Enhanced AODV for Mobile Ad-hoc Networks

Abstract

A mobile ad-hoc network comprises of mobile nodes that can communicate with the nodes within their radio range and also with those which are outside range by using route discovery mechanisms. The nodes in an ad-hoc network can act as a host and also as a router that can route data to or from the other nodes. The topology of mobile ad-hoc networks changes dynamically which is mainly due to arrival or departure of nodes from the network. The nodes in ad-hoc network are self-adjusting and can adapt to the changes occurred in the topology. The main limitation of mobile ad-hoc networks is the energy constraints. There are three states of a node that results in energy consumption that are transmitting, receiving and idle state. The energy consumption of a node leads it to get down and makes it out of the network. This will lead to change in topology which incurs routing overhead when information about the down node has to be transferred to each node in the network. Again it will result in consumption of energy which incurs due to processing of these packets containing the information about the down node. In this paper we are presenting an enhanced on demand routing protocol in which each node uses a threshold value for energy and when the value of energy of that node reaches the threshold that node will not participate in the data transfer and when all the nodes in the network possess the set threshold value the threshold value is decreased. The enhanced protocol is based on Ad-hoc On Demand Distance vector (AODV) and hence named as
Enhanced AODV (EAODV). In this paper the working of the EAODV is explained and also the simulation of the protocol is shown using the NS2 simulator. The paper also shows how this protocol is better than simple AODV based on different performance factors. The EAODV mainly concentrates on using the energy of nodes in an efficient manner so that the lifetime of a network can be increased.

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Index Terms

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