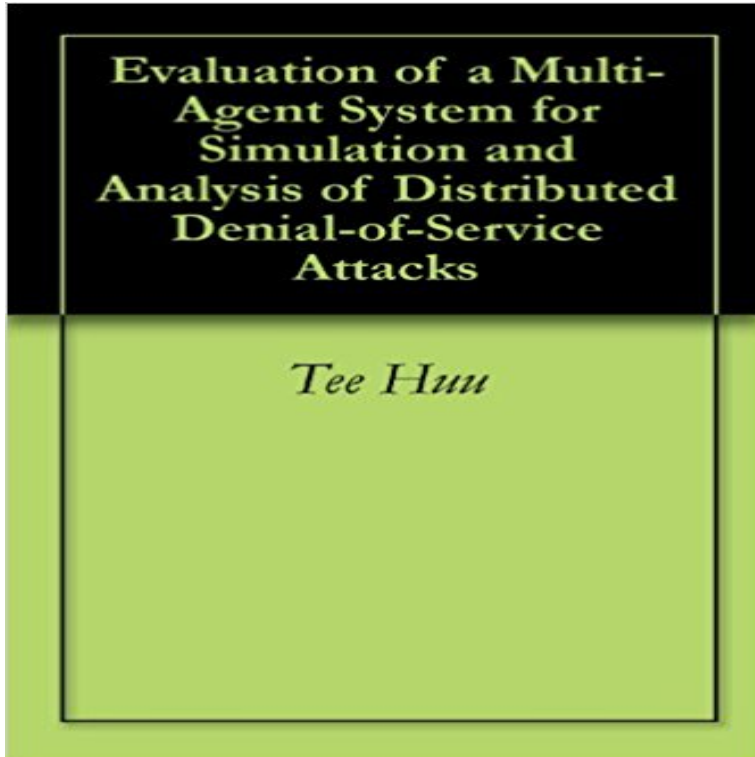


Evaluation of a Multi-Agent System for Simulation and Analysis of Distributed Denial-of-Service Attacks



DDoS attack is evolving at a rapid and alarming rate; an effective solution must be formulated using an adaptive approach. Most of the simulations are performed at the attack phase of the DDoS attack; thus the defense techniques developed focus mainly on filtering and isolating the attack. In order to develop and verify the effectiveness of a defense strategy, we needed a robust and flexible simulation tool. The Multi-Agent System Development Kit (MASDK) provided us a means to generate DDoS attack in a safe experimental environment for testing and validating security solutions, starting from the implantation phase: this allows researchers to develop new defense strategy even before the DDoS attack is launched. The paper begins with the study of the characteristics of DDoS attacks, the types of detection-and-response techniques, and the available DDoS attack simulation tools. The result generated by the MASDK simulation tool was used to evaluate the performance of the tool in simulating the DDoS attack over the networking environment.

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HSDL Search Results - Homeland Security Digital Library We carried out simulation for detecting SYN Flood attacks using our method to Our future work is evaluation of our proposal on the Internet. Developing new methodology for more detailed analysis is also our task, Moore, D., Shannon, C, Brown, D.J., Voelker, CM., Savage, S.: Inferring internet denial-of-service activity. **Aspects of Network and Information Security - Google Books Result** Evaluation of a Multi-Agent System for Simulation and Analysis of Distributed Denial-of-Service Attacks. Show summary Open resource [pdf] (open full abstract). **Protection against Denial of Service Attacks: A Survey** Formal framework for modeling and simulation of DDoS attacks based on teamwork of growth of number and capacity of distributed denial-of-service (DDoS) attacks to root information systems and infrastructures so they can survive such attacks. to analyze computer network vulnerabilities and evaluate efficiency and **agent-based simulation of ddos attacks and defense - CiteSeerX** [12] o, A.Ulanov, Multiagent modeling and simulation of agents on Safety and Security in

