No Packet Left Behind Avoiding Starvation in Dynamic Topologies

ABSTRACT

Queue-length-based BackPressure (Q-BP) routing and resource allocation technique is known to maximize network throughput. Since its introduction in [28], Q-BP has gained much popularity in the context of *dynamic networks*, and includes a vast collection of comprehensive theoretical as well as practical works in the literature In such networks, the traditional two-phase algorithms, in which at first paths are being discovered and only then they are used to send data, may be less effective, as by the time these paths are discovered the topology changes again. This may eventually lead to an accumulation of packets in the network and even to instability, due to infinite looping, poor use of the network resources, and large overhead in maintaining the routes.

EXISTING SYSTEM

In Existing System, Backpressure schemes are known to stabilize stochastic networks through the use of congestion gradients in routing and resource allocation decisions. Nonetheless, these schemes share a significant drawback, namely, the delay guarantees are obtained only in terms of average values. As a result, arbitrary packets may never reach their destination due to both the starvation and last-packet problems. These problems occur because in backpressure schemes, packet scheduling needs a subsequent stream of packets to produce the required congestion gradient for scheduling.

DIS ADVANTAGES

- Weak and infrequent streams (i.e., streams with a lower arrival rate) may suffer from *starvation* due to stronger streams.
- Packets may never reach their destination due to both the *starvation* and the *last-packet* problems.

PROPOSED SYSTEM

In Proposed System, we define a *starvation-free stability* criterion that ensures a repeated evacuation of all network queues. Then, we introduce SF-BP, the first backpressure routing and resource allocation algorithm that is *starvation-free stable*. We further present stronger per-queue service guarantees and provide tools to enhance weak streams. We formally prove that our algorithm ensures that all packets reach their destination for wide families of networks. Finally, we verify our results by extensive simulations using challenging topologies as well as random static and dynamic topologies.

ADVANTAGES

- Reduce the mean delay in the network; they hold no promises regarding individual packet arrivals.
- It improves the delay performance in the network.

SYSTEM REQUIREMENTS

H/W System Configuration:-

Processor	-	Pentium –III
RAM	-	256 MB (min)
Hard Disk	-	20 GB
Key Board	-	Standard Windows Keyboard
Mouse	-	Two or Three Button Mouse
Monitor	-	SVGA

S/W System Configuration:-

Operating System	:	Windows95/98/2000/XP
Application Server	:	Tomcat5.0/6.X
Front End	:	HTML, Jsp

Scripts	:	JavaScript.
Server side Script	:	Java Server Pages.
Database	:	MySQL 5.0
Database Connectivity	:	JDBC