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A NEIGHBOR COVERAGE BASED ROUTING BY GOOD NODE DETECTION IN MANET'S

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Abstract: Due to high mobility of nodes in mobile ad hoc networks, there exist frequent link breakages which lead to frequent path failures and route discoveries. The overhead of a route discovery cannot be neglected. We propose neighbor coverage based probabilistic rebroadcast protocol for reducing routing overhead in MANETs. In order to effectively exploit the neighbor coverage knowledge, we propose a novel rebroadcast delay to determine the rebroadcast order, and then we can obtain the more accurate additional coverage ratio by sensing neighbor coverage knowledge. With the help of the GNDA algorithm, the trust node will be selected to transmit the data by detecting selfish nodes. This approach can significantly decrease the number of retransmissions so as to reduce the routing overhead, and can also improve the routing performance.

Keywords: Mobile ad hoc networks, neighbor coverage, network connectivity, probabilistic rebroadcast, selfish nodes, routing overhead.

1. INTRODUCTION

Mobile adhoc networks (MANETs) consist of a collection of mobile nodes which can move freely. One of the fundamental challenges of MANETs is the design of dynamic routing protocols with good performance and less overhead. Many routing protocols, such as Ad hoc On-demand Distance Vector Routing (AODV) and Dynamic Source Routing (DSR) have been proposed for MANETs. However, due to node mobility in MANETs, frequent link breakages may lead to frequent path failures and route discoveries, which could increase the overhead of routing protocols. The conventional on-demand routing protocols use flooding to discover a route. They broadcast a Route Requests (RREQ) packet to the networks, and the broadcasting induces excessive redundant retransmissions of RREQ packet and causes the broadcast storm problem which leads to a considerable number of packet collisions, especially in dense networks A neighbor coverage based probabilistic rebroadcast protocol (NCPR) is used to reduce the routing overhead in MANETs by reducing the number of re-transmissions. In this paper GNDA is used to select the trust node in order to transmit the data.

2. EXISTING SYSTEM

One of the fundamental challenges of MANETs is the design of dynamic routing protocols with good performance and less overhead. The conventional on-demand routing protocols use flooding to discover a route. They broadcast a Route RREQ packet to the networks, and the broadcasting induces excessive redundant retransmissions of RREQ packet and causes the broadcast storm problem. AODV includes route discovery and route maintenance. It minimizes the number of broadcasts by creating routes on-demand and uses only symmetric links because the route reply packet follows the reverse path of route request packet. It uses hello messages to know its neighbours and to ensure symmetric links**.**

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2.1 Disadvantage

- They broadcast a Route Request packet, which leads to a considerable number of packet collisions, especially in dense networks.
- Due to node mobility in MANETs, frequent link breakages may lead to frequent path failures and route discoveries, which could increase the overhead of routing protocols and reduce the packet delivery ratio and increasing the end-to-end delay.

3. PROPOSED SYSTEM

In proposed system a novel rebroadcast delay to determine the rebroadcast order, and then we can obtain the more accurate additional coverage ratio by sensing neighbor coverage knowledge. This approach combines the advantages of the neighbor coverage knowledge and the probabilistic mechanism, which can significantly decrease the number of retransmissions so as to reduce the routing overhead, and can also improve the routing performance.

3.1 Advantage

- The initial motivation of neighbor coverage based probabilistic rebroadcast protocol: Since limiting the number of rebroadcasts can effectively optimize the broadcasting, and the neighbor knowledge methods perform better than the area based ones and the probability based ones.
- Increases the packet delivery ratio
- Average end to end delay is reduced
-

4. SIMULATION

In order to evaluate the performance of the proposed NCPR protocol, we compare it with some other protocols using the NS-2 simulator. Broadcasting is a fundamental and effective data dissemination mechanism for many applications in MANETs. In this paper, we just study one of the applications: route request in route discovery. In order to compare the routing performance of the proposed NCPR protocol, we choose the Dynamic Probabilistic Route Discovery protocol which is an optimization scheme for reducing the overhead of RREQ packet incurred in route discovery and the conventional AODV protocol. Simulation results show the performance AODV protocol and NCPR protocol. It also shows the performance of GNDA algorithm.

5. RESULT

One part of the ns-allinone package is 'xgraph', a plotting program which can be used to create graphic representations of simulation results.

