

FREE E-BOOK DOWNLOAD

Managing Catastrophic Loss of Sensitive Data

A Guide for IT and Security Professionals

**A step-by-step guide to recovering from catastrophic data loss
and getting back to business**

- A road map for navigating one of the most urgent issues for security, general IT, and business management
- Provides a step-by-step approach to managing the consequences of and recovering from the loss of sensitive data
- Gathers in a single place all information about this critical issue, including legal, public relations, and regulatory issues

Constantine Photopoulos

TP309
P575

Managing Catastrophic Loss of Sensitive Data

Constantine Photopoulos



E2009003551

Elsevier, Inc., the author(s), and any person or firm involved in the writing, editing, or production (collectively "Makers") of this book ("the Work") do not guarantee or warrant the results to be obtained from the Work.

There is no guarantee of any kind, expressed or implied, regarding the Work or its contents. The Work is sold AS IS and WITHOUT WARRANTY. You may have other legal rights, which vary from state to state.

In no event will Makers be liable to you for damages, including any loss of profits, lost savings, or other incidental or consequential damages arising out from the Work or its contents. Because some states do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitation may not apply to you.

You should always use reasonable care, including backup and other appropriate precautions, when working with computers, networks, data, and files.

Syngress Media®, Syngress®, "Career Advancement Through Skill Enhancement®," "Ask the Author UPDATE®," and "Hack Proofing®," are registered trademarks of Elsevier, Inc. "Syngress: The Definition of a Serious Security Library"™, "Mission Critical™," and "The Only Way to Stop a Hacker is to Think Like One™" are trademarks of Elsevier, Inc. Brands and product names mentioned in this book are trademarks or service marks of their respective companies.

| KEY | SERIAL NUMBER |
|-----|---------------|
| 001 | HJIRTCV764 |
| 002 | PO9873D5FG |
| 003 | 829KM8NJH2 |
| 004 | BPOQ48722D |
| 005 | CVPLQ6WQ23 |
| 006 | VBP965T5T5 |
| 007 | HJJJ863WD3E |
| 008 | 2987GVTWMK |
| 009 | 629MP5SDJT |
| 010 | IMWQ295T6T |

PUBLISHED BY
Syngress Publishing, Inc.
Elsevier, Inc.
30 Corporate Drive
Burlington, MA 01803

Managing Catastrophic Loss of Sensitive Data

Copyright © 2008 by Elsevier, Inc. All rights reserved. Printed in the United States of America. Except as permitted under the Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of the publisher, with the exception that the program listings may be entered, stored, and executed in a computer system, but they may not be reproduced for publication.

Printed in the United States of America
1 2 3 4 5 6 7 8 9 0

ISBN 13: 978-1-59749-239-3

Publisher: Andrew Williams
Acquisitions Editor: Patrice Rapalus
Project Manager: Gary Byrne
Page Layout and Art: SPI

Copy Editors: Adrienne Rebello and Judy Eby
Indexer: SPI
Cover Designer: Michael Kavish

For information on rights, translations, and bulk sales, contact Matt Pedersen, Commercial Sales Director and Rights, at Syngress Publishing; email m.pedersen@elsevier.com.

Visit us at

www.syngress.com

Syngress is committed to publishing high-quality books for IT Professionals and delivering those books in media and formats that fit the demands of our customers. We are also committed to extending the utility of the book you purchase via additional materials available from our Web site.

SOLUTIONS WEB SITE

To register your book, visit www.syngress.com/solutions. Once registered, you can access our solutions@syngress.com Web pages. There you may find an assortment of value-added features such as free e-books related to the topic of this book, URLs of related Web sites, FAQs from the book, corrections, and any updates from the author(s).

ULTIMATE CDs

Our Ultimate CD product line offers our readers budget-conscious compilations of some of our best-selling backlist titles in Adobe PDF form. These CDs are the perfect way to extend your reference library on key topics pertaining to your area of expertise, including Cisco Engineering, Microsoft Windows System Administration, CyberCrime Investigation, Open Source Security, and Firewall Configuration, to name a few.

DOWNLOADABLE E-BOOKS

For readers who can't wait for hard copy, we offer most of our titles in downloadable Adobe PDF form. These e-books are often available weeks before hard copies, and are priced affordably.

SYNGRESS OUTLET

Our outlet store at syngress.com features overstocked, out-of-print, or slightly hurt books at significant savings.

