Performance analysis of ant colonys algorithm : load-balancing in QoS-based wireless mesh networks routing

ABSTRACT

In this paper, a noble load balancing algorithm for Wireless Mesh Networks (WMNs)is presented. The design of the algorithm is based on: the specific self-organizing behavior of ant colonies, the shortest path discovery, and the related framework of ant colony optimization (ACO). WMNs that consist of static wireless routers, .some of which called gateways, are directly connected to the wired infrastructure. This policy is based on Ant-Net method with moveable factors having operation similar to ant. The main point considered in this proposed method is capability of breeding of ants. This capability is continuation of route that is produced by the parent ants. By this capability, the target is to find an optimized route by creating a number of generations. In addition, it uses various generations, in a type of genetic algorithm to find optimized route. This can provide the required route with special goals. This method is able to prevent some of the difficulties which have not been seen in the colony algorithms of ants. The results show that, this new proposed method shows better operation in comparison to Ant-Net and other related methods. Also it can significantly increase the throughput and reduce the rate of delay in the network.

Keyword: Load balancing; QoS; Routing algorithm; Ant colony optimization (ACO); Optimized route.