Delay:

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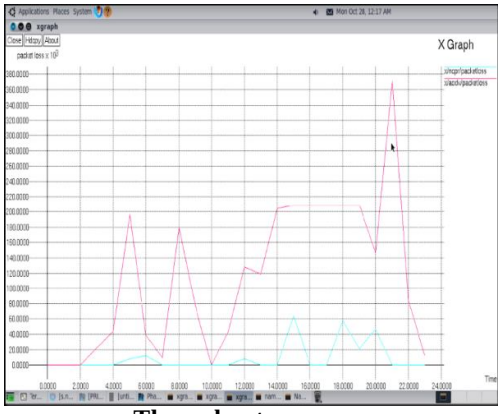
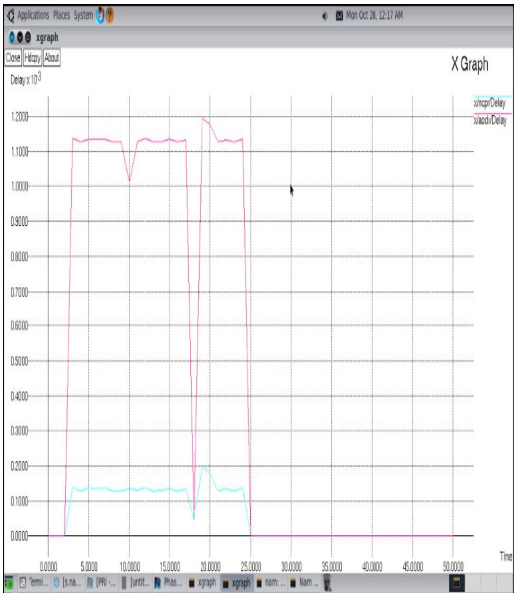


Throughput:



Packet Loss:

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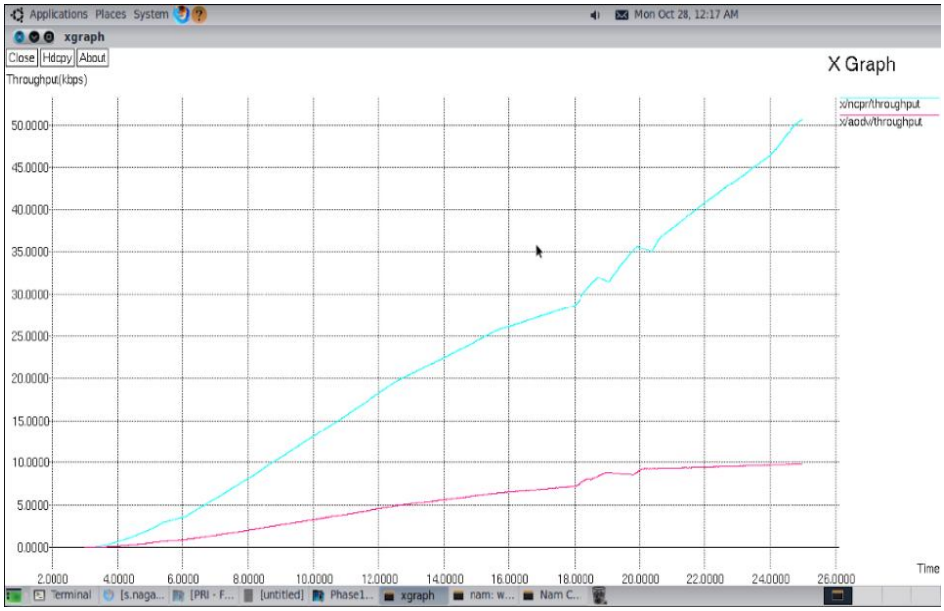

6. CONCLUSION

In this system a probabilistic rebroadcast protocol based on neighbor coverage to reduce the routing overhead in MANETs. This neighbor coverage knowledge includes additional coverage ratio and connectivity factor. A new scheme is introduced to dynamically calculate there broadcast delay, which is used to determine the forwarding order and more effectively exploit the neighbor coverage knowledge. Simulation results show that the proposed protocol generates less rebroadcast traffic than the flooding and some other optimized scheme in literatures. Because of less redundant rebroadcast, the proposed protocol mitigates the network collision and contention, so as to increase the packet delivery ratio and decrease the average end-to-end delay. The simulation results also show that the proposed protocol has good performance when the network is in high density or the traffic is in heavy load.

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