SITE LICENSING

Syngress has a well-established program for site licensing our e-books onto servers in corporations, educational institutions, and large organizations. Contact us at sales@syngress.com for more information.

CUSTOM PUBLISHING

Many organizations welcome the ability to combine parts of multiple Syngress books, as well as their own content, into a single volume for their own internal use. Contact us at sales@syngress.com for more information.



Author

Constantine Photopoulos is the partner in charge of the The SOX Group's national Sarbanes-Oxley practice. He has more than 20 years' experience in the IT industry, including significant experience in managing projects spanning the full range of Sarbanes-Oxley IT compliance services. At The SOX Group, he has managed, as well as participated in, engagements at a wide variety of organizations, from Fortune 500 to emerging companies, with overall responsibility for SOX process narratives, risk and control identification, test plan development, testing, remediation, and procedure documentation. This included coordination with internal IT audit staff as well as the Big Four and other external auditors.

He has managed projects covering the following areas:

Infrastructure Data center security, backup and recovery, job processing, virus and patch management, network perimeter security, change management, problem management, database security, data transmission, remote access, and operations documentation

Application Access control, logical security, administrative accounts, segregation of duties, activity monitoring and logging, application documentation, and SAS 70 (for hosted applications)

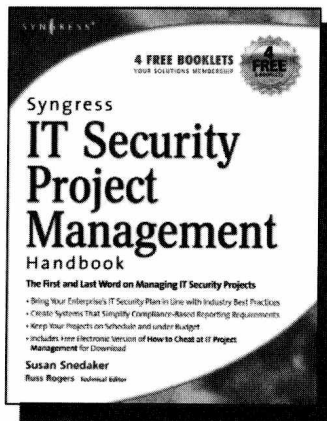
Entity-Level IT governance, strategic planning, outsourcing and third-party services, and Software Development Life Cycle (SDLC) policies and procedures

In addition to Sarbanes-Oxley work, he has an extensive background in IT security, risk management, application software management and development, infrastructure operations, and disaster recovery/business continuity planning.

He holds a B.S. in Electrical Engineering from Massachusetts Institute of Technology.

Syngress: *The Definition of a Serious Security Library*

Syn•gress (sin-gres): *noun, sing.* Freedom from risk or danger; safety. See *security*.



AVAILABLE NOW
order @

Syngress IT Security Project Management Handbook

Susan Snedaker

The definitive work for IT professionals responsible for the management of the design, configuration, deployment and maintenance of enterprise-wide security projects. Provides specialized coverage of key project areas including Penetration Testing, Intrusion Detection and Prevention Systems, and Access Control Systems.

ISBN: 1-59749-076-8

Price: \$59.95 US \$77.95 CAN

Combating Spyware in the Enterprise

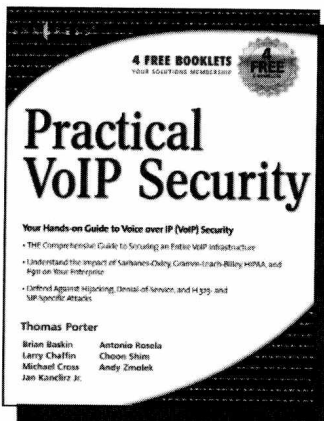
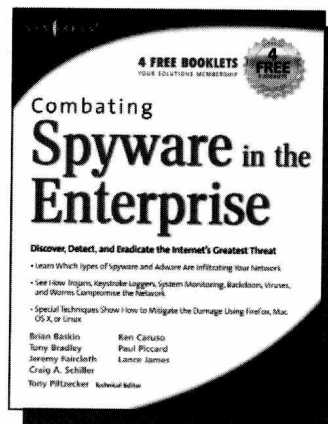
Paul Piccard

Combating Spyware in the Enterprise is the first book published on defending enterprise networks from increasingly sophisticated and malicious spyware. System administrators and security professionals responsible for administering and securing networks ranging in size from SOHO networks up to the largest enterprise networks will learn to use a combination of free and commercial anti-spyware software, firewalls, intrusion detection systems, intrusion prevention systems, and host integrity monitoring applications to prevent the installation of spyware, and to limit the damage caused by spyware that does in fact infiltrate their networks.