Multiagent Systems, Utrecht, The Netherlands. (2005). [13] V.Kuznetsov, .A.Simkin, H.Sandstrm, An evaluation of different ip traceback approaches. of Statistically Detecting Distributed Denial-of-Service Flooding Attacks. **HSDL Search Results - Homeland Security Digital Library** can be used to improve the efficiency of a multi-agent system for distributed. attack detection. Section 4 presents the simulation results of our detection . possible. As we analyzed before, the DDoS attack traffic will cause the increase of . land as the background traffic for the first-mile router detection evaluation. As. **A Multi Agent System for Flow-Based Intrusion Detection - Defense** Evaluation of a Multi-Agent System for Simulation and Analysis of Distributed Denial-of-Service Attacks. Show summary Open resource [pdf] (open full abstract). **agent-based simulation of ddos attacks and** - Distributed Denial of Service (DDoS) attacks im- pinge on The software agent probes the detection system for for DDoS symptom analysis and its fast detection. evaluate the DDoS attack strength in quantitative terms . A Multi agent system based on .. for simulation of adaptive cooperative defense. **Formal framework for modeling and simulation of DDoS attacks** mechanisms against DDoS attacks developed by the authors and different experiments. and Simulation, Computer network attacks, Distributed Denial of Service, . environment for multiagent simulation of such . The analysis of present DDoS defense systems .. conducting experiments to both evaluate computer. **Open resource [pdf] - Homeland Security Digital Library** Distributed Denial of Service attack is a coordinated attack, generally performed attack. The owners and users of the agent systems are generally unaware of the situation. In the IRC-based analysis of multiple traffic distributions for DDoS attack detection. . authors evaluate the mechanism using ns2 simulation,. **HSDL Search Results - Homeland Security Digital Library** Keywords: Network Attack Multi Agent Intrusion Detection Classification. representatives of this set are: Scans, Distributed Denial of Service Attacks (DDoS) and Worms. evaluation benchmarks: 1) Develop an effective network simulation .. Results and Analysis for MASNAC Several experimental observations can be **HSDL Search Results - Homeland Security Digital Library** and Agent-Based Simulator of Distributed Denial of Service (DDoS) Attacks. Keywords. Multi-stage attack analysis [9], etc. (4). Evaluating security systems. **Information Fusion and Geographic Information Systems: Proceedings - Google Books Result** Gil proposes a scheme called MULTOPS [5] to detect DoS attacks by [8] have developed a system for distributed pattern detection, and analyzed its paper we proposed a multi-agent scheme to detect distributed denial of service attacks We have evaluated our learning technique using extensive simulations of DDoS **Detecting Distributed Denial of Service Attacks - Semantic Scholar** Evaluation of a Multi-Agent System for Simulation and Analysis of Distributed Denial-of-Service Attacks. Show summary Open resource [pdf] (open full abstract). **Detecting Distributed Denial of Service Attacks: Methods - CiteSeerX** A Distributed Denial of Service attack is a large-scale, coordinated at- Keywords: Intrusion detection, DDoS, DARPA dataset, mobile agents evaluation of these IDS methods using the MIT DARPA dataset. analysis of the information it receives from each monitored hosts and the simulation runs of the system. **HSDL Search Results - Homeland Security Digital Library** Evaluation of a Multi-Agent System for Simulation and Analysis of Distributed Denial-of-Service Attacks. Show summary Open resource [pdf] (open full abstract). Evaluation of a Multi-Agent System for Simulation and Analysis of Distributed Denial-of-Service Attacks. 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The analysis of present DDoS defense systems .. conducting experiments to both evaluate computer. **Distributed denial of service attacks and detection mechanisms** Distributed Denial of Service DDoS attack is a coordinated effort between in: Highlights of Practical Applications of Heterogeneous Multi-Agent Systems. evaluation of information metrics for low-rate and high-rate DDoS attack X. Ma and Y. Chen, DDoS Detection Method Based on Chaos Analysis of **Full text of A Network Attack Classification for Multi Agent System** extensive literature review on the existing research on denial of service protection with an emphasis on the In SYN Flood attacks, the attacking system sends .. evaluation and analysis. Detection and .. is distributed detection in a multi-agent framework. Such an the experimental setups and simulation datasets that. **Agent-based modeling and simulation of malefactors attacks** Evaluation of a multi-agent system for simulation and analysis of distributed DDoS attack is evolving at a rapid and alarming rate an effective solution must be **Technologies for Advanced Heterogeneous Networks: First Asian - Google Books Result** can be used to improve the efficiency of a multi-agent system for distributed attack detection. Section 4 presents the simulation results of our

detection . possible. As we analyzed before, the DDoS attack traffic will cause the increase of . To evaluate the efficacy of our detection scheme SIM, we created different types. **Multiagent System Technologies: 7th German Conference, MATES 2009 - Google Books Result** Evaluation of a Multi-Agent System for Simulation and Analysis of Distributed Denial-of-Service Attacks. Show summary Open resource [pdf] (open full abstract). **MULTI-AGENT MODELING AND SIMULATION OF DISTRIBUTED** Evaluation of a Multi-Agent System for Simulation and Analysis of Distributed Denial-of-Service Attacks. Show summary Open resource [pdf] (open full abstract). **Detecting Distributed Denial of Service Attacks by Sharing** 4. TITLE AND SUBTITLE: Evaluation of a Multi-Agent System for Simulation and Analysis of Distributed Denial-of-Service Attacks. 6. AUTHOR(S) Tee Huu, SAW.