learn about Cisco Secure Access solutions; and master advanced techniques for securing access to networks, from dynamic segmentation to guest access and everything in between. Drawing on their cutting-edge experience supporting Cisco enterprise customers, the authors offer in-depth coverage of the complete lifecycle for all relevant ISE solutions, making this book a cornerstone resource whether you're an architect, engineer, operator, or IT manager.

- Review evolving security challenges associated with borderless networks, ubiquitous mobility, and consumerized IT
- Understand Cisco Secure Access, the Identity Services Engine (ISE), and the building blocks of complete solutions
- Design an ISE-enabled network, plan/distribute ISE functions, and prepare for rollout
- Build context-aware security policies for network access, devices, accounting, and audit
- Configure device profiles, visibility, endpoint posture assessments, and guest services
- Implement secure guest lifecycle management, from WebAuth to sponsored guest access
- Configure ISE, network access devices, and supplicants, step by step
- Apply best practices to avoid the pitfalls of BYOD secure access
- Set up efficient distributed ISE deployments
- Provide remote access VPNs with ASA and Cisco ISE
- Simplify administration with self-service onboarding and registration
- Deploy security group access with Cisco TrustSec
- Prepare for high availability and disaster scenarios
- Implement passive identities via ISE-PIC and EZ Connect
- Implement TACACS+ using ISE
- Monitor, maintain, and troubleshoot ISE and your entire Secure Access system
- Administer device AAA with Cisco IOS, WLC, and Nexus

An introduction to designing and configuring Cisco IPsec VPNs Understand the basics of the IPsec protocol and learn implementation best practices Study up-to-date IPsec design, incorporating current Cisco innovations in the security and VPN marketplace Learn how to avoid common pitfalls related to IPsec deployment Reinforce theory with case studies, configuration examples showing how IPsec maps to real-world solutions IPsec Virtual Private Network Fundamentals provides a basic working knowledge of IPsec on various Cisco routing and switching platforms. It provides the foundation necessary to understand the different components of Cisco IPsec implementation and how it can be successfully implemented in a variety of network topologies and markets (service provider, enterprise, financial, government). This book views IPsec as an emerging requirement in most major vertical markets, explaining the need for increased information authentication, confidentiality, and non-repudiation for secure transmission of confidential data. The book is written using a layered approach, starting with basic explanations of why IPsec was developed and the types of organizations relying on IPsec to secure data transmissions. It then outlines the basic IPsec/ISAKMP fundamentals that were developed to meet demand for secure data transmission. The book covers the design and implementation of IPsec VPN architectures using an array of Cisco products, starting with basic concepts and proceeding to more advanced topics including high availability solutions and public key infrastructure (PKI). Sample topology diagrams and configuration examples are provided in each chapter to reinforce the fundamentals expressed in text and to assist readers in translating concepts into practical deployment scenarios. Additionally, comprehensive case studies are incorporated throughout to map topics to real-world solutions.

The only comprehensive assessment, review, and practice guide for Cisco's new Deploying Cisco ASA VPN Solutions exam - direct from Cisco! \* Covers every updated Cisco CCNP Deploying Cisco ASA VPN Solutions exam topic: architecture, policies, inheritance, clientless VPNs/portals/SSL, AnyConnect Remote Access VPNs, Cisco Secure Desktop, Easy VPN, IPsec site-to-site VPNs, and more \* New IPv6 coverage, plus new CLI examples throughout. \* CD contains realistic practice tests. \* Proven features promote efficient study. This is Cisco's official, comprehensive self-study resource for the new Deploying Cisco ASA VPN Solutions (VPN v1.0) exam, required for CCNP Security certification. Designed for beginning-to-intermediate level readers, it covers every objective concisely and logically, with extensive teaching

features that promote retention and understanding. Readers will find: \* \*Pre-chapter quizzes to assess knowledge upfront and focus study more efficiently. \*Foundation topics sections that explain concepts and configurations, and link theory to actual configuration commands. \*Key topics sections calling attention to every figure, table, and list that candidates must know. \*Exam Preparation sections with additional chapter review features. \*Final preparation chapter providing tools and a complete final study plan. \*Customizable practice test library on CD-ROM This edition has been fully updated for the latest exam objectives, including new IPv6 coverage and integrated CLI configuration examples alongside ASDM configurations throughout.

