

Neighborhood-based interference minimization on Greedy based backup routing in Mobile Ad hoc Networks

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ABSTRACT

Interference effects in wireless communication can be reduced by establishing an interface aware route in mobile ad hoc networks while performing concurrent multi-hop routing. Also mobile devices broadcast in a limited shared media. Using both routing and scheduling mechanisms can reduce redundancy and communication interference. In MANET, interference is considered due to the possibility of a receiver node being position in the carrier sensing range. The carrier reuse range is the range in which a node can receive signal but cannot decode them. To develop interference aware protocols for stable position-based routing in MANETs. The idea of using a conservative neighborhood range which eliminates the need to establish backup paths is implemented. It does not require the backup paths to maintain stability which is expected to be modified to reduce the interference more effectiveness that using backup path mechanisms or multi-paths to maintain path stability.

Keywords : Mobile Ad Hoc Networks; greedy-based backup routing protocol, stable position based routing protocol, conservative neighbourhood range.

I. INTRODUCTION

MOBILE COMPUTING

Mobile computing is a human-computer which is interact by computer is expected to be transported during normal usage, it allows for data transmission, voice and video. Mobile computing is involves mobile communication, mobile hardware, and software. Communication issues include ad hoc networks and infrastructure networks as well as communication properties, protocols, data format and concrete technologies. Hardware includes mobile devices and device components. Mobile software deal with the characteristics of requirements and mobile applications.

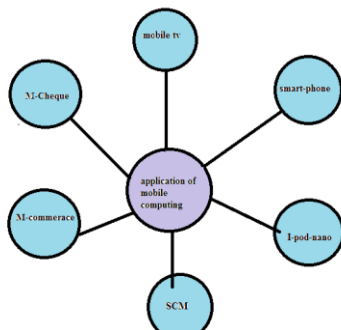


Figure 1. Application of Mobile Computing

MOBILE AD HOC NETWORK (MANET)

A mobile ad hoc network (MANET) is continuously self-configuring and less-infrastructure network of mobile devices connected wirelessly.

Each device is a MANET free to move independently in any direction, it will therefore change the links to other devices frequently. Each as must forward traffic unrelated to its own use, and therefore be a router. The primary challenge in building MANET is equipping each device to continuously maintain the information required to the properly route traffic.

Such networks may operate themselves or may be connected to the largest Internet. The may contain one or more and different transceivers between nodes. This results is highly dynamic, autonomous topology.

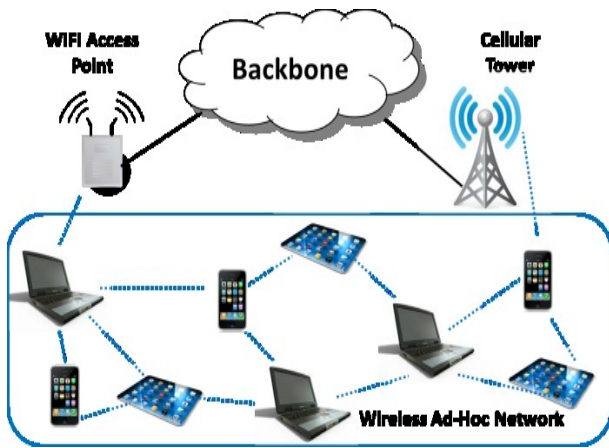


Figure 2. Mobile Ad hoc Network

MANETs are a kind of Wireless ad hoc network that usually has a routable networking environment on top of a Link Layer ad hoc network. MANETs consist of a peer-to-peer, self-forming, self-healing network. MANETs circa 2000-2015 typically communicate at radio frequencies (30 MHz - 5 GHz)

The growth of laptops and 802.11/Wi-Fi wireless networking have made MANETs a popular research topic since the mid-1990s. Many academic papers evaluate protocols and their abilities, assuming varying degrees of mobility within a bounded space, usually with all nodes within a few hops of each other. Different protocols are then evaluated based on measures such as the packet drop rate, the overhead introduced by the routing protocol, end-to-end packet delays, network throughput, ability to scale, etc.

II. LITERARY SURVEY

Abdoos et al[1],proposes that Position based routing protocol use the nodes location information, instead of links information to routing. The position information of the node and its neighbors and packet destination node are stored in the packet destination node are stored in the packet.

source node in position-based routing protocol like greedy, source node or packet forward node send packet to one of its neighbors with most proposed towards destination has high speed in comparison with source node or intermediate packet.

