Chapter 27
Analyzing the Digital License Reselling Problem and Its Impact on E–Commerce

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ABSTRACT

Existing Digital Rights Management (DRM) systems allow consumers to buy digital licenses to access the corresponding contents on their devices. However, with these DRM systems, the consumers are unable to resell their licenses. Supporting digital license reselling adds additional challenges to DRM technologies and could find a new E-market. The aims of this chapter are as follows. The problem of reselling digital licenses is formally formulated. Then the state-of-the-art of the existing license reselling solutions proposed in the literature is discussed. Their strengths and limitations are analyzed. Then a framework allowing a consumer to resell his/her license to another consumer without compromising the underlying security of the DRM system is proposed. Finally, the impact of allowing license reselling on E-commerce is discussed.

INTRODUCTION

E-commerce has become a huge business and a motivating factor in the Internet development. Online delivery of digital content, such as video clips, movies, and MP3 audio, is a very well-known approach today and has become an essential part of E-commerce and online marketing. Selling products directly to consumers over the Internet, without the existence of a clerk at the sale point, has a considerable advantage. It enables the busi-nesses to expand their market by reaching a wide range of consumers, to reduce operating costs, and to improve consumers' satisfaction by offering personalized experience.

Digital Rights Management (DRM) has been used to enable content owners and market inter-mediaries to securely manage and deliver digital contents over the Internet. On the other hand, the current approach used within DRM systems is being based on a single business model. In this model, a content provider is the only authorized

distributor, and the only entity entitled to gain revenue from the sales of digital contents. This model is usually realized as a closed system where very few authorized distributors can distribute the DRM-protected content either online (e.g. Apple iTunes) or off-line (e.g., CD shops). The current DRM systems do not permit consumers to resell the licenses they have purchased. Reselling something that a consumer rightfully owns (including digital licenses) is a legitimate right under the first sale doctrine.

This chapter aims to survey, analyze, and develop a clear understanding about the problem of reselling digital license and discussing the factors affecting the adoption of a license reselling by DRM companies. This understanding will provide important benefits for content owners (i.e. policy makers), DRM vendors, practitioners, and researchers through providing a comprehensible view and deep understanding for all the issues concerning the realization of reselling digital license with the current DRM systems.

The remainder of this chapter is outlined as follows. We first illustrate what a DRM system is. We then formulate the license reselling problem in DRM systems and introduce a detailed survey on the proposed license reselling solutions. From this survey, we identify the missing gaps and propose a framework for supporting a license reselling facility of DRM-protected contents. The impact of the license reselling on E-commerce is discussed. Finally, we summarize the chapter.

WHAT IS DRM?

DRM refers to digital technologies, which enable legal distributions of digital contents (e.g. ringtones, songs, video clips) while enforcing usage rights specified by content owners of these contents. DRM also refers to a set of hardware and software technologies and services which (1) control the authorized use of a given digital content, (2) and manage, through associated usage rights, any consequences of this use during the entire lifetime of the content (Dutta, Mishra, & Mukhopadhyay, 2011).

A typical DRM system works as follows. On a content owner's side, as depicted in Figure 1, (1) a digital content is symmetrically encrypted with a CEDK key, (2) a content metadata (e.g. Content ID, and License acquisition URL) is generated, (3) usage rights over the content are defined, (4) the content and its metadata are finally packaged

Figure 1. A typical DRM system architecture
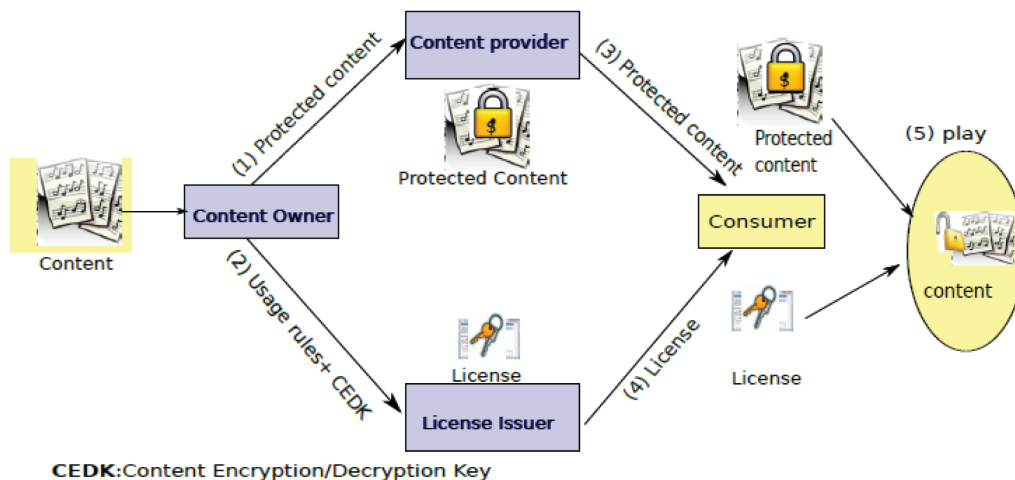
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