Performance evaluation of energy consumption for AODV and DSR routing protocols in MANET

ABSTRACT

Proposing energy efficient routing protocols for Mobile Ad hoc Network (MANET) and Wireless Sensor Network is an uphill and challenging task. Many different routing protocols based on different features have been proposed to the IETF. Performances of many of these routing protocols have been evaluated focusing on metrics such as delay, routing overhead, and packet delivery. However, no studies have been done to investigate energy aspect of these routing protocols. Thus, this paper will discuss about the power consumption aspect of the MANET routing protocols. A performance comparison of Dynamic Source Routing (DSR) and Ad hoc On-Demand Distance Vector (AODV) routing protocols with respect to average energy consumption and routing energy consumption are explained thoroughly. Then, an evaluation of how the varying metrics in diverse scenarios affect the power consumption in these two protocols is discussed. A detailed simulation model using Network Simulator 2 (NS2) with different mobility and traffic models are used to study their energy consumption. Finally, an evaluation of these routing protocols based on energy consumption is presented.