

Industrial Network Security Second Edition Securing Critical Infrastructure Networks For Smart Grid Scada And Other Industrial Control Systems

As the sophistication of cyber-attacks increases, understanding how to defend critical infrastructure systems-energy production, water, gas, and other vital systems-becomes more important, and heavily mandated. Industrial Network Security, Second Edition arms you with the knowledge you need to understand the vulnerabilities of these distributed supervisory and control systems. The book examines the unique protocols and applications that are the foundation of industrial control systems, and provides clear guidelines for their protection. This how-to guide gives you thorough understanding of the unique challenges facing critical infrastructures, new guidelines and security measures for critical infrastructure protection, knowledge of new and evolving security tools, and pointers on SCADA protocols and security implementation. All-new real-world examples of attacks against control systems, and more diagrams of systems Expanded coverage of protocols such as 61850, Ethernet/IP, CIP, ISA-99, and the evolution to IEC62443 Expanded coverage of Smart Grid security New coverage of signature-based detection, exploit-based vs. vulnerability-based detection, and signature reverse engineering

Build a resilient network and prevent advanced cyber attacks and breaches Key Features Explore modern cybersecurity techniques to protect your networks from ever-evolving cyber threats Prevent cyber attacks by using robust cybersecurity strategies Unlock the secrets of network security Book Description With advanced cyber attacks severely impacting industry giants and the constantly evolving threat landscape, organizations are adopting complex systems to maintain robust and secure environments. Network Security Strategies will help you get well-versed with the tools and techniques required to protect any network environment against modern cyber threats. You'll understand how to identify security vulnerabilities across the network and how to effectively use a variety of network security techniques and platforms. Next, the book will show you how to design a robust network that provides top-notch security to protect against traditional and new evolving attacks. With the help of detailed solutions and explanations, you'll be able to monitor networks skillfully and identify potential risks. Finally, the book will cover topics relating to thought leadership and the management aspects of network security. By the end of this network security book, you'll be well-versed in defending your network from threats and be able to consistently maintain operational efficiency, security, and privacy in your environment. What you will learn Understand network security essentials, including concepts, mechanisms, and solutions to implement secure networks Get to grips with setting up and threat monitoring cloud and wireless networks Defend your network against emerging cyber threats in 2020 Discover tools, frameworks, and best practices for network penetration testing Understand digital forensics to enhance your network security skills Adopt a proactive approach to stay ahead in network security Who this book is for This book is for anyone looking to explore information security, privacy, malware, and cyber threats. Security experts who want to enhance their skill set will also find this book useful. A prior understanding of cyber threats and information security will help you understand the key concepts covered in the book more effectively.

IT-SEC protects the information. SEC-OT protects physical, industrial operations from information, more specifically from attacks embedded in information. When the consequences of compromise are unacceptable ? unscheduled downtime, impaired product quality and damaged equipment ? software-based IT-SEC defences are not enough. Secure Operations Technology (SEC-OT) is a perspective, a methodology, and a set of best practices used at secure industrial sites. SEC-OT demands cyber-physical protections - because all software can be compromised. SEC-OT strictly controls the flow of information ? because all information can encode attacks. SEC-OT uses a wide range of attack capabilities to determine the strength of security postures - because nothing is secure. This book documents the Secure Operations Technology approach, including physical offline and online protections against cyber attacks and a set of twenty standard cyber-attack patterns to use in risk assessments.

Network and System Security provides focused coverage of network and system security technologies. It explores practical solutions to a wide range of network and systems security issues. Chapters are authored by leading experts in the field and address the immediate and long-term challenges in the authors' respective areas of expertise.

Coverage includes building a secure organization, cryptography, system intrusion, UNIX and Linux security, Internet security, intranet security, LAN security; wireless network security, cellular network security, RFID security, and more. Chapters contributed by leaders in the field covering foundational and practical aspects of system and network security, providing a new level of technical expertise not found elsewhere Comprehensive and updated coverage of the subject area allows the reader to put current technologies to work Presents methods of analysis and problem solving techniques, enhancing the reader's grasp of the material and ability to implement practical solutions

THE INSTANT NEW YORK TIMES BESTSELLER SHORTLISTED FOR THE FT & MCKINSEY BUSINESS BOOK OF THE YEAR AWARD 2021 'An intricately detailed, deeply sourced and reported history of the origins and growth of the cyberweapons market . . . Hot, propulsive . . . Sets out from the start to scare us out of our complacency' New York Times 'A terrifying exposé' The Times 'Part John le Carré and more parts Michael Crichton . . . Spellbinding' New Yorker Zero day: a software bug that allows a hacker to break in and scamper through the world's computer networks invisibly until discovered. One of the most coveted tools in a spy's arsenal, a zero day has the power to tap into any iPhone, dismantle safety controls at a chemical plant and shut down the power in an entire nation – just ask the Ukraine. Zero days are the blood diamonds of the security trade, pursued by nation states, defense contractors, cybercriminals, and security defenders alike. In this market, governments aren't regulators; they are clients – paying huge sums to hackers willing to turn over gaps in the Internet, and stay silent about them. This Is How They Tell Me the World Ends is cybersecurity reporter Nicole Perlroth's discovery, unpacked. A

intrepid journalist unravels an opaque, code-driven market from the outside in – encountering spies, hackers, arms dealers, mercenaries and a few unsung heroes along the way. As the stakes get higher and higher in the rush to push the world's critical infrastructure online, *This Is How They Tell Me the World Ends* is the urgent and alarming discovery of one of the world's most extreme threats.

