



Research Title	"QoS-aware Routing in Multi-rate Ad hoc Networks Based on Ant Colony Optimization"
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Abstract

QoS-aware routing in mobile ad hoc networks (MANETs) is a major challenge due to node mobility and scarcity of resources. QoS-aware routing based on ant colony optimization (ACO) algorithms is a promising approach to overcome these problems. However, as compared to MANETs, vehicular ad hoc networks (VANETs) face additional challenges due to rapid topology change, making the estimation or prediction of QoS parameters difficult or stale. VANETs require time-critical message delivery, as late delivery may result in endangering lives. Currently existing routing protocols usually require the exchange of additional control message between neighbor nodes to compute QoS parameters. This makes the routing protocol too slow to react to fast topology change and also does not consider network congestion when forwarding a data packet. To reduce the overhead introduced to collect information from neighbor nodes and to obtain an accurate estimate of QoS parameters, we use the simple network management protocol to estimate these values locally. This paper describes a new approach for calculating QoS parameter locally and avoiding congestion during data transmission. The simulations are implemented using the network simulator ns-3, and the results show that our approach is scalable and performs well in high mobility.

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