An Accurate IDS design using KDD CUP 99’s Dataset

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Abstract

IDS or intrusion detection systems are well known network anomaly detection technique in network technology. According to the IDS, it is used for monitoring and analysis of network traffic. By analyzing the network traffic data it observe the behavior of network and report if any anomaly in network behavior occurred. In addition of this technology is also helpful for discovering any attack condition in network. Therefore the proposed work is intended to design and develop an accurate analysis method, which works on KDD CUP 99’s Data. The proposed work first involve the feature selection technique using the correlation coefficient based technique and then the selected features are used for training and testing of three popular classifiers namely bays classifier, C4.5 decision tree and KNN algorithm. The experiments are performed using the k-fold cross validation technique. The experimental results shows the KNN and C4.5 decision tree algorithm produces similar accuracy and higher as compared to bays classifier. But the time consumption of the KNN classifier is 10 times higher than the C4.5 and Bays classification techniques.
References

3. Han, Jiawei, Jian Pei, and Micheline Kamber, Data mining: concepts and techniques, Elsevier, 2011.
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Keywords

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