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RESEARCH ARTICLE



Balance the Resource Consumption by using Head Selection Approach in Manets

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Abstract - Head selection model deals with the Head selection in the presence of egotistic nodes for intrusion detection in Mobile Ad-hoc Networks (MANETs). To balance the resource consumption among all nodes and prolong the lifetime of an MANET, nodes with the most remaining resources should be selected as the head. However, there are two main obstacles in achieving this goal. First, without incentives for serving others, a node might behave egotistically by lying about its remaining resources and avoiding being selected. Second, selecting an optimal collection of heads to minimize the overall resource consumption may incur a prohibitive performance overhead, if such a selection requires flooding the network. To address the issue of egotistic nodes, Head selection model present a solution based on mechanism design theory. More specifically, the solution provides nodes with incentives in the form of reputations to encourage nodes in honestly participating in the selection process. The amount of incentives is based on the Vickers, Clarke, and Groves (VCG) model to ensure truth-telling to be the dominant strategy for any node. To address the optimal selection issue, Head selection model propose a series of local selection algorithms that can lead to globally optimal selection results with a low cost. Head selection model address these issues in two possible application settings, namely, Cluster-Based Head selection (CBHS) and Cluster-Autonomous Head selection (CAHS). The former assumes given clusters of nodes, whereas the latter does not require any pre-clustering. Finally, Head selection model justify the effectiveness of the proposed schemes through extensive experiments.

Keywords: *Head Selection; Egotistic node and Clusters*

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