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A New DIDS Design Based on a Combination Feature Selection Approach

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Abstract : Feature selection has been used in many fields such as classification, data mining and object recognition and proven to be effective for removing irrelevant and redundant features from the original data set. In this paper, a new design of distributed intrusion detection system using a combination feature selection model based on bees and decision tree. Bees algorithm is used as the search strategy to find the optimal subset of features, whereas decision tree is used as a judgment for the selected features. Both the produced features and the generated rules are used by Decision Making Mobile Agent to decide whether there is an attack or not in the networks. Decision Making Mobile Agent will migrate through the networks, moving from node to another, if it found that there is an attack on one of the nodes, it then alerts the user through User Interface Agent or takes some action through Action Mobile Agent. The KDD Cup 99 data set is used to test the effectiveness of the proposed system. The results show that even if only four features are used, the proposed system gives a better performance when it is compared with the obtained results using all 41 features.

Keywords : distributed intrusion detection system, mobile agent, feature selection, bees algorithm, decision tree
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