以QoS為基礎之WDM網路虛擬拓樸設計演算法

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摘 要

波分多工(Wavelength Division Multiplexing; WDM)技術藉由設定光開關(optical switch)來動態建立光路徑(light-path)，以提供傳輸節點間的單一跳躍(single hop)通訊，提高傳輸速度。這些光路徑形成了所謂的虛擬拓樸(virtual topology)，而虛擬拓樸的設計及重配置(reconfiguration)則讓網路環境更能適應流量的多變性。虛擬拓樸的設計及重配置方式與時機已經有許多演算法在探討，但是關於如何達到QoS (Quality of Service)服務品質的探討仍少。由於光纖到府(FTTH)將成為未來網路的必然演變，QoS在WDM網路的重要性逐漸提升，因此我們提出了一個QHVDA(QoS-based Heuristic Virtual topology Design Algorithm)演算法，使WDM網路的高優先權封包加快傳輸速度，以及QICA(QoS-based Incremental Clustering Algorithm)演算法，使虛擬拓樸的重配置盡量避免改變高優先權封包的傳輸路徑，以提高WDM網路的QoS服務品質。

關鍵詞 : 波分多工網路 ; 虛擬拓樸 ; 服務品質(QoS)

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