Covers the most important and common configuration scenarios and features which will put you on track to start implementing ASA firewalls right away.

The complete guide to technologies and protocols for delivering seamless mobile Internet experiences In Building the Mobile Internet, three leading mobility architects and implementers from Cisco present complete foundational knowledge about tomorrow's mobile Internet. The authors cover everything from market trends and user expectations to the latest technical approaches for making the Internet "mobile by design." Writing for senior technology decision-makers and network design professionals, the authors explain the relatively static nature of the Internet's original protocols and design, discuss the concept of "mobility," and identify evolving mobility requirements. Next, they thoroughly explain each of today's most promising techniques for building mobility into the Internet, from data link layer to application layer. For each layer, the authors cover mechanisms, protocols, relevant Wi-Fi and cellular architectures, and key use cases. Using this book's guidance, mobile network executives can define more effective strategies, network designers can construct more effective architectures, and network engineers can execute more successful migrations. · Understanding key mobility market trends: device proliferation, accelerating consumption, and radio-specific scalability problems · Reviewing the challenges that mobility presents to conventional Internet architectures · Understanding nomadicity, including authentication for users moving across networks and operators · Identifying opportunities to address mobility at the data link layer · Comparing and using network layer solutions to deliver seamless mobility and session continuity · Integrating mobility functionality into the transport/session layer · Adding mobility functionality to the application layer—including support for moving media sessions between devices · Redesigning Internet architecture to enable long-term improvements to mobility This book is part of the Networking Technology Series from Cisco Press®, which offers networking professionals valuable information for constructing efficient networks, understanding new technologies, and building successful careers.

Simple packet filters are becoming a thing of the past. Even the open-source domain is moving towards Next-Generation Firewalls. And OPNsense is a top player when it comes to intrusion detection, application control, web filtering, and anti-virus. No network is too insignificant to be spared by an attacker. Even home networks, washing machines, and smartwatches are threatened and require a secure environment. Firewalls are a component of the security concept. They protect against known and new threats to computers and networks. A firewall offers the highest level of protection if its functions are known, its operation is simple, and it is ideally positioned in the surrounding infrastructure. OPNsense accepts the challenge and meets these criteria in different ways. This book is the ideal companion for understanding, installing and setting up an OPNsense firewall. Each chapter explains a real-world situation, describes the theoretical fundamentals, and presents a laboratory experiment for better understanding. Finally, it offers a solution using OPNsense methods and knowledge from a technical background. The chapters are mostly independent of each other, but presented with increasing levels of proficiency. Thus, the topics dealt with are appropriate for beginners to professionals.

The definitive insider's guide to planning, installing, configuring, and maintaining the new Cisco Adaptive Security Appliance.

This publication seeks to assist organizations in mitigating the risks associated with the transmission of sensitive information across networks by providing practical guidance on implementing security services based on Internet Protocol Security (IPsec).

The essential reference for security pros and CCIE Security candidates: identity, context sharing, encryption, secure connectivity and virtualization Integrated Security Technologies and Solutions – Volume II brings together more expert-level instruction in security design, deployment, integration, and support. It will help experienced security and network professionals manage complex solutions, succeed in their day-to-day jobs, and prepare for their CCIE Security written and lab exams. Volume II focuses on the Cisco Identity Services Engine, Context Sharing, TrustSec, Application Programming Interfaces (APIs), Secure Connectivity with VPNs, and the virtualization and automation sections of the CCIE v5 blueprint. Like Volume I, its strong focus on interproduct integration will help you combine formerly disparate systems into seamless, coherent, next-generation security solutions. Part of the Cisco CCIE Professional Development Series from Cisco Press, it is authored by a team of CCIEs who are world-class experts in their Cisco security disciplines, including co-creators of the CCIE Security v5 blueprint. Each chapter starts with relevant theory, presents configuration examples and applications, and concludes with practical troubleshooting. Review the essentials of Authentication, Authorization, and Accounting (AAA) Explore the RADIUS and TACACS+ AAA protocols, and administer devices with them Enforce basic network access control with the Cisco Identity Services Engine (ISE) Implement sophisticated ISE profiling, EzConnect, and Passive Identity features Extend network access with BYOD support, MDM integration, Posture Validation, and Guest Services Safely share context with ISE, and implement pxGrid and Rapid Threat Containment Integrate ISE with Cisco FMC, WSA, and other devices Leverage Cisco Security APIs to increase control and flexibility Review Virtual Private Network (VPN) concepts and types Understand and deploy Infrastructure VPNs and Remote Access VPNs Virtualize leading Cisco Security products Make the most of Virtual Security Gateway (VSG), Network Function Virtualization (NFV), and microsegmentation