ISBN: 1-59749-064-4

Price: \$49.95 US \$64.95 CAN

AVAILABLE NOW
order @



AVAILABLE NOW
order @

Practical VoIP Security

Thomas Porter

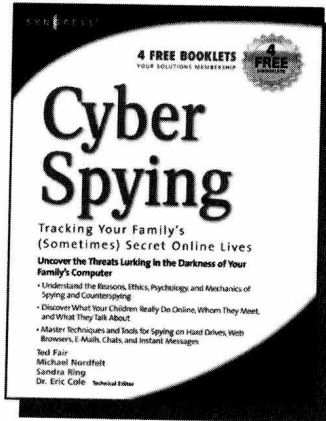
After struggling for years, you finally think you've got your network secured from malicious hackers and obnoxious spammers. Just when you think it's safe to go back into the water, VoIP finally catches on. Now your newly converged network is vulnerable to DoS attacks, hacked gateways leading to unauthorized free calls, call eavesdropping, malicious call redirection, and spam over Internet Telephony (SPIT). This book details both VoIP attacks and defense techniques and tools.

ISBN: 1-59749-060-1

Price: \$49.95 U.S. \$69.95 CAN

Syngress: *The Definition of a Serious Security Library*

Syn•gress (sin-gres): *noun, sing.* Freedom from risk or danger; safety. See *security*.



AVAILABLE NOW
order @

Cyber Spying: Tracking Your Family's (Sometimes) Secret Online Lives

Dr. Eric Cole, Michael Nordfelt,
Sandra Ring, and Ted Fair

Have you ever wondered about that friend your spouse e-mails, or who they spend hours chatting online with? Are you curious about what your children are doing online, whom they meet, and what they talk about? Do you worry about them finding drugs and other illegal items online, and wonder what they look at? This book shows you how to monitor and analyze your family's online behavior.

ISBN: 1-93183-641-8

Price: \$39.95 US \$57.95 CAN

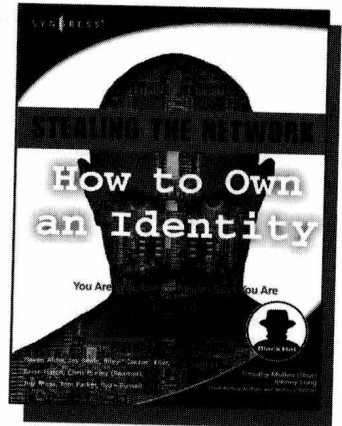
Stealing the Network: How to Own an Identity

Timothy Mullen, Ryan Russell, Riley (Caesar) Eller, Jeff Moss, Jay Beale, Johnny Long, Chris Hurley, Tom Parker, Brian Hatch
The first two books in this series "Stealing the Network: How to Own the Box" and "Stealing the Network: How to Own a Continent" have become classics in the Hacker and Infosec communities because of their chillingly realistic depictions of criminal hacking techniques. In this third installment, the all-star cast of authors tackle one of the fastest-growing crimes in the world: Identity Theft. Now, the criminal hackers readers have grown to both love and hate try to cover their tracks and vanish into thin air...

ISBN: 1-59749-006-7

Price: \$39.95 US \$55.95 CAN

AVAILABLE NOW
order @



AVAILABLE NOW
order @

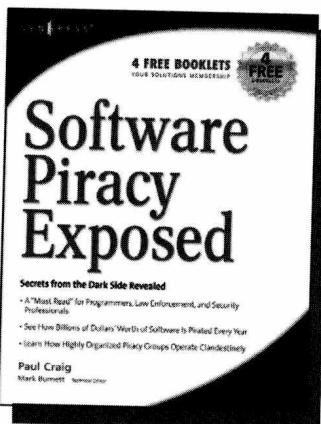
Software Piracy Exposed

Paul Craig, Ron Honick

For every \$2 worth of software purchased legally, \$1 worth of software is pirated illegally. For the first time ever, the dark underground of how software is stolen and traded over the Internet is revealed. The technical detail provided will open the eyes of software users and manufacturers worldwide! This book is a tell-it-like-it-is exposé of how tens of billions of dollars worth of software is stolen every year.

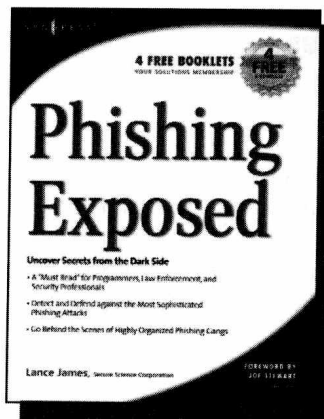
ISBN: 1-93226-698-4

Price: \$39.95 U.S. \$55.95 CAN



Syngress: *The Definition of a Serious Security Library*

Syn•gress (sin-gres): noun, sing. Freedom from risk or danger; safety. See *security*.