A must for working network and security professionals as well as anyone in IS seeking to build competence in the increasingly important field of security. Written by three high-profile experts, including Eric Cole, an ex-CIA security guru who appears regularly on CNN and elsewhere in the media, and Ronald Krutz, a security pioneer who cowrote *The CISSP Prep Guide* and other security bestsellers. Covers everything from basic security principles and practices to the latest security threats and responses, including proven methods for diagnosing network vulnerabilities and insider secrets for boosting security effectiveness.

"Web Security, Privacy & Commerce" cuts through the hype and the front page stories. It tells readers what the real risks are and explains how to minimize them. Whether a casual (but concerned) Web surfer or a system administrator responsible for the security of a critical Web server, this book will tell users what they need to know.

Overview of Industrial Process Automation, Second Edition, introduces the basics of philosophy, technology, terminology, and practices of modern automation systems through the presentation of updated examples, illustrations, case studies, and images. This updated edition adds new developments in the automation domain, and its reorganization of chapters and appendixes provides better continuity and seamless knowledge transfer. Manufacturing and chemical engineers involved in factory and process automation, and students studying industrial automation will find this book to be a great, comprehensive resource for further explanation and study. Presents a ready-made reference that introduces all aspects of automation technology in a single place with day-to-day examples. Provides a basic platform for the understanding of industry literature on automation products, systems, and solutions. Contains a guided tour of the subject without the requirement of any previous knowledge on automation. Includes new topics, such as factory and process automation, IT/OT Integration, ISA 95, Industry 4.0, IoT, etc., along with safety systems in process plants and machines.

This book provides a comprehensive overview of the fundamental security of Industrial Control Systems (ICSs), including Supervisory Control and Data Acquisition (SCADA) systems and touching on cyber-physical systems in general. Careful attention is given to providing the reader with clear and comprehensive background and reference material for each topic pertinent to ICS security. This book offers answers to such questions as: Which specific operating and security issues may lead to a loss of efficiency and operation? What methods can be used to monitor and protect my system? How can I design my system to reduce threats? This book offers chapters on ICS cyber threats, attacks, metrics, risk, situational awareness, intrusion detection, and security testing, providing an advantageous reference set for current system owners who wish to securely configure and operate their ICSs. This book is appropriate for non-specialists as well. Tutorial information is provided in two initial chapters and in the beginnings of other chapters as needed. The book concludes with advanced topics on ICS governance, responses to attacks on ICS, and future security of the Internet of Things.

As industrial control systems (ICS), including SCADA, DCS, and other process control networks, become Internet-facing, they expose crucial services to attack. Threats like Duqu, a sophisticated worm found in the wild that appeared to share portions of its code with the Stuxnet worm, emerge with increasing frequency. Explaining how to develop and implement an effective cybersecurity program for ICS, *Cybersecurity for Industrial Control Systems: SCADA, DCS, PLC, HMI, and SIS* provides you with the tools to ensure network security without sacrificing the efficiency and functionality of ICS. Highlighting the key issues that need to be addressed, the book begins with a thorough introduction to ICS. It discusses business, cost, competitive, and regulatory drivers and the conflicting priorities of convergence. Next, it explains why security requirements differ from IT to ICS. It differentiates when standard IT security solutions can be used and where SCADA-specific practices are required. The book examines the plethora of potential threats to ICS, including hi-jacking malware, botnets, spam engines, and porn dialers. It outlines the range of vulnerabilities inherent in the ICS quest for efficiency and functionality that necessitates risk behavior such as remote access and control of critical equipment. Reviewing risk assessment techniques and the evolving risk assessment process, the text concludes by examining what is on the horizon for ICS security, including IPv6, ICSv6 test lab designs, and IPv6 and ICS sensors.

Get up and running with industrial cybersecurity monitoring with this hands-on book, and explore ICS cybersecurity monitoring tasks, activities, tools, and best practices. Key Features: Architect, design, and build ICS networks with security in mind. Perform a variety of security assessments, checks, and verifications. Ensure that your security processes are effective, complete, and relevant. Book Description: With Industrial Control Systems (ICS) expanding into traditional IT space and even into the cloud, the attack surface of ICS environments has increased significantly, making it crucial to recognize your ICS vulnerabilities and implement advanced techniques for monitoring and defending against rapidly evolving cyber threats to critical infrastructure. This second edition covers the updated Industrial Demilitarized Zone (IDMZ) architecture and shows you how to implement, verify, and monitor a holistic security program for your ICS environment. You'll begin by learning how to design security-oriented architecture that allows you to implement the tools, techniques, and activities covered in this book effectively and easily. You'll get to grips with the monitoring, tracking, and trending (visualizing) and procedures of ICS cybersecurity risks as well as understand the overall security program and posture/hygiene of the ICS environment. The book then introduces you to threat hunting principles, tools, and techniques to help you identify malicious activity successfully. Finally, you'll work with incident response and incident recovery tools and techniques in an ICS environment. By the end of this book, you'll have gained a solid understanding of industrial cybersecurity monitoring, assessments, incident response activities, as well as threat hunting. What you will learn: Monitor the ICS security posture actively as well as passively. Respond to incidents in a controlled and standard way. Understand what incident response activities are required in your ICS environment. Perform threat-hunting exercises using the Elasticsearch, Logstash, and Kibana (ELK) stack. Assess the overall effectiveness of your ICS cybersecurity program. Discover tools, techniques, methodologies, and activities to perform risk assessments for your ICS environment. Who this book is for: If you are an ICS security professional or anyone curious about ICS cybersecurity for extending, improving, monitoring, and validating your ICS cybersecurity.

posture, then this book is for you. IT/OT professionals interested in entering the ICS cybersecurity monitoring domain or searching for additional learning material for different industry-leading cybersecurity certifications will also find this book useful.

