

Content scrambling system (css)



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With the advancement also in the field of Information and Communications Technology, the birth of Digital Rights Management comes into existence. Digital Rights Management (DRM) is an access control technology that limits the usage all digital media. This also refers to some restrictions associated with instances of digital devices and media.

One of the earliest application of the Digital Rights Management technology was Content Scrambling System (CSS) which was employed by the DVD forum on film DVD's. This system used a very simple encryption algorithm that requires device manufacturers to sign license agreements that prohibits the inclusion of features, such as digital outputs. Another example that uses DRM is Microsoft's Windows Vista.

This Operating System contains a system called Protected Media Path which contains Protected Video Path (PVP). PVP prevents DRM-restricted software from running/playing while unsigned software is running so that the unsigned software cannot access the software. Protected Video Path can also encrypt information as it is transmitted to the monitor or graphics card, which makes it more difficult to create illegal recordings. (http://en.wikipedia.org/wiki/Digital_rights_management)

Digital Rights Management is the greatest challenge faced in today's digital world. Traditional Rights Management of physical materials benefits this because this provides barrier to unauthorized utilization of digital content. In the past, DRM's focal point was in security and encryption as a means of solving the problems of illegal copying of files through keeping a close monitor in such a way that files are only distributed to those who pay.

The next generation of DRM is through describing, identifying, protecting, monitoring and tracking of all forms of rights usage. In designing and implementing a DRM, there are two architectures to consider. First is the functional architecture. Functional architecture covers the high-level modules of the DRM system that provides an end-to-end management of rights. The following are the three areas which can be modeled in building a digital rights enabled system:

Intellectual Property Asset Creation and Capture: This includes the management of creation of the content so that it can be easily traded and asserting rights when the content is first created.

Intellectual Property Asset Management: This includes the steps on how to manage and enable the trade of content.

Intellectual Property Asset Usage: This includes how to manage the usage of content once it has been traded.

Functional Architecture specifies the roles and behavior of a number of cooperating and interoperating modules under the three areas of Intellectual Property (IP): Asset Creation, Management, and Usage. The IP Asset Creation and Capture module supports Rights Validation, Rights Creation and Rights Workflow. The IP Asset Management supports Repository and Trading Functions. While the IP Asset Usage support Permissions and Tracking Management.

These 3 modules presented provide the core functionality of a DRM System.

The second architecture of a DRM Framework is the Information Architecture.

Information Architecture covers the modeling of the entities within a DRM system as well as their relationships. The main issues that require the creation of an Information Architecture are the following: Modeling the entities, Identifying and describing the entities and expressing the right statements.

The Information Architecture shows that any metadata about the three entities (Users, Rights and Content) should contain a mechanism that will relate one to the other. The core entities – User, Rights and Content – should be carefully identified. Users can be anybody who needs the information. Content also can be any content at any level of aggregation. While the Rights entity refers to the permissions and restriction set between the users and the content itself.

The users create and use the contents and users also own the rights which are established over the content. The framework of the Information Architecture on Rights Expression Model shows that Rights Information is consists of four (4) areas: Permissions, Obligations, Constraints and Rights Holder. The Rights Entity is critical because it represents the effectiveness of the language used to establish the rights of a metadata. (<http://www.dlib.org/dlib/june01/iannella/06iannella.html>)