

A SURVEY ON POR PROTOCOL BASED RELIABLE DATA DELIVERY IN MANETS

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ABSTRACT

Data delivery of packets in broad cast using wireless medium is the main intention of this paper, this will be done through a MANETS and should achieve reliable delivery. To do this various protocols are available in the networks world with in that efficient protocol called Position based opportunistic routing protocol which hold stateless property of geographic routing. When a data packet is sent out, some of the neighbour nodes that have overheard the transmission will serve as forwarding candidates, and take turn to forward the packet if it is not relayed by the specific best forwarder within a certain period of time. The existing routing protocols like DSR, DSDV are susceptible to node mobility. The design of POR is based on Geographic Routing and Opportunistic Forwarding, which transfers the data packet based on the location of the destination.

Keywords: Manets, Position Based Opportunistic Routing , Wireless Networks, Data Pockets Delivery .

INTRODUCTION

To enhance a system's robustness, the most straightforward method is to provide some degree of redundancy. According to the degree of redundancy, existing robust routing protocols for MANETs can be classified into two categories. One uses the end-to-end redundancy, e.g., multipath routing, while the other leverages on the hop-by-hop redundancy which takes advantage of the broadcast nature of wireless medium and transmits the packets in an opportunistic or cooperative way. Our scheme falls into the second category. Brad Karp, H. T. Kung [2] discussed The two dominant factors in the scaling of a routing algorithm, the rate of change of the topology and the

Number of routers in the routing domain. Under GPSR, packets are marked by their originator with their destinations' locations. As a result, a forwarding node can make a locally optimal, greedy choice in choosing a packet's next hop.

Eric Rozner Jayesh Seshadri Yogita Ashok Mehta Lili Qiu [3] proposed a Simple Opportunistic Adaptive Routing protocol (SOAR) to explicitly support multiple simultaneous flows in wireless mesh networks. Dazhi Chen, Jing Deng, Pramod K. Varshney [4] proposed a Contention-based Geographic Forwarding (CGF) technique. Accordingly, CGF mainly consists of the following components:

1) A predefined forwarding area and nodes that reside in the area become next-hop candidate nodes; 2) a distributed contention arbitration and resolution scheme to effectively establish a single next-hop node in the forwarding area; 3) a next-hop node selection criterion so as to attain the desired network performance efficiently; and 4) an effective mechanism to handle voids.

EXISTING SYSTEM

Geographic routing (GR) uses location information to forward data packets, in a hop-by-hop routing fashion. Greedy forwarding is used to select next hop forwarder with the largest positive progress toward the destination while void handling mechanism is triggered to route around communication voids. No end-to-end routes need to be maintained, leading to GR's high efficiency and scalability. However, GR is very sensitive to the inaccuracy of location information. In the operation of greedy forwarding, the neighbour which is relatively far away from the sender is chosen as the next hop. If the node moves out of the sender's coverage area, the transmission will fail. In GPSR (a very famous geographic routing protocol), the MAC-layer failure feedback is used to offer the packet another chance to reroute. However, our simulation reveals that it is still incapable of keeping up with the performance when node mobility increases.

Problems with Existing System

1. Getting delay in packet delivery.

2. Packet Losses occurred while intermediate node got failure.

3. By using GR protocol and Greedy forwarding scheme we cannot achieve the 100 % efficiency.

4. GR is very sensitive to the inaccuracy of location information

5. If the node moves out of the sender's coverage area, the transmission will fail.

PROPOSED SYSTEM

In this paper, a novel Position-based Opportunistic Routing (POR) protocol[1] is proposed, in which several forwarding candidates cache the packet that has been received using MAC interception. If the best forwarder does not forward the packet in certain time slots, suboptimal candidates will take turn to forward the packet according to a locally formed order. In this way, as long as one of the candidates succeeds in receiving and forwarding the packet, the data transmission will not be interrupted. Potential multipaths are exploited on the fly on a per packet basis, leading to POR's excellent robustness.

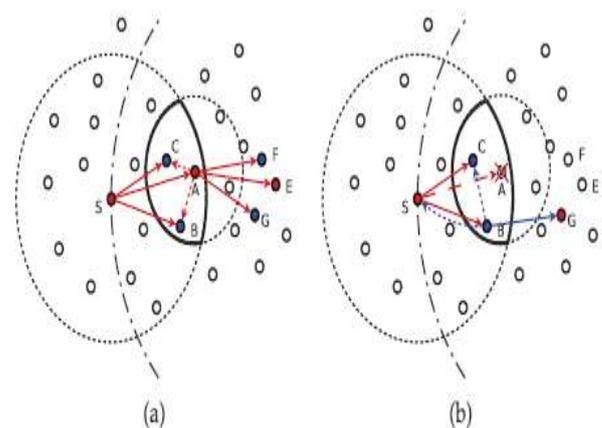


Fig. 1. (a) The operation of POR in normal situation. (b) The operation of POR when the next hop fails to receive the packet.