Skilfully navigate through the complex realm of implementing scalable, trustworthy industrial systems and architectures in a hyper-connected business world. Key Features Gain practical insight into security concepts in the Industrial Internet of Things (IIoT) architecture Demystify complex topics such as cryptography and blockchain Comprehensive references to industry standards and security frameworks when developing IIoT blueprints Book Description Securing connected industries and autonomous systems is a top concern for the Industrial Internet of Things (IIoT) community. Unlike cybersecurity, cyber-physical security is an intricate discipline that directly ties to system reliability as well as human and environmental safety. Practical Industrial Internet of Things Security enables you to develop a comprehensive understanding of the entire spectrum of securing connected industries, from the edge to the cloud. This book establishes the foundational concepts and tenets of IIoT security by presenting real-world case studies, threat models, and reference architectures. You'll work with practical tools to design risk-based security controls for industrial use cases and gain practical know-how on the multi-layered defense techniques including Identity and Access Management (IAM), endpoint security, and communication infrastructure. Stakeholders, including developers, architects, and business leaders, can gain practical insights in securing IIoT lifecycle processes, standardization, governance and assess the applicability of emerging technologies, such as blockchain, Artificial Intelligence, and Machine Learning, to design and implement resilient connected systems and harness significant industrial opportunities. What you will learn Understand the crucial concepts of a multi-layered IIoT security framework Gain insight on securing identity, access, and configuration management for large-scale IIoT deployments Secure your machine-to-machine (M2M) and machine-to-cloud (M2C) connectivity Build a concrete security program for your IIoT deployment Explore techniques from case studies on industrial IoT threat modeling and mitigation approaches Learn risk management and mitigation planning Who this book is for Practical Industrial Internet of Things Security is for the IIoT community, which includes IIoT researchers, security professionals, architects, developers, and business stakeholders. Anyone who needs to have a comprehensive understanding of the unique safety and security challenges of connected industries and practical methodologies to secure industrial assets will find this book immensely helpful. This book is uniquely designed to benefit professionals from both IT and industrial operations backgrounds.

Nowadays one only needs to read the newspaper headlines to appreciate the importance of Industrial Network Security. Almost daily an article comes out describing the threat to our critical infrastructure, from spies in our electrical grid to the looming threat of cyberwar. Whether we talk about process control systems that run chemical plants and refineries, supervisory control and data acquisition (SCADA) systems for utilities, or factory automation systems for discrete manufacturing, the backbone of our nation's critical infrastructure consists of these industrial networks and is dependent on their continued operation. This easy-to-read book introduces managers, engineers, technicians, and operators on how to keep our industrial networks secure amid rising threats from hackers, disgruntled employees, and even cyberterrorists.

Introductory textbook in the important area of network security for undergraduate and graduate students Comprehensively covers fundamental concepts with newer topics such as electronic cash, bit-coin, P2P, SHA-3, E-voting, and Zigbee security Fully updated to reflect new developments in network security Introduces a chapter on Cloud security, a very popular and essential topic Uses everyday examples that most computer users experience to illustrate important principles and mechanisms Features a companion website with Powerpoint slides for lectures and solution manuals to selected exercise problems, available at <http://www.cs.uml.edu/~wang/NetSec>

Featuring contributions from major technology vendors, industry consortia, and government and private research establishments, the Industrial Communication Technology Handbook, Second Edition provides comprehensive and authoritative coverage of wire- and wireless-based specialized communication networks used in plant and factory automation, automotive applications, avionics, building automation, energy and power systems, train applications, and more. New to the Second Edition: 46 brand-new chapters and 21 substantially revised chapters Inclusion of the latest, most significant developments in specialized communication technologies and systems Addition of new application domains for specialized networks The Industrial Communication Technology Handbook, Second Edition supplies readers with a thorough understanding of the application-specific requirements for communication services and their supporting technologies. It is useful to a broad spectrum of professionals involved in the conception, design, development, standardization, and use of specialized communication networks as well as academic institutions engaged in engineering education and vocational training.