"Within the set of many identifier-locator separation designs for the Internet, HIP has progressed further than anything else we have so far. It is time to see what HIP can do in larger scale in the real world. In order to make that happen, the world needs a HIP book, and now we have it." - Jari Arkko, Internet Area Director, IETF One of the challenges facing the current Internet architecture is the incorporation of mobile and multi-homed terminals (hosts), and an overall lack of protection against Denial-of-Service attacks and identity spoofing. The Host Identity Protocol (HIP) is being developed by the Internet Engineering Task Force (IETF) as an integrated solution to these problems. The book presents a well-structured, readable and compact overview of the core protocol with relevant extensions to the Internet architecture and infrastructure. The covered topics include the Bound End-to-End Tunnel Mode for IPsec, Overlay Routable Cryptographic Hash Identifiers, extensions to the Domain Name System, IPv4 and IPv6 interoperability, integration with SIP, and support for legacy applications. Unique features of the book: All-in-one source for HIP specifications Complete coverage of HIP architecture and protocols Base exchange, mobility and multihoming extensions Practical snapshots of protocol operation IP security on lightweight devices Traversal of middleboxes, such as NATs and firewalls Name resolution infrastructure Micromobility, multicast, privacy extensions Chapter on applications, including HIP pilot deployment in a Boeing factory HOWTO for HIP on Linux (HIPL) implementation An important compliment to the official IETF specifications, this book will be a valuable reference for practicing engineers in equipment manufacturing companies and telecom operators, as well as network managers, network engineers, network operators and telecom engineers. Advanced students and academics, IT managers, professionals and operating system specialists will also find this book of interest.

The authoritative visual guide to Cisco Firepower Threat Defense (FTD) This is the definitive guide to best practices and advanced troubleshooting techniques for the Cisco flagship Firepower Threat Defense (FTD) system running on Cisco ASA platforms, Cisco Firepower security appliances, Firepower eXtensible Operating System (FXOS), and VMware virtual appliances. Senior Cisco

engineer Nazmul Rajib draws on unsurpassed experience supporting and training Cisco Firepower engineers worldwide, and presenting detailed knowledge of Cisco Firepower deployment, tuning, and troubleshooting. Writing for cybersecurity consultants, service providers, channel partners, and enterprise or government security professionals, he shows how to deploy the Cisco Firepower next-generation security technologies to protect your network from potential cyber threats, and how to use Firepower's robust command-line tools to investigate a wide variety of technical issues. Each consistently organized chapter contains definitions of keywords, operational flowcharts, architectural diagrams, best practices, configuration steps (with detailed screenshots), verification tools, troubleshooting techniques, and FAQs drawn directly from issues raised by Cisco customers at the Global Technical Assistance Center (TAC). Covering key Firepower materials on the CCNA Security, CCNP Security, and CCIE Security exams, this guide also includes end-of-chapter quizzes to help candidates prepare.

