

ABSTRACT

Internet of Things (IoT) is a concept that can help humans, because with IoT humans can monitor a state or object and can control these objects remotely. With the emergence of a Software Defined Network (SDN), a concept in a network that separates the data plane and the control plane so that the network becomes more flexible to manage. The need for data communication speed and high availability to serve IoT devices requires a network that is strong, stable and can be designed according to needs such as SDN. Currently SDN still has shortcomings on the security side, such as Denial of Service (DoS) attacks which attack the availability of the network so that the network cannot serve requests or in other words it is called down.

Using Intrusion Detection System (IDS) attack detection on the network can be done, but IDS still has disadvantages, namely it cannot block the attacking host, IDS only detection the attack and gift notification to the network administrator. The use of fuzzy algorithms is used to block attacking hosts and time blocking by looking at the frequency of attacks at certain intervals and the types of attacks detected so that the host block time will be adjusted according to the level of the frequency of attacks and the types of attacks detected.

From the test results that have been carried out 5 times attack trials with an attack interval of 0.1 minutes to 10 minutes, the average blocking time is obtained and the accuracy of the fuzzy algorithm is 50% for DoS attacks and 75% for host discovery. Comparison of the results of the Quality of Service (QoS) test using the security sub-system and not using the security sub-system which gives the results of the parameters of jitter, delay, throughput and packet loss, the DoS attack results in a reduction in delay of 5.3471 seconds and 0% packet loss by implementing the adaptive IDS sub-system on an SDN-based IoT network.

Keywords: Internet of Things, Software Defined Network, Denial of Service, Intrusion Detection System, Fuzzy