Universiti Teknologi MARA

Identifying Hacking and Abuse Threats towards a Home DSL Internet Connection with High Interaction Honeypot Implementation

Emran Mohd Tamil

Bachelor of Engineering (Hons) Electrical-Robotic, UTM.

Thesis submitted in partial fulfillment of the requirement for the degree of Master of Science in Information Technology Faculty of Information Technology and Quantitative Sciences

March 2004

ACKNOWLEDGEMENT

I would like to thank Mr Hamid Othman for making this thesis possible. I would like also to thank Assoc. Prof. Dr. Isa Samat for his help and his support.

This thesis could not have completed without the support from my family especially my mother and father. I would also like to give special thanks to for her support and help during this research and thesis writing.

TABLE OF CONTENTS

ACKN	OWLEDGEMENT	iii
LIST (OF TABLES	viii
LIST (OF FIGURES	ix
LIST (OF ABBREVIATIONS	x
GLOS	SARY	xi
ABSTI	RACT	xii
~		
	TER 1: INTRODUCTION	
1.1	Introduction	
1.2	Problem Identification	2
1.3	Objectives	4
1.4	Methodology of Research	4
1.5	Scope of Research	4
СНАР'	TER 2: THEORETICAL CONSIDERATIONS	6
2.1	TCP/IP Model	6
2.2	TCP Protocol	7
2.3	UDP Protocol	9
2.4	ICMP Protocol	9
2.5	Service Ports.	10
2.6	Reading Snort Alert Log	11
CHAP'	TER 3: LITERATURE REVIEW	12
3.1	Internet Security History and Trend	12
3.2	DSL Internet Connection	15
3.3	Honeypot Technology as Int	

CHAPI	ER 4: RESEARCH METHODOLOGY	41
4.1	Methodology Overview	41
4.2	Honeypot Architecture Design Process.	. 42
4.3	Honeypot Operation.	47
4.4	Data Collection & Analysis Procedures	48
CHAPI	ER 5: INITIAL RESULT AND DATA ANALYSIS	51
5.1	All Honeypot Initial Result Analysis	51
5.2	All Honeypot Traffic Profile by Protocol Analysis.	53
5.3	All Honeypot Port (Port attacked) Analysis	54
5.4	Time (Date) of Alert Analysis	57
5.5	Time (day of week) vs. Number of Alert Analysis_	59
5.6	Time (hour) vs. Number of Alert Analysis	_6 0
5.7	Windows 98 Attack Analysis	62
5.8	Redhat 7.3 Attack Analysis	64
5.9	Redhat 6.2 Attack Analysis	66
5.10	Windows 2000 Attack Analysis	67
5.11	Windows XP Attack Analysis.	69
CHAPI	TER 6: ATTACK & EXPLOIT CASE STUDY	72
6.1	Redhat 6.2 Hacker Case Study	72
6.2	Anonymous FTP Abuse Case Study	80
6.3	Proxy scan Abuse Case Study	85
6.4	Welchia Worm Case Study	91
6.5	Traffic with TCP port 0 traffic Case Study	101
6.6	Net Bios SMB Spam Advertisement Case Study	104
CHAPT	TER 7: DISCUSSION & FINDINGS	109
7.1	Exploit and Attack analysis	109
7.2	Methodology of Attack	
7.3	Tasks	113

ABSTRACT

The number of home DSL subscribers has been increasing and this trend is expected to continue in years to come. At the same time the number of hacking and abuse cases targeted at host that is connected to the internet also has been rising. There is a need to identify whether host that is connected to the internet via DSL internet connection are also vulnerable to hacking and abuse threat from the internet. The threat would be identify with the implementation of high interaction honeypot. A honeynet architecture consist of normal OS as the high interaction honeypot is connected to the internet via DSL connection and monitored by a monitoring station that used Snort IDS. It is found out that computer that connected to the internet via DSL connection also exposed to hacking and abuse threat. The research recorded a total of 19120 attack alert generated by snort. One of the honeypot deployed has been abused as an IRC bot server. The attack experienced including scanning activity, attempted admin, worms and even marketing advertisement.