- Understand the operational architecture of the Cisco Firepower NGFW, NGIPS, and AMP technologies
- Deploy FTD on ASA platform and Firepower appliance running FXOS
- Configure and troubleshoot Firepower Management Center (FMC)
- Plan and deploy FMC and FTD on VMware virtual appliance
- Design and implement the Firepower management network on FMC and FTD
- Understand and apply Firepower licenses, and register FTD with FMC
- Deploy FTD in Routed, Transparent, Inline, Inline Tap, and Passive Modes
- Manage traffic flow with detect-only, block, trust, and bypass operations
- Implement rate limiting and analyze quality of service (QoS)
- Blacklist suspicious IP addresses via Security Intelligence
- Block DNS queries to the malicious domains
- Filter URLs based on category, risk, and reputation
- Discover a network and implement application visibility and control (AVC)
- Control file transfers and block malicious files using advanced malware protection (AMP)
- Halt cyber attacks using Snort-based intrusion rule
- Masquerade an internal host's original IP address using Network Address Translation (NAT)
- Capture traffic and obtain troubleshooting files for advanced analysis
- Use command-line tools to identify status, trace packet flows, analyze logs, and debug messages

A complete guide to understanding, designing, and deploying Layer 2 VPN technologies and pseudowire emulation applications

Evaluate market drivers for Layer 2 VPNs

Understand the architectural framework and choices for Layer 2 VPNs, including AToM and L2TPv3

Grasp the essentials of Layer 2 LAN and WAN technologies

Examine the theoretical and operational details of MPLS and LDP as they pertain to AToM

Understand the theoretical and operational details of Layer 2 protocols over L2TPv3 in IP networks

Learn about Layer 2 VPN bridged and routed interworking and Layer 2 local switching

Understand the operation and application of Virtual Private LAN Services (VPLS)

Learn about foundation and advanced AToM and L2TPv3 topics through an extensive collection of case studies

The historical disconnect between legacy Layer 2 and Layer 3 VPN solutions has forced service providers to build, operate, and maintain separate infrastructures to accommodate various VPN access technologies. This costly proposition, however, is no longer necessary. As part of its new Unified VPN Suite, Cisco Systems® now offers next-generation Layer 2 VPN services like Layer 2 Tunneling Protocol version 3 (L2TPv3) and Any Transport over MPLS (AToM) that enable service providers to offer Frame Relay, ATM, Ethernet, and leased-line services over a common IP/MPLS core network. By unifying multiple network layers and providing an integrated set of software services and management tools over this infrastructure, the Cisco® Layer 2 VPN solution enables established carriers, IP-oriented ISP/CLECs, and large enterprise customers (LECs) to reach a broader set of potential VPN customers and offer truly global VPNs.

Layer 2 VPN Architectures is a comprehensive guide to consolidating network infrastructures and extending VPN services. The book opens by discussing Layer 2 VPN applications utilizing both AToM and L2TPv3 protocols and comparing Layer 3 versus Layer 2 provider-provisioned VPNs. In addition to describing the concepts related to Layer 2 VPNs, this book provides an extensive collection of case studies that show you how these technologies and architectures work. The case studies include both AToM and L2TPv3 and reveal real-world service provider and enterprise design problems and solutions with hands-on configuration examples and implementation details. The case studies include all Layer 2 technologies transported using AToM and L2TPv3 pseudowires, including Ethernet, Ethernet VLAN, HDLC, PPP, Frame Relay, ATM AAL5 and ATM cells, and advanced topics relevant to Layer 2 VPN deployment, such as QoS and scalability.

& Learn the troubleshooting techniques that every IT professional running a Virtual Private Network (VPN) must master & & Experience real-world solutions through practice scenarios in each chapter & & An essential workplace reference guide for every VPN management site

The InfoSec Handbook offers the reader an organized layout of information that is easily read and understood. Allowing beginners to enter the field and understand the key concepts and ideas, while still keeping the experienced readers updated on topics and concepts. It is intended mainly for beginners to the field of information security, written in a way that makes it easy for them to understand the detailed content of the book. The book offers a practical and simple view of the security practices while still offering somewhat technical and detailed information relating to security. It helps the reader build a strong foundation of information, allowing them to move forward from the book with a larger knowledge base. Security is a constantly growing concern that everyone must deal with. Whether it's an average computer user or a highly skilled computer user, they are always confronted with different security risks. These risks range in danger and should always be dealt with accordingly. Unfortunately, not everyone is aware of the dangers or how to prevent them and this is where most of the issues arise in information technology (IT). When computer users do not take security into account many issues can arise from that like system compromises or loss of data and information. This is an obvious issue that is present with all computer users. This book is intended to educate the average and experienced user of what kinds of different security practices and standards exist. It will also cover how to manage security software and updates in order to be as protected as possible from all of the threats that they face.

