Abstract

Increasing internet usage and connectivity demands a network intrusion detection system combating cynical network attacks. Data mining therefore is a popular technique used by intrusion detection system to prevent the network attacks and classify the network events as either normal or attack. Our research study presents a wrapper approach for intrusion detection. In this framework Feature selection technique eliminate the irrelevant features to reduce the time complexity and build a better model to predict the result with a greater accuracy and Bayesian network works as a base classifier to predict the types of attack. Our experiment shows that the proposed framework exhibits a superior overall performance in terms of accuracy which is 98.2653 , error rate of 1.73 and keeps the false positive rate at a lower rate of 0.007. Our model performed better than other leading state-of-the-arts models such as KNN, Boosted DT, Hidden NB and Markov chain. The NSL-KDD is used as benchmark data set with
Weka library functions in the experimental setup.

References

19. Onik AR, Haq NF, Mustahin W. Cross-breed type Bayesian network based intrusion
detection system (CBNIDS). In Computer and Information Technology (ICCIT), 2015 18th
International Conference on 2015 Dec 21 (pp. 407-412). IEEE
20. Yinhui Li, J. X. (2012). An efficient intrusion detection system based on support vector
machines and gradually feature removal method. Expert Systems with Applications, ELSEVIER
learning. expert systems with applications, ELSEVIER.
Expert Systems with Applications, ELSEVIER.
(2010). Fuzzy set theory.

Index Terms

Computer Science          Pattern Recognition

Keywords

Intrusion Detection System, Feature Selection, Genetic Search, Bayesian Network, Weka,
NSL-KDD.