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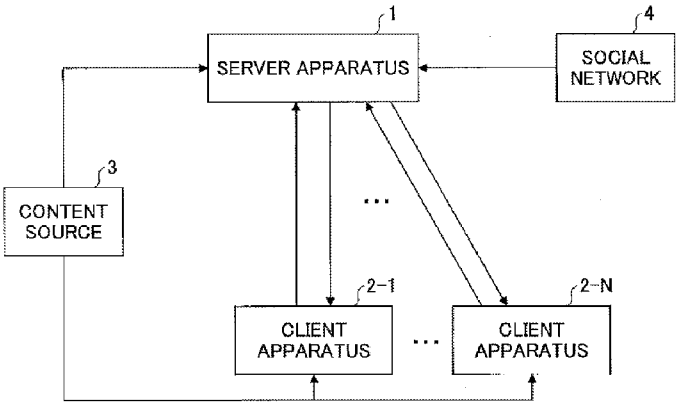

Fig.1

(57) Abstract: A server communicable with clients includes a processor, and a storage unit to store comments on content, in correspondence with a timeline indicating a lapse of time from a time when monitoring of the content is started by users of the clients. The processor may receive a user ID identifying a user of a first client and a content ID identifying the content from the first client, identify a group to which the user ID belongs and retrieve the comments of the identified group related to the content ID from the storage unit, integrate the retrieved comments of the group according to the timeline of the content identified by the content ID, and send integrated comments to the first client.

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SERVER APPARATUS, INFORMATION SHARING METHOD, AND COMPUTER-READABLE STORAGE MEDIUM

TECHNICAL FIELD

The present invention relates to an information sharing method for sharing information amongst a plurality of client apparatuses, a server apparatus that may be used by such an information sharing method, and a computer-readable storage medium having stored therein a program for causing a computer to execute a process of such a server apparatus.

BACKGROUND ART

In recent years, social networks are playing a role to help people find friends, to help organizations find associates, to help share thoughts or information among friends or organizations, and the like. Social networks may enable people to share various information, including fun information, information related to experiences, knowledge, information related to stories, and the like. Various tools or application software have been developed to enable social actors, such as friends and organizations, in a social network group, to recommend multimedia content amongst each another, to monitor multimedia content such as music or music video together, and to share listening or watching experiences with one another by synchronous online chatting, for example.

While watching a soccer game from a video source, for example, several friends in a social network group may chat with one another, and share their expression of joy,

sadness, cheer, and other information with one another. Sharing such information among friends in the social network group may bring more fun or excitement to their watching experience.

However, the soccer game may be acquired from various video sources. In other words, the content to be shared by the social actors in the social network group may be acquired from various sources.

For example, a person may watch video content acquired from a video sharing website such as "YOUTUBE" (registered trademark), or may rent or buy a video DVD from a nearby video store or website. Therefore, it may be difficult, even for the social actors having similar interests in the social network group, to watch the same video content at the same time, unless the social actors in the social network group are simultaneously watching the same television broadcasting program, for example. When the social actors in the social network group watch the same video content at different points in time, the information shared by the social actors are asynchronous. For this reason, one social actor in a social network group may see a reaction to an end portion of the video content from other social actors within the same social network group, even before this one social actor begins to watch the video content. Such sharing of asynchronous information among the social actors in the social network group does not necessarily bring more fun or excitement to the watching experience, and may even take away the fun or excitement to the watching experience.

Conventionally, it may be difficult for users belonging to

one group, such as social actors in one social network group, to effectively share information related to content, without having to monitor the content at the same time.

US2009/0249223A1 discloses a method for providing an asynchronous online viewing party and US2010/0287236A1 discloses a method for sharing annotations corresponding to media content among a plurality of members of a group over a communications network.

Accordingly, one object of the present disclosure may be to provide a server apparatus, an information sharing method, and a computer-readable storage medium, that enable users belonging to one group to effectively share information related to content, without having to monitor the content at the same time.

SUMMARY OF THE INVENTION

According to one aspect of the present invention, a server apparatus communicable with a plurality of client apparatuses, may include a processor; and a storage unit configured to store comments received from the plurality of client apparatuses with respect to content, in correspondence with a timeline of the content, wherein the timeline indicates a lapse of time from a time when monitoring of the content identified by a content ID is started by each of users of the plurality of client apparatuses, wherein the processor is configured to: receive a user ID identifying a user of a first client apparatus amongst the plurality of client apparatuses, and the content ID identifying the content, from the first client apparatus; identify a group to which the user ID

belongs, and retrieve from the storage unit the comments of the identified group that are related to the content ID matching the content ID from the first client apparatus; integrate the retrieved comments of the group according to the timeline of the content identified by the content ID; and send the integrated comments to the first client apparatus.