AVAILABLE NOW
order @

Phishing Exposed

Lance James, Secure Science Corporation,
Joe Stewart (Foreword)

If you have ever received a phish, become a victim of a phish, or manage the security of a major e-commerce or financial site, then you need to read this book. The author of this book delivers the unconcealed techniques of phishers including their evolving patterns, and how to gain the upper hand against the ever-accelerating attacks they deploy. Filled with elaborate and unprecedented forensics, *Phishing Exposed* details techniques that system administrators, law enforcement, and fraud investigators can exercise and learn more about their attacker and their specific attack methods, enabling risk mitigation in many cases before the attack occurs.

ISBN: 1-59749-030-X

Price: \$49.95 US \$69.95 CAN

Penetration Tester's Open Source Toolkit

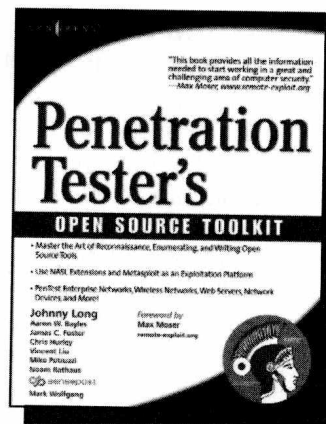
Johnny Long, Chris Hurley, SensePost,
Mark Wolfgang, Mike Petrucci

This is the first fully integrated Penetration Testing book and bootable Linux CD containing the "Auditor Security Collection," which includes over 300 of the most effective and commonly used open source attack and penetration testing tools. This powerful tool kit and authoritative reference is written by the security industry's foremost penetration testers including HD Moore, Jay Beale, and SensePost. This unique package provides you with a completely portable and bootable Linux attack distribution and authoritative reference to the toolset included and the required methodology.

ISBN: 1-59749-021-0

Price: \$59.95 US \$83.95 CAN

AVAILABLE NOW
order @



AVAILABLE NOW
order @

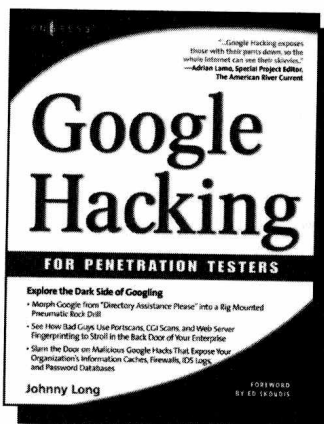
Google Hacking for Penetration Testers

Johnny Long, Foreword by Ed Skoudis

Google has been a strong force in Internet culture since its 1998 upstart. Since then, the engine has evolved from a simple search instrument to an innovative authority of information. As the sophistication of Google grows, so do the hacking hazards that the engine entertains. Approaches to hacking are forever changing, and this book covers the risks and precautions that administrators need to be aware of during this explosive phase of Google Hacking.

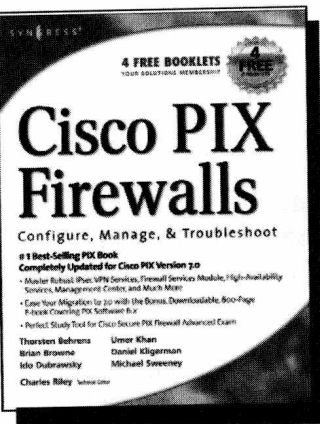
ISBN: 1-93183-636-1

Price: \$44.95 U.S. \$65.95 CAN



Syngress: The Definition of a Serious Security Library

Syn•gress (sin-gres): *noun, sing.* Freedom from risk or danger; safety. See *security*.



AVAILABLE NOW
order @

Cisco PIX Firewalls: Configure, Manage, & Troubleshoot

Charles Riley, Umer Khan, Michael Sweeney

Cisco PIX Firewall is the world's most used network firewall, protecting internal networks from unwanted intrusions and attacks. Virtual Private Networks (VPNs) are the means by which authorized users are allowed through PIX Firewalls. Network engineers and security specialists must constantly balance the need for air-tight security (Firewalls) with the need for on-demand access (VPNs). In this book, Umer Khan, author of the #1 best selling PIX Firewall book, provides a concise, to-the-point blueprint for fully integrating these two essential pieces of any enterprise network.

