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ANALYTICAL MODELING FOR VIRTUAL TOPOLOGY RECONFIGURATION FOR IP-OVER-WDM NETWORKS WITH QOS PARAMETERS USING GAUSSIAN DISTRIBUTION

RAMASAMY MARIAPPAN AND R. SHANMUGALAKSHMI

Abstract

Wavelength Division Multiplexed (WDM) networking technology has been identified as a suitable candidate for future wide area network (WAN) environments, due to its potential ability to meet rising demands of high bandwidth and low latency communication. As traffic demand in the Internet increases exponentially, Wavelength Division Multiplexing (WDM) networks with Terabits per second bandwidth per fiber become a natural choice for the backbone in the future. IP-over-WDM networks i.e. Optical Internets will be the best choice for next generation Internets. Recently, Virtual Topology Reconfiguration of IP-over-WDM networks, has received greater attention among researchers. In this paper, we have presented a new analytical model using Gaussian distribution for the virtual topology reconfiguration for IP-over-WDM networks with Quality of Service (QoS) parameters and shown that this new approach achieves better QoS performance in terms of blocking probability, throughput and latency.

Keywords: Lightpaths, Logical Topology, Traffic Engineering, QoS