Combination of metrices distance-velocity similarity power has lower test packets average than greedy and

has more reliability. The routing decisions, are based on source node, neighbor nodes, destination node locations. The source location server. Position based routing protocols, have not routing tables overhead. The target is improving the position based routing protocols, with least overhead.

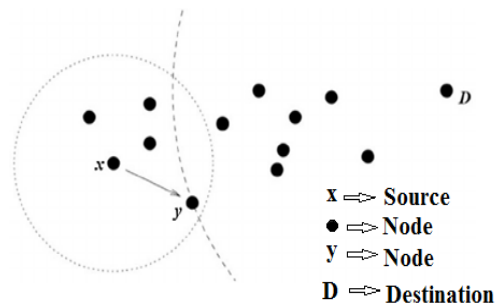


Figure 3. Greedy Forwarding

Thomas et al[2],proposes the Greedy (MFR) attends to distance deciding factor, it does not attend nodes conditions. The metric not suitable for all conditions. it neighbor with most forward progress towards destination node has high speed, in a comparison with source node or intermediate packet forwarder node speed.

Has very low remained battery power, then packet loss probability increased. We can use other deciding metrics in addition to the distance metric, improve Greedy protocol and increase it reliability, The metrics like power, velocity similarity.

Introduces some new metrics avoid loss of packets because of neighbors high speed or low remained battery power, It uses combination metrics distance-velocity similarity-power, deciding about which neighbor the given packet should be forwarded. the packet sender or forwarder node, selects some neighbor nodes which have forward progress towards destination node, then again selects some of them, which have more similar speeds to its own speed and finally, selects one of them which has most remained battery power and sends packet to it.

Abdoos et al[3], the propose work in Interference limits the throughput communication of MANETs is corrupting some of the packets that are exchanged among the mobile devices it is critical importance to

study the interference affect the receivers in the MANETs environment.

Distributed topology control scheme in MANETs where the transmission power of each node was adaptively adjusted based on the number of neighbor nodes and the amount of interference that the node generated for its neighbors. Considered a protocol that introduced the concept of interference in the choice to optimum routes in order to improve wireless system performance.

There are Two distinct metrics were proposed. the first one is based on global interference perceived by nodes involved in the communication. The second one is based on the interference perceived only on the links belonging to the route from the source to the destination.

The proposed metrics is not based on the minimum hop number, such as in the AODV protocol, but on the global interference perceived by nodes and on the interference affecting the link involved in the transmission.

III. CONCLUSION

The study has lead to the conclusion of mobile ad hoc network in GBR_CNR it is used to identify the nearest neighbour and local information of node then they mainly used to protocol position based topology based routing. the position based routing is used to efficiently find routes between two communicating nodes. the topology based routing.

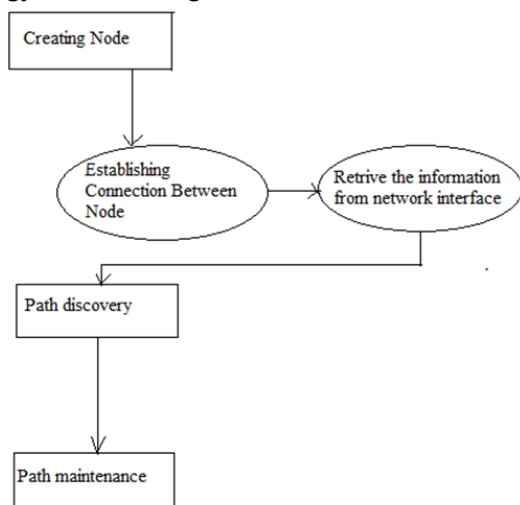


Figure 4. The architectural diagram of the proposed system

we considered a very important position based routing protocol, it named as Greedy. its kinds of MFR, the source node o intermediate packet forwarder node, sends packet to closest neighbour to destination node. Using distance deciding metric in Greedy, it not suitable for all conditions. Metrics distance-velocity similarity-power, to deciding about to which neighbour, the given packet should be forwarded.it has lower lost packets average than Greedy, so it has more reliability.

In future, we will work on stable position routing protocol and Energy consumption can be reduced by using energy efficient mechanism along with the routing protocol.The packet loss can be minimized by the nodes used for transmission.

IV. REFERENCES

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