ISBN: 1-59749-004-0

Price: \$49.95 US \$69.95 CAN

AVAILABLE NOW
order @



Configuring Netscreen Firewalls

Rob Cameron

Configuring NetScreen Firewalls is the first book to deliver an in-depth look at the NetScreen firewall product line. It covers all of the aspects of the NetScreen product line from the SOHO devices to the Enterprise NetScreen firewalls. Advanced troubleshooting techniques and the NetScreen Security Manager are also covered..

ISBN: 1-93226-639-9

Price: \$49.95 US \$72.95 CAN

AVAILABLE NOW
order @

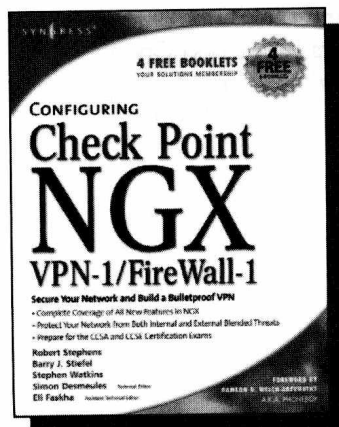
Configuring Check Point NGX VPN-1/FireWall-1

Barry J. Stiefel, Simon Desmeules

Configuring Check Point NGX VPN-1/Firewall-1 is the perfect reference for anyone migrating from earlier versions of Check Point's flagship firewall/VPN product as well as those deploying VPN-1/Firewall-1 for the first time. NGX includes dramatic changes and new, enhanced features to secure the integrity of your network's data, communications, and applications from the plethora of blended threats that can breach your security through your network perimeter, Web access, and increasingly common internal threats.

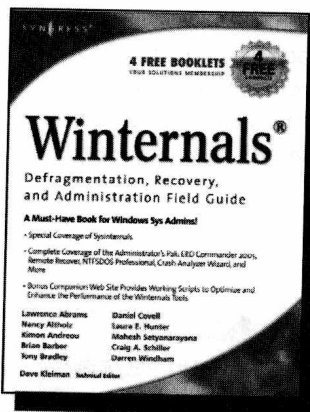
ISBN: 1-59749-031-8

Price: \$49.95 U.S. \$69.95 CAN



Syngress: *The Definition of a Serious Security Library*

Syn·gress (sin-gres): *noun, sing.* Freedom from risk or danger; safety. See *security*.



AVAILABLE NOW
order @

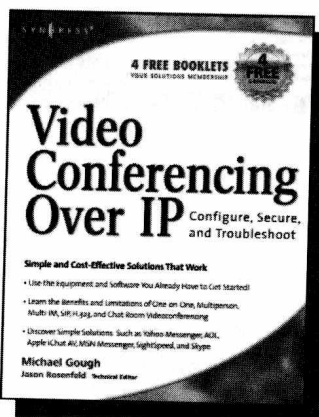
Winternals Defragmentation, Recovery, and Administration Field Guide

Dave Kleiman, Laura E. Hunter, Tony Bradley, Brian Barber, Nancy Altholz, Lawrence Abrams, Mahesh Satyanarayana, Darren Windham, Craig Schiller

As a system administrator for a Microsoft network, you know doubt spend too much of your life backing up data and restoring data, hunting down and removing malware and spyware, defragmenting disks, and improving the overall performance and reliability of your network. The Winternals® Defragmentation, Recovery, and Administration Field Guide and companion Web site provide you with all the information necessary to take full advantage of Winternals comprehensive and reliable tools suite for system administrators.

ISBN: 1-59749-079-2

Price: \$49.95 US \$64.95 CAN



AVAILABLE NOW
order @

Video Conferencing over IP: Configure, Secure, and Troubleshoot

Michael Gough

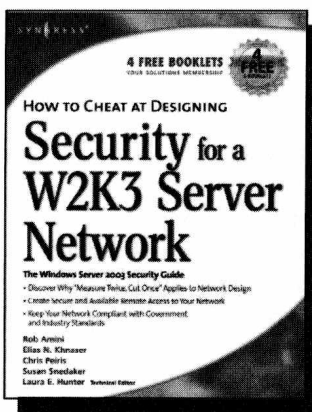
Until recently, the reality of videoconferencing didn't live up to the marketing hype. That's all changed. The network infrastructure and broadband capacity are now in place to deliver clear, real-time video and voice feeds between multiple points of contacts, with market leaders such as Cisco and Microsoft continuing to invest heavily in development. In addition, newcomers Skype and Google are poised to launch services and products targeting this market. *Video Conferencing over IP* is the perfect guide to getting up and running with video teleconferencing for small to medium-sized enterprises.