According to another aspect of the present invention, an information sharing method may include storing, in a storage unit by a server apparatus, comments received from a plurality of client apparatuses with respect to content, in correspondence with a timeline of the content, wherein the timeline indicates a lapse of time from a time when monitoring of the content identified by a content ID is started by each of users of the plurality of client apparatuses; receiving, by the server apparatus, a user ID identifying a user of a first client apparatus amongst the plurality of client apparatuses, and the content ID identifying the content, from the first client apparatus; identifying, by the server apparatus, a group to which the user ID belongs, and retrieving from the storage unit by the server apparatus, the comments of the identified group that are related to the content ID matching the content ID from the first client apparatus; integrating, by the server apparatus, the retrieved comments of the group according to the timeline of the content identified by the content ID; and sending, by the server apparatus, integrated comments to the first client apparatus.

According to a further aspect of the present invention, a non-transitory computer-readable storage medium having stored therein a program for causing a computer to execute

a process of the server apparatus, may include storing, in a storage unit, comments received from a plurality of client apparatuses with respect to content, in correspondence with a timeline of the content, wherein the timeline indicates a lapse of time from a time when monitoring of the content identified by a content ID is started by each of users of the plurality of client apparatuses; receiving a user ID identifying a user of a first client apparatus amongst the plurality of client apparatuses, and the content ID identifying the content from the first client apparatus; identifying a group to which the user ID belongs, and retrieving from the storage unit the comments of the identified group that are related to the content ID matching the content ID from the first client apparatus; integrating the retrieved comments of the group according to the timeline of the content identified by the content ID; and sending integrated comments to the first client apparatus.

BRIEF DESCRIPTION OF THE DRAWING

These and other aspects, features and advantages of the present invention will become apparent from the following description in connection with the accompanying drawings in which:

FIG. 1 is a block diagram illustrating an example of a system architecture of a server-client system in one embodiment of the present invention;

FIG. 2 is a block diagram illustrating an example of a hardware configuration of a server apparatus;

FIG. 3 is a block diagram illustrating an example of a hardware configuration of a client apparatus;

FIG. 4 is a block diagram illustrating an example of a functional configuration of the server apparatus;

FIG. 5 is a diagram illustrating an example of comments from a user;

FIG. 6 is a diagram illustrating an example of an information format of comments;

FIG. 7 is a diagram illustrating an example of integrated comments; and

FIG. 8 is a flowchart for explaining an example of an information sharing process in one embodiment of the present invention.

DETAILED DESCRIPTION

In the following description, various aspects of an embodiment of the present invention will be described. For the purpose of explanation, specific configurations and details are set forth in order to provide a thorough understanding. However, it will also be apparent to one skilled in the art that the present invention may be implemented without the specific details present herein.

FIG. 1 is a block diagram illustrating an example of a system architecture of a server-client system in one embodiment of the present invention.

The server-client system illustrated in FIG. 1 may include a server apparatus 1, client apparatuses 2-1 through 2-N, a content source 3, and a social network 4, where N is a natural number greater than or equal to two (2). The server apparatus 1 is an example of an information processing apparatus that may communicate with each of the client apparatuses 2-1 through 2-N, the content source 3, and the social network 4, via a network. The network may include a cable network, a wireless network, or a combination of cable and wireless networks. The client apparatuses 2-1 through 2-N are examples of information processing apparatuses that may communicate with the server apparatus 1 and the like via the Internet, for example.

FIG. 2 is a block diagram illustrating an example of a hardware configuration of the server apparatus 1. The server apparatus 1 may include a CPU (Central Processing Unit) 11, a storage unit 12, and an interface (I/F) 13 that are connected via a bus 16. Of course, the server apparatus 1 may additionally include an input device (not illustrated) and a display device (not illustrated), as in the case of the client apparatus to be described later in conjunction with FIG. 3.

The CPU 11 is an example of a processor (or computer) configured to control operations of the server apparatus 1 by executing one or more programs. The storage unit 12 may store the one or more programs to be executed by the CPU 11, and various data. The various data may include intermediate results of operations performed by the CPU 11, information such as user identifiers (hereinafter also referred to as "user IDs") identifying users of the client

apparatuses 2-1 through 2-N, social network groups to which the user belong, comments of users received from the client apparatuses 2-1 through 2-N, content identifiers (hereinafter also referred to as "content IDs") identifying content from the content source 3 monitored by the users, and the like. The user ID itself may also indicate the social network groups to which the user of the user ID belongs. The storage unit 12 may be formed by any suitable computer-readable storage medium, which may be non-transitory.