As the sophistication of cyber-attacks increases, understanding how to defend critical infrastructure systems—energy production, water, gas, and other vital systems—becomes more important, and heavily mandated. Industrial Network Security, Second Edition arms you with the knowledge you need to understand the vulnerabilities of these distributed supervisory and control systems. The book examines the unique protocols and applications that are the foundation of industrial control systems, and provides clear guidelines for their protection. This how-to guide gives you thorough understanding of the unique challenges facing critical infrastructures, new guidelines and security measures for critical infrastructure protection, knowledge of new and evolving security tools, and pointers on SCADA protocols and security implementation. All-new real-world examples of attacks against control systems, and more diagrams of systems Expanded coverage of protocols such as 61850, Ethernet/IP, CIP, ISA-99, and the evolution to IEC62443 Expanded coverage of Smart Grid security New coverage of signature-based detection, exploit-based vs. vulnerability-based detection, and signature reverse engineering

Your one-step guide to understanding industrial cyber security, its control systems, and its operations. About This Book Learn about endpoint protection such as anti-malware implementation, updating, monitoring, and sanitizing user workloads and mobile devices Filled with practical examples to help you secure critical infrastructure systems efficiently A step-by-step guide that will teach you the techniques and methodologies of building robust infrastructure systems Who This Book Is For If you are a security professional and want to ensure a robust environment for critical infrastructure systems, this book is for you. IT professionals interested in getting into the cyber security domain or who are looking at gaining industrial cyber security certifications will also find this book useful. What You Will Learn Understand industrial cybersecurity, its control systems and operations Design security-oriented architectures, network segmentation, and security support services Configure event monitoring systems, anti-malware applications, and endpoint security Gain

knowledge of ICS risks, threat detection, and access management Learn about patch management and life cycle management Secure your industrial control systems from design through retirement In Detail With industries expanding, cyber attacks have increased significantly. Understanding your control system's vulnerabilities and learning techniques to defend critical infrastructure systems from cyber threats is increasingly important. With the help of real-world use cases, this book will teach you the methodologies and security measures necessary to protect critical infrastructure systems and will get you up to speed with identifying unique challenges. Industrial cybersecurity begins by introducing Industrial Control System (ICS) technology, including ICS architectures, communication media, and protocols. This is followed by a presentation on ICS (in) security. After presenting an ICS-related attack scenario, securing of the ICS is discussed, including topics such as network segmentation, defense-in-depth strategies, and protective solutions. Along with practical examples for protecting industrial control systems, this book details security assessments, risk management, and security program development. It also covers essential cybersecurity aspects, such as threat detection and access management. Topics related to endpoint hardening such as monitoring, updating, and anti-malware implementations are also discussed. Style and approach A step-by-step guide to implement Industrial Cyber Security effectively.

Many people think of the Smart Grid as a power distribution group built on advanced smart metering—but that's just one aspect of a much larger and more complex system. The "Smart Grid" requires new technologies throughout energy generation, transmission and distribution, and even the homes and businesses being served by the grid. This also represents new information paths between these new systems and services, all of which represents risk, requiring a more thorough approach to where and how cyber security controls are implemented. This insight provides a detailed architecture of the entire Smart Grid, with recommended cyber security measures for everything from the supply chain to the consumer. Discover the potential of the Smart Grid Learn in depth about its systems See its vulnerabilities and how best to protect it

Unlike data communications of the past, today's networks consist of numerous devices that handle the data as it passes from the sender to the receiver. However, security concerns are frequently raised in circumstances where interconnected computers use a network not controlled by any one entity or organization. Introduction to Network Security exam

World-renowned economist Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, explains that we have an opportunity to shape the fourth industrial revolution, which will fundamentally alter how we live and work. Schwab argues that this revolution is different in scale, scope and complexity from any that have come before. Characterized by a range of new technologies that are fusing the physical, digital and biological worlds, the developments are affecting all disciplines, economies, industries and governments, and even challenging ideas about what it means to be human. Artificial intelligence is already all around us, from supercomputers, drones and virtual assistants to 3D printing, DNA sequencing, smart thermostats, wearable sensors and microchips smaller than a grain of sand. But this is just the beginning: nanomaterials 200 times stronger than steel and a million times thinner than a strand of hair and the first transplant of a 3D printed liver are already in development. Imagine "smart factories" in which global systems of manufacturing are coordinated virtually, or implantable mobile phones made of biosynthetic materials. The fourth industrial revolution, says Schwab, is more significant, and its ramifications more profound, than in any prior period of human history. He outlines the key technologies driving this revolution and discusses the major impacts expected on government, business, civil society and individuals. Schwab also offers bold ideas on how to harness these changes and shape a better future--one in which technology empowers people rather than replaces them; progress serves society rather than disrupts it; and in which innovators respect moral and ethical boundaries rather than cross them. We all have the opportunity to contribute to developing new frameworks that advance progress.

PART OF THE NEW JONES & BARTLETT LEARNING INFORMATION SYSTEMS SECURITY & ASSURANCE SERIES Fully revised and updated with the latest data from the field, Network Security, Firewalls, and VPNs, Second Edition provides a unique, in-depth look at the major business challenges and threats that are introduced when an organization's network is connected to the public Internet. Written by an industry expert, this book provides a comprehensive explanation of network security basics, including how hackers access online networks and the use of Firewalls and VPNs to provide security countermeasures. Using examples and exercises, this book incorporates hands-on activities to prepare the reader to disarm threats and prepare for emerging technologies and future attacks. Key Features: -Introduces the basics of network security exploring the details of firewall security and how VPNs operate -Illustrates how to plan proper network security to combat hackers and outside threats -Discusses firewall configuration and deployment and managing firewall security -Identifies how to secure local and internet communications with a VPN Instructor Materials for Network Security, Firewalls, VPNs include: PowerPoint Lecture Slides Exam Questions Case Scenarios/Handouts About the Series This book is part of the Information Systems Security and Assurance Series from Jones and Bartlett Learning. Designed for courses and curriculums in IT Security, Cybersecurity, Information Assurance, and Information Systems Security, this series features a comprehensive, consistent treatment of the most current thinking and trends in this critical subject area. These titles deliver fundamental information-security principles packed with real-world applications and examples. Authored by Certified Information Systems Security Professionals (CISSPs), they deliver comprehensive information on all aspects of information security. Reviewed word for word by leading technical experts in the field, these books are not just current, but forward-thinking putting you in the position to solve the cybersecurity challenges not just of today, but of tomorrow, as well."

