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Good Neighbor Nodes for Reducing Routing Overhed in Mobile Adhoc Network

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Abstract

The Manet's is collection of mobile nodes which can be dynamically self-organized into the networks without a fixed infrastructure. The mobile ad hoc networks nodes are high mobility present the link breakages which lead to common path failures and route discoveries. Normally the network overhead of a route discovery cannot be neglected. Using a good neighbor nodes algorithm to recover the route and reduce the overhead, in-creasing packet delivery ratio, avoid the network congestion.

Keywords: Reduce the overhead, increasing packet delivery ratio, avoid the network congestion.

1. Introduction

The mobile ad hoc networks are no fixed infrastruc-ture. One of the most widely used routing protocols for an ad hoc network is the AODV protocol, In the conventional AODV routing protocol, source node behind RREQ (Route Request) packet to find out path to the destination node. The middle node having less lifetime or energy, also forwards RREQ. As lifetime expires after some time i.e. node goes down; it could not forward Route Reply on reverse path. From now, source node has to restart RREQ rebroadcast to com-municate with destination, which results in avoidable RREQ rebroadcast, less Packet Delivery Ratio as well as throughput and more end to end delay. In this pa-per, collision of bad neighbor nodes in adhoc routing is in brief discuss and proposed a method GNDA for identify good neighbor nodes in the network. Moreo-ver, this approach is complete by adding in addition of parameter i.e. signal strength, flood capacity and rela-tive place of a node in to the account.

1.1. *AODV Operation*

The section of nodes generates Route Request (RREQ), Route Reply (RREP) and Route Error (RERR) messages.

The AODV includes route detection and route maintenance of a network. To minimize the number of broadcasts by creating routes on-demand. It uses only for symmetric links since the RREP packet follow the reverse path of RREQ packet. Also uses a hello messages the hello messages know its neighbors.

GNDA: Proposed Solution

In this good neighbor nodes approach, initial-ly all nodes continue their own transmission range. It has been assumed the transmission range of the network is two fifty meters. The transmission range of each node present in the network with the total transmission of network of the node is compare. Determination of transmission power is required to send a message between nodes. It can be measured by calculating the received power of hello message. When the node receive hello messages from a neighbor node, it can estimate needed to of mini-mum power level by comparing the received power of hello message with highest transmit power.

This approach is enhanced by addition pa-rameters in the neighbor table such as flow capaci-ty, signal strength. Reaching time of hello messag-es between node and its neighbor is calculated.

1.2. Modules

Module parts followed by
I. Route discovery,
II. Good neighbor detection,
III. Demand based route detection.

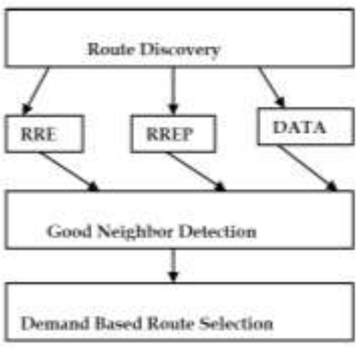

Fig 1: Module diagram

1.2.1. Route discovery

AODV initiate a route discovery process using Route Request (RREQ) and Route Reply (RREP).The source node will create a RREQ packet. The broadcast identification is incremented every time the source node initiates RREQ. The requests are sending via RREQ message and the information in connection with formation of a route is sent back in RREP mes-sage. The source node broadcasts the RREQ packet to its neighbors and then sets a timer to wait for a reply mainly a lifetime is linked with the reverse route ac-cess and if this entry is not used within this lifetime, the route information is deleted. If the RREQ is lost during transmission, the broadcast again by route dis-covery mechanism is allowed to source node.

1.2.2. Good neighbor detection

The performance of network increases quickly by considering good nodes into the account. To detec-tion of good neighbor nodes depend upon signal strength, flow capacity of nodes.

1.2.3. Good neighbor detection

The performance of network increases quickly by considering good nodes into the account. To detec-tion of good neighbor nodes depend upon signal strength, flow capacity of nodes. Also, how fast each node can receive the com-plete information. The flow capacity of a node is good then store address of a node or else remove address of the node from routing table. Neighbor routing table maintain address of node also maintaining entire nodes record. These stored nodes are used for data transmission and forwarding. This approach minimizes energy utiliza-tion of node and increases its battery life.

1.2.4. Demand based route detection

The contrast to only establish accurate and efficient routes linking pair of nodes, one important goal of a routing protocol is to keep the network functioning as long as possible. This goal can be talented by reducing the mobile nodes' energy not only during active communication but also when they are stopped.

DBET topology for mobile ad hoc network is dynamically changing the topology according to the network traffic requirements. At first determine the small set of nodes, which appearance a linked with backbone, while the other nodes are put off to conserve energy. This connected backbone is used for routing the packets under low network load. When there is a large information transfer between a pair of nodes, the topology with passion change the length of the path between these nodes by pow-er control and optimize route to reduce the power utilization.

