

Design & Verification Multimedia using Routing IP

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ABSTRACT

The multimedia transmission streams imposes a minimum bandwidth requirement on the path being used to ensure end-to-end Quality-of-service guarantees. The goal of routing algorithms is to find a loop-less path satisfying a given set of constraints on parameters like bandwidth, delay, etc. The path selection process could return either the entire path to the destination or the best next hop for the request. The first case is called as Source routing and the second is referred to as Distributed routing proposed system uses a new distributed routing algorithm for unicast flows, which has a very low call establishment overhead. We present a systematic evaluation of four routing algorithms that offer different tradeoffs between limiting the path hop count and balancing the network load.

Keywords:-Partial global state information, IP networks, Multimedia transmission;

1. INDRUCTION

1.1 Routing need for Multimedia:

Routing is the routing technique where packet is routed from source to destination selecting the path that satisfies. (i.e., Bandwidth and Delay) requirements. Multimedia data are sensitive to bandwidth and delay. Resource reservation is a necessity for guaranteed end-to-end performance for multimedia applications. However, resource reservation is not well supported in the current routing protocols used in IP network layer. Also, the data packets of these applications could follow different paths and reach the destination out of order, which is not desirable. Again, multimedia applications demand guaranteed amount of work resources like bandwidth, delay, buffer space, CPU time etc.

1.2 Advent of Grid Networking infrastructures:

Optimizing IP infrastructures for Grid computing demands that network schemes are re-examined in the scope of Grid-enabled applications and middleware. Furthermore, there is a need to associate Services with middleware services to allow for a dynamic exploitation of available networking services. Apart from posing additional challenges, the evolution of IP networks and applications has resulted in a pressing demand for expanding Quality of Services research to other areas. The IP protocol serves nowadays as a ubiquitous internetworking mechanism bridging heterogeneous network segments. The most prominent example is the convergence between wireless networks and the Internet, which raises issues relating to delivering Quality of Services to roaming or wireless users accessing an IP network. Also, since most backbones are gradually migrating to all-optical solutions, Quality of Services mechanisms need to take into account the evolution of the respective networking technologies, such as Generalized MPLS (GMPLS). As a result, current IP-based infrastructures are likely to comprise several heterogeneous segments (e.g., access, wireless, optical), where packet-level Quality of Services mechanisms are not sufficient. Toward delivering Quality of Services to end users, additional Quality of Services mechanisms are researched and standardized for these segments. Most of these additional mechanisms are not controlling traffic at the packet level, and therefore differ from IP Quality of Services schemes. In several cases, these Quality of Services mechanisms have to deal with different challenges as well. For example, Quality of Services in wireless/mobile environments is harder to achieve, since resources (e.g., bandwidth) are much more limited and thus over-provisioning is prohibitive. Wireless networks are associated with fundamental limitations in power, available spectrum, over-provisioning cost, and mobility, and therefore tend to have less predictable availability, less connection stability, less bandwidth, and more latency. However, as wireless networks proliferate, there is a great demand for providing wireless Quality of Services levels.

2. NETWORK FORMATION

This System used ns2 simulator on Linux machine. Because, it focuses on the link stability and route lifetime, no route overhead was considered in simulation. Each node connected with wired used different types of wires that is cable, coaxial cable, and optical fiber The transmission range is fixed at 250 units. 20 nodes of them have destinations and try finding routes to their destination nodes. Maximum speed of node is set to 10 m/sec. All nodes do not stop moving, and the simulation time is 500 sec. The number of nodes is varying from 50 to 150 and six road side unit.

2.1 Construct Link-to-Node table

Proposed system using update policy based on Thresholding Each node maintains a Link-to-Node (LTN) table. The LTN table basically gives which link to use to reach a given neighbor and resource available along that link. Links are assumed to be asymmetric A node can easily construct this table by exchanging Hello packets with neighbors.

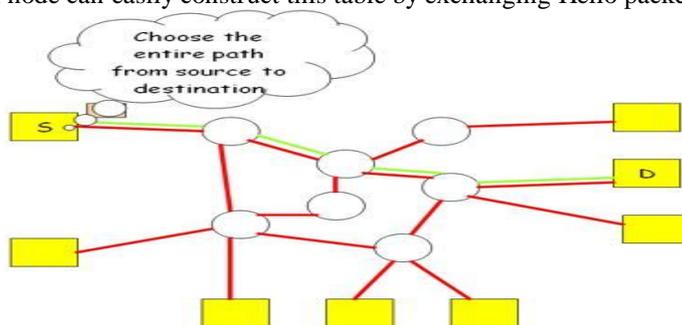


Figure 1. Network connection

Each node on booting up constructs a Link-to-Node (LTN) table the update policy used decides when these Hello2 packets are sent. A simple update policy could be based on timers and it could be such that an update is sent every seconds

2.2 Update Policy for Bandwidth optimization:

The main idea of sending Hello2 packets is to communicate the changes in a router’s resource availability to other routers. Each node remembers the last advertised metric on each link. If the ratio between the last advertised value and the current value is above (or below) a threshold, an update is triggered. The node constructs Hello2 packets and sends them to all its neighbors. The advantage of using such a threshold based update policy is that, the impreciseness could be easily modeled using probabilities. A router should send the bandwidth information only to its neighbors and need not send it to all routers in the network.

