content is used without permission from the holder of the copyright to the content, and the problem of infringement of the right of the content's copyright holder might be caused.

[0014]

The present disclosure is made in view of those circumstances, and aims to realize ACR services without any infringement of the rights of the respective holders of copyrights to content and linked applications.

SOLUTIONS TO PROBLEMS

[0015]

According to a first aspect of the present invention, there is provide an information processing device comprising: a content managing unit that manages first content viewable on the side of a content reproduction device that reproduces content; a database unit that generates reference data and turns the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first content with right management information about the first signature data and the content identifier representing the first content from which the first signature data is extracted, the first signature data indicating the features of the first content; and an identifying unit that identifies the content and returns a response indicating an identification result by referring to the reference data of the database unit in reply to a query including second signature data extracted from second content being viewed by the user of the content reproduction device, the query being transmitted from the side of the content reproduction device, the second signature data indicating the features of the second content.

[0016]

The first signature data of the reference data may be encrypted, and the database unit may decrypt the encrypted first signature data through an authentication process with the content managing unit.

[0017]

The right management information about the first signature data may include an item for selecting an existing right management method for the first signature data.

[0018]

The right management information about the first signature data may further include an item for arbitrarily setting a right management method for the first signature data.

[0019]

According to a second aspect of the present invention, there is provided an information processing method implemented in an information processing device, the information processing method comprising: a database forming step of generating reference data and turning the generated reference data into a database, the reference data being generated by associating first signature data extracted from first content with right management information about the first signature data and the content identifier representing the first content from which the first signature data is extracted, the first content being viewable on the side of a content reproduction device that reproduces content, the first signature data indicating the features of the first content; and an identifying step of identifying the content and returning a response indicating an identification result by referring to the reference data of the database in reply to a query including second signature data extracted from second content being viewed by the user of the content reproduction device,

the query being transmitted from the side of the content reproduction device, the second signature data indicating the features of the second content, the database forming step and the identifying step being carried out by the information processing device.

[0020]

In the above aspect, the reference data is generated by associating the first signature data extracted from the first content with the right management information about the first signature data and the content identifier representing the first content from which the first signature data is extracted, and the generated reference data is turned into a database. The first content is viewable on the side of the content reproduction device that reproduces content, and the first signature data indicates the features of the first content. Also, in reply to the query including the second signature data extracted from the second content being viewed by the user of the content reproduction device, the content is identified by referring to the reference data of the database, and a response indicating an identification result is returned. The query is transmitted from the side of the content reproduction device, and the second signature data indicates the features of the second content.

[0021]

According to a third aspect of the present invention, there is provided an information processing device comprising: a content managing unit that manages first content viewable on the side of a content reproduction device that reproduces content; a database unit that generates reference data and turns the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first content with a content

identifier, an application identifier, and rendering control information, the content identifier representing the first content from which the first signature data is extracted, the application identifier representing the application to be executed on the side of the content reproduction device in conjunction with progress of the first content when the first content is being viewed on the side of the content reproduction device, the rendering control information being for controlling rendering of the application, the first signature data indicating the features of the first content; and an identifying unit that identifies the content and returns a response indicating an identification result by referring to the reference data of the database unit in reply to a query including second signature data extracted from second content being viewed by the user of the content reproduction device, the query being transmitted from the side of the content reproduction device, the second signature data indicating the features of the second content.

[0022]

The rendering control information may include at least one of an item for limiting the device serving as the destination of output of an image from the application, and/or an item for restricting superimposition of an image from the application and an image of the content.

[0023]

According to a fourth aspect of the present invention, there is provided an information processing method implemented in an information processing device, the information processing method comprising: a database forming step of generating reference data and turning the generated reference data into a database, the reference data being generated by associating first signature data extracted from first content

with a content identifier, an application identifier, and rendering control information, the content identifier representing the first content from which the first signature data is extracted, the application identifier representing the application to be executed on the side of a content reproduction device in conjunction with progress of the first content when the first content is being viewed on the side of the content reproduction device, the rendering control information being for controlling rendering of the application, the first content being viewable on the side of the content reproduction device that reproduces content, the first signature data indicating the features of the first content; and an identifying step of identifying the content and returning a response indicating an identification result by referring to the reference data of the database in reply to a query including second signature data extracted from second content being viewed by the user of the content reproduction device, the query being transmitted from the side of the content reproduction device, the second signature data indicating a feature of the second content, the database forming step and the identifying step being carried out by the information processing device.