Table 1

Simulation Parameter	Value
NODES	50
Linux OS	(Ubuntu 10.04)
Simulator NS-2	(v2.34)
Interface Queue Length	50
Packet Size 512 bytes	Packet Size 512 bytes

2. Simulation Outputs

The network simulater-2 outputs are followed by

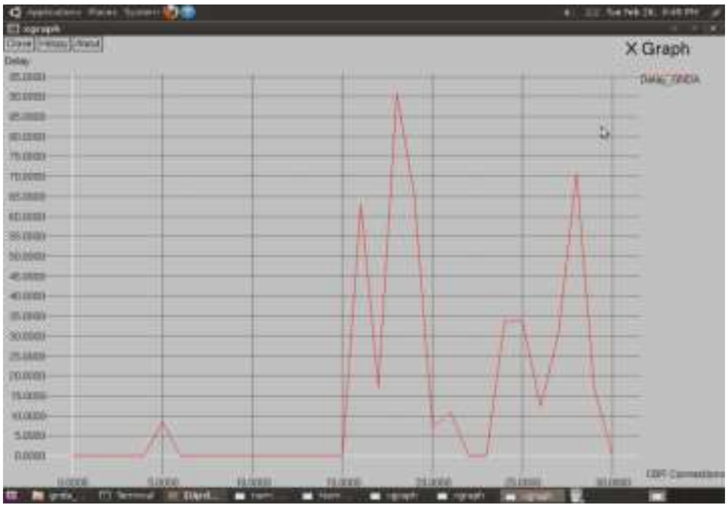

Fig1: xgraph for delay

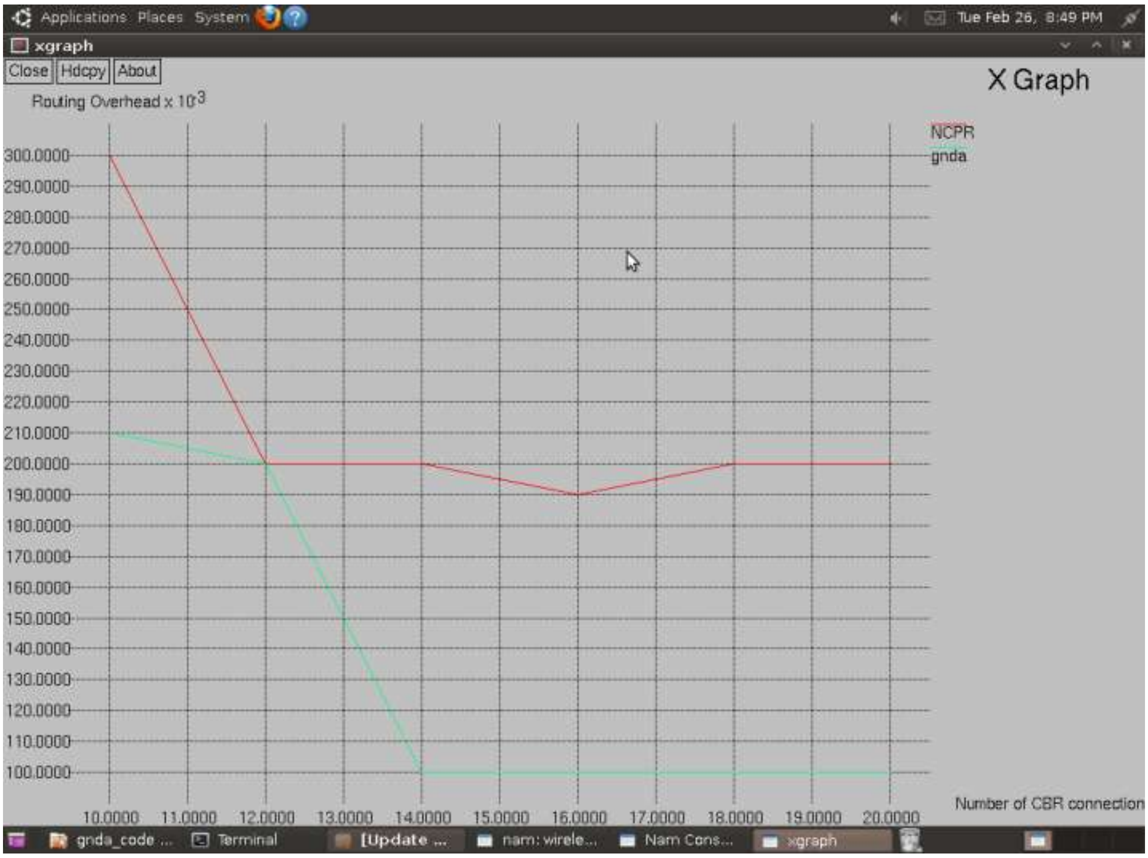

Fig2: xgraph for overhead

Fig1.shows decreases the delay in network for using GNDA algorithm. Fig2.shows decrease the overhead in network using GNDA algorithm.red color line indicate on NCPR overhead and yellow line indicate GNDA overhead. The overhead is reducing increase the packet delivery ratio also increase the throughput.

3. Conclusion

In this paper, I proposed Good Neighbor Nodes for Reducing Routing Overhead in Mobile Ad Hoc Net-works. Simulation results show that the proposed pro-tocol generates less rebroadcast traffic. Because of less redundant rebroadcast, the proposed protocol mitigates the network collision and conflict, so as to increase the packet delivery ratio and throughput decrease the av-erage end-to-end delay and reduce the routing over-head.

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