3. PACKET FORWARDING USING QUALITY OF SERVICES ROUTING

Each node maintains a routing table in which two kinds of entries are present. The first corresponding to the immediate neighbors, the second degree neighbors the connection set-up process has three phases namely Probing, Ack. and Failure handling. The first phase is probing and it is started when a source sends out a connection request. The destination on receiving the first probe for a connection starts the ack. phase by sending an acknowledgment to its sender. The destination sends an ack. only to the first probe it receives and discards all the duplicates. Using Quality of Services Routing

3.1 Performances Analysis

The available bandwidth is less, the Current Available bandwidth / Last advertised bandwidth ratio will fluctuate significantly with each admitted call the available bandwidth in each link is high, the Current Available bandwidth / Last advertised bandwidth ratio will not fluctuate much with each admitted call. The bandwidth admission ratio for the two unbounded versions on MESH-I Bandwidth admission ratio is defined as the ratio of bandwidth admitted into the network to the total bandwidth requested The lack of alternate paths combined with the hop constraint make the blind flooding and the two-level forwarding comparable in terms of message overhead.

4. EXPECTED RESULTS

The bounded version of the two algorithms has also compared. The motivation behind the bounded technique is to reduce unnecessary flooding in the network. In the bounded approach, the probes are given maximum age L, equal to d_s, t , is the number of hops in the shortest path between the source & destination t . the overhead in MESH-I for blind flooding and two-level forwarding is given in fig. The overhead of the bounded versions is clearly less than the overhead unbounded versions. Even here two-level approach helps in further reducing the message overhead.

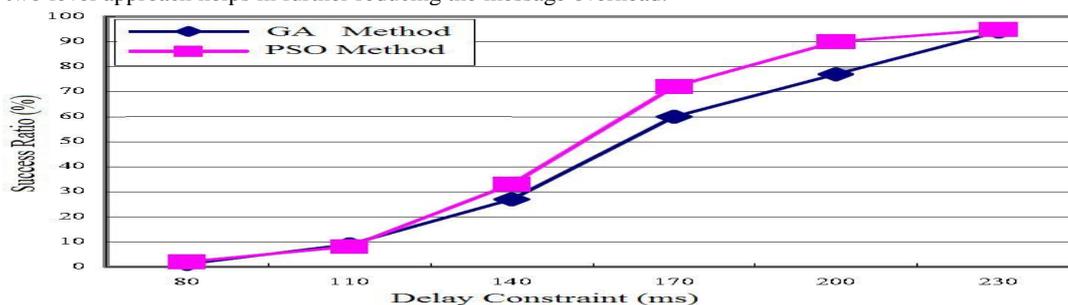


Figure 2. computation time for 60 nodes, Cost constraint 2950

Fig. shows the bandwidth admitted on MESH-I by the two approaches, As expected, at any given network load, the bandwidth admitted by the bounded version is less than or equal to the bandwidth admitted by the unbounded versions. This is due to the reduced scope of the path search. Again on MESH-I, in terms of bandwidth admitted, the performance of the two-level approach is comparable to that of the blind flooding. Fig. shows the overhead incurred on the ISP topology the by the two bounded versions. The lack of alternate paths combined with the hop constraint make the blind flooding comparable in terms of message overhead. In terms of bandwidth admitted, flooding performs better than the two-level forwarding.

