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JC840 U.S. PTO 11/20/01

# PROVISIONAL APPLICATION FOR PATENT COVER SHEET

**This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).**

11011 U.S. PTO 60/331621 11/20/01

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**TITLE OF THE INVENTION (280 characters max)**

**State of Rights: Controlling And Validating State Information of Rights And Conditions**

*Direct all correspondence to:* **CORRESPONDENCE ADDRESS**

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**ENCLOSED APPLICATION PARTS *(check all that apply)***

☒ Specification *Number of Pages* 11 ☐ CD(s), Number

☐ Drawing(s) *Number of Sheets* ☐ Other (specify)

☐ Application Data Sheet. See 37 CFR 1.76

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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

☐ Yes, the name of the U.S. Government agency and the Government contract number are: _____

*Respectfully submitted,* Date 11/20/2001

SIGNATURE _____ REGISTRATION NO. *(if appropriate)* 35,212

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# State of Rights: Controlling and Validating State Information of Rights and Conditions

## INTRODUCTION

A system to control and validate state information as it relates to rights and conditions. The novelty is the ability to share, distribute, or control state information of rights as these rights are moved from one trusted system to another trusted system. The state information is controlled and validated by plug-in components that are part of a system framework..

## DESCRIPTION

This application is related to US patents 5,629,980, 5,634,012, 5,638,443, and 5,715,403, filed on November 23, 1994, the disclosures of which are incorporated herein by reference) deal with the rights associated with the digital content. These will be the basis of our systems and methods described below. However, the concept of rights and permission for access can be extended (generalized) to cover the "State of the Rights."

This application relates to how to initialize, update, reference, share, and transfer state information on rights. This state information is needed to keep track of usage history and to grant, verify, and transfer in a general access control or authorization context that involves rights enforcement and delegation. In order to enforce and delegate the rights, one has to know the state of the rights or their usage history.

This includes the state of variables in a rights language (to specify, track, and store the state), which can be implemented as an extension to a rights language (or other grammars) such as XrML, in a system similar to the ones described in our previous patents and applications.

For example, when a person starts to view a video file, this event constitutes state information that can be tracked. In this case, the time and date are examples of state information that can be stored. This information can then be used by the system to determine subsequent requests to access the video file. If the person wishes to play the video file, the system can evaluate the state information to determine if the person has exceeded the agreed upon rental period of, say, two days. Another example is that a system wants to know the number of times an e-book has been copied, or by whom it was copied, or from where or to where it was copied. Another example is when somebody listens to a music CD. The usage is tracked as to how many times and which songs were played, which songs were copied, which songs were forwarded to a friend, and which songs were used in a super-distribution scheme. In a super-distribution scheme, it tracks where the song has been, who buys the song next, how many copies, geographical distribution, users' habits, and users' statistics, such as age and gender, if those data are available and authorized for use in this manner.

This can affect controlling usage of the original and its copies, future pricing in dynamic pricing schemes, distribution methods, user's habits, user's preferences, advertising focuses, marketing budgets, and general DRM policy. Thus, this can save money or other resources for businesses in terms of future plans, resource allocations, or better focusing marketing efforts.

In terms of usage history, one may want to know who delegated or transferred the right to whom, who was the middleman, fees involved, or when (for any or all of the transactions/ transfers). This can be related to (and useful for) security, surveillance, court order, marketing scheme, and payment schemes to

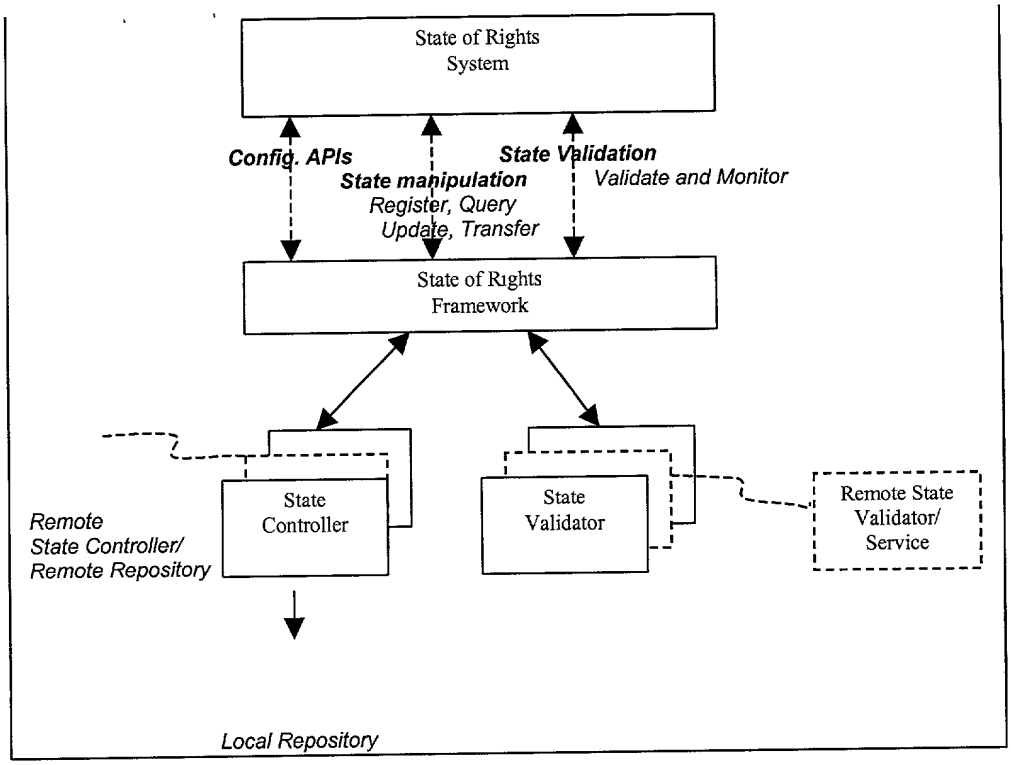
multiple owners/ distributors. This can be used to prevent or monitor the usage of some items by some individuals for the sake of security. The usage history can be used in legal proceedings as a proof of distribution or usage by some entities.

