

# 具高效能且支援VLAN之無線網路擷取點設計

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## 摘要

虛擬區域網路 (VIRTUAL LAN; VLAN) 最重要的特性之一是能藉由VLAN橋接器將分屬不同實體網段的工作站設定成同屬單一廣播領域 (BROADCAST DOMAIN)、易於管理之邏輯群組。其次, 虛擬區域網路間之傳輸則被加以過濾以舒緩因廣播訊框氾濫所造成之都會網路擁塞現象。因擁有上述特性, 虛擬區域網路在網路頻寬極為有限、且移動性工作站 (MOBILE STATIONS) 之位置又經常變化的無線網路環境 (WIRELESS ENVIRONMENT) 下相當具有發展潛力。因此, 本研究的主要目的乃是要將VLAN建構在有線與無線共存的都會區網路架構, 以促進網路頻寬之有效利用。在本論文中, 我們提出一具高效能且支援VLAN的無線網路擷取點 (VLAN SUPPORT ACCESS POINT; VSAP) 的系統架構及其所需之相關通信協定之設計包括成員追蹤協定 (MEMBER TRACKING PROTOCOL) 與訊框前送協定 (FRAME FORWARDING PROTOCOL)。透過成員追蹤協定的設計, 移動性工作站一旦註冊成為某特定VLAN成員後, 其廣播領域將仍以涵蓋整個VLAN的範圍為限, 而不因其所在位置不同而改變。再者, 藉由具預測性的訊框前送協定設計, 使有機會HANDOFF過來的移動性工作站所屬訊框能獲得短暫的保留時效, 以避免無謂的重送, 進而使網路頻寬得到最有效的利用。此外, 本論文也藉由對無線網路通信協定的探討估算出此保留時效的臨界值, 並據此有效的管理VSAP內部之傳輸BUFFER。

關鍵詞: VLAN、無線網路、無線網路擷取點、VSAP、成員追蹤協定、訊框前送協定

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