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Performance Analysis of Traffic Classification with Machine Learning

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Abstract : Network security is role of the ICT environment because malicious users are continually growing that realm of education, business, and then related with ICT. The network security contravention is typically described and examined centrally based on a security event management system. The firewalls, Intrusion Detection System (IDS), and Intrusion Prevention System are becoming essential to monitor or prevent of potential violations, incidents attack, and imminent threats. In this system, the firewall rules are set only for where the system policies are needed. Dataset deployed in this system are derived from the testbed environment. The traffic as in DoS and PortScan traffics are applied in the testbed with firewall and IDS implementation. The network traffics are classified as normal or attacks in the existing testbed environment based on six machine learning classification methods applied in the system. It is required to be tested to get datasets and applied for DoS and PortScan. The dataset is based on CICIDS2017 and some features have been added. This system tested 26 features from the applied dataset. The system is to reduce false positive rates and to improve accuracy in the implemented testbed design. The system also proves good performance by selecting important features and comparing existing a dataset by machine learning classifiers.

Keywords : false negative rate, intrusion detection system, machine learning methods, performance
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