The internet is making our daily life as digital as possible and this new era is called the Internet of Everything (IoE). Edge computing is an emerging data analytics concept that addresses the challenges associated with IoE. More specifically, edge computing facilitates data analysis at the edge of the network instead of interacting with cloud-based

servers. Therefore, more and more devices need to be added in remote locations without any substantial monitoring strategy. This increased connectivity and the devices used for edge computing will create more room for cyber criminals to exploit the system's vulnerabilities. Ensuring cyber security at the edge should not be an afterthought or a huge challenge. The devices used for edge computing are not designed with traditional IT hardware protocols. There are diverse-use cases in the context of edge computing and Internet of Things (IoT) in remote locations. However, the cyber security configuration and software updates are often overlooked when they are most needed to fight cyber crime and ensure data privacy. Therefore, the threat landscape in the context of edge computing becomes wider and far more challenging. There is a clear need for collaborative work throughout the entire value chain of the network. In this context, this book addresses the cyber security challenges associated with edge computing, which provides a bigger picture of the concepts, techniques, applications, and open research directions in this area. In addition, the book serves as a single source of reference for acquiring the knowledge on the technology, process and people involved in next generation computing and security. It will be a valuable aid for researchers, higher level students and professionals working in the area.

Security and Resilience in Intelligent Data-Centric Systems and Communication Networks presents current, state-of-the-art work on novel research in theoretical and practical resilience and security aspects of intelligent data-centric critical systems and networks. The book analyzes concepts and technologies that are successfully used in the implementation of intelligent data-centric critical systems and communication networks, also touching on future developments. In addition, readers will find in-demand information for domain experts and developers who want to understand and realize the aspects (opportunities and challenges) of using emerging technologies for designing and developing more secure and resilient intelligent data-centric critical systems and communication networks. Topics covered include airports, seaports, rail transport systems, plants for the provision of water and energy, and business transactional systems. The book is well suited for researchers and PhD interested in the use of security and resilient computing technologies. Includes tools and techniques to prevent and avoid both accidental and malicious behaviors Explains the state-of-the-art technological solutions for main issues hindering the development of monitoring and reaction solutions Describes new methods and technologies, advanced prototypes, systems, tools and techniques of future direction Enhance your organization's secure posture by improving your attack and defense strategies Key Features Gain a clear understanding of the attack methods, and patterns to recognize abnormal behavior within your organization with Blue Team tactics. Learn to unique techniques to gather exploitation intelligence, identify risk and demonstrate impact with Red Team and Blue Team strategies. A practical guide that will give you hands-on experience to mitigate risks and prevent attackers from infiltrating your system. Book Description The book will start talking about the security posture before moving to Red Team tactics, where you will learn the basic syntax for the Windows and Linux tools that are commonly used to perform the necessary operations. You will also gain hands-on experience of using new Red Team techniques with powerful tools such as python and PowerShell, which will enable you to discover vulnerabilities in your system and how to exploit them. Moving on, you will learn how a system is usually compromised by adversaries, and how they hack user's identity, and the various tools used by the Red Team to find vulnerabilities in a system. In the next section, you will learn about the defense strategies followed by the Blue Team to enhance the overall security of a system. You will also learn about an in-depth strategy to ensure that there are security controls in each network layer, and how you can carry out the recovery process of a compromised system. Finally, you will learn how to create a vulnerability management strategy and the different techniques for manual log analysis. By the end of this book, you will be well-versed with Red Team and Blue Team techniques and will have learned the techniques used nowadays to attack and defend systems. What you will learn Learn the importance of having a solid foundation for your security posture Understand the attack strategy using cyber security kill chain Learn how to enhance your defense strategy by improving your security policies, hardening your network, implementing active sensors, and leveraging threat intelligence Learn how to perform an incident investigation Get an in-depth understanding of the recovery process Understand continuous security monitoring and how to implement a vulnerability management strategy Learn how to perform log analysis to identify suspicious activities Who this book is for This book aims at IT professional who want to venture the IT security domain. IT pentester, Security consultants, and ethical hackers will also find this course useful. Prior knowledge of penetration testing would be beneficial.

Your first step into the world of network security No security experience required Includes clear and easily understood explanations Makes learning easy Your first step to network security begins here! Learn about hackers and their attacks Understand security tools and technologies Defend your network with firewalls, routers, and other devices Explore security for wireless networks Learn how to prepare for security incidents Welcome to the world of network security! Computer networks are indispensable-but they're also not secure. With the proliferation of Internet viruses and worms, many people and companies are considering increasing their network security. But first, you need to make sense of this complex world of hackers, viruses, and the tools to combat them. No security experience needed! Network Security First-Step explains the basics of network security in easy-to-grasp language that all of us can understand. This book takes you on a guided tour of the core technologies that make up and control network security. Whether you are looking to take your first step into a career in network security or are interested in simply gaining knowledge of the technology, this book is for you!