[0024]

According to a fifth aspect of the present invention, there is provided an information processing device comprising: a content managing unit configured to manage first content viewable on a side of a content reproduction device that reproduces content; a database unit configured to generate reference data and turn the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first content with right management information about the first signature data

and a content identifier representing the first content from which the first signature data is extracted, the first signature data indicating a feature of the first content; a query generating unit configured to extract second signature data from second content being reproduced, generate a query including the second signature data, transmit the query to an identification server, and receive a response returned from the identification server in reply to the query, the second signature data indicating a feature of the second content; and an application executing unit configured to acquire and execute an application based on an application identifier included in the received response, and control rendering of the application based on rendering control information about the application, the application being designated to be executed in conjunction with progress of the content being reproduced, the rendering control information being included in the response.

[0025]

Based on the rendering control information, the application executing unit may perform at least one of a process for limiting the device serving as the destination of output of an image from the application, and/or a process for restricting superimposition of an image from the application and an image of the content.

[0026]

According to a sixth aspect of the present invention, there is provided an information processing method implemented in an information processing device, the information processing method comprising: a database forming step of generating reference data and turn the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first

content with right management information about the first signature data and a content identifier representing the first content from which the first signature data is extracted, the first signature data indicating a feature of the first content; a transmitting step of extracting second signature data from the second content being reproduced, generating a query including the second signature data, and transmitting the query to an identification server, the second signature data indicating the features of the second content; a receiving step of receiving a response returned from the identification server in reply to the query; and a controlling step of acquiring and executing an application based on the application identifier included in the received response, and controlling rendering of the application based on rendering control information about the application, the application being designated to be executed in conjunction with progress of the content being reproduced, the rendering control information being included in the response, the transmitting step, the receiving step, and the controlling step being carried out by the information processing device.

[0027]

In the above aspect, the information processing device generates reference data and turns the generated reference data into a database by associating the first signature data extracted from the first content with a content identifier, an application identifier, and rendering control information, the content identifier representing the first content from which the first signature data is extracted, the application identifier representing the application to be executed on the side of the second information processing device in conjunction with progress of the first content when the first content is being viewed on the side of the second information

processing device, the rendering control information being for controlling rendering of the application, the first content being viewable on the side of the second information processing device that reproduces content, the first signature data indicating the features of the first content. The first information processing device identifies the content and returns a response indicating an identification result by referring to the reference data of the database unit in reply to a query including the second signature data extracted from the second content being viewed by the user of the second information processing device, the query being transmitted from the side of the second information processing device, the second signature data indicating the features of the second content. Meanwhile, the second information processing device generates the query, transmits the query to the first information processing device, receives the response returned from the first information processing device in reply to the query, acquires and executes the application based on the application identifier included in the received response, and controls rendering of the application based on the rendering control information about the application, the application being designated to be executed in conjunction with progress of the content being reproduced, the rendering control information being included in the response.

[0028]

According to a seventh aspect of the present invention, there is provided an information processing device comprising: a content managing unit that manages first content viewable on the side of a content reproduction device that reproduces content; a database unit that generates reference data and turns the generated reference data into a database, the reference data being generated by associating first signature

data extracted from the first content with a content identifier, an application identifier, and right management information about an application, the content identifier representing the first content from which the first signature data is extracted, the application identifier representing the application to be executed on the side of the content reproduction device in conjunction with progress of the first content when the first content is being viewed on the side of the content reproduction device, the first signature data indicating the features of the first content; and an identifying unit that identifies the content and returns a response indicating an identification result by referring to the reference data of the database unit in reply to a query including second signature data extracted from second content being viewed by the user of the content reproduction device, the query being transmitted from the side of the content reproduction device, the second signature data indicating the features of the second content.

[0029]

The right management information about the application may include an item for selecting an existing right management method for the application and content cited by the application.

[0030]

The right management information about the application may further include an item for arbitrarily setting a right management method for the application and the content cited by the application.

