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A SURVEY OF ADAPTIVE POSITION UPDATE FOR GEOGRAPHIC ROUTING IN MOBILE ADHOC NETWORKS

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Abstract

In Geographic routing to forward a packet using router's position and destination of packet. The Location information is updated based on the routing protocols. Many routing protocols are used such as LAR, DREAM, DSR and GPSR that are provides the performance evolution of the corresponding network's node. The Performance of these protocols depends on the elements of the network such as load, speed and cost. A beacon packet contains location information of the neighbor nodes, these packets are periodically broadcasting in the network. The Adaptive Position Update technique is introduced for updating location information. The Geographic method is used when the location information is not available at the node. The process of updating location information is performed with the help of NS2 simulation.

Index terms :beacons,broadcast,NADV,geographic routing.

I.INTRODUCTION

Geographic node updating is very important for routing the information. Each node update nearby node routing for transferring the information. Beacon message is need for node updating. Based on the route request to neighbor nodes the nodes are updated. Different type of protocol is used for routing. Greedy Perimeter Stateless Routing Protocol[6] is used for updating of node in the network. This protocol is reducing the delivery ratio and also reduces the cost. The Scalable wireless routing algorithm is important in wireless communication system, but it does not used in adhoc networks. An adhoc network contains the set of wireless communication nodes, it comes from the concurrent network. It does not have a specific user administration. The geographic routing protocol uses a adaptive position update strategy to update the immediate neighbors location information. To trigger the beacon update process the adaptive position update[3] adding the following two rules: Mobility Prediction (MP), and On-Demand Learning (ODL) strategy. The MP rule is a simple prediction scheme, if the previous beacon becomes inaccurate then the location information is broadcast immediately. If the predicted error is greater than a certain threshold then the next beacon is broadcast by the network. At this stage the frequency update is permanently processed in the node's motion. On-Demand Learning strategy, allows nodes along the data forwarding path to maintain an accurate view of the local topology by exchanging beacons in response to data packets that are overheard from new neighbors.

The Several routing algorithms such as LAR, DREAM are used to route the information and these algorithms are used to improve the performance of communication between nodes. The geographic routing protocol introduce a new link metric called Normalized Advance(NADV)[11].It selects the neighbors with the optimal tradeoff between proximity and link cost. It enables effective and an adaptive routing technique based on the neighbor

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node information and the location of destination, nodes are selects the next hop. The neighbors are transferring the information by using global positioning system. The Packets are transfered to the closest destination of the network. To select the best technique for the current network and system setting by providing multiple strategies.

II.RELATED WORK

The vast development of ad hoc network includes more number of useful proposals. The following characteristics are useful for focusing the network environments: 1) Need for low latency packet delivery, 2) General communication between host pairs, and 3) A large number of nodes with high density. These characteristics need routing algorithms for keeping per neighbor state. Only the geographic routing algorithms meet these characteristics. The below section describe the detailed definition of few routing concepts which are they used in the adhoc networks.

LAR

It is mainly used for updation of mobile node host. It limits the search for a new route, this is called as "request zone". This routing results reduce the number of routing messages. Global positioning system provide information to the LAR protocol[9]. Using LAR scheme for route discovery first the sender uses this algorithm to determine a route.

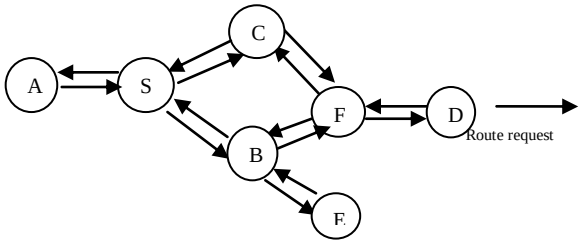

Fig1 Flooding Process

The fig1 shows that the sender uses a flooding algorithm to find the route when a route reply is not received within a timeout interval. As shown in the fig1, node S needs to find a route to node D. Therefore, node S broadcasts a route request to its neighbor nodes. If the nodes B and C get the route request, then they send it to all of its neighbors. When node F receives the route request from B, it forwards the request to its neighbors. In the same way if the node F receives the same request from C, then node F simply abort the route request. The destination receive a route request message. Upon receiving the route request the destination sends a route reply message to the sender.

DREAM

A Distance Routing Effect Algorithm for Mobility[1] have an important role they are distance and mobility. This introduce a new definition that says that the routing information are repeated in proactive protocols. At the same time there is no route discovery is required for this protocol. DREAM have a following properties, they are bandwidth, energy efficient, loop free, robust and adaptive to mobility. To analyze these characteristics of DREAM to conclude that the DREAM protocol delivers above 80 percentage of the data message through the computed direction, and also compared with the reactive protocol the average end to end delay of DREAM is decreased.