The main contributions of this paper can be summarized as follows:

- 1) The proposed position-based opportunistic routing mechanism which can be deployed without complex modification to MAC protocol and achieve multiple reception without losing the benefit of collision avoidance provided by 802.11.
- 2) The concept of in-the-air backup significantly enhances the robustness of the routing protocol and reduces the latency and duplicate forwarding caused by local route repair.
- 3) In the case of communication hole, we propose a Virtual Destination-based Void Handling (VDVH) scheme in which the advantages of greedy forwarding (e.g., large progress per hop) and opportunistic routing can still be achieved while handling communication voids.
- 4) We analyze the effect of node mobility on packet delivery and explain the improvement brought about by the participation of forwarding candidates.
- 5) The overhead of POR with focus on buffer usage and bandwidth consumption due to forwarding candidates' duplicate relaying is also discussed. Through analysis, we conclude that due to the selection of forwarding area and the properly designed duplication limitation scheme, POR's performance gain can be achieved at little overhead cost.

6) Finally, we evaluate the performance of POR through extensive simulations and verify that POR achieves excellent performance in the face of high node mobility while the overhead is acceptable.

Advantages

1. No delay in packet delivery
2. No Packet Losses
3. We can achieve 100 % efficiency.
4. high packet delivery ratio is achieved while the delay and duplication are the lowest.
5. The additional latency incurred by local route recovery is greatly reduced and the duplicate relaying caused by packet reroute is also decreased.

Limitation

These are limitations was happened due to collision of node movement and some forwarding candidates may fail to receive the packets forwarded by the next hop node so duplication will occur.

If the forwarding candidate adopts the same forwarding scenario as the next hop node, which means it also calculates a candidate list, then in the worst case, the propagation area of a packet will cover the entire circle comprising the destination as the center and the radius can be as large as the distance between the source and the destination. To limit such duplicate relaying, only the packet that has been forwarded by the source and the next hop node is transmitted in an opportunistic

fashion and is allowed to be cached by multiple candidates. In other words, only the source and the next hop node need to calculate the candidate list, while for the packet relayed by a forwarding candidate, the candidate list is empty.

Actually, such scheme has already been implied in Fig. 1b (e.g., node B only forwards the packet to node G). In this way, the propagation area of a packet is limited to a certain band between the source and the destination.

In the context of infrastructure networks, by using opportunistic overhearing, the connectivity between the mobile node and base station (BS) can be significantly improved. In [9], an opportunistic retransmission protocol

Receiver signal strength indicator

PRO is proposed to cope with the unreliable wireless channel. Implemented at the link layer, PRO leverages on the path loss information Receiver Signal Strength Indicator (RSSI) to select and prioritize relay nodes. By assigning the higher priority relay a smaller contention window size, the node that has higher packet delivery ratio to the destination will be preferred in relaying. With respect to the impact of mobility, Wu et al. investigate the WiFi connectivity for moving vehicles, with focus on the cooperation among BSs. BSs that overhear a packet but not its acknowledgment probabilistically relay the packet to the intended next hop. With the help of auxiliary BSs, the new protocol performs much better than those schemes with only one BS participating in the communication even if advanced link prediction and

handover methods are involved. However, due to the lack of strict coordination between BSs, false positives and false negatives exist.

CONCLUSIONS

My complete survey shows the problems of reliable data delivery in mobile ad hoc networks and solutions for this. We mainly investigate the mechanism of working methods of POR protocol. It will reduce the rely and most useful in ever changing topology type in manets. The efficacy of the involvement of forwarding candidates against node mobility, as well as the overhead due to opportunistic forwarding is analyzed.

Through simulation, we further confirm the effectiveness and efficiency of POR: high packet delivery ratio is achieved while the delay and duplication are the lowest. POR mainly uses the geographic routing mechanism in transiting the pockets in network.

On the other hand, inherited from geographic routing, the problem of communication void is also investigated. To work with the multicast forwarding style, a virtual destination-based void handling scheme is proposed. By temporarily adjusting the direction of data flow, the advantage of greedy forwarding as well as the robustness brought about by opportunistic routing can still be achieved when handling communication voids. Traditional void handling method performs poorly in mobile environments while VDVH works quite well.

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