ISBN: 1-59749-063-6

Price: \$49.95 U.S. \$64.95 CAN

Syngress: *The Definition of a Serious Security Library*

Syn•gress (sin-gres): *noun, sing.* Freedom from risk or danger; safety. See *security*.



AVAILABLE NOW
order @

How to Cheat at Designing Security for a Windows Server 2003 Network

Neil Ruston, Chris Peiris

While considering the security needs of your organization, you need to balance the human and the technical in order to create the best security design for your organization. Securing a Windows Server 2003 enterprise network is hardly a small undertaking, but it becomes quite manageable if you approach it in an organized and systematic way. This includes configuring software, services, and protocols to meet an organization's security needs.

ISBN: 1-59749-243-4

Price: \$39.95 US \$55.95 CAN

How to Cheat at Designing a Windows Server 2003 Active Directory Infrastructure

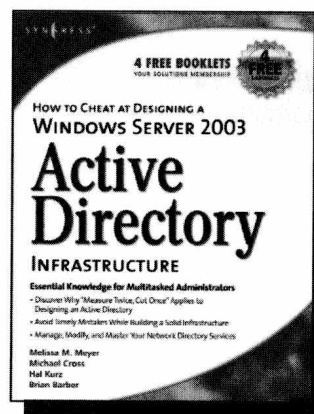
Melissa Craft, Michael Cross, Hal Kurz, Brian Barber

The book will start off by teaching readers to create the conceptual design of their Active Directory infrastructure by gathering and analyzing business and technical requirements. Next, readers will create the logical design for an Active Directory infrastructure. Here the book starts to drill deeper and focus on aspects such as group policy design. Finally, readers will learn to create the physical design for an active directory and network Infrastructure including DNS server placement; DC and GC placements and Flexible Single Master Operations (FSMO) role placement.

ISBN: 1-59749-058-X

Price: \$39.95 US \$55.95 CAN

AVAILABLE NOW
order @



AVAILABLE NOW
order @

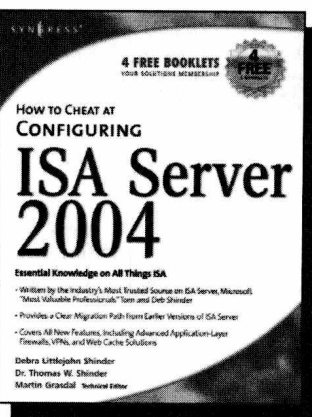
How to Cheat at Configuring ISA Server 2004

Dr. Thomas W. Shinder, Debra Littlejohn Shinder

If deploying and managing ISA Server 2004 is just one of a hundred responsibilities you have as a System Administrator, "How to Cheat at Configuring ISA Server 2004" is the perfect book for you. Written by Microsoft MVP Dr. Tom Shinder, this is a concise, accurate, enterprise tested method for the successful deployment of ISA Server.

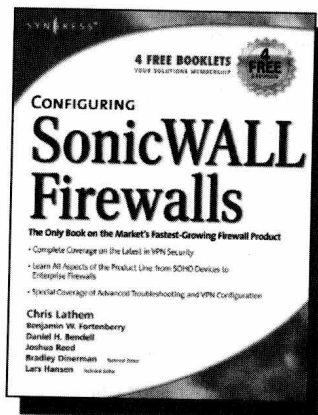
ISBN: 1-59749-057-1

Price: \$34.95 U.S. \$55.95 CAN



Syngress: *The Definition of a Serious Security Library*

Syn·gress (sin-gres): *noun, sing.* Freedom from risk or danger; safety. See *security*.



AVAILABLE NOW
order @

Configuring SonicWALL Firewalls

Chris Latham, Ben Fortenberry, Lars Hansen

Configuring SonicWALL Firewalls is the first book to deliver an in-depth look at the SonicWALL firewall product line. It covers all of the aspects of the SonicWALL product line from the SOHO devices to the Enterprise SonicWALL firewalls. Advanced troubleshooting techniques and the SonicWALL Security Manager are also covered.

