以Linux為基底在新一代網路架構下router設計

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摘 要

在網路快速發展的今天，除了企業的網路化，隨著上網的設備越來越多樣化，家庭網路的成長將會以爆炸性的速度增加。基於此，在家庭網路和企業網路之間網路安全性機制扮演著相當重要的角色。因此一個整合新一代網路架構;虛擬私有網路(Virtual Personal Network; VPN)[1]於路由器架構中是必然的趨勢。有鑑於此，我們實作將虛擬私有網路架構建置在微型路由器(Linux Router Project; LRP)[2]上。我們使用嵌入式系統工具和函式庫，將虛擬私有網路協議(IPsec[3]、CIPE[18])整合進軟體微型路由器上，透過模組化的實現，犧牲部份傳輸效率，卻使我們具備較硬體實作上更高的彈性和延展性，文中我們採用不同的協議架構搭建端點到端點間的安全通信，和同時搭建雙隧道通信得知其網路服務品質的重要性，並透過網路封包截取、流量分析工具評估其可行性、效能和與防火牆整合時的影響。

關鍵詞 : 虛擬私有網路 ; 微型路由器 ; 家庭網路 ; 服務品質 ; 安全性機制

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