ABSTRACT

PEFORMANCE ANALYSIS OF DESTINATION SEQUENCED DISTANCE VECTOR (DSDV) AND DYNAMIC MANET ON DEMAND (DYMO) PROTOCOL ROUTING IN MOBILE AD HOC NETWORK

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One area of wireless technology that is growing rapidly is the mobile ad-hoc network (MANET). The MANET network consists of a number of wireless nodes and can be installed whenever needed without the requirement for a permanent network infrastructure. A routing protocol is required in wireless networks, to transmit data packets through one or more nodes to the destination address. This study compares the efficiency of DSDV (Destination Sequenced Distance Vector) routing protocol which has proactive classification and DYMO (Dynamic Manet On-Demand) routing protocol which is included in reactive classification. This study used the OMNeT++ simulator and varied the packet size, number of nodes, and number of source nodes to simulate multi-node communication with a non-fixed topology in the MANET environment. Test results show that the DSDV routing protocol has the lowest end-to-end delay of 19 milliseconds, making it the best in responsiveness. However, DYMO excels in throughput, Packet Delivery Ratio (PDR), and message control efficiency. The DYMO protocol achieves a maximum throughput of 963578 bps with a PDR of up to 90%, demonstrating reliable performance in sending packets successfully. In addition, the control message generated by DYMO is more efficient, 2157880208 bits compared to 2483978511 bits on DSDV.. This has an impact on the overall performance of the network and more efficient use of resources. Based on these findings, it can be concluded that the DYMO routing protocol is more suitable for managing communication between nodes within the MANET environment than DSDV. Although DSDV has advantages in latency, DYMO provides better throughput, PDR, and control message efficiency, making it a more suitable choice for addressing the dynamic and changing network topologies of the MANET environment.

Keywords : DSDV, DYMO, Node, MANET, Routing Protocol.