An Overlay Architecture for Throughput Optimal Multipath Routing

ABSTRACT

Optimal routing in networks where some legacy nodes are replaced with overlay nodes. While the legacy nodes perform only forwarding on pre-specified paths, the overlay nodes are able to dynamically route packets. *Dynamic backpressure* is known to be an optimal routing policy, but it typically requires a homogeneous network, where all nodes participate in control decisions. Instead, we assume that only a subset of the nodes is controllable; these nodes form a network overlay within the legacy network.

EXISTING SYSTEM

In Existing System, Backpressure (BP) routing is used in the Existing System; this is a throughput optimal routing policy that has been studied for decades. Its strength lies in discovering multipath routes and utilizing them optimally without knowledge of the network parameters, such as arrival rates, link capacities, mobility, fading, etc. Nevertheless, the adoption of this routing policy has not been embraced for general use on the Internet. This is due, in part, to an inability of backpressure routing to coexist with legacy routing protocols. With few exceptions, backpressure routing has been studied in homogeneous networks, where all nodes are dynamically controllable and implement the backpressure policy across all nodes uniformly. In Existing System there are two problem areas for control of heterogeneous networks. First, we develop algorithms for choosing the placement of controllable nodes, where our goal here is to allocate the minimum number of controllable nodes such that the full network stability region is available. Second, given any subset of nodes that are controllable, we also wish to develop an optimal routing policy that operates solely on these nodes.

DIS ADVANTAGES

- the minimum number of controllable nodes required to enable the full throughput region.
- Network overlays are frequently used to deploy new communication architectures in legacy networks

PROPOSED SYSTEM

In Proposed System, we study overlay architecture for dynamic routing, such that only a subset of devices (overlay nodes) need to make the dynamic routing decisions. We determine the essential collection of nodes that must bifurcate traffic for achieving the maximum multi-commodity network throughput. We apply our optimal node placement algorithm to several graphs and the results show that a small fraction of overlay nodes is sufficient for achieving maximum throughput. Finally, we propose a threshold-based policy (BP-T) and a heuristic policy (OBP), which dynamically control traffic bifurcations at overlay nodes. Policy BP-T is proved to maximize throughput for the case when underlay paths do no overlap. In all studied simulation scenarios, OBP not only achieves full throughput but also reduces delay in comparison to the throughput optimal backpressure routing.

ADVANTAGES

- Homogeneous networks, where all nodes are dynamically controllable and implement the backpressure policy across all nodes uniformly.
- Overlay nodes is sufficient for achieving maximum throughput.

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