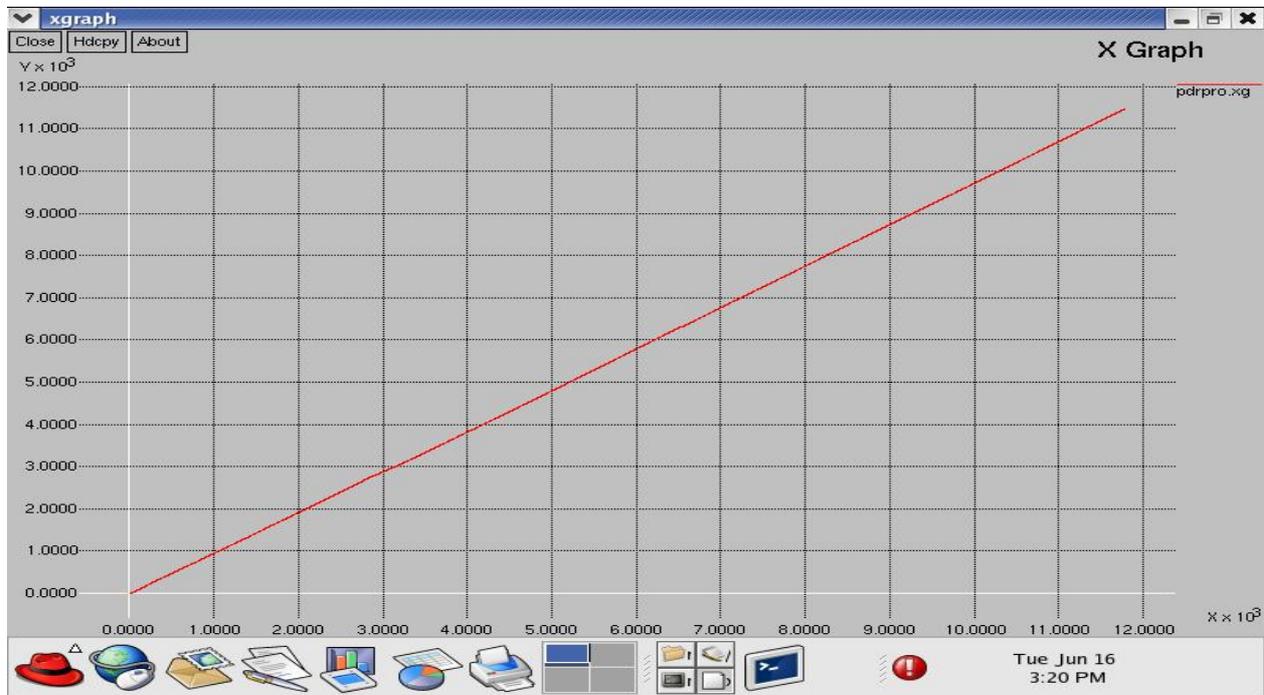


Figure 3. Packet forwarding ratio

The ratio of the number of delivered data packet to the destination. This illustrates the level of delivered data to the destination. In our proposed system analysis from the trace file how much it will receive this one calculates the packet delivery ratio. When compared to existing system our proposed system will be high it will show in graph itself.

$$\sum \text{Number of packet receive} / \sum \text{Number of packet send}$$

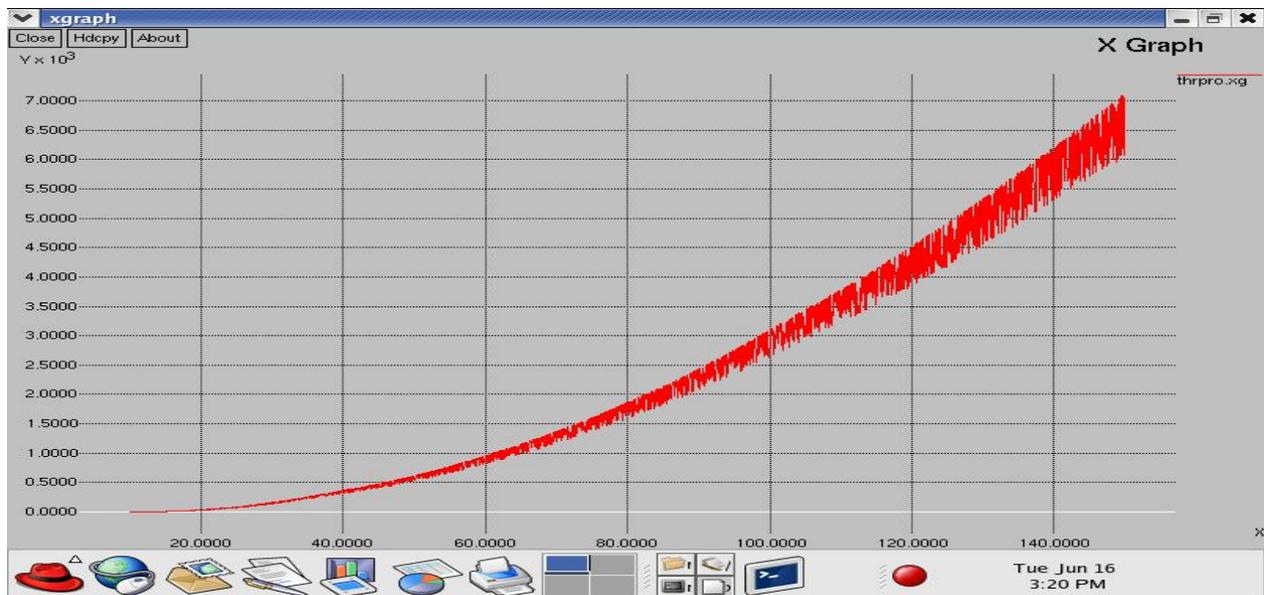


Figure 4. Throughput ratio

In communication networks, such as Ethernet or packet radio, network throughput is the average of successful message delivery over a communication channel. This data may be delivered over a physical or logical link, or pass through a certain network node. The throughput is usually measured in bits per second or data packets per time slot. Throughput will calculate from trace file and plots the graph. In our proposed system will be very high compared to existing system. $\text{Throughput} = \text{File Size} / \text{Transmission Time (bps)}$

5. CONCLUSION

A new packet forwarding mechanism based on the Quality of Services requirements of the connection. Even though additional overhead is incurred in maintaining the information about the second level links, simulation results show that, this overhead is less when compared to the savings obtained by intelligent probe forwarding. To exchange resource availability information between adjacent routers, protocols like OSPF and RIP could be extended. In Future work, would involve extending the proposed algorithm to do forwarding, taking into consideration the impreciseness in the table entries.

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