Chapter 7.10
Digital Rights Management:
A New Trend or a Necessity

Ioannis Kostopoulos
University of Patras, Greece

Penelope Markelou
University of Patras, Greece

Ioannis Panaretou
University of Patras, Greece

Athanasios Tsakalidis
University of Patras, Greece

ABSTRACT

This chapter highlights the need for using copyright protection tools in our digital transactions. The main tools of copyright protection, such as cryptography, data hiding, and watermarking, along with the security framework where these tools can be used is also presented. However, all these tools and methods can be used only inside a specific technological and legal framework. This gap between technology and traditional human activities is bridged by developing the Digital Rights Management systems which is presented as a necessary mechanism to provide integrated e-services over the Internet. The legal framework and the current activities of organizations as WIPO (World Intellectual Property Rights Organization) is also provided in this chapter with the existing DRM technologies and the future research directions in this field.

INTRODUCTION

The spreading of internet and web technologies during the last years has leaded the world to technological infrastructures where the information can be exchanged freely and rapidly. The content providers are investing to new ways of making profits and offering new services concerning their digital products. The internet and its evolution was the best vehicle for the content providers to offer their services world wide. However, in contradiction with the traditional ways of copying where each copy of the original work has reduced quality, the

digital information can be copied perfectly and every copy will be identical with the original one (Lyon, 2001). Moreover, the services that have been used today over the internet are giving the opportunity to spread these copies in all over the world, without geographical limitations.

Although www has imposed a tremendous change in the way of thinking, reducing the actual value of information, the digital content is still valuable and it should be protected. The protection of intellectual rights of digital content is concerned to be one of the big problems (CSTB, 1999; Crawford, 1999) of the digital age. Digital Rights Management Systems (DRM) (Duhl & Kevorkian, 2001) in addition with security measures (Cohen, 2003; Ingemar et al., 2002; Wipro Technologies, 2001) is essential for the protection of digital property. DRM systems (Heng, 2001, Renato, 2001a, Renato, 2001b; DCITA, 2003; Schmidt et al., 2004) are already in use to prevent people abusing information that is copyright protected. Most of the current solutions provide external applications to ensure data protection management (Russ, 2001). The current trend though, is to provide embedded applications and not external. This can be done in three ways:

- Hardware-embedded DRM systems
- DRM tools attached on the operating system
- Development of DRM functionality controllers embedded to the operating system

A Digital Right Management mechanism is needed, so as to produce an integrated protection and management framework, able to diminish the possibilities of inappropriate usage and unauthorised copying. That's where Digital Right Management (DRM) systems are focused. Right's management is a necessity, because the term combines all those techniques and methodologies aiming to define and model actions, dealings and violations of intellectual rights.

COPYRIGHT PROTECTION TOOLS

In the beginning of the third millennium, the use of digital means has become an inseparable piece of everyday life. Digital photography, video, medical images, satellite images, sounds etc. are some indicative examples. In many cases digital objects are intended to be published, either on the internet or in widely used mediums. Organizations, museums, digital libraries, need to protect their Intellectual Property Rights (IPR) on this kind of media.

In the past, the scientific community along with commercial organizations has invested in order to find reliable methods to protect digital media. During the last decade digital watermarking, based on the idea of information hiding, originally introduced in the 5th century BC (Katzenbeisser & Petitcolas, 2002), gave a solution to the problem of designing such mechanisms to protect media.

This chapter is providing information about the currently used technologies in order to protect the digital content (Documents, images, videos, sound, graphics etc.) from unauthorized use, along with the technologies that detect the unauthorized use (Qiong et al., 2003; Lyon, 2001). These technologies are considering a variety of tools that related both with software and hardware. More specifically these tools focused on:

- Security and integrity of operational systems.
- Cryptography.
- Data hiding and digital watermarking techniques.

Security and Integrity

In computer security, an *access control list (ACL)* is a list of permissions attached to an object (Microsoft, n.d; Wikipedia, n.d). The list specifies who is allowed to access the object and what operations are allowed to be performed on it. In

Related Content

Virtual Communities of Practice for Health Care Professionals

Elizabeth Hanlis, Jill Curleyand Paul Abbass (2009). *Encyclopedia of Information Science and Technology, Second Edition (pp. 3986-3991).*

www.irma-international.org/chapter/virtual-communities-practice-health-care/14173

An Examination of the Correlates of Burnout in Information Systems Professionals

Vikram Sethi, Tonya Barrierand Ruth C. King (1999). *Information Resources Management Journal (pp. 5-13).*

www.irma-international.org/article/examination-correlates-burnout-information-systems/51067

Professional Social Network Participation of Business School Graduates: Effects of University, Degree Type, and Gender

Craig C. Claybaughand Peter Haried (2014). *International Journal of Information Systems and Social Change (pp. 1-15).*

www.irma-international.org/article/professional-social-network-participation-of-business-school-graduates/108494

Constructionist Perspective of Organizational Data Mining

Isabel Ramosand João Álvaro Carvalho (2005). *Encyclopedia of Information Science and Technology, First Edition (pp. 535-539).*

www.irma-international.org/chapter/constructionist-perspective-organizational-data-mining/14293

IT Project Development using Capability Maturity Model

Mousumi Kabirand Lazar Rusu (2016). *Information Resources Management Journal (pp. 35-48).*

www.irma-international.org/article/it-project-development-using-capability-maturity-model/164898