DSR

The Dynamic Source Routing protocol (DSR)[7] is a simple and efficient routing protocol designed specifically for use in multi-hop wireless ad hoc networks of mobile nodes. DSR allows the network to be completely self-organizing and self-configuring, without the need for any existing network infrastructure or administration. The protocol is composed of the two mechanisms of Route Discovery and Route Maintenance, which work together to allow nodes to discover and maintain source routes to arbitrary destinations in the ad hoc network. The use of source routing allows

packet routing to be trivially loop-free, avoids the need for up-to-date routing information in the intermediate nodes through which packets are forwarded, and allows nodes forwarding or overhearing packets to cache the routing information in them for their own future use. All aspects of the protocol operate entirely on-demand, allowing the routing packet overhead of DSR to scale automatically to only that needed to react to changes in the routes currently in use. To have evaluated the operation of DSR through detailed simulation on a variety of movement and communication patterns, and through implementation and significant experimentation in a physical outdoor ad hoc networking test bed constructed in Pittsburgh, and have demonstrated the excellent performance of the protocol.

III.PROPOSED SYSTEM

The proposed system is based on update the location of mobile node. Based on the mobility dynamics of the nodes and the forwarding patterns in the network the APU[3] strategy dynamically adjusts the beacon[5] update intervals. Based on mobility prediction, APU enables nodes to update their position adaptively to the node mobility and traffic pattern. All nodes are aware of their own position and velocity, all links are bi-directional, the beacon updates include the current location and velocity of the nodes, and data packets can piggyback position and velocity updates and all one-hop neighbors operate in the promiscuous mode and hence can overhear the data packets. Each node broadcasts a beacon informing its neighbors about its presence and its current location and velocity. Following this, in most geographic routing protocols such as GPSR[7], each node periodically broadcasts its current location information. The position information received from neighboring beacons is stored at each node. Based on the position updates received from its neighbors, each node continuously updates its local topology, which is represented as a neighbor list. Only those nodes from the neighbor list are considered as possible candidates for data forwarding. Thus, the beacons play an important part in maintaining an accurate representation of the local topology. APU includes two rules for expressing the beacon update process, which are discussed below.

3.1Mobility Prediction Rule:

This rule is to express the beacon update process. The goal of this rule is to send the next beacon update from the node when the error occurred between the predicted location. A simple location Prediction scheme is used. The position information is broadcast only if the previous beacon becomes inaccurate. If the predicted error in the position estimate is greater than a certain threshold then the next beacon is broadcast immediately. The beacon generation is adapts to the frequency by this rule. It determines the characteristics that changes the nodes. These characteristics are govern to their motion.

3.2 On Demand Learning rule:

ODL rule allows active nodes that are involved in data forwarding. This rule aims to achieve a node broadcasts beacons on-demand that is in response to data forwarding activities that occur in the area of that node. According to this rule, whenever a node overhears a data transmission from a new neighbor, it broadcasts a beacon as a response. By a new neighbor, we imply a neighbor who is not contained in the neighbor list of this node. A node waits for a small random time interval before responding with the beacon to prevent collisions with other beacons. In other words, a rich neighbor list is maintained at the nodes located in the regions of high traffic load.

ADVANTAGES

GPSR consistently delivers upwards of 94% of data packets successfully.It is competitive with DSR in this respect on 50-node networks at all pause times, and increasingly more successful than DSR as the number of nodes increases, as demonstrated on 112-node and 200-node networks.GPSR generates routing protocol traffic in a quantity independent of the length of the routes through the network, and

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therefore generates a constant, low volume of routing protocol messages as mobility increases, yet doesn't suffer from decreased robustness in finding routes.

IV.CONCLUSION

GPSR keeps state proportional to the number of its neighbors,while both traffic sources and intermediate DSR routers cache state proportional to the product of the number of routes learned and route length in hops. GPSR's benefits all stem from geographic routing's use of only immediate-neighbor information in forwarding decisions. The APU scheme employs two mutually exclusive rules. The MP rule uses mobility prediction to estimate the accuracy of the location estimate and adapts the beacon update interval accordingly, instead of using periodic beaconing The ODL rule allows nodes along the data forwarding path to maintain an accurate view of the local topology by exchanging beacons in response to data packets that are overheard from new neighbors. Mathematically analyzed the beacon overhead and local topology accuracy of APU and validated the analytical model with the simulation results. Embedded APU within GPSR and have compared it with other related beaconing strategies using extensive NS-2 simulations for varying node speeds and traffic load.

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