BOTNET: AN EMERGING CYBER SECURITY THREAT WITH ITS EVALUATION

S. Aanjan Kumar

(Assistant Professor)
Sri Raaja Raajan College of
Engineering & Technology,
Karaikudi, Tamil Nadu, INDIA.

Dr. S. Poonkuntran

(Professor)
Velammal College of
Engineering & Technology,
Madurai, Tamil Nadu, INDIA.

BOTNET: AN EMERGING CYBER SECURITY THREAT WITH ITS EVALUATION

Copyright © : S. Aanjan Kumar

Publishing Right (P) : VSRD Academic Publishing

A Division of Visual Soft (India) Pvt. Ltd.

ISBN-13: 978-81-931580-4-3

FIRST EDITION, FEBRUARY 2016, INDIA

Typeset, Printed & Published by:

VSRD Academic Publishing (A Division of Visual Soft (India) Pvt. Ltd.)

Disclaimer: The author(s) are solely responsible for the contents of the papers compiled in this book. The publishers or its staff do not take any responsibility for the same in any manner. Errors, if any, are purely unintentional and readers are requested to communicate such errors to the Editors or Publishers to avoid discrepancies in future.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the Publishers & Author.

Printed & Bound in India

VSRD ACADEMIC PUBLISHING

A Division of Visual Soft (India) Pvt. Ltd.

REGISTERED OFFICE

154, Tezabmill Campus, Anwarganj, KANPUR – 208 003 (UP) (IN)

Mob.: +91 99561 27040, Ph.: +91 512 6553705

Web.: www.vsrdpublishing.com, Email: vsrdpublishing@gmail.com

MARKETING OFFICE (NORTH INDIA)

Basement-2, Villa-10, Block-V, Charmwood Village, FARIDABAD-121009 (HY)(IN)

Mob.: +91 98999 36803, Ph.: +91 129 4036803

Web.: www.vsrdpublishing.com, Email: vsrdpublishing@gmail.com

MARKETING OFFICE (SOUTH INDIA)

340, FF, Adarsh Nagar, Oshiwara, Andheri(W), MUMBAI–400053 (MH)(IN)

Mob.: +91 9956127040

Web.: www.vsrdpublishing.com, Email: vsrdpublishing@gmail.com

PREFACE

This book "BOTNET: AN EMERGING CYBER SECURITY THREAT WITH ITS EVALUTION" is about the introductory ideas on botnets used in real world in cyber space. It emphasizes the history, effect, threat, spreading and evaluation of botnet in the cyber world utilizing by the cyber criminals. It gives an ideology towards the botnet system, attacks and identifies the problem with botnet attacks in the computer system damage system leads to shut down by applying the special attack. It provides an idea for readers toward understanding of creating intelligent prevention methods over botnet to increase the data security and prevent system damage using special methods.

This book provides logical method of explaining various complicated concepts and stepwise methods to explain important topics and it's not only covers the entire scope of subject but explains the philosophy of the subject. This makes the clear understanding of subject more clear and makes more interesting. The book will very useful not only for students but also the subject teachers.

I wish to express my profound thanks to my guide **Dr. S. POONKUNTRAN**, Professor, Department of Computer Science & Engineering, Velammal Engineering College and Technology, Madurai, my well wisher **Dr. MANI SHANKAR**, Head of Department & Professor, Department of Chemistry, Alagappa University, then higher official permit me to carry my survey in field of botnet in my working college Sri Raaja Raajan College of Engineering and Technology,

Chairman, Dean P.L. SUBRAMANIAN and My colleagues, friends last but not least my all in all inspire living gods in front of me my father Mr. P. SURESH KUMAR and my mother Mrs. S. SUSILA DEVI to encourage me in this work helping me to making this book a reality.

🗷 S. Aanjan Kumar

CONTENTS

Cha	pter 1 : Cyber Security 1-52
•	CYBER SECURITY: A SHORT HISTORY
•	CYBER SECURITY TODAY 6
•	INTERNATIONAL CONFLICT IN CYBER SECURITY 11
•	CYBER SECURITY STANDARDS 20
•	CYBER ATTACK CATEGORIES
•	THE RISE OF MALICIOUS CODE
•	RISKS IN CYBER SECURITY
•	DETERRENCE OF CYBER ATTACKS
•	CYBER SECURITY THREATS
•	CYBER RISK
•	CYBER ATTACK MITIGATION STRATEGIES 48
	pter 2: Most Advance Threat in erspace: BOTNETS 53-106
•	BOTNET 55
•	CONTROLLING THE BOTNET
•	WHY BOTNETS ARE SO DANGEROUS 60
•	THE DOTNET CACA DECING
	THE BOTNET SAGA BEGINS
•	HISTORIC EVENTS LEADING TO BOTNETS
•	
•	HISTORIC EVENTS LEADING TO BOTNETS 65
•	HISTORIC EVENTS LEADING TO BOTNETS
•	HISTORIC EVENTS LEADING TO BOTNETS
•	HISTORIC EVENTS LEADING TO BOTNETS

•	BOTNET SIZE AND BOT ORIGIN 105
B O T	pter 3: Introduction to NET Intrusion Detection tems
•	A REVIEW ON INTRUSION DETECTION SYSTEMS 110
•	INTRUSION DETECTION MODELS
•	COMPUTER ATTACK TAXONOMY 113
•	SIGNIFICANT FEATURE SELECTION FOR INTRUSION DETECTION
•	ATTACKS ON INTRUSION DETECTION SYSTEMS 123
•	ATTACKS ON BOTNET TOOLS 128
•	DESIGNING EFFICIENT INTRUSION DETECTION SYSTEMS
•	ANALYSIS OF FLOW RECORDS
Pow	pter 4: Enumeration of erful Peer-to-Peer NET147-170
•	OVERVIEW OF POWERFUL P2P BOTNET 151
•	PEER-TO-PEER PROTOCOL
•	INFECTION VECTORS AND AFFILIATE SCHEME 154
•	CODE CHANGES 161
•	BOTNET CRAWLER
•	THE ROLE OF GOVERNMENTS IN BOTNETS 168
C h a B O T	pter 5: ZEUS: Evolving NET171-180
•	ZEUS NETWORK TOPOLOGY
•	ZEUS ENCRYPTION
•	ZEUS COMMUNICATION PATTERNS
•	ZEUS FORMING ALGORITHM178

			6: A M				
	•	RECENT R	REPORTS ON (GAMEO	VER ZEUS BC	TNET	183
	•	GAMEOV	ER ZEUS BOT	NET			185
	•	IS ZEUS P	2P BOTNET P	OWERF	UL?		187
	•	GAME OV	ER ZEUS BOT	NET: E	VOLUTION		189
	•		PERFORMED				193
			7: Futu 1y				
	•	FUTURE E	ENHANCEMEI	NT			197
Rе	f e	renc	es		1.47.47.4.4	. 199-	218
	•	REFEREN	CES				201