

植基於 MPEG-4 IPMP-X 多媒體內容 保護系統的實現

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摘 要

由於電腦技術快速的成長,在市場上許多現存的數位權限管理系統(Digital Right Management DRM)可能無法繼續存在,這個嚴重的問題主要是數位內容商業傳遞(Delivery Business) 所造成,因此建立強而有彈性的 DRM 系統有其必要。所以 MPEG 組織定義 Intellectual Property Management and Protection (IPMP)為了解決 DRM system 所面臨的問題,而 IPMP-X 是延伸舊有的 IPMP。



IPMP 定義了 DRM 系統程序鏈 (Processing Chain) 的其中一環,它的目的是制定一個一致性的終端平台(compliant terminal platform) 使得各種的終端系統(terminal system) 有個一致的使用環境關於使用者對內容保護的權限問題,這個標準的制定也將使得 DRM 系統與製造商有個標準去遵循及保證它的互通性.

我們先了解 MPEG-4 IPMP-X 的規範及內容並研讀 MPEG-4 IPMP-X Software Reference 的執行,我研讀的系統以 IM1 系統為主且我們實作了兩個以 MPEG-4 IPMP-X 為基礎的多媒體內容保護應用系統,分別為數位電視條件接收機及 DVD copy 保護。在論文最後以 IM1 所提供的一個多媒體內容保護實例做為說明,這個應用是關於 MPEG-21 Right Expression Language in a MPEG-4 IPMP-X 的例子,此實例可做為未來 MPEG-21 Right Expression Language 與 MPEG-21 IPMP 研究的基礎,依據這個基礎在未來我們將延伸和執行有關 MPEG-21 Right Expression Language 與 MPEG-21 IPMP 的應用。

An Implementation of Multimedia Content Guard Based on MPEG-4 IPMP-X System

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Abstract

Many existing DRM (Digital Right Management) systems in the market may no longer sustain, due to the rapidly growing computer technology. This is one of the serious problems encountered in digital content delivery business. It is therefore desirable to establish a robust flexible DRM system. So, MPEG group defines Intellectual Property Management and Protection (IPMP) in order to solve DRM system problem. IPMP-X is the extension to the old MPEG-4 IPMP hook.

IPMP defines one of the processing chain in the DRM system. Its purpose is to define a compliant terminal platform such that for various terminal systems there is a consistency usage environment for the right associated with content. This will allow DRM system and manufacture have a standard to follow and guarantee the interoperability.

We study MPEG-4 IPMP-X Specification and investigate MPEG-4 IPMP-X software reference code supported by IM1. We implement two applications about Multimedia Content Guard application based on MPEG-4 IPMP-X: one is Digital TV conditional access application, and the other is DVD copy protection application. We also trace a software reference code supported by IM1. The software reference code is about MPEG-21 Right Expression Language in a MPEG-4 IPMP-X. Future, we will extend to MPEG-21 Right Expression Language and MPEG-21 IPMP based on this foundation. We will extend and implement application of the MPEG-21 Right Expression Language and MPEG-21 IPMP in the future.