[0031]

According to an eight aspect of the present invention, there is provided an information processing method implemented in an information processing device, the information

processing method comprising: a database forming step of generating reference data and turning the generated reference data into a database, the reference data being generated by associating first signature data extracted from first content with a content identifier, an application identifier, and right management information about an application, the content identifier representing the first content from which the first signature data is extracted, the application identifier representing the application to be executed on the side of a content reproduction device in conjunction with progress of the first content when the first content is being viewed on the side of the content reproduction device, the first content being viewable on the side of the content reproduction device that reproduces content, the first signature data indicating the features of the first content; and an identifying step of identifying the content and returning a response indicating an identification result by referring to the reference data of the database unit in reply to a query including second signature data extracted from second content being viewed by the user of the content reproduction device, the query being transmitted from the side of the content reproduction device, the second signature data indicating the features of the second content, the database forming step and the identifying step being carried out by the information processing device.

[0032]

According to a ninth aspect of the present invention, there is provided an information processing device comprising: a content managing unit configured to manage first content viewable on a side of a content reproduction device that reproduces content; a database unit configured to generate reference data and turn the generated reference data into a database, the reference data being generated by associating

first signature data extracted from the first content with right management information about the first signature data and a content identifier representing the first content from which the first signature data is extracted, the first signature data indicating a feature of the first content; a query generating unit that extracts second signature data from the second content being reproduced, generates a query including the second signature data, transmits the query to an identification server, and receives a response returned from the identification server in reply to the query, the second signature data indicating the features of the second content; and an application executing unit that acquires and executes an application based on the application identifier included in the received response, and manages the application and the content cited by the application based on right management information about the application, the application being designated to be executed in conjunction with progress of the content being reproduced, the right management information being included in the response.

[0033]

The application executing unit may decrypt the application based on the right management information, the application being encrypted.

[0034]

The application executing unit may manage copying of the application and the cited content based on the right management information.

[0035]

According to a tenth aspect of the present invention, there is provided an information processing method implemented in an information processing device, the information

processing method comprising: a database forming step of generating reference data and turn the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first content with right management information about the first signature data and a content identifier representing the first content from which the first signature data is extracted, the first signature data indicating a feature of the first content; a transmitting step of extracting second signature data from the second content being reproduced, generating a query including the second signature data, and transmitting the query to an identification server, the second signature data indicating the features of the second content; a receiving step of receiving a response returned from the identification server in reply to the query; and a managing step of acquiring and executing an application based on the application identifier included in the received response, and managing the application and the content cited by the application based on right management information about the application, the application being designated to be executed in conjunction with progress of the content being reproduced, the right management information being included in the response, the transmitting step, the receiving step, and the managing step being carried out by the information processing device.

[0036]

In the above aspect of the present disclosure, the first information processing device generates reference data and turns the generated reference data into a database by associating the first signature data extracted from the first content with a content identifier, an application identifier, and the right management information about the application,

the content identifier representing the first content from which the first signature data is extracted, the application identifier representing the application to be executed on the side of the second information processing device in conjunction with progress of the first content when the first content is being viewed on the side of the second information processing device, the first content being viewable on the side of the second information processing device that reproduces content, the first signature data indicating the features of the first content. The first information processing device identifies the content and returns a response indicating an identification result by referring to the reference data of the database unit in reply to a query including the second signature data extracted from the second content being viewed by the user of the second information processing device, the query being transmitted from the side of the second information processing device, the second signature data indicating the features of the second content. Meanwhile, the second information processing device generates the query, transmits the query to the first information processing device, receives the response returned from the first information processing device in reply to the query, acquires and executes the application based on the application identifier included in the received response, and manages the application and the content cited by the application based on the right management information about the application, the application being designated to be executed in conjunction with progress of the content being reproduced, the right management information being included in the response.

EFFECTS OF THE INVENTION

[0037]

According to the above aspects of the present disclosure, ACR services using unauthorized signature data can be prevented.

[0038]

According to the above aspects of the present disclosure, rendering of the application to be executed in conjunction with progress of content can be restricted.

[0039]

According to the above aspects of the present disclosure, infringement of the right to the application to be executed in conjunction with progress of content and the right to the cited content can be prevented.

BRIEF DESCRIPTION OF DRAWINGS

[0040]

Fig. 1 is a block diagram showing an example configuration of an application linkage system as an embodiment of the present disclosure.

Fig. 2 is a block diagram showing an example structure of the ACR server.

Fig. 3 is a block diagram showing an example structure of the ACR client.

Fig. 4 is a diagram showing the data structure of ACR reference data.

