



(1)

Ant Colony and Load Balancing Optimizations for AODV Routing Protocol

Ahmed M. Abd Elmoniem, Hosny M. Ibrahim, Marghny H. Mohamed, and Abdel-Rahman Hedar

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

Published In:

International Journal of Sensor Networks and Data Communications , Vol. 1 , 1 -14



(2)

An Ant Colony Optimization Algorithm for the Mobile Ad Hoc Network Routing Problem Based on AODV Protocol

Ahmed M. Abdel-Moniem, Marghny H. Mohamed, and Abdel-Rahman Hedar

Abstract:

In this paper, we present a modified on-demand routing algorithm for mobile ad-hoc networks (MANETs). The proposed algorithm is based on both the standard Ad-hoc On-demand Distance Vector (AODV) protocol and ant colony based optimization. The modified routing protocol is highly adaptive, efficient and scalable. The main goal in the design of the protocol was to reduce the routing overhead, response time, end-to-end delay and increase the performance. We refer to the new modified protocol as the Multi-Route AODV Ant routing algorithm (MRAA).

Keywords:

Mobile Ad-hoc Network, Routing, Ant Colony Optimization.

Published In:

International Conference of Intelligent Systems Design and Applications (ISDA) , , 1332 – 1337



(3)

Ant Colony and Load Balancing Optimizations for AODV Routing Protocol

Ahmed M. Abd Elmoniem, Hosny M. Ibrahim, Marghny H. Mohamed, and Abdel-Rahman Hedar

Abstract:

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 refereed 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 refereed to Load Balanced Multi-Route AODV Ant routing algorithm (LBMRAA)

Keywords:

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

Published In:

International Journal of Sensor Networks and Data Communications , Vol. 1 ,