ISBN: 1-59749-250-7

Price: \$49.95 US \$69.95 CAN

Perfect Passwords: Selection, Protection, Authentication

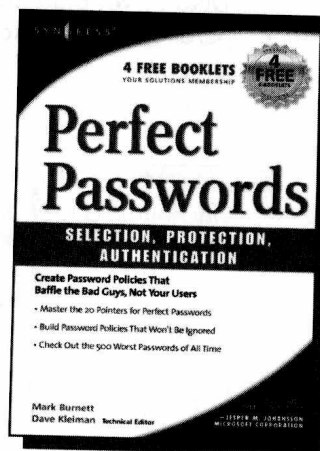
Mark Burnett

User passwords are the keys to the network kingdom, yet most users choose overly simplistic passwords (like password) that anyone could guess, while system administrators demand impossible to remember passwords littered with obscure characters and random numerals. Author Mark Burnett has accumulated and analyzed over 1,000,000 user passwords, and this highly entertaining and informative book filled with dozens of illustrations reveals his findings and balances the rigid needs of security professionals against the ease of use desired by users.

ISBN: 1-59749-041-5

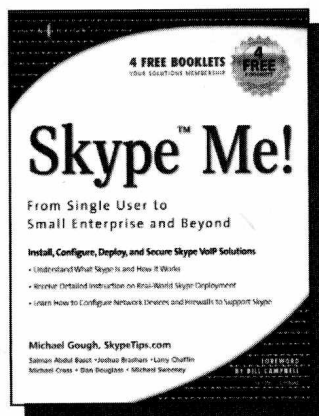
Price: \$24.95 US \$34.95 CAN

AVAILABLE NOW
order @



Syngress: *The Definition of a Serious Security Library*

Syn•gress (sin-gres): *noun, sing.* Freedom from risk or danger; safety. See *security*.



AVAILABLE NOW
order @

Skype Me! From Single User to Small Enterprise and Beyond

Michael Gough

This first-ever book on Skype takes you from the basics of getting Skype up and running on all platforms, through advanced features included in SkypeIn, SkypeOut, and Skype for Business. The book teaches you everything from installing a headset to configuring a firewall to setting up Skype as telephone Base to developing your own customized applications using the Skype Application Programming Interface.

ISBN: 1-59749-032-6

Price: \$34.95 US \$48.95 CAN

Securing IM and P2P Applications for the Enterprise

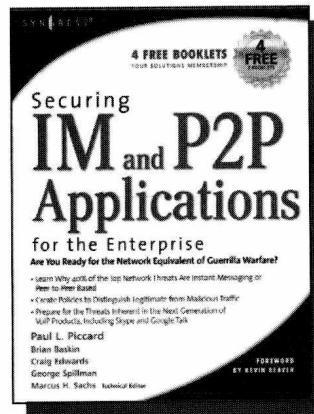
Brian Baskin, Marcus H. Sachs, Paul Piccard

As an IT Professional, you know that the majority of the workstations on your network now contain IM and P2P applications that you did not select, test, install, or configure. As a result, malicious hackers, as well as virus and worm writers, are targeting these inadequately secured applications for attack. This book will teach you how to take back control of your workstations and reap the benefits provided by these applications while protecting your network from the inherent dangers.

ISBN: 1-59749-017-2

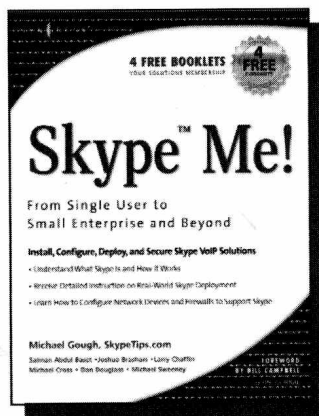
Price: \$49.95 US \$69.95 CAN

AVAILABLE NOW
order @



Syngress: *The Definition of a Serious Security Library*

Syn•gress (sin-gres): *noun, sing.* Freedom from risk or danger; safety. See *security*.



AVAILABLE NOW
order @

Skype Me! From Single User to Small Enterprise and Beyond

Michael Gough

This first-ever book on Skype takes you from the basics of getting Skype up and running on all platforms, through advanced features included in SkypeIn, SkypeOut, and Skype for Business. The book teaches you everything from installing a headset to configuring a firewall to setting up Skype as telephone Base to developing your own customized applications using the Skype Application Programming Interface.

