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A Multipath Energy DSR Routing Protocols for MANET

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Abstract: *Dynamic Source Routing protocol (DSR) has been considered itself as one of the discrete and predominant routing protocols for Mobile Ad Hoc Networks (MANETs). DSR used to find the path from source node to destination node only when the source startsthe process ofroute discovery and it makes the network as self-organizing and self-configuring. Basically the DSR contains two mechanisms, Route Discovery and Route Maintenance. Route discovery in which DSR decides a new path from one node to another; and route maintenance, in which DSR used to realize and rectifies broken routes, and then the process of sending and receiving will start between the nodes to find out the optimal path.DSR uses route caching to reduce the routing overhead and latency during process of route discovery. DSR suffers from damage of the energy depletion because it doesn't take the term of energy consumption as parameter into consideration at all.In this paper we are giving a general review about multipath energy DSR routing protocols and explainstheir mechanisms, motivations and restrictions.*

General Terms: *DSR, Route discovery, Route Maintenance, energy depletion, Multipath Energy DSR routing protocols.*

I. Introduction

The DSR [1] used to enablethe network to be self-organizing and self-configuring, and let the nodes to be connected directly with each other without any demand of centralized administration or constant infrastructure. The nodes in Mobile Ad-hoc Network move dynamically join or leave the network, automatically all routing information is decided and preserved by the DSR routing protocol. This protocol lets nodes to discover a source routedynamically across multiple network hops to any destination in MANET. Each data packet in the network which has to forward carries complete, required list of nodes through which the packet will pass into, letting packet routing to be trivially loop-free and avertingthe demand for up-to-date routing information in the intermediate nodes through which the packet is sent. By comprisingthis source path in the header of each data packet,other nodes sending any of these packets may also facilely cache this routing information for future application.The DSR protocol supplies extremelyreactive service to enclose successful delivery of data packets in movement of node.
DSR routing protocol has two components: route discovery and route maintenance [2]:

1.1 A. Route Discovery

The concept or route discovery in DSR routing protocol is used only when the source node wants too forward a packet to the destination node and the path doesn't exist in the cache route. To start the process of route discovery the first step will be by sending "Route Request" RREQ to all neighbors around source node with a unique ID in the packet header. When intermediary nodes get RREQ, at first they will detect whether they have viewed the Route Request or not yet. If the nodes have already viewed the Route Request former, they will drop the packet; otherwise they will test its Route Cache whether there is route to the packet destination.

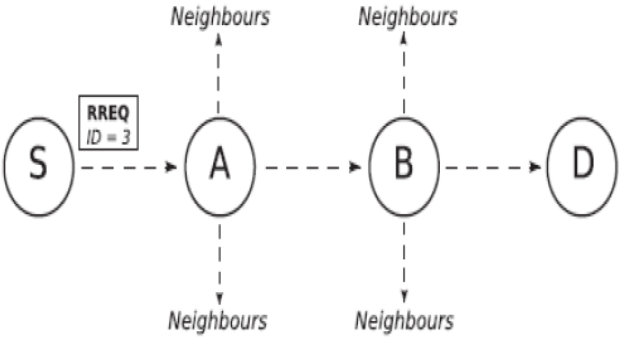

Figure 1: Path discovery with RREQ

If any node has the route to target in its routing cache, it sends a "Route Reply" RREP to the source node, supplying a copy of the accommodated path record from the Route Request; otherwise it sendsRREQ until the Route Request is got by the target .

B. Route Maintenance

This protocol executes the route maintenance mechanism while connecting the packets from source node to destination node. But when the connection between the source node and the destination node is broken or a change in network topology is noticed. It will cause connection failure between source node and destination nodeIn this script DSR protocols uses the route technique, to decide any other possible route towards the destination node to transfer data.If the route maintenance fails to discover an alternative route to set up the interaction then it will appeal the route discovery to find out the new path to destination node.

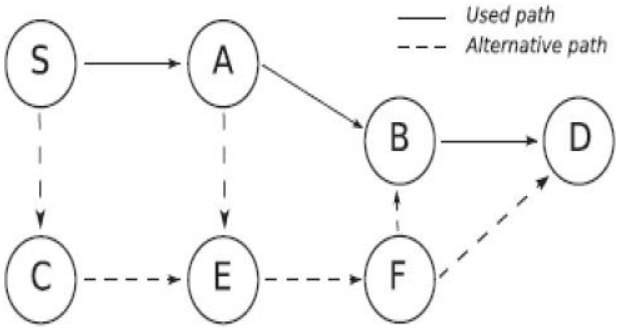

Figure 2: example path between source and destination

II. Multipath Energy Dsrprotocols.

MP-DSR [3] is A Multipath DSR for Mobile ad-hoc networks to improve Quality of Service support with consideration to end-to-end reliability. MP-DSR routing algorithm sends outgoing packets over multiple paths that are dependent to a particular end-to-end reliability demand.This protocol uses to supply data transition with higher end-to-end reliability in Mobile ad-hoc networks. The purpose is to supply a reliable route for packet transition with a minimum network overhead. They have introducedQuality of Service(QoS) parameter, end-to-end reliability, which is used for path selections. In this protocol applications can assign their end-to-end reliability demands to dominate the routing failure likelihood. In this algorithm, the data transition can be soft provisioned with restricted extra overhead. End-to-end reliability is also preserved throughout the complete transition life time.The constraint of this routing protocolis that it chooses neighbors merely on local information.MEA-DSR [4] is A Multipath Energy-aware routing protocol that suggestedto enhance the energy and increase the data packet ratio in the network. In MEA-DSRrouting algorithm the packet is scheduling between the energy efficient route and a mechanism for arising the traffic and energy load balancing. The performance of this protocol resulted in minimized end to end delay and increased the data packet delivery ratio. And also the implementation of this protocol showed that how a plain round robin technique allows an energy load balancing and a fair division of the energy, extending the time of communication. The restriction will be in low mobility script more elevated routing overhead and lower data packet ratio. In low mobility script more elevated routing overhead and lowersdata packet ratio EMP-DSR [5] is considered as improvement version of MP-DSR. This routing algorithm uses an ant colony optimization method which helps to supply global