For example, this can be used for the case of multiple owners of a piece of work, or for the case of owners of a compilation or the combination of separate pieces of work, for which each owner has some contribution and some specific right in the final product, such as a movie with multiple actors/ actresses, voice-over actors, union employees, and a producer, or for the case of a multimedia encyclopedia with multiple contributors for pictures and text, or for the case of a market report having multiple authors for different chapters, or co-authors of a book with different percentages of contribution in terms of material in the book and corresponding different rights in the final product and royalty proceedings, to keep track of, for example, how many users have used which part of the book or market report, to compensate, aggregate, and keep track of micro-payments to each owner or right holder, based on the pre-determined agreements and contracts, reflected in the rights and conditions, and recorded by keeping track of the history and state of the rights. This recording or history can be audited by a third party or a CPA, to make sure that the conditions, payments, and rights abide to the pre-determined agreements, licenses, and contracts.

The usage history can be stored in a trusted repository, possibly in a trusted third-party system. In this case, accessing and updating the usage history may require its own rights management or authorization mechanisms and policies. The history can be provided to marketing firms, including the cases involving fee or other conditions, pending the proper right and permission granted to the warehouse, for the distribution, by the proper authority. The information can be aggregated or averaged, and can be exchanged with others, for example, for medical or statistical purposes, such as to the NIH or US Census Bureau, provided that appropriate rights of access and/ or aggregation were given.

## STATE OF RIGHTS SYSTEM

State of Rights system major functions are to manage, validate and monitor the state and usage-history of rights. The system is built around a State of Rights Framework and consists of both State Controller and State Validator. The State of Rights Framework provides an abstract layer to encapsulate all the state related functions provided by the system. The Framework also functions as an infrastructure to manage all components and their corporation within the system. The design of the framework is based on the plug-in concepts to provide the flexibility to incorporate different implementation for both State Controller and State Validator. Within the framework, the State Controller is responsible to manage both the current value and usage history for state of rights and the State Validator is responsible to validate and monitor the state of rights while a given rights is being exercised. The following diagram outlines the basic components of the State of Rights system:




State of rights is a collection of state variables associated with a given rights. Example of state variables are defined in "Processing Rules for XrML Conditions, Preconditions, and Rights" such as max count, time interval, fee etc... However state variables are not limited for those defined in the document but cover all information that affect the status and usage history of a rights. Each state variable require a different way to represent its value. Given a rights R, granted to a principle P then the state of rights associated with [R,P] is a set of state variables {s1...sn}. State of rights is changed when any state variable in the state of rights changes its value and the collection of change in state of rights is called usage history. With the above definition the basic structure of a state of rights consists of the rights, the principle -who granted the rights, and the set of state variables. The current value of state variables called current state of rights or state of rights.

**STATE OF RIGHTS FRAMEWORK**

The Framework is the main component that manages all the State Controllers and State Validators, and also provides the interfaces to the application to manage and validate state of rights. The Framework is designed to allow different implementations of both State Controllers and State Validators to be configured and plugged-in.

***State manipulation APIs*** – This is a set of APIs to initialize, query, update and transfer state of rights. State of rights is a collection of the current value of state variables. The basic structure for state variable includes the set of values from which the state is valid and a method and parameters needed to obtain the current value of the state variables. Like state variables their values can be represented by any data structure or language that describe their current value. In this invention we use both XrML2.0 to define the state variables and its extension to define the value of the state variable. However the representation of the state variables and its values are not limited to XrML2.0. The following example shows how the state variable is defined.

```
<sx:trackQuery>
<sx:stateReference>
      <uddi>
         <serviceKey>
            <uuid>1F8903B0-FC03-4c5b-A445-AAFCCEC011111</uuid>
         </serviceKey>
      </uddi>
   </sx:stateReference>
```

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