

## SYSTEM AND METHODS FOR SECURE TRANSACTION MANAGEMENT AND ELECTRONIC RIGHTS PROTECTION

This is a divisional of Ser. No. 08/388,107, filed Feb. 13, 1995, abandoned.

### FIELD(S) OF THE INVENTION(S)

This invention generally relates to computer and/or electronic security.

More particularly, this invention relates to systems and techniques for secure transaction management. This invention also relates to computer-based and other electronic appliance-based technologies that help to ensure that information is accessed and/or otherwise used only in authorized ways, and maintains the integrity, availability, and/or confidentiality of such information and processes related to such use.

The invention also relates to systems and methods for protecting rights of various participants in electronic commerce and other electronic or electronically-facilitated transactions.

The invention also relates to secure chains of handling and control for both information content and information employed to regulate the use of such content and consequences of such use. It also relates to systems and techniques that manage, including meter and/or limit and/or otherwise monitor use of electronically stored and/or disseminated information. The invention particularly relates to transactions, conduct and arrangements that make use of, including consequences of use of, such systems and/or techniques.

The invention also relates to distributed and other operating systems, environments and architectures. It also generally relates to secure architectures, including, for example, tamper-resistant hardware-based processors, that can be used to establish security at each node of a distributed system.

### BACKGROUND AND SUMMARY OF THE INVENTION(S)

Telecommunications, financial transactions, government processes, business operations, entertainment, and personal business productivity all now depend on electronic appliances. Millions of these electronic appliances have been electronically connected together. These interconnected electronic appliances comprise what is increasingly called the "information highway." Many businesses, academicians, and government leaders are concerned about how to protect the rights of citizens and organizations who use this information (also "electronic" or "digital") highway.

#### Electronic Content

Today, virtually anything that can be represented by words, numbers, graphics, or system of commands and instructions can be formatted into electronic digital information. Television, cable, satellite transmissions, and on-line services transmitted over telephone lines, compete to distribute digital information and entertainment to homes and businesses. The owners and marketers of this content include software developers, motion picture and recording companies, publishers of books, magazines, and newspapers, and information database providers. The popularization of on-line services has also enabled the individual personal computer user to participate as a content provider. It is estimated that the worldwide market for electronic

information in 1992 was approximately \$40 billion and is expected to grow to \$200 billion by 1997, according to Microsoft Corporation. The present invention can materially enhance the revenue of content providers, lower the distribution costs and the costs for content, better support advertising and usage information gathering, and better satisfy the needs of electronic information users. These improvements can lead to a significant increase in the amount and variety of electronic information and the methods by which such information is distributed.

The inability of conventional products to be shaped to the needs of electronic information providers and users is sharply in contrast to the present invention. Despite the attention devoted by a cross-section of America's largest telecommunications, computer, entertainment and information provider companies to some of the problems addressed by the present invention, only the present invention provides commercially secure, effective solutions for configurable, general purpose electronic commerce transaction/distribution control systems.

#### Controlling Electronic Content

The present invention provides a new kind of "virtual distribution environment" (called "VDE" in this document) that secures, administers, and audits electronic information use. VDE also features fundamentally important capabilities for managing content that travels "across" the "information highway." These capabilities comprise a rights protection solution that serves all electronic community members. These members include content creators and distributors, financial service providers, end-users, and others. VDE is the first general purpose, configurable, transaction control/rights protection solution for users of computers, other electronic appliances, networks, and the information highway.

A fundamental problem for electronic content providers is extending their ability to control the use of proprietary information. Content providers often need to limit use to authorized activities and amounts. Participants in a business model involving, for example, provision of movies and advertising on optical discs may include actors, directors, script and other writers, musicians, studios, publishers, distributors, retailers, advertisers, credit card services, and content end-users. These participants need the ability to embody their range of agreements and requirements, including use limitations, into an "extended" agreement comprising an overall electronic business model. This extended agreement is represented by electronic content control information that can automatically enforce agreed upon rights and obligations. Under VDE, such an extended agreement may comprise an electronic contract involving all business model participants. Such an agreement may alternatively, or in addition, be made up of electronic agreements between subsets of the business model participants. Through the use of VDE, electronic commerce can function in the same way as traditional commerce—that is commercial relationships regarding products and services can be shaped through the negotiation of one or more agreements between a variety of parties.

Commercial content providers are concerned with ensuring proper compensation for the use of their electronic information. Electronic digital information, for example a CD recording, can today be copied relatively easily and inexpensively. Similarly, unauthorized copying and use of software programs deprives rightful owners of billions of dollars in annual revenue according to the International Intellectual Property Alliance. Content providers and dis-