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Abstract

In current years, increased number of cyberspace users cause rapid ascends of network traffics. For instance: probability of receiving network traffic ever since software technologies that linked with devices produced massive amounts of data which are unable to accommodate through conventional schemes port based, payload based and machine learning approaches. Simultaneously SDN technology can alleviate problems of conventional method in classifying network traffic as malicious and benign, resources allocation, network monitoring along with enhancement in overall network performance via activist methods. This research work analyzed the net traffic metadata of 1,04,345 samples gathered from RYU-SDN controller, an OpenFlow controller using mininet emulator with 23 features then performed encrypted metadata categorization into three classes namely TCP, UDP and ICMP attacks through deep CNN with two layers LSTM, CNN-two layers GRU and ConvNet Bidirectional with two layers GRU approaches with hyper parameters tuning appropriate for better network convergence, performance, optimization too. The proposed experimental outcomes reveals that deep based CB-GRU method fulfill traffic classification in SDN environment and accomplished significance enhancement in terms of accuracy 99.97%, and loss rate 0.01. Other evaluation criterias precision, recall, area under curve, were calculated for performance identification in net data traffic classification than conventional methods.

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