CLAIMS

1. An information processing device comprising:

a content managing unit configured to manage first content viewable on a side of a content reproduction device that reproduces content;

a database unit configured to generate reference data and turn the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first content with right management information about the first signature data and a content identifier representing the first content from which the first signature data is extracted, the first signature data indicating a feature of the first content; and

an identifying unit configured to identify the content and return a response indicating an identification result by referring to the reference data of the database unit in reply to a query including second signature data extracted from second content being viewed by a user of the content reproduction device, the query being transmitted from the side of the content reproduction device, the second signature data indicating a feature of the second content.

2. The information processing device according to claim 1, wherein

the first signature data of the reference data is encrypted, and

the database unit decrypts the encrypted first signature data through an authentication process with the content managing unit.

3. The information processing device according to claim 2, wherein the right management information about the first

signature data includes an item for selecting an existing right management method for the first signature data.

4. The information processing device according to claim 3, wherein the right management information about the first signature data further includes an item for arbitrarily setting a right management method for the first signature data.

5. An information processing method implemented in an information processing device,

the information processing method comprising:

a database forming step of generating reference data and turning the generated reference data into a database, the reference data being generated by associating first signature data extracted from first content with right management information about the first signature data and a content identifier representing the first content from which the first signature data is extracted, the first content being viewable on a side of a content reproduction device that reproduces content, the first signature data indicating a feature of the first content; and

an identifying step of identifying the content and returning a response indicating an identification result by referring to the reference data of the database in reply to a query including second signature data extracted from second content being viewed by a user of the content reproduction device, the query being transmitted from the side of the content reproduction device, the second signature data indicating a feature of the second content,

the database forming step and the identifying step being carried out by the information processing device.

6. An information processing device comprising:

a content managing unit configured to manage first content viewable on a side of a content reproduction device that reproduces content;

a database unit configured to generate reference data and turn the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first content with a content identifier, an application identifier, and rendering control information, the content identifier representing the first content from which the first signature data is extracted, the application identifier representing an application to be executed on the side of the content reproduction device in conjunction with progress of the first content when the first content is being viewed on the side of the content reproduction device, the rendering control information being for controlling rendering of the application, the first signature data indicating a feature of the first content; and

an identifying unit configured to identify the content and return a response indicating an identification result by referring to the reference data of the database unit in reply to a query including second signature data extracted from second content being viewed by a user of the content reproduction device, the query being transmitted from the side of the content reproduction device, the second signature data indicating a feature of the second content.

7. The information processing device according to claim 6, wherein the rendering control information includes at least one of an item for limiting a device serving as a destination of output of an image from the application, and an item for restricting superimposition of an image from the application

and an image of the content.

8. An information processing method implemented in an information processing device,

the information processing method comprising:

a database forming step of generating reference data and turning the generated reference data into a database, the reference data being generated by associating first signature data extracted from first content with a content identifier, an application identifier, and rendering control information, the content identifier representing the first content from which the first signature data is extracted, the application identifier representing an application to be executed on a side of a content reproduction device in conjunction with progress of the first content when the first content is being viewed on the side of the content reproduction device, the rendering control information being for controlling rendering of the application, the first content being viewable on the side of the content reproduction device that reproduces content, the first signature data indicating a feature of the first content; and

an identifying step of identifying the content and returning a response indicating an identification result by referring to the reference data of the database in reply to a query including second signature data extracted from second content being viewed by a user of the content reproduction device, the query being transmitted from the side of the content reproduction device, the second signature data indicating a feature of the second content,

the database forming step and the identifying step being carried out by the information processing device.

9. An information processing device comprising:

a content managing unit configured to manage first content viewable on a side of a content reproduction device that reproduces content;

a database unit configured to generate reference data and turn the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first content with right management information about the first signature data and a content identifier representing the first content from which the first signature data is extracted, the first signature data indicating a feature of the first content;

a query generating unit configured to extract second signature data from second content being reproduced, generate a query including the second signature data, transmit the query to an identification server, and receive a response returned from the identification server in reply to the query, the second signature data indicating a feature of the second content; and

an application executing unit configured to acquire and execute an application based on an application identifier included in the received response, and control rendering of the application based on rendering control information about the application, the application being designated to be executed in conjunction with progress of the content being reproduced, the rendering control information being included in the response.

10. The information processing device according to claim 9, wherein, based on the rendering control information, the application executing unit performs at least one of a process for limiting a device serving as a destination of output of an

image from the application, and a process for restricting superimposition of an image from the application and an image of the content.

