International Journal of Pharmaceutical Science Invention
ISSN (Online): 2319 – 6718, ISSN (Print): 2319 – 670X
www.ijpsi.org Volume 2 Issue 7‖ July2013 ‖ PP.01-04

Distributed randomized Schedulling and Traffic Monitoring for qos Manet

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ABSTRACT: *Limited resources of nodes in MANETs force the extensive studies for energy-aware multipath routing protocols, which should provide the fault tolerance for broken links and the load balance for extending bandwidth and equalizing energy consumption. A cross-layer framework is introduced for the effective dissemination of real-time and elastic traffic in multihop wireless networks called Scheduling and Traffic Management in Ordered Routing Meshes (STORM). UNICAST and MULTICAST routes are established in coordination with the scheduling of transmissions and bandwidth reservations in a way that bandwidth and delay guarantees can be enforced on a per-hop and end-to-end basis.*

KEYWORDS: *Strom,trafficmanagement,multihop,UNICAST,MULTICAST,DSR,FORP.*

I. INTRODUCTION

1.1 wireless networks

Wireless networks are generally implemented with some type of remote information transmission system that uses electromagnetic waves, and is commonly associated with a telecommunications network whose interconnections between nodes is implemented without the use of wires.

1.2 Destination-Sequenced Distance Vector routing

Destination-Sequenced Distance-Vector Routing (DSDV) is a table-driven routing scheme for ad hoc mobile networks. Each entry in the routing table contains a sequence number, the sequence numbers are generally "even number" if a link is present; else, an odd number is used. The sequence number is generated by the destination. Routing information is distributed between nodes by sending full dumps infrequently and smaller incremental updates more frequently.

1.3 ad hoc on-demand distance vector routing

In ad hoc mobile networks, routes are mainly multihop because of the limited radio propagation range and topology changes frequently and unpredictably since each network host moves randomly. Hence on-demand routing protocol has been proposed for ad hoc networks. Network hosts maintain route table entries only to destinations that they communicate with.

Ad hoc On-Demand Distance Vector (AODV) Routing is a routing protocol for mobile ad hoc networks (MANETs) and other wireless ad-hoc networks. AODV is capable of both UNICAST and MULTICAST routing. It is a reactive routing protocol, meaning that it establishes a route to a destination only on demand. It is an "on demand algorithm", meaning that it builds routes between nodes only as desired by source nodes. It maintains these routes as long as they are needed by the sources. Additionally, AODV forms trees which connect MULTICAST group members. The trees are composed of the group members and the nodes needed to connect the members.

II. RELATED WORK

2.1 flow handoff in ad hoc wireless networks

W.Su and M.Gerla gives in an ad hoc wireless network mobile hosts are acting as routers and the network topology is constantly changing due to node mobility. The disruptions can cause serious degradation for real time session. A new concept called multi hop handoff is introduced to anticipate topological changes and perform rerouting thus limiting the disruption of a flow due to the changing topology.

2.2 the flow oriented routing protocol (forp)

The protocol is inspired by on demand schemes such as LMR (Lightweight Mobile Routing), DSR (Dynamic Source Routing), ABR (Associativity-Based Routing), AODV (Adhoc On-Demand Distance Vector) and TORA (Temporally Ordered Routing Algorithm). The only routes for active source destination pairs are maintained. As a difference from previous schemes however, the destination predicts the change of topology ahead of time and determines when the flow needs to be rerouted or hand off based on the mobility information contained in the data packets.

2.3Opportunistic Multi Hop Routing for Wireless Networks

S.Biswas and R.Morris, gives Ex OR, an integrated routing and MAC protocol that increases the throughput of large unicast transfers in multi-hop wireless networks. Ex OR chooses each hop of a packet's route after the transmission for that hop, so that the choice can reflect which intermediate nodes actually received the transmission. This deferred choice gives each transmission multiple opportunities to make progress. As a result Ex OR can use long radio links with high loss rates, which would be avoided by traditional routing. Ex OR increases a connection's throughput while using no more network capacity than traditional routing.

III. EXISTING SYSTEM

- Calculates distance from the destination based on location information of the destination that will be extracted from the request packet while uses the relative neighborhood graph (RNG) which together with local information of distance to neighbors and distances between neighbors will minimize the total energy consumption while still maintaining the whole network coverage through broadcasting.
- Restricted flooding is based on distance from the node to the destination is used to determine nodes participation in the route discovery process. Nodes that are further away from source will not participate

IV. PROPOSED SYSTEM

4.1 Scheme 1: Framework of MANET

The MANET requires routing protocols to ensure that out of range node can communicate with each other via intermediate node

Pro-active (table-driven) routing

This type of protocols maintains fresh lists of destinations and their routes by periodically distributing routing tables throughout the network.