What is IPsec? What's a VPN? Why do they need each other? Virtual Private Network (VPN) has become one of the most recognized terms in our industry, yet there continuously seems to be different impressions of what VPNs really are and can become. A Technical Guide to IPsec Virtual Private Networks provides a single point of information that represents hundreds or resources and years of experience with IPsec VPN solutions. It cuts through the complexity surrounding IPsec and the idiosyncrasies of design, implementation, operations, and security. Starting with a primer on the IP protocol suite, the book travels layer by layer through the protocols and the technologies that make VPNs possible. It includes security theory, cryptography, RAS, authentication, IKE, IPsec, encapsulation, keys, and policies. After explaining the technologies and their interrelationships, the book provides sections on implementation and product evaluation. A Technical Guide to IPsec Virtual Private Networks arms information security, network, and system engineers and administrators with the knowledge and the methodologies to design and deploy VPNs in the real world for real companies.

Email Security with Cisco IronPort thoroughly illuminates the security and performance challenges associated with today's messaging environments and shows you how to systematically anticipate and respond to them using Cisco's IronPort Email Security Appliance (ESA). Going far beyond any IronPort user guide, leading Cisco expert Chris Porter shows you how to use IronPort to construct a robust, secure, high-performance email architecture that can resist future attacks. Email Security with Cisco IronPort presents specific, proven architecture recommendations for deploying IronPort ESAs in diverse environments to optimize reliability and automatically handle failure. The author offers specific recipes for solving a wide range of messaging security problems, and he demonstrates how to use both basic and advanced features—including several hidden and undocumented commands. The author addresses issues ranging from directory integration to performance monitoring and optimization, and he offers powerful insights into often-ignored email security issues, such as preventing "bounce blowback." Throughout, he illustrates his solutions with detailed examples demonstrating how to control ESA configuration through each available interface. Chris Porter, Technical Solutions Architect at Cisco, focuses on the technical aspects of Cisco IronPort customer engagements. He has more than 12 years of experience in applications, computing, and security in finance, government, Fortune® 1000, entertainment, and higher education markets.

- Understand how the Cisco IronPort ESA addresses the key challenges of email security
- Select the best network deployment model for your environment, and walk through successful installation and configuration
- Configure and optimize Cisco IronPort ESA's powerful security, message, and content filtering
- Understand the email pipeline so you can take full advantage of it—and troubleshoot problems if they occur
- Efficiently control Cisco IronPort ESA through its Web User Interface (WUI) and command-line interface (CLI)
- Implement reporting, monitoring, logging, and file management
- Integrate Cisco IronPort ESA and your mail policies with LDAP directories such as Microsoft Active Directory
- Automate and simplify email security administration
- Deploy multiple Cisco IronPort ESAs and advanced network configurations
- Prepare for emerging shifts in enterprise email usage and new security challenges

This security book is part of the Cisco Press® Networking Technology Series. Security titles from Cisco Press help networking professionals secure critical data and resources, prevent and mitigate network attacks, and build end-to-end self-defending networks.

With the recent availability of high-speed Internet connections to the home and the continued move of workers out of central office locations (whether for travel, telecommuting, or branch office expansion), Virtual Private Networks (VPNs) have become a critical part of corporate network architectures. VPNs use advanced encryption and tunneling to permit your organization to establish secure, end-to-end, private network connections over third-party networks, such as the Internet. This new networking paradigm not only adds to the efficiency of the corporate workforce, but it also saves money by leveraging third-party networks and allows you to scale your networks with greater ease. Based on the official instructor-led training course of the same name, Cisco Secure Virtual Private Networks is a comprehensive, results-oriented book designed to give you the knowledge you need to plan, deploy, and manage VPNs in your network environment. Beginning with an overview of VPNs and IPsec, the book introduces you to the Cisco VPN family of products. It then delves into the details of configuring and troubleshooting IPsec site-to-site VPNs on Cisco IOS(r) routers and Cisco PIX(r) Firewalls using preshared keys and digital certificates. You learn how to install the VPN 3000 Concentrator and how to configure it for remote access using preshared keys and digital certificates. Monitoring and administration techniques are also presented. The book concludes with a discussion on the scalability solutions available for IPsec VPNs. Each chapter includes an explicit set of learning objectives and concludes with a set of review questions to assess your understanding of the material. Numerous examples are provided throughout, and detailed diagrams help clarify concepts presented in the text. Whether you are preparing for the Cisco Security Specialist 1 certification or simply want to understand and make the most efficient use of VPNs, Cisco Secure Virtual Private Networks provides you with a complete solution for designing, implementing, and managing Cisco VPN networks. Prepare for the Cisco Security Specialist 1 VPN exam with the official CSVPN Coursebook