11. An information processing method implemented in an information processing device,

the information processing method comprising:

a database forming step of generating reference data and turn the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first content with right management information about the first signature data and a content identifier representing the first content from which the first signature data is extracted, the first signature data indicating a feature of the first content;

a transmitting step of extracting second signature data from second content being reproduced, generating a query including the second signature data, and transmitting the query to an identification server, the second signature data indicating a feature of the second content;

a receiving step of receiving a response returned from the identification server in reply to the query; and

a controlling step of acquiring and executing an application based on an application identifier included in the received response, and controlling rendering of the application based on rendering control information about the application, the application being designated to be executed in conjunction with progress of the content being reproduced, the rendering control information being included in the response,

the transmitting step, the receiving step, and the controlling step being carried out by the information

processing device.

12. An information processing device comprising:

a content managing unit configured to manage first content viewable on a side of a content reproduction device that reproduces content;

a database unit configured to generate reference data and turn the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first content with a content identifier, an application identifier, and right management information about an application, the content identifier representing the first content from which the first signature data is extracted, the application identifier representing the application to be executed on the side of the content reproduction device in conjunction with progress of the first content when the first content is being viewed on the side of the content reproduction device, the first signature data indicating a feature of the first content; and

an identifying unit configured to identify the content and return a response indicating an identification result by referring to the reference data of the database unit in reply to a query including second signature data extracted from second content being viewed by a user of the content reproduction device, the query being transmitted from the side of the content reproduction device, the second signature data indicating a feature of the second content.

13. The information processing device according to claim 12, wherein the right management information about the application includes an item for selecting an existing right management method for the application and content cited by the

application.

14. The information processing device according to claim 13, wherein the right management information about the application further includes an item for arbitrarily setting a right management method for the application and the content cited by the application.

15. An information processing method implemented in an information processing device,

the information processing method comprising:

a database forming step of generating reference data and turning the generated reference data into a database, the reference data being generated by associating first signature data extracted from first content with a content identifier, an application identifier, and right management information about an application, the content identifier representing the first content from which the first signature data is extracted, the application identifier representing the application to be executed on a side of a content reproduction device in conjunction with progress of the first content when the first content is being viewed on the side of the content reproduction device, the first content being viewable on the side of the content reproduction device that reproduces content, the first signature data indicating a feature of the first content; and

an identifying step of identifying the content and returning a response indicating an identification result by referring to the reference data of the database unit in reply to a query including second signature data extracted from second content being viewed by a user of the content reproduction device, the query being transmitted from the side

of the content reproduction device, the second signature data indicating a feature of the second content,

the database forming step and the identifying step being carried out by the information processing device.

16. An information processing device comprising:

a content managing unit configured to manage first content viewable on a side of a content reproduction device that reproduces content;

a database unit configured to generate reference data and turn the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first content with right management information about the first signature data and a content identifier representing the first content from which the first signature data is extracted, the first signature data indicating a feature of the first content;

a query generating unit configured to extract second signature data from second content being reproduced, generate a query including the second signature data, transmit the query to an identification server, and receive a response returned from the identification server in reply to the query, the second signature data indicating a feature of the second content; and

an application executing unit configured to acquire and execute an application based on an application identifier included in the received response, and manage the application and content cited by the application based on right management information about the application, the application being designated to be executed in conjunction with progress of the content being reproduced, the right management information being included in the response.

17. The information processing device according to claim 16, wherein the application executing unit decrypts the application based on the right management information, the application being encrypted.

18. The information processing device according to claim 16, wherein the application executing unit manages copying of the application and the cited content based on the right management information.

19. An information processing method implemented in an information processing device,

the information processing method comprising:

a database forming step of generating reference data and turn the generated reference data into a database, the reference data being generated by associating first signature data extracted from the first content with right management information about the first signature data and a content identifier representing the first content from which the first signature data is extracted, the first signature data indicating a feature of the first content;

a transmitting step of extracting second signature data from second content being reproduced, generating a query including the second signature data, and transmitting the query to an identification server, the second signature data indicating a feature of the second content;

a receiving step of receiving a response returned from the identification server in reply to the query; and

a managing step of acquiring and executing an application based on an application identifier included in the received response, and managing the application and content cited by

the application based on right management information about the application, the application being designated to be executed in conjunction with progress of the content being reproduced, the right management information being included in the response,

the transmitting step, the receiving step, and the managing step being carried out by the information processing device.