



Ant Colony and Load Balancing Optimizations for AODV Routing Protocol

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Abstract:

In this paper, we propose two methods to improve the Ad-Hoc On-Demand Distance-Vector (AODV) protocol. The main goal in the design of the protocol was to reduce the routing overhead, buffer overflow, end-to-end delay and increase the performance. A multi-path routing protocol is proposed which is based on AODV and Ant Colony Optimization (ACO). This protocol is referred to Multi-Route AODV Ant routing (MRAA). Also we propose a load balancing method that uses all discovered paths simultaneously for transmitting data. In this method, data packets are balanced over discovered paths and energy consumption is distributed across many nodes through network. This protocol is referred to Load Balanced Multi-Route AODV Ant routing algorithm (LBMRAA).

Keywords:

mobile ad-hoc network (MANET); routing; ant colony optimization; load balancing

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