A Practical Introduction to Enterprise Network and Security Management, Second Edition, provides a balanced understanding of introductory and advanced subjects in both computer networking and cybersecurity. Although much of the focus is on technical concepts, managerial issues related to enterprise network and security planning and design are explained from a practitioner's perspective. Because of the critical importance of cybersecurity in today's enterprise networks, security-related issues are explained

throughout the book, and four chapters are dedicated to fundamental knowledge. Challenging concepts are explained so readers can follow through with careful reading. This book is written for those who are self-studying or studying information systems or computer science in a classroom setting. If used for a course, it has enough material for a semester or a quarter. **FEATURES** Provides both theoretical and practical hands-on knowledge and learning experiences for computer networking and cybersecurity Offers a solid knowledge base for those preparing for certificate tests, such as CompTIA and CISSP Takes advantage of actual cases, examples, industry products, and services so students can relate concepts and theories to practice Explains subjects in a systematic and practical manner to facilitate understanding Includes practical exercise questions that can be individual or group assignments within or without a classroom Contains several information-rich screenshots, figures, and tables carefully constructed to solidify concepts and enhance visual learning The text is designed for students studying information systems or computer science for the first time. As a textbook, this book includes hands-on assignments based on the Packet Tracer program, an excellent network design and simulation tool from Cisco. Instructor materials also are provided, including PowerPoint slides, solutions for exercise questions, and additional chapter questions from which to build tests.

Vulnerability management (VM) has been around for millennia. Cities, tribes, nations, and corporations have all employed its principles. The operational and engineering successes of any organization depend on the ability to identify and remediate a vulnerability that a would-be attacker might seek to exploit. What were once small communities became castles. Cities had fortifications and advanced warning systems. All such measures were the result of a group recognizing their vulnerabilities and addressing them in different ways. Today, we identify vulnerabilities in our software systems, infrastructure, and enterprise strategies. Those vulnerabilities are addressed through various and often creative means. Vulnerability Management demonstrates a proactive approach to the discipline. Illustrated with examples drawn from Park Foreman's more than three decades of multinational experience, the book demonstrates how much easier it is to manage potential weaknesses than to clean up after a violation. Covering the diverse realms that CISOs need to know and the specifics applicable to singular areas of departmental responsibility, he provides both the strategic vision and action steps needed to prevent the exploitation of IT security gaps, especially those that are inherent in a larger organization. Completely updated, the second edition provides a fundamental understanding of technology risks—including a new chapter on cloud vulnerabilities and risk management—from an interloper's perspective. This book is a guide for security practitioners, security or network engineers, security officers, and CIOs seeking understanding of VM and its role in the organization. To serve various audiences, it covers significant areas of VM. Chapters on technology provide executives with a high-level perspective of what is involved. Other chapters on process and strategy, although serving the executive well, provide engineers and security managers with perspective on the role of VM technology and processes in the success of the enterprise.

The classic guide to network security—now fully updated!"Bob and Alice are back!" Widely regarded as the most comprehensive yet comprehensible guide to network security, the first edition of Network Security received critical acclaim for its lucid and witty explanations of the inner workings of network security protocols. In the second edition, this most distinguished of author teams draws on hard-won experience to explain the latest developments in this field that has become so critical to our global network-dependent society. Network Security, Second Edition brings together clear, insightful, and clever explanations of every key facet of information security, from the basics to advanced cryptography and authentication, secure Web and email services, and emerging security standards. Coverage includes: All-new discussions of the Advanced Encryption Standard (AES), IPsec, SSL, and Web security Cryptography: In-depth, exceptionally clear introductions to secret and public keys, hashes, message digests, and other crucial concepts Authentication: Proving identity across networks, common attacks against authentication systems, authenticating people, and avoiding the pitfalls of authentication handshakes Core Internet security standards: Kerberos 4/5, IPsec, SSL, PKIX, and X.509 Email security: Key elements of a secure email system-plus detailed coverage of PEM, S/MIME, and PGP Web security: Security issues associated with URLs, HTTP, HTML, and cookies Security implementations in diverse platforms, including Windows, NetWare, and Lotus Notes The authors go far beyond documenting standards and technology: They contrast competing schemes, explain strengths and weaknesses, and identify the crucial errors most likely to compromise secure systems. Network Security will appeal to a wide range of professionals, from those who design or evaluate security systems to system administrators and programmers who want a better understanding of this important field. It can also be used as a textbook at the graduate or advanced undergraduate level.

