

Abstract

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A Load Aware Routing Protocol for Mobile Ad hoc Networks

The Ad hoc On-Demand Distance Vector (AODV) routing protocol is an efficient Mobile Ad hoc NETWORKS (MANETS) routing protocol. It uses hop count as a metric for the path Selection. AODV does not support Quality of Service (QoS) and neither any load-balancing mechanism. The performance of the network can be improved by using a load balancing mechanism. Such a mechanism transfers jobs from overloaded nodes to under loaded nodes. In this paper, we propose a new protocol called "Load-Aware AODV" (LA-AODV), to provide QoS and load-balancing features. LA-AODV is based on AODV, where protocol messages extensions are used to accomplish QoS and load-balancing features. LA-AODV is a cross-layer solution that works in conjunction with a QoS-based MAC layer. It uses only local information and does not require any additional communication co-operation between nodes. The path Selection in LA-AODV is based on the current MAC load of the nodes. The proposed protocol Selects the path with the minimum MAC load based on a metric called "MAC load indicator". We show through simulations that LA-AODV outperforms AODV in terms of received packets, delay, and routing overhead.