

CONTENTS

List of Figures	iii.
List of Tables	iv.
List of Abbreviations	vi.
Executive Summary	1.
Thesis Organization	3.
1. Introduction	
1.1 Abstract	5.
1.2 Introduction to Cloud Computing	5.
1.3 Introduction to DDoS Attacks	12.
1.4 Introduction to Ransomware	22.
1.5 Algorithms for Cloud Security	26.
1.6 Research Objective	31.
1.7 Research Methodology	32.
1.8 Research Contribution	33.
2. Literature Review	
2.1 Abstract	34.
2.2 Introduction	34.
2.3 Review of DDoS Research Papers	36.
2.4 DDoS Attack Classification	46.
2.5 Parameters for Effective DDoS Detection	47.
2.6 DDoS Countermeasure Taxonomy	48.
2.7 Chapter Summary	49.
3. Review of Solutions for DDoS Attacks on Clouds	
3.1 Abstract	51.
3.2 Cyber Attack Trends	51.
3.3 Cyber Security Survey	52.
3.4 DDoS Mitigation Strategies	58.
3.5 Review of DDoS Mitigation Solutions	64.
3.7 Chapter Summary	67.
Chapter 4. Malware Protection from New Age Threats	
4.1 Abstract	68.
4.2 Ransomware Mitigation Process	68.
4.3 Malware Mitigation Solution	70.
4.4 Performance Analysis	72.
4.6 Chapter Summary	75.

5. Analysis of Security Algorithms for Cloud Environments	
5.1 Abstract	76.
5.3 Encryption Configuration for Cloud Security	76.
5.4 Performance Analysis	77.
5.5 Chapter Summary	81.
6. Architecture to Mitigate DDoS attacks on Hybrid Clouds	
6.1 Abstract	82.
6.2 Selecting DDoS Mitigation Solution	82.
6.3 Real User Monitoring parameters	84.
6.4 Algorithmic Representation for DDoS Attack	85.
6.5 Designing Single Tier Architecture	86.
6.6 Designing Three Tier Architecture	89.
6.7 Chapter Summary	96.
7. Experimental Results	
7.1 Performance Results – Single Tier Architecture	97.
7.2 Performance Results – Three Tier Architecture	98.
7.3 Validating Test Results	100.
7.4 Chapter Summary	105.
8. Conclusion	
8.1 Thesis Conclusion	107.
8.2 Suggestions for future work	108.
9. References	110.
List of Publications	121.
Author’s Resume	122.