Abstract

Security in computing world is a serious issue and must be handle with utmost care, hence the need to always protect and secure our networks as more and more business are been conducted through the internet. The expansion of the World Wide Web has given unlimited access to attackers to prey on ignorant administrator who lacks basic knowledge of network security. Vulnerabilities in common security components such as firewalls, security patches, access control and encryption are inevitable, so hackers take advantage of these loopholes to break into computer networks. This paper presents the result of a research that was carried out using a medium interaction honeypot, a virtual machine ware workstation, snort software and entropy-based mathematical model for capturing, analyzing and detection of malicious traffic targeted at the network. A ring topology network of three system was design using virtual machine work station, a Snort software was installed on all the three machine to capture traffic on the network and entropy-based mathematical analysis was conducted on the traffic to detect attack/malicious traffic. The entropy $H(x) = -\sum_{i=1}^{N}N??(P_i)^N?\log_2 (P_i)$ where $P_i = N_i/S$. $N$ is a set of positive integer that represent the total number of server on the network, $n_i$ represent the size of the traffic in bytes and $S$ represent the total length of the traffic that
constitute the traffic. The result of the research work shows detection of malicious traffic and also limit the rate of denial of service targeted at the network.

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Index Terms

Computer Science Security

Keywords

honeypot security Network traffic & detection