

# Contents

Author Biography .....	xi
Technical Editor Biography .....	xiii
Foreword .....	xv
Acknowledgments .....	xvii

## **CHAPTER 1 Efficient Operations..... 1**

Defining an Operations Center .....	1
Purpose of the Operations Center .....	3
Emergency Operations Center .....	4
Mission Operations Center .....	5
Threat Operations Center .....	5
Network Operations Center .....	5
Let Us Build a SOC! .....	6
Technology Phase .....	8
Organizational Phase .....	9
Policy Phase .....	9
Operational Phase .....	10
Intelligence Phase .....	10
Plan Your SOC .....	11
Logs .....	13
Event .....	16
Alerts .....	17
False Positive .....	18
True Positive .....	19
False Negative .....	19
True Negative .....	20
Incidents .....	20
Problems .....	22
Define Your Requirements .....	23
Summary .....	23

## **CHAPTER 2 Identify Your Customers..... 25**

Internal Versus External Customers .....	27
Human Resources .....	27
Legal .....	28
Audit .....	29

Engineering/R&D .....	30
IT.....	30
External Customers.....	31
Customer Objectives.....	32
Service Level Agreements.....	32
Build and Document Your Use Cases .....	36
Use Case: Unauthorized Modification of User Accounts.....	38
Stakeholders: Compliance and Audit Departments.....	39
Use Case: Disabled User Account Reactivated.....	39
Stakeholders: HR and IT .....	39
Use Case: Any IDS Event that Scores Over a Severity of 7 .....	40
Use Case: AV Failure.....	40
Stakeholders: Desktop Support Team, IT Server Management Teams.....	41
Use Case: Security Device Outage.....	41
Stakeholders: Security and IT.....	42
Use Case Rule Summary .....	42
Use Case: Top Vulnerabilities Detected in the Network.....	44
Stakeholders: Security, It, Audit, and Management .....	44
Use Case Reporting Summary.....	45
Expectations.....	46
<b>CHAPTER 3 Infrastructure.....</b>	<b>49</b>
Organizational Infrastructure > Operations Infrastructure > Support Infrastructure.....	51
Organizational Security Infrastructure .....	51
Perimeter Defenses .....	52
Network Defense .....	53
Host Defenses .....	53
Application Defenses.....	54
Data Defense.....	54
Policies and Procedures .....	54
Security Architecture.....	55
Siem/Log Management.....	56
Operation Center Infrastructure.....	59
Ticketing Systems.....	59
Building the Ticket System .....	62
Subject .....	64
Parsed Values From Events .....	65
Time Ticket Created .....	66
User\Group\Queue.....	67

Source (SIEM, Email, Phone) .....	68
Category .....	69
Status .....	70
Reason Codes .....	70
Acknowledgment/Ticket Feedback .....	72
Workflow and Automation .....	73
Portal Interface .....	73
Mobile Devices .....	74
Support Infrastructure .....	74
Physical .....	75
Private SOC Network .....	80
Video Walls .....	81
Video Projectors .....	82
Labs .....	82
<b>CHAPTER 4 Organizational Structure .....</b>	<b>85</b>
Different Reporting Lines .....	88
Legal .....	89
CISO .....	90
CIO .....	91
Compliance .....	91
SOC Organization .....	92
Engineering .....	95
Security Architecture .....	96
Security Monitoring and Analysis .....	97
Responsibility .....	98
Authority .....	99
Fulfilling Needs .....	99
<b>CHAPTER 5 Your Most Valuable Resource is Your People .....</b>	<b>101</b>
Operational Security .....	104
Culture .....	105
Personality .....	106
Core Skill Sets .....	106
Analysts .....	109
Security Analyst—Job Description .....	110
Security Engineering .....	111
Security Operations Engineer—Job Description .....	112
Security Architect .....	114
Security Architect—Job Description .....	114

SOC Team Lead .....	115
SOC Team Lead—Job Description .....	116
SOC Management.....	117
SOC Manager—Job Description .....	118
SOC Games .....	120
Special Projects.....	123
Do Not Forget Your People .....	123
<b>CHAPTER 6 Daily Operations .....</b>	<b>125</b>
Problem and Change Event Communications .....	126
Master Station Logs .....	126
Shift Turn Overs .....	127
Daily Operations Calls.....	129
Critical Bridges.....	130
IR .....	134
Detection.....	134
Confirmation .....	134
Analysis .....	135
Containment.....	135
Recovery .....	136
Review .....	136
Communication Plan .....	137
Regular Workshops .....	138
Checklists.....	139
Shift Schedules .....	141
Types of Shift Schedules .....	143
Other Shift Options.....	146
Follow the Sun.....	146
Shift Rotation.....	147
Dealing with Absenteeism .....	148
<b>CHAPTER 7 Training .....</b>	<b>151</b>
Internal Functional Training .....	152
Internal Skill Set Training .....	154
Playbooks and Runbooks.....	154
Job Task Qualification Training.....	155
Tools and Product Training .....	155
Formal Training and Certifications.....	156
Schools and Universities.....	158
Vendor Training.....	158
OJT.....	159

	Training Plans .....	160
	SOC Shift Operations .....	161
	Leaders .....	162
	Customer Notifications .....	163
	SOC Phones .....	163
	Progression and Visibility .....	167
	Training Exercises .....	168
	Summary .....	171
<b>CHAPTER 8</b>	<b>Metrics .....</b>	<b>173</b>
	Heads Up Display .....	174
	Supervisor Metrics .....	175
	Vulnerabilities .....	181
	Vulnerability Prioritizing .....	184
	Base CVSS2 Threshold .....	185
	Temporal CVSS2 Threshold .....	185
	Asset Prioritizing as a Part of Metrics .....	186
	Historical Monitoring of Patches .....	190
<b>CHAPTER 9</b>	<b>Intelligence .....</b>	<b>197</b>
	Know Thyself .....	200
	Known IP Space, Know Thy Enemy .....	202
	Blacklists .....	203
	Black Listing Projects .....	208
	Other Types of Lists .....	209
	Organizations and Industry Partners .....	210
	Proactive Activity Monitoring .....	213
<b>CHAPTER 10</b>	<b>Outsourcing .....</b>	<b>215</b>
	Types of MSSPs .....	217
	Strategic Partners .....	217
	Pure Play Providers .....	217
	Boutique Providers .....	218
	Advantages of MSSP Outsourcing .....	219
	Cost .....	220
	Organizational .....	221
	Enhanced Capabilities .....	221
	SLA .....	222
	Documentation .....	223
	Disadvantages to MSSP Outsourcing .....	224
	Large Numbers of Customers .....	224