Plug the gaps in your network's infrastructure with resilient network security models **Key Features** Develop a cost-effective and end-to-end vulnerability management program Explore best practices for vulnerability scanning and risk assessment Understand and implement network enumeration with Nessus and Network Mapper (Nmap) **Book Description** Digitization drives technology today, which is why it's so important for organizations to design security mechanisms for their network infrastructures. Analyzing vulnerabilities is one of the best ways to secure your network infrastructure. This Learning Path begins by introducing you to the various concepts of network security assessment, workflows, and architectures. You will learn to employ open source tools to perform both active and passive network scanning and use these results to analyze and design a threat model for network security. With a firm understanding of the basics, you will then explore how to use Nessus and Nmap to scan your network for vulnerabilities and open ports and gain back door entry into a network. As you progress through the chapters, you will gain insights into how to carry out various key scanning tasks, including firewall detection, OS detection, and access management to detect vulnerabilities in your network. By the end of this Learning Path, you will be familiar with the tools you need for network scanning and techniques for vulnerability scanning and network protection. This Learning Path includes content from the following Packt books: Network Scanning Cookbook by Sairam Jetty Network Vulnerability Assessment by Sagar Rahalkar What you will learn Explore various standards and frameworks for vulnerability assessments

and penetration testing Gain insight into vulnerability scoring and reporting Discover the importance of patching and security hardening Develop metrics to measure the success of a vulnerability management program Perform configuration audits for various platforms using Nessus Write custom Nessus and Nmap scripts on your own Install and configure Nmap and Nessus in your network infrastructure Perform host discovery to identify network devices Who this book is for This Learning Path is designed for security analysts, threat analysts, and security professionals responsible for developing a network threat model for an organization. Professionals who want to be part of a vulnerability management team and implement an end-to-end robust vulnerability management program will also find this Learning Path useful.

In today's modernized market, many fields are utilizing internet technologies in their everyday methods of operation. The industrial sector is no different as these technological solutions have provided several benefits including reduction of costs, scalability, and efficiency improvements. Despite this, cyber security remains a crucial risk factor in industrial control systems. The same public and corporate solutions do not apply to this specific district because these security issues are more complex and intensive. Research is needed that explores new risk assessment methods and security mechanisms that professionals can apply to their modern technological procedures. Cyber Security of Industrial Control Systems in the Future Internet Environment is a pivotal reference source that provides vital research on current security risks in critical infrastructure schemes with the implementation of information and communication technologies. While highlighting topics such as intrusion detection systems, forensic challenges, and smart grids, this publication explores specific security solutions within industrial sectors that have begun applying internet technologies to their current methods of operation. This book is ideally designed for researchers, system engineers, managers, networkers, IT professionals, analysts, academicians, and students seeking a better understanding of the key issues within securing industrial control systems that utilize internet technologies.

Industrial Network Basics discusses how networks actually work but with an emphasis on industrial networking protocols and methods. Many of the most common and well known fieldbus applications are discussed, as well as the industrial Ethernet protocols typically used in motion and process control solutions. Industrial Ethernet, together with fieldbus network media, provide hybrid network topologies that are used in many machine and process control applications.

Wireless communications have become indispensable part of our lives. The book deals with the security of such wireless communication. The technological background of these applications have been presented in detail. Special emphasis has been laid on the IEEE 802.11x-standards that have been developed for this technology. A major part of the book is devoted to security risks, encryption and authentication. Checklists have been provided to help IT administrators and security officers to achieve the maximum possible security in their installations, when using wireless technology. This is the second edition of the book. The updates include the latest the IEEE 802.11-standard, an updated chapter on PDA, the increased relevance of smart phones and tablets, widespread use of WLAN with increased security risks.

In the five years since the first edition of this classic book was published, Internet use has exploded. The commercial world has rushed headlong into doing business on the Web, often without integrating sound security technologies and policies into their products and methods. The security risks--and the need to protect both business and personal data--have never been greater. We've updated Building Internet Firewalls to address these newer risks. What kinds of security threats does the Internet pose? Some, like password attacks and the exploiting of known security holes, have been around since the early days of networking. And others, like the distributed denial of service attacks that crippled Yahoo, E-Bay, and other major e-commerce sites in early 2000, are in current headlines. Firewalls, critical components of today's computer networks, effectively protect a system from most Internet security threats. They keep damage on one part of the network--such as eavesdropping, a worm program, or file damage--from spreading to the rest of the network. Without firewalls, network security problems can rage out of control, dragging more and more systems down. Like the bestselling and highly respected first edition, Building Internet Firewalls, 2nd Edition, is a practical and detailed step-by-step guide to designing and installing firewalls and configuring Internet services to work with a firewall. Much expanded to include Linux and Windows coverage, the second edition describes: Firewall technologies: packet filtering, proxying, network address translation, virtual private networks Architectures such as screening routers, dual-homed hosts, screened hosts, screened subnets, perimeter networks, internal firewalls Issues involved in a variety of new Internet services and protocols through a firewall Email and News Web services and scripting languages (e.g., HTTP, Java, JavaScript, ActiveX, RealAudio, RealVideo) File transfer and sharing services such as NFS, Samba Remote access services such as Telnet, the BSD "r" commands, SSH, BackOrifice 2000 Real-time conferencing services such as ICQ and talk Naming and directory services (e.g., DNS, NetBT, the Windows Browser) Authentication and auditing services (e.g., PAM, Kerberos, RADIUS); Administrative services (e.g., syslog, SNMP, SMS, RIP and other routing protocols, and ping and other network diagnostics) Intermediary protocols (e.g., RPC, SMB, CORBA, IIOP) Database protocols (e.g., ODBC, JDBC, and protocols for Oracle, Sybase, and Microsoft SQL Server) The book's complete list of resources includes the location of many publicly available firewall construction tools.