information. EMP-DSR algorithm alleviates an important shortage of MP-DSR by integrating algorithmic approach of MP-DSR with a famed Ant Colony Optimization (ACO) method. The target is to supply end-to-end reliablepath for data transition. The performance of EMP-DSRshows that this algorithm is luckier than MP-DSR to discover paths satisfying reliability restrictionsrequested by applications. Besides, thepaths which has discovered have better endto- end delay. The limitation In EMP-DSR routing protocol there are a small number of end-to-endroutes with elevated accuraciesEM-DSR [6] presented an efficient multipath routing protocol based on DSR. The major objective of this routing algorithm is to find out multi-paths from source node to destination node by taking the respect of the maximum residual energy of the path to transfer the data. The execution of this protocol resulted that EM-DSR is better thanDSR in terms of remaining transition energy and transmission energy. This is due to efficiently using the paths from the primary and secondary caches.This Protocol needs for improvement in cost metric.

Table1. Various multipath energyDSR routing protocols

Routing Protocol	**Year**	**Stimulus**	**Restriction**
MP-DSR	2001	It provides a credible path for packettransition with a minimal overhead in Network.	It chooses neighbors merely on local information.
MEA-DSR	2008	Used to decrease periodic route discovery and to balance EC.	In lowmobility script higher routing overhead and lower PDR.
EMP-DSR	2009	It pleases a minimum end-to-end precision demand. It then preserves this demand throughout the lifetime of transition.	there are a small number of E2E routes with elevatedaccuracies. Somewhat consumption of network resources.
EM-DSR	2016	considering the Maximum remaining energy of the route to transfer the data.	This Protocol needs for enhancement in cost metric.

EC energy consumption, PDR packet delivery ratio, E2Eend-to-end.

III. Conclusion

This paper focused on the variant of multipath energy DSR routing protocols in MANET to get trustworthy paths for routing with low energy depletion. Thelimited energy resources of nodes are considering asa ticklish issue in Mobile Ad-hoc Network. Various multipath energy routing protocols have been shown in terms of their important merits. This article shows several of these protocols which summarized in conjunction with their motivations and restrictions. Each approach has its merits and restrictions as depicted in the table 1 and multipath energy DSR routing section. To get the best performance in term of energy efficiency, the scenario and topology of network plays a conclusive role in deciding which protocol should be used. Multipath energy routing protocols based DSR have their distinct methodologies, variousperformance environment, different execution metrics and diversemechanisms. Each protocol has some improvement over others. One protocol is implementing well in some aspects while the same protocol has deficiency in other execution issues. There is still much scope to find out such a multipath energy protocol that improve the lifetime of network, enclose network connectivity and minimize energy consumption by modulatingthe existing DSR based routing protocol.

References

[1]. Mahantesh.H.M , Shivakeshi.C, el at. " Optimization of Link Cache in DSR over MANETs" International Journal of Computer Science Trends and Technology (I JCS T) – Volume 4 Issue 3, May - Jun 2016.

[2]. Rachna Sharma, NehaGoyal "Ant Colony Optimization in Dynamic Source Routing Protocol" International Journal of Science, Engineering and Technology Research (IJSETR), ISSN: 2278 – 7798,Volume 5, Issue 5,May 2016

[3]. Roy Leung, Jilei Liu, Edmond Poon,et al." MP-DSR: A QoS-aware Multi-path Dynamic Source Routing Protocol for Wireless Ad-Hoc Networks ,"Department of Electrical and Computer Engineering University of Toronto, pages 2-10, 2001.

[4]. De Rango F, Lonetti P and Marano S. " MEA-DSR: A Multipath Energy-aware Routing Protocol for Wireless Ad Hoc Networks" in IFIP International Federation for Information Processing, Advances in Ad hoe Networking, eds. Cucnca, P., Guerrcro C., Puigjaner, R., Serra, B., (Boston: Springer), vol. 265, pp. 215- 225, 2008.

[5]. EhsanKhosrowshahiAsl, MortezaDamanafshany, MaghsoudAbbaspour,MajidNoorhosseiniz and Kamran Shekoufandeh. EMP-DSR: An Enhanced Multi-Path Dynamic Source Routing Algorithm for MANETs Based on Ant Colony Optimization, Computer Engineering and IT Department, Amirkabir University of Technology,pp.3-6.2009.

[6]. Nagaraj m. Lutimath , Suresh l and chandrakantnaikodi. " Efficient Multipath Dynamic Source Routing Protocol For Mobile Ad Hoc Network'' International Journal of Advanced Computational Engineering and Networking indexed in Eastern-European Journal Of Enterprise Technologies, ISSN: 2320-2106, Volume-4, Issue-10,2016.