在 NHI VPN 架構中實現以 IC 卡驗證之安全傳輸通道

An IC Card-Certificated Secure Tunnel over NHI VPN Framework

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Abstract

The paper focuses on integrating a set of technologies to construct a more secure NHI VPN. The novel idea suggests that any NHI VPN site can only establish tunnels by a secure mechanism, which requires a NHI Healthcare IC card state machine to certificate. A tunnel was then built, which dynamically filters packet headers according to the IC Card operating states in association with filter statements.

Currently there are no related researches similar to our approach, as we know in the literature. A feasible emulating NHI VPN packet filter prototype was constructed, based on Network Driver Interface Specification (NDIS) adopts in Microsoft Windows Driver Development Kits (DDK), The NDIS is a library of standard API functions can be used by "Media Access Controller" (MAC) drivers in "Network Interface Cards" (NIC's.) The prototype via a programming interface linking to Control Software (CS) in NHI IC card developing system, and it proves that NHI VPN node's unique tunnel could be modified as IC card operating states changed. The overhead in performance degradation is negligible. The efficient and secure tunnel would support more potential NHI added-value applications.

Keywords: NHI VPN, IC card, HIS, packet filter