# 行動網路之TCP效能探就與改良


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**摘 要**

隨著網路科技的進步，除了傳統的有線網路外，人們也能藉由諸如IEEE802.11、GPRS，乃至3G等無線網路技術隨時隨地的透過無線上網銜接網際網路，存取網路資源。目前，藉由IEEE802.11無線網路存取網際網路(Internet)上的網路資源此趨勢已儼然成形。Internet使用TCP作為其傳輸層通信協定(transport layer protocol)以提供兩應用程式間一雙向、可靠的連線來進行資料交換。概念上，TCP將封包遺失(packet loss)解讀為網路壅塞(congestion)的結果，因此偵測到封包遺失，TCP乃隨之抑制傳送端之傳輸速率以藉此舒緩網路之壅塞現象。在具有穩定、可靠傳輸品質的有線網路環境下，絕大多數的封包遺失確實為網路壅塞所造成，然而，在無線網路以及有線網路共存的網路環境下，當TCP連線路徑上包含無線鏈路(wireless link)時，封包的遺失有可能肇因於短暫無線網路信號品質不佳亦或移動工作站(mobile station)正進行交遞(handover)所導致的結果。在此情況下，TCP啟動壅塞控制以抑制傳送端的傳送速率將造成TCP效能下降，進而伊P網路頻寬使用率過低。目前許多研究人員針對如何減輕不穩定的信號品質對TCP效能的影響提出有效的解決方案。針對移動工作站之交遞行為所進行的研究則相對較少，且都至少必須修改行動工作站上的TCP之壅塞控制機制，對終端系統之通透性較差。因此，在此計畫中我們擬採鏈結層(link layer)解決方案搭配無線網路擷取點(Access Point；AP)上緩衝區管理(buffer management)機制，使得TCP連線因行動工作站進行交遞而導致斷線的機率大為降低。如此一來，當可預期在不修改壅塞控制機制的情況下使TCP達到最大的網路使用效率，並有效且通透地將現行網際網路所提供之服務過渡到行動網際網路(mobile Internet)上。
關鍵字：IEEE 802.11、無線網路、網際網路、TCP、傳輸層通信協定、壅塞控制、無線網路擷取點、緩衝區管理、行動網際網路



關鍵詞 : 無線網路 ; 行動網際網路 ; 緩衝區管理 ; 無線網路擷取點 ; 壅塞控制 ; 傳輸層通信協定 ; 網際網路


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