- Evaluate the features, functions, and benefits of Cisco VPN products
- Understand the component technologies that are implemented in Cisco VPN products
- Learn the procedures, steps, and commands required to configure and test IPsec in Cisco IOS Software and the Cisco PIX Firewall
- Install and configure the Cisco VPN client to create a secure tunnel to a Cisco VPN Concentrator and Cisco PIX Firewall
- Configure and verify IPsec in the Cisco VPN Concentrator, Cisco router, and Cisco PIX Firewall
- Enable interoperability among the Cisco VPN Concentrator, Cisco routers, and Cisco PIX Firewalls
- Apply scalability and advanced configuration features supported in the Cisco IPsec implementation

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The essential reference for security pros and CCIE Security candidates: policies, standards, infrastructure/perimeter and content security, and threat protection Integrated Security Technologies and Solutions – Volume I offers one-stop expert-level instruction in security design, deployment, integration, and support methodologies to help security professionals manage complex solutions and prepare for their CCIE exams. It will help security pros succeed in their day-to-day jobs and also get ready for their CCIE Security written and lab exams. Part of the Cisco CCIE Professional Development Series from Cisco Press, it is authored by a team of CCIEs who are world-class experts in their Cisco security disciplines, including co-creators of the CCIE Security v5 blueprint. Each chapter starts with relevant theory, presents configuration examples and applications, and concludes with practical troubleshooting. Volume 1 focuses on security policies and standards; infrastructure security; perimeter security (Next-Generation Firewall, Next-Generation Intrusion Prevention Systems, and Adaptive Security Appliance [ASA]), and the advanced threat protection and content security sections of the CCIE Security v5 blueprint. With a strong focus on interproduct integration, it also shows how to combine formerly disparate systems into a seamless, coherent next-generation security solution. Review security standards, create security policies, and organize security with Cisco SAFE architecture

- Understand and mitigate threats to network infrastructure, and protect the three planes of a network device
- Safeguard wireless networks, and mitigate risk on Cisco WLC and access points
- Secure the network perimeter with Cisco Adaptive Security Appliance (ASA)
- Configure Cisco Next-Generation Firewall Firepower Threat Defense (FTD) and operate security via Firepower Management Center (FMC)
- Detect and prevent intrusions with Cisco Next-Gen IPS, FTD, and FMC
- Configure and verify Cisco IOS firewall

features such as ZBFW and address translation Deploy and configure the Cisco web and email security appliances to protect content and defend against advanced threats Implement Cisco Umbrella Secure Internet Gateway in the cloud as your first line of defense against internet threats Protect against new malware with Cisco Advanced Malware Protection and Cisco ThreatGrid

