Encounter Based Routing and Buffer Management Scheme in Delay Tolerant Networks

Abstract

Delay Tolerant Networks (DTNs) are one of the most interesting evolutions of MANETs where frequent disconnection of networks is there so that end to end path cannot establish between source to destination. When seeing routing protocols of DTNs, a forwarding and buffer management are important to be considered for successful message delivery. ‘Encounter Based Routing (EBR)’ which increase delivery ratio by decreasing overhead and delay using the encounter value of the nodes. EBR takes the average Encounter Value (EV) of the node and decide that how many copies of the message to be sent to the other nodes. Higher the EV value, the node will get more number of message copies. We propose the modified EBR which optimizes the performance of the existing EBR. We consider the change of rate of EV with respect to time and then intelligently decide the number of replicas to be sent to the encountered nodes. The modified EBR scheme performs better in terms of delivery ratio than the existing EBR protocol. We also propose the buffer management policy using EV of the node to decide the dropping of the message in the Epidemic routing protocol. These schemes are HEV (High Encounter Value) and LEV (Low Encounter Value) and they are compared with the
existing traditional policies such as LIFO and FIFO. The simulation results show that our proposed dropping policy improves the overhead ratio, delivery delay and hop count metrics than the existing ones.

References

2. Yue Cao and Zhili Sun,"Routing in Delay/Disruption Tolerant Networks: A Taxonomy, Survey and Challenges" Communications Surveys & Tutorials, Vol.15, No. 2, Second Quarter 1553-877X/13/$31.00 @ 2013 IEEE.

Index Terms

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Keywords

DTNs, Epidemic, Spray and Wait (SnW), Encounter Routing Protocol (EBR), ONE Simulator, LIFO, FIFO, EHV (Encounter High Value) and ELV (Encounter Low Value).