Improve of DeReQ Algorithm in Mobile Ad-Hoc Networks

Seyed Hossein Hosseini Nazhad Ghazani and R. M. Aliguliyev

***Abstract*—In this paper we study a QoS routing algorithm (DeReQ) that have been used in multimedia communication over ad hoc networks. Then we will propose some new important things about link delay and reliability of DeReQ. DeReQ is a QOS routing algorithm. The aim of DeReQ algorithm is to find an optimal route.**

***Index Terms*—Ad hoc, mobile nodes, QoS, routing protocols.**

I. Introduction

In this experiment the link reliability performance of all the protocols degraded as intended when nodes average speeds increase. DeReQ enabled AODV satisfies this QOS requirement and achieves a comparable performance as of LBM. AAC and the original AODV don't consider the vehicular movement pattern. Frequent routing maintenances increase route overhead and decrease throughput as link breakages can easily happen. In summary the simulation result presented in these things demonstrate that the design of DeReQ algorithm is successful. We can combine DeReQ with existing source routing protocols to obtain comparable overall performance.

IP Ad Hoc networks are quickly becoming part of communications infrastructure. Quality of service (QOS) in IP Ad Hoc networks remains an open issue. It's not possible to apply QOS management techniques to negotiate quality between users and networks.

This quality can be applicable in Ad Hoc networks. Intserv and diffserv techniques were used in the QOS management techniques and quality. This routing things and qualities can be present to a greater or lesser extent in the networks and they will influence the RRM algorithms and overall QOS solution ad opted.

When we say VANETs, it's about Vehicular Ad Hoc Networks. VANETs can provide safety applications which distribute safety or traffic information and traffic control. In this part for a republish to post on servers or to redistribute to lists requires prior specific permission and or a fee. We have focused our interests on providing QOS routing algorithm for VANETs. This is different from most of previous MANET QOS Routing algorithms which only consider single QOS metric.

II. Related Work/Link Reliability Models

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Seyed Hossein Hosseini Nazhad Ghazani and R. M. Aliguliyev are with Institute of Information Technology of ANAS, 9, F.Agayev St., Baku-AZ1141, Azerbaijan Republic (e-mail: S.HosseiniNejad@gmail.com; Rasim@science.az).

A link reliability model is a probabilistic function that can predict the future status of a wireless link. When user requests a stable link we completely send for them. Furthermore implementing link reliability model as a QOS constraint is essential. Two routing mechanisms have been discussed for MANETs: Topology based and location based routing [1, 2, 3]. Now we develop our link reliability model by using the pdf of link lifetime. And between them we duress T_{sd} and also we counted the speed of two vehicles by V_{RA} using this formula:

$$T_{sd} = \frac{L_{RA}}{V_{RS}} = \frac{\sqrt{(y_1 - y_2)^2 + (x_1 - x_2)^2}}{V_1 - V_2} \quad (1)$$

Two neighboring vehicles can easily exceed their direct radio communication range. Road density can be broadcasted by infrastructure device for example RSU, the road side union provided by IEEE 802.11. For a given path P_i between s and d its link reliability R(P_i) and delay D(P_i) and defined .

$$R(P_i) = \prod_{\substack{P_{j\varepsilon P_i} \\ 1 \le j \le H(P_i)}} d(p_j)$$
$$D(P_i) = \sum_{\substack{P_{j\varepsilon P_i} \\ 1 \le j \le H(P_i)}} d(p_j) \quad (2)$$

In VANETs to fine an optimal route considering two QOS metrics link reliability and link delay.

Since link reliability has higher priority than link delay and path hops, we first search the route $P_{\max-relia}$ with the maximum link reliability among all the available routes, and set the found maximum link reliability value as the initial link reliability bound Δ_r and hop constraint Δ_h :

$$P_{\max-relia} = \arg\max_{p_i \varepsilon P(s,d)} R(P_i)$$
$$\Delta_r = \max_{P_{i\varepsilon P(s,d)}} R(P_i) \quad (3)$$
$$\Delta_h = \frac{n.L_{sd}}{D_r}.\frac{\lambda_c}{\lambda}$$

We counted the ways for example n is the number of lanes. If there is only one route in the solution pool the final search result is set to be this one. In this part we evaluate the performance of DeReQ algorithm through simulation experiments in NS2.

Freeway model is a newly proposed model in which all the nodal velocities are dependent on its previous velocities with respect to time. Vehicle average speed is set between 0 to 60 m/s in each scenario. The simulation has been running for 200 s. In our simulation six keys performance metrics are evaluated.