A detailed examination of interior routing protocols -- completely updated in a new edition A complete revision of the best-selling first edition--widely considered a premier text on TCP/IP routing protocols A core textbook for CCIE preparation and a practical reference for network designers, administrators, and engineers Includes configuration and troubleshooting lessons that would cost thousands to learn in a classroom and numerous real-world examples and case studies Praised in its first edition for its approachable style and wealth of information, this new edition provides readers a deep understanding of IP routing protocols, teaches how to implement these protocols using Cisco routers, and brings readers up to date protocol and implementation enhancements. Routing TCP/IP, Volume 1, Second Edition, includes protocol changes and Cisco features that enhance routing integrity, secure routers from attacks initiated through routing protocols, and provide greater control over the propagation of routing information for all the IP interior routing protocols. Routing TCP/IP, Volume 1, Second Edition, provides a detailed analysis of each of the IP interior gateway protocols (IGPs). Its structure remains the same as the best-selling first edition, though information within each section is enhanced and modified to include the new developments in routing protocols and Cisco implementations. What's New In This Edition? The first edition covers routing protocols as they existed in 1998. The new book updates all covered routing protocols and discusses new features integrated in the latest version of Cisco IOS Software. IPv6, its use with interior routing protocols, and its interoperability and integration with IPv4 are also integrated into this book. Approximately 200 pages of new information are added to the main text, with some old text removed. Additional exercise and solutions are also included. Implement and support Windows 10 Always On VPN, the successor to Microsoft's popular DirectAccess. This book teaches you everything you need to know to test and adopt the technology at your organization that is widely deployed around the world. The book starts with an introduction to Always On VPN and discusses fundamental concepts along with use cases to compare and contrast it with DirectAccess. You will learn the prerequisites required for implementation and deployment scenarios. The book presents the details of VPN protocols, client IP address assignment, and firewall requirements. Also covered is how to configure Windows Server Routing and Remote Access Service (RRAS) along with performance optimizations. You will go through provisioning Always On VPN to Windows 10 clients. The Configuration Service Provider (CSP) mode is discussed and you will learn to create a configuration XML file and provision it locally using PowerShell. Deploying Always On VPN infrastructure in Microsoft Azure is included, followed by advanced client configuration and integration with Azure security services. You will know how to implement an Always On VPN infrastructure in a redundant and highly available (HA) configuration along with system maintenance and operational support for the VPN and NPS infrastructure. And you will know how to seamlessly troubleshoot and migrate from DirectAccess to Always On VPN. After reading this book, you will be able to plan, design, and implement a Windows 10 Always On VPN solution to meet your specific requirements. What Will You Learn Prepare your infrastructure to support Windows 10 Always On VPN on premises or in the cloud Provision and manage Always On VPN clients using modern management methods such as Intune Understand advanced integration concepts for extending functionality with Microsoft Azure Troubleshoot and resolve common configuration and operational errors for your VPN Who This Book Is For IT professionals and technology administrators for organizations of all sizes

Learn how to design, plan, implement, and support a secure remote access solution using DirectAccess in Windows Server 2016. Remote Access has been included in the Windows operating system for many years. With each new operating system release, new features and capabilities have been included to allow network engineers and security administrators to provide remote access in a secure and cost-effective manner. DirectAccess in Windows Server 2016 provides seamless and transparent, always on remote network connectivity for managed Windows devices. DirectAccess is built on commonly deployed Windows platform technologies and is designed to streamline and simplify the remote access experience for end users. In addition, DirectAccess connectivity is bidirectional, allowing administrators to more effectively manage and secure their field-based assets. Implementing DirectAccess with Windows Server 2016 provides a high-level overview of how DirectAccess works. The vision and evolution of DirectAccess are outlined and business cases and market drivers are explained. DirectAccess is evaluated against traditional VPN and this book describes the Windows platform technologies that underpin this solution. In addition, this book: Explains how the technology works and the specific IT pain points that it addresses Includes detailed, prescriptive guidance for those tasked with implementing DirectAccess using Windows Server 2016 Addresses real-world deployment scenarios for small and large organizations Contains valuable tips, tricks, and implementation best practices for security and performance“/li> What you'll learn A high-level understanding of the various remote access technologies included in Windows Server 2016. Common use cases for remote access, and how best to deploy them in a secure, stable, reliable, and highly available manner. Valuable insight in to design best practices and learn how to implement DirectAccess and VPN with Windows Server 2016 according to deployment best practices. Who This Book Is For IT administrators, network, and security administrators and engineers, systems management professionals, compliance auditors, and IT executive management (CIO, CISO) are the target audience for this title.

The perimeter defenses guarding your network perhaps are not as secure as you think. Hosts behind the firewall have no defenses of their own, so when a host in the "trusted" zone is breached, access to your data center is not far behind. That's an all-too-familiar scenario today. With this practical book, you'll learn the principles behind zero trust architecture, along with details necessary to implement it. The Zero Trust Model treats all hosts as if they're internet-facing, and considers the entire network to be compromised and hostile. By taking this approach, you'll focus on building

