

A Collective Study for Distributed Three Hop Routing Protocol in Hybrid Wireless Network

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Abstract: In hybrid wireless network, efficient data routing protocol used to maintain reliable communication in network. While various routing protocol suffer from lower reliability, congestion in routing, overhead in base station, lower scalability. This paper proposed distributed three-hop routing protocol for hybrid wireless network. DTR provides result for balancing the load between base stations through congestion control algorithm. The propose routing protocol, used shortest path distribute multipath routing protocol for hybrid wireless network which evaluate multiple path between source node to destination nod. For that, DTR divide message data into segment and then transmit it to distributed manner. Further, DTR sends segment to one or more base station to increase throughput capacity and performance to make use of these base stations.

Keywords: Congestion Control, Hybrid wireless network, Quality of service, Routing protocol, Three-hop, Throughput.

I. INTRODUCTION

Hybrid wireless network merging the advantages of mobile-ad-hoc and base station. HWN Overcomes the limitation to enhance life time and the output capacity of wide area network. Most of recent routing protocol combines cellular transmission mode in base station wireless network and ad-hoc transmission mode in mobile ad-hoc network to increase attention to their high performance. Hybrid highly support for real time transmission.[2]

DTR improve feature of hybrid wireless network by dividing message into segment, The source node select it's neighbor for forwarding message by considerable features as high bandwidth and minimum delay and again transmit the segment to destination through selected network path. Thus by using DTR protocol it achieve the high throughput capacity in network. [3] It chooses the relay mode which has the higher capacity node. DTR techniques is provide high time complexity as compare to other routing protocols. DTR uses to increase the strength of hybrid wireless network related to performance. DTR focuses to incorporate major features which are of more reliability, more scalability, better performance, load balancing, high throughput capacity. [1]

II. TECHNICAL STUDIES

A. Throughput

Author Zhen Liu elaborated that Throughput means the average number of bits received by the target destination per second among the total number of bits which is sent by the source node. Throughput represents the long-term data transmission rate in which network can support . This paper analyze and discovered different routing strategies related to throughput capacity .The throughput capacity of a wireless network depends on network architecture, bandwidth constraints and power , routing strategy, radio interference, etc .here Different network models are available for wireless data networks under the probabilistic routing strategies . In a wireless LAN, all nodes are communicate with each other through access points or base stations.[5]

B. Quality of Service (QoS)

The paper describes the high quality based QoS in HWN by reducing the delay of transmission of data packets during interaction. The main aim for quality of service is to reduce failure of sensor node. To increase quality of service large number of portable sensor node are developed. An aim of QoS – oriented data transmission method is used for converting packet routing problem into a dynamic resource scheduling problem when a user doesn't exist in the coverage area Access Point range. By using propose technique QoS recovers the race condition and invalid reservation problems. So for improving the QoS in a highly dynamic system delay management is very important. Thus it also achieves the high throughput in Hybrid Wireless Networks. [4]

C. Multi-hop Cellular

For wireless communications [6] introduce new architecture which is Multi-hop Cellular Network (MCN). MCN uses the major advantages of the conventional single hop cellular network (SCN), where the service infrastructure is designed by fix bases. It is flexible for ad-hoc networks. In it wireless transmission through mobile stations allowed in Multiple Hops. The MCN can be reducing the required more number of bases to achieve the throughput performance while limiting path encountered in ad-hoc networks. In is more reliable than SCN in term of mean hop count, hop by hop throughput and end throughput. MCN discovered effective routing algorithm & hand-off effectively.

D. MANET

Mobile ad-hoc network is one of the type of ad-hoc network, which is the collection of mobile node sharing a wireless channel. MANET is decentralize control so single component failure does not affect ad-hoc network, which is simple, fast and cheap. Here every terminal act as a host but it has limited resource because MANET has dynamic topology. The Hybrid wireless network inherited advantages of MANET which improve scalability and coverage. MANET uses optimized link-state routing protocol.

E. DELAY

Transmission delay means the amount of time it takes for a message to be transmitted from its source to destination. DTR generate the smallest delay. In DTR, message is divided into three segment then large amount of segment data send to the minimum delay and small amount of segment data send to maximum delay.[1] The time required for a packet sent from the source node to reach the Base station is called as end to end delay. The transmission delay depend on number of hops in network. [7]

III. ADVANTAGES

Low overhead: It reduces overhead caused by route discovery and keep in the ad-hoc transmission mode, especially in a dynamic environment.

Hot spot reduction: It improves traffic congestion at mobile gateway nodes while makes full use of channel resources done by a distributed multi-path relay.

High reliability: Because of its small hop route length with a short physical distance in each phase, it eases noise and neighbor interference and avoids the adverse effect of route breakdown during data transmission

IV. CONCLUSION

Most of the routing protocols like AODV and DSR are involving only nodes that are counted in the shortest path for data transmission. All the remaining nodes are kept idle throughout the process and this may put more workload on the shortest path nodes. So now days distributed routing protocols are been introducing for fast and reliable data transmissions by involving more number of transmission nodes in heterogeneous wireless networks. So this paper collectively study the different routing protocols technique and thoroughly analyze the major flaws in the routing protocols. Thereafter as a conclusion finally realize that the distributed three hop routing protocols are best for fast and reliable transmission in heterogeneous wireless network, where data transmission is based on the data segments of the transmission delay which will be elaborated in our upcoming edition.

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