This book primarily focuses on providing deep insight into the concepts of network security, network forensics, botnet forensics, ethics and incident response in global perspectives. It also covers the dormant and contentious issues of the subject in most scientific and objective manner. Various case studies addressing contemporary network forensics issues are also included in this book to provide practical know – how of the subject. Network Forensics: A privacy & Security provides a significance knowledge of network forensics in different functions and spheres of the security. The book gives the complete knowledge of network security, all kind of network attacks, intention of an attacker, identification of attack, detection, its analysis, incident response, ethical issues, botnet and botnet forensics. This book also refer the recent trends that comes under

network forensics. It provides in-depth insight to the dormant and latent issues of the acquisition and system live investigation too. Features: Follows an outcome-based learning approach. A systematic overview of the state-of-the-art in network security, tools, Digital forensics. Differentiation among network security, computer forensics, network forensics and botnet forensics. Discussion on various cybercrimes, attacks and cyber terminologies. Discussion on network forensics process model. Network forensics tools and different techniques Network Forensics analysis through case studies. Discussion on evidence handling and incident response. System Investigations and the ethical issues on network forensics. This book serves as a reference book for post graduate and research investigators who need to study in cyber forensics. It can also be used as a textbook for a graduate level course in Electronics & Communication, Computer Science and Computer Engineering.

The availability and security of many services we rely upon including water treatment, electricity, healthcare, transportation, and financial transactions are routinely put at risk by cyber threats. The Handbook of SCADA/Control Systems Security is a fundamental outline of security concepts, methodologies, and relevant information pertaining to the Learn to defend crucial ICS/SCADA infrastructure from devastating attacks the tried-and-true Hacking Exposed way This practical guide reveals the powerful weapons and devious methods cyber-terrorists use to compromise the devices, applications, and systems vital to oil and gas pipelines, electrical grids, and nuclear refineries. Written in the battle-tested Hacking Exposed style, the book arms you with the skills and tools necessary to defend against attacks that are debilitating—and potentially deadly. Hacking Exposed Industrial Control Systems: ICS and SCADA Security Secrets & Solutions explains vulnerabilities and attack vectors specific to ICS/SCADA protocols, applications, hardware, servers, and workstations. You will learn how hackers and malware, such as the infamous Stuxnet worm, can exploit them and disrupt critical processes, compromise safety, and bring production to a halt. The authors fully explain defense strategies and offer ready-to-deploy countermeasures. Each chapter features a real-world case study as well as notes, tips, and cautions. Features examples, code samples, and screenshots of ICS/SCADA-specific attacks Offers step-by-step vulnerability assessment and penetration test instruction Written by a team of ICS/SCADA security experts and edited by Hacking Exposed veteran Joel Scambray

In recent years, virtual meeting technology has become a part of the everyday lives of more and more people, often with the help of global online social networks (OSNs). These help users to build both social and professional links on a worldwide scale. The sharing of information and opinions are important features of OSNs. Users can describe recent activities and interests, share photos, videos, applications, and much more. The use of OSNs has increased at a rapid rate. Google+, Facebook, Twitter, LinkedIn, Sina Weibo, VKontakte, and Mixi are all OSNs that have become the preferred way of communication for a vast number of daily active users. Users spend substantial amounts of time updating their information, communicating with other users, and browsing one another's accounts. OSNs obliterate geographical distance and can breach economic barrier. This popularity has made OSNs a fascinating test bed for cyberattacks comprising Cross-Site Scripting, SQL injection, DDoS, phishing, spamming, fake profile, spammer, etc. OSNs security: Principles, Algorithm, Applications, and Perspectives describe various attacks, classifying them, explaining their consequences, and offering. It also highlights some key contributions related to the current defensive approaches. Moreover, it shows how machine-learning and deep-learning methods can mitigate attacks on OSNs. Different technological solutions that have been proposed are also discussed. The topics, methodologies, and outcomes included in this book will help readers learn the importance of incentives in any technical solution to handle attacks against OSNs. The best practices and guidelines will show how to implement various attack-mitigation methodologies.

Industrial Network Security Securing Critical Infrastructure Networks for Smart Grid, SCADA, and Other Industrial Control Systems Syngress Press

This text provides a practical survey of both the principles and practice of cryptography and network security. First, the basic issues to be addressed by a network security capability are explored through a tutorial and survey of cryptography and network security technology. Then, the practice of network security is explored via practical applications that have been implemented and are in use today.

The instant access that hackers have to the latest tools and techniques demands that companies become more aggressive in defending the security of their networks.

Conducting a network vulnerability assessment, a self-induced hack attack, identifies the network components and faults in policies, and procedures that expose a company to the damage caused by malicious network intruders. Managing a Network Vulnerability Assessment provides a formal framework for finding and eliminating network security threats, ensuring that no vulnerabilities are overlooked. This thorough overview focuses on the steps necessary to successfully manage an assessment, including the development of a scope statement, the understanding and proper use of assessment methodology, the creation of an expert assessment team, and the production of a valuable response report. The book also details what commercial, freeware, and shareware tools are available, how they work, and how to use them. By following the procedures outlined in this guide, a company can pinpoint what individual parts of their network need to be hardened, and avoid expensive and unnecessary purchases.

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