ABSTRACT

Mobile ad hoc network (Manet) is a wireless computer network that consists of mobile devices that could organize its network automatically and do the routing and packet-forwarding functions. The mobile nodes of ad hoc hybrid network could build an instant communication and dependent from infrastructured network.

The ad hoc routing protocols simulated in this paper are Ad Hoc on Demand Distance Vector Routing (AODV), Destination Sequenced Distance Vector (DSDV) with the proactive characteristic, and Zone Routing Protocol (ZRP) with the hybrid characteristic --combination of the proactive and reactive characteristic. The three routing protocols are simulated using NS-2. The main purpose of this work is to evaluate those three routing protocols on ad hoc hybrid network towards increasing node, connection, and mobility. Performance measures in this simulation are average end to end delay, packet delivery ratio, average throughput, and routing overhead.

From analysis of all simulations, it is proved that ZRP is better than the AODV and DSDV. First reason, ZRP always has packet delivery ratio higher than 98%, the highest of the three. Second reason, ZRP's average throughput always the highest and almost always 2 times the other. Third reason, ZRP always has the lowest average end to end delay with the difference of 30 ms for increasing connections and 15 ms for increasing mobility. AODV is better than DSDV and ZRP in routing overhead, because it always has the lowest percentage: around 10% of all packets.

Keywords: Manet, ad hoc hybrid network, AODV, DSDV, ZRP, delay, throughput, routing overhead