適合光纖到府交通模型的乙太被動光纖網路動態頻寬分配方法

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摘 要

近年來由於網路的急速發展，使得接取網路(Access network) 出現瓶頸。為了滿足頻寬需求，乙太被動光纖網路(Ethernet passive optical network; EPON)是個很有潛力的解決方式，因為EPON 有 著高頻寬和低廉的網路硬體架構。其傳輸特性在下傳頻道是一個 單點對多點的廣播網路，而上傳頻道則是一個多點對單點的接取 網路。因為上傳頻道是多點對單點的特性，所以需要有個多工存 取方式來防止上傳頻道發生碰撞問題，而IPACT (Interleaved Polling with Adaptive Cycle Time)[1]是目前最有效率的多工存取 方式之一，可是此種輪詢(polling)方式尚存著一個問題，當一個 ONU 無資料要求時，OLT 還是會授予一個時槽給予送出要求，此 問題對於目前急速成長光纖到府(Fiber to the Home; FTTH)網路更 為顯著。 在本論文中，我們將討論光纖到府使用IPACT 多工存取方式 所引發頻寬浪費問題，並且將針對此問題提出競爭時框(contention window)演算法來解決此問題。本論文中我們提出FTTH traffic 的 傳輸模型來做效能評估，從模擬結果來看我們的方法在總產出量 （Throughput）和系統的傳輸延遲(Delay)表現優於其他方法。

關鍵詞 : 乙太被動光纖網路

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