

Predicting network traffic anomalies in Denial-of- service attacks – a nonlinear approach

ABSTRACT

The amount of data moving across the network at any given time is referred to as network traffic. It is the data units that are encapsulated in packets and sent over a network. Denial-of-Service (DDoS) attacks are various attempts to disrupt typical network, service, or server traffic. DDoS attacks attempt to disrupt legitimate users' work and data transfers by sending large packets or traffic. Various network traffic prediction techniques are investigated in this study, and a nonlinear time series method, Multilayer Perceptron Neural Network (MLPNN), has been chosen to evaluate network traffic prediction. The results with the NSL-KDD dataset show that the approach can improve prediction accuracy by up to 98.87%. With 2.26%, it outperforms other models such as Sequential Minimal Optimization (SMO).