In this subject outlines some of the difficulties and very different faced in providing QOS in an IP.

We know QOS management is concerned with interaction with users in the form of service level. In a mobile network as well as being concerned with throughput delay, call completion and other standard QOS requirements. QOS enforcement is in many ways another instrument of policy management where the adapted enforcement techniques should best confirm.

QOS techniques are directly coupled with management the available reason in a network specially in Ad Hoc Networks. In this part, paths and channels in fixed networks and radio channels and other things frequently in mobile networks call control protocols in Ad Hoc Networks and QOS are used to derive resource request that is used by the algorithms specially admission control. This radio is one of another management of resource with additional requirements for mobile & wireless networks.

RRM can be divided into a set of co-operative algorithms. Different and difficult managements can be used with the aim of providing of all of algorithms. The introduction of new types of data services, the potential of new wireless network.

Working of QOS management architectures in Ad Hoc IP network is impractical [4]. Neighboring nodes can access the channel and transmit data using standard IEEE802.11 mechanisms without consideration of the QOS requirement of surrounding nodes [5].

One solution to this is for each node to periodically broadcast is required reservation which are then respected by all surrounding nodes and not only the nodes through which the IP flow is routed. DiffServ can be used in IP ad-hoc networks. Application of policy across an entire network may result in improved QOS for some service types.

The main function of radio resource management at this level is to allocate and control radio resource amongst the different users. This provides a platform for providing a network path for the transport of massages to the terminal. Different levels of signaling can be used in implementing RRM from intensive ATM like signaling to none.

User and service mobility is supported through hand over control in RRM. Rather than directly applying existing IP QOS enforcement to Ad Hoc Networks its first necessary to characterize Ad Hoc Networks . Mobility, aggregation, channel type, flow state and routing are properties that are common to some degree in all Ad Hoc Networks. Implications are all load and way balancing and be suitable and admission control.

The tradeoff is in the load balancing and or scheduling it can be easier to manage a small number of aggregate flows, as opposed to a large number of individual flows. Aggregation can also affect admission control and mobility – individual flows may still need to be admitted to an aggregate set.

If a system utilizes state information some mechanism must exist to set it up and maintain that information. Likewise load balancing may occur by traffic type or packet type without regard to individual flow state. System such as GPRS or UMTS adapts a hybrid approach with some channels reserved for simplex or duplex communication for single node. This separation can be based on the DiffServ field in IP packet. RRM must be adaptive and robust to bath internal & external dynamics. The traffic mix consists of mobile hosts sending high end to end voice or and video and hosts starting best effort greedy TCP connections. Video traffic is generated using a 65 kbps constant rate source. Simulations were performed using the ns-2 network with the wireless. During simulation the channel load is increased by adding a new voice, video and TCP session periodically every five seconds.

It can be observed that the delay increases for all service types but the delay separation is efficiently maintained from low load up until the channel is saturated. It can be observed that even at the saturation point the TCP traffic isn't completely starved. Admission control algorithms determine whether the channel can support a new traffic stream or not and admit or reject a new session. This is true even if cell areas execute the same algorithms a globally stable state can be maintained admission is granted if algorithms at the receiving and sending nodes admit the new request.

The average session length was 30 s. Admission control was applied to delay sensitive voice session. This new vision of RRM is of utmost relevance in Ad Hoc Networks where traditional centralized approached to RRM are not possible.

III. Conclusion

At last we rout systems in some dynamics. We develop all of algorithms, specially QOS algorithm and DeReQ and also we learned about simulation between the QOS and DeReQ. We explained RRM and part of the end to end of it. Finally we approach to center of RRM.

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Seyed Hossein Hosseini Nazhad Ghazani was born in 1980. He received the B.S. and M.S. degree in computer software engineering from the Islamic Azad University Khoy Branch and Islamic Azad University Najaf Abad Branch in 1998 and 2005 respectively. He is currently a lecturer in the Islamic Azad University, Ahar Branch and Ph.D candidate in Azerbaijan National Academy of Science (ANAS). His research interests include QoS and scheduling in Ad hoc and sensor networks.

Rasim Mahammad Oglu Alguliev was born in 1958was born in 1958. He defended his candidate thesis on "Development of projecting methods of switching center of multi-microprocessor packets realizing adaptive routing function" on specialty "Information Processing and Controlling systems", and defended doctoral thesis on "Models and methods for ensuring information security in computer networks". He is a member of editorial board of Azerbaijan National Encyclopedia, a deputy chairman of Problematic Council on "Cybernetics, information technologies and techniques", a chairman of Dissertation Board at the Institute of Information Technology, ANAS.