ISBN: 1-59749-032-6

Price: \$34.95 US \$48.95 CAN

Securing IM and P2P Applications for the Enterprise

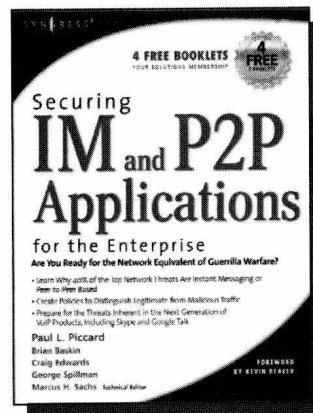
Brian Baskin, Marcus H. Sachs, Paul Piccard

As an IT Professional, you know that the majority of the workstations on your network now contain IM and P2P applications that you did not select, test, install, or configure. As a result, malicious hackers, as well as virus and worm writers, are targeting these inadequately secured applications for attack. This book will teach you how to take back control of your workstations and reap the benefits provided by these applications while protecting your network from the inherent dangers.

ISBN: 1-59749-017-2

Price: \$49.95 US \$69.95 CAN

AVAILABLE NOW
order @



info security

Syngress is now part of Elsevier, publisher of *Infosecurity* magazine. *Infosecurity*'s UK-based editorial team provides information security professionals with strategy, insight and technique to help them do their jobs better.

Infosecurity's web-site runs online-only information security news and analysis, selected features from the magazine and free access to relevant articles from Elsevier's paid-for scientific journals.

And it now also offers exclusive columns from Syngress authors, along with extracts from their books.

For a deeper understanding of infosecurity, visit www.infosecurity-magazine.com/syngress



Contents

| | |
|--|-----------|
| Chapter 1 Introduction | 1 |
| Overview | 2 |
| What Is Sensitive Data? | 3 |
| Personally Identifiable Information | 4 |
| Confidential Business Information | 4 |
| Data Categories | 5 |
| Data Security Breach | 5 |
| Data Loss Consequences | 6 |
| Impact | 6 |
| Identity Theft | 7 |
| Organizational Costs | 8 |
| Prevention and Safeguards | 9 |
| Response | 10 |
| Notification | 11 |
| Recovering from a Data Breach | 12 |
| Organization of the Book | 13 |
| Chapter 2: Data Classification | 13 |
| Chapter 3: Controls and Safeguards | 13 |
| Chapter 4: Data Security Policy | 13 |
| Chapter 5: Response Program | 14 |
| Chapter 6: Detection and Reporting | 14 |
| Chapter 7: Evaluation and Response | 14 |
| Chapter 8: Disclosure and Notification | 14 |
| Chapter 9: Closure | 14 |
| Appendix A: Relevant Legislation | 14 |
| Chapter 2 Data Classification | 15 |
| Introduction | 16 |
| Security Objectives | 16 |
| Potential Impact | 18 |
| Low | 18 |
| Moderate | 18 |
| High | 19 |
| Classification Levels | 19 |
| Confidential | 20 |

| | |
|---|-----------|
| Internal | 21 |
| Public | 21 |
| Data Ownership and Usage | 23 |
| Owner. | 23 |
| Custodian | 24 |
| User. | 25 |
| User Manager. | 25 |
| Information Security Officer. | 26 |
| Chief Information Officer. | 26 |
| Data Sharing | 27 |
| Metadata | 27 |
| Classification Project | 28 |
| Create an Information Asset Inventory | 28 |
| Specify the Classification Criteria | 30 |
| Classify the Data. | 31 |
| Special Considerations | 32 |
| Aggregation. | 32 |
| Extracts | 32 |
| Impact on Other Data or Systems. | 32 |
| Unstructured Data | 33 |
| Perform Risk Assessment | 33 |
| Assessment Elements | 34 |
| Models | 35 |
| Approach. | 35 |
| Considerations. | 36 |
| Risk Management Options | 37 |
| Key Practices | 37 |
| Documentation | 38 |
| Update | 38 |
| Challenges. | 39 |
| Develop Control Implementation Plan | 39 |
| Types of Classification Level Controls | 40 |
| Device and Media Controls | 40 |
| Document Exceptions to Recommended Controls | 41 |
| The Data Life Cycle. | 42 |
| Summary. | 44 |
| Chapter 3 Controls and Safeguards | 47 |
| Data Security Program. | 48 |
| Security Controls. | 48 |