ABSTRACT

Acceleration of Internet and telecommunication technology have been change drastically the way people work with computers. On implementation, Internet use a Transmission Control Protocol/Internet Protocol (TCP/IP) which can't work in a long delay network. Therefore, Delay Tolerant Network try to fix that problem by storing packet (store) if packet can't transmit to the next node (Packet Forwarding).

In this research, discuss about Vehicular Delay-Tolerant Network (VDTN) technology and utilizing the ONE (Opportunistic Network Environment) Simulator to analyzed the performance. VDTN allows a vehicle (in this case called nodes) can communicate with other vehicles during the coverage area of communication and using the paradigm of store-carry-forward to the communication process, while simultaneously providing information to other nodes. ProPHETv2 Routing uses that information to calculate the forwarding probability to making a decisions of packet forwarding delivery, with regard to inter-meeting time between nodes. By adding the calculation of the Energy Aware algotithm in protocol routing ProPHETv2, ProPHETv2 not only calculate the forwarding probability with delivery predictability and inter-meeting time, but ProPHETv2 will be adding the calculation of energy consumption level in the node receiver, in this case is destination node or relay node which will be forward the message to destination node. By utilization the ONE Simulator, will be analyzed how the performance of the algorithm routing protocols ProPHETv2, ProPHETv2 by adding calculations of Energy Aware (ProPHETv2 EA), and ProPHET by adding calculations of Energy Aware (ProPHET EA), with testing parameters are energy consumption, delivery probability, overhead ratio, and average latency.

The result energy consumption performance of ProPHETv2 EA is around 59.98692% and 52.80545% more efficient than ProPHETv2 and ProPHET EA. Algorithm routing protocol ProPHETv2 has delivery probability and overhead ratio performance better than ProPHETv2 EA and ProPHET EA is around 82.8654167% and 512.6109 second. But algorithm routing protocol ProPHETv2 EA is leading in overhead ratio performance with 423.7661% and 541.257% lower than ProPHETv2 and ProPHET EA.

Keyword *: VDTN, ProPHETv2, Energy Aware, Energy Consumption, Delivery Ratio, Overhead Ratio, Average Latency.*