

Enhancing Data Dissemination Through Load Balancing for Cluster Based Manets by Dynamic Genetic Algorithms

Mobile Ad hoc Network (MANET): Self configuring communication among mobile. MANETs can turn the dream of getting connected “anywhere any time” into reality. Typical application examples include disaster recovery or a military operation. Not bound to specific situations, these networks may equally show better performance in other places. For instance, a group of people with laptops can get connected to the network by forming an ad hoc network.

Clustering is one of the important techniques to communicate the nodes with each other. Because, mobile nodes are used only in limited battery power, it is very difficult to replace or discharge it when the node dies. This will affect the network’s performance. To optimize the communication range and minimize the energy usage, there is a need to conserve the energy of mobile nodes.

It is important to select the energy-efficient cluster head for maintaining the cluster structure and balance the load actively. We used advanced dynamic genetic algorithms such as Memory Enhanced Genetic Algorithm (MEGA) and Elitism based Immigrants Genetic algorithm (EIGA) and to solve Dynamic Load Balanced Clustering Problem (DLBCP). These schemes select an optimal cluster head by considering the distance and energy parameters. We used EIGA to maintain the diversity level of the population and MEGA to store the old environments into the memory. It promises the energy efficiency of the entire cluster structure to increase the lifetime of the network.

The proposed research establishes an effective and reliable increase the network lifetime and reduces the total energy consumption and increasing the data transition limit. The simulation results show that MEGA gives a better performance than EIGA in terms of load-balancing. To ensure energy efficiency and prolong lifetime of the network through dynamic load-balanced clustering using genetic approaches by addressing the issues such as the network topology changes over time caused by node mobility and energy conservation. To design and implement a secure cluster-based multipath routing scheme to form stable clusters and ensure security in multipath routing.