Reactive (on-demand) routing

This type of protocols finds a route on demand by flooding the network with Route Request packets. The main disadvantages of such algorithms are:

1. High latency time in route finding.
2. Excessive flooding can lead to network clogging.

Hybrid (both pro-active and reactive) routing

This type of protocols combines the advantages of proactive and of reactive routing. The routing is initially established with some proactively prospected routes and then serves the demand from additionally activated nodes through reactive flooding. The choice for one or the other method requires predetermination for typical cases.

The main disadvantages of such algorithms are:

1. Advantage depends on amount of nodes activated.

Reaction to traffic demand depends on gradient of traffic volume.

4.2 Scheme 2: Neighboring node selection

MANET is the collection of mobile nodes in which the nodes communicate with each other without the help of any fixed infrastructure. The monitoring nodes consumes more energy in the MANET in intrusion detection.

The neighbor protocol is also used to detect when two nodes in a two hop neighborhood have reserved the same slot.To resolve a conflicting reservation, the node with the larger identifier keeps its reservation over the particular slot,whereas the node with the lower identifier has to give up its current reservation and start a new reservation transaction over a different slot.

The main source of these conflicting reservations is node mobility, which changes the neighborhood of nodes.The neighborhood information contained in hello messages allow nodes to detect these collision before the conflicting node become one-hop neighbors.

4.3 Scheme 3; Loop free interest driven routing

Routing in STORM is based on destination meshes, routing meshes, and enclaves. To integrate unicast and multicast routing, a destination is treated as a connected destination mesh containing one or more nodes.

STORM adopt the interest driven approach. However, unlike our prior work, the routing meshes used in STORM have the restriction that each node in those path is flow ordered.

When a source has data to send, it checks whwther it has received an MA advertising the intended destination within the last three MA periods.If that is the case, the sender simply broadcasts the data packet, otherwise, it broadcasts an MR.Upon reception of a data packet, a node checks for a hit in its data-packets cache. If tha pair is already in the cache, the packet is silently dropped. Otherwise, the receiving node inserts the pair in its cache and determines whether it has to relay the data packet or not.If the node is part of the destination, it also passes the data packet to upper layers.

V. PERFORMANCE EVALUATION

5.1 simulation overview

A simulation result was gained by averaging over 20 runs with different seeds to increase the confidence of the results. We study the following metrics:

1. ***Packet delivery ratio***. The ratio of the packets delivered to those originated by CBR sources.

2. ***Control overhead***. The total number of control message transmissions (the forwarding of a control message at each hop is counted as one control transmission) divided by the total number of data packets received.

3. ***Average number of data packet forwarding per delivered packet***. The total number of data packet forwarding accumulated from each hop (including rerouting and retransmissions due to collisions) over the total number of data packets received. Both the non-optimal routing and rerouting due to unreachable next hop will increase the forwarding overhead.

4. ***Average end to end delay.*** The average time interval for the data packets to traverse from the CBR sources to the destinations.

To demonstrate the effectiveness of our algorithms and protocols i n supporting robust communications under various conditions, we have performed extensive simulations with the variations of mobility and thus the rate of network topology changes, node density, traffic load, and the accuracy level of the destination position. I n e ach performance study, only the parameter to evaluate is varied, and the remaining parameters .

VI. CONCLUSION

A cross-layer framework is introduced for the effective dissemination of real-time and elastic traffic in multihop wireless networks called Scheduling and Traffic Management in Ordered Routing Meshes (STORM). UNICAST and MULTICAST routes are established in coordination with the scheduling of transmissions and bandwidth reservations in a way that bandwidth and delay guarantees can be enforced on a per-hop and end-to-end basis. STORM establishes and maintains loop-free routes from sources to destinations and, just as important, that the reservations established along these paths provide bounded end-to-end delays reduces the impact of node mobility on the quality of service perceived by real-time flows.

In future, the infrastructure, ad hoc configurations and the factors such as overhead, security and reliability will be considered. The other parameters such as jitter and bandwidth can also be taken to improve the performance even better. This multipath video multicasting adopting AODV protocol would be highly efficient when applied for applications that run on real time such as VOIP, Teleconferencing and video streaming.

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