The I/F 13 may connect the server apparatus 1 to the client apparatuses 2-1 through 2-N, the content source 3, and the social network 4, via the cable or wireless network.

The server apparatus 1 may have the hardware configuration of a general purpose computer having a function capable of communicating with the client apparatuses 2-1 through 2-N. In addition, the hardware configuration of the server apparatus 1 is not limited to that illustrated in FIG. 2 in which the CPU 11 is connected to other elements of the server apparatus 1 via the bus 16, and the CPU 11 may be connected directly to at least one of the other elements of the server apparatus 1.

FIG. 3 is a block diagram illustrating an example of a hardware configuration of a client apparatus 2 that may function as any one of the client apparatuses 2-1 through 2-N. The client apparatus 2 may include a CPU 21, a storage unit 22, an I/F 23, an input device 24, and a display device 25 that are connected via a bus 26.

The CPU 21 is an example of a processor (or computer) configured to control operations of the client apparatus 2 by executing one or more programs. The storage unit 22 may store the one or more programs to be executed by the CPU 21, and various data. The various data may include intermediate results of operations performed by the CPU 21, information such as comments of the users received from other client apparatuses via the server apparatus 1, information such as comments input from the input device 24 by a user of the client apparatus 2, user IDs identifying the users received from other client apparatuses via the server apparatus 1, a user ID input from the input device 24 by the user of the client apparatus 2, a content ID input from the input device 24 by the user of the client apparatus 2, and the like. The storage unit 22 may be formed by any suitable computer-readable storage medium, which may be non-transitory.

The I/F 23 may connect the client apparatus 2 to the server apparatus 1, the content source 3, and the social network 4, via the cable or wireless network.

The input device 24 may input various commands and data including the user ID, the content ID, and the like. The display device 25 is an example of an output device configured to output the content from the content source 3, the comments received from the server apparatus 1, and the like. The output device may include a speaker configured to output sound corresponding to the comments received from the server apparatus 1. The sound may include speech synthesized from the corresponding comments in text, sound effects synthesized from the corresponding comments in at

least one of symbols, icons, animation, graphics, and audio or video clips, and the like.

The input device 24 may include a keyboard and the like. In addition, the input device 24 and the display device 25 may be formed integrally by a touchscreen panel, for example.

Of course, the user of the client apparatus 2 may monitor the content on a display unit, a television set, and the like, provided separately from the display device 25 that displays the comments, for example. The user of the client apparatus 2 may also monitor the content on the display device 25, and monitor the comments on the display unit, the television set, and the like, provided separately from the display device 25.

The client apparatus 2 may have the hardware configuration of a general purpose computer having a function capable of communicating with the server apparatus 1, such as a desk-top computer, a lap-top or portable computer, a tablet computer, and the like. Further, the client apparatus 2 may have the hardware configuration of a mobile terminal having a function capable of communicating with the server apparatus 1, such as mobile phone, a smartphone, and the like. In addition, the hardware configuration of the client apparatus 2 is not limited to that illustrated in FIG. 3 in which the CPU 21 is connected to other elements of the client apparatus 2 via the bus 26, and the CPU 21 may be connected directly to at least one of the other elements of the client apparatus 2.

The user of the client apparatus 2 may utilize a browser

function of the client apparatus 2 to browse the integrated comments from the server apparatus 1. In this case, the user may utilize the client apparatus 2 to monitor the content on the display device 25, browse the integrated comments from the server apparatus 1 via the I/F 23, and submit this user's comments to the server apparatus 1 from the input device 24.

The content source 3 may include, but is not limited to, a video sharing website, a recording medium, a television or cable broadcasting program, and a music or video server. The content source 3 may provide one or more content, including audio content, video content, animation content, graphic content, and the like. For example, a video clip of video sharing website may be identified by the content ID formed by a URL (Universal Resource Locator) address of the website, and a video file in a local storage area such as the storage unit 22 may be identified by the content ID formed by a storage address of the local storage area. Of course, the content ID may additionally include a name of the content, a release or issue date of the content, and the like. Any information capable of uniquely identifying the content may be used as the content ID.

The content source 3 may have the hardware configuration of a general purpose computer having a function capable of providing the content identified by the content ID. The content source 3 may be optional in the server-client system. In other words, when the source of the content is a DVD, for example, the content may be reproduced by a disk drive that is provided in the client apparatus 2 or is externally connected to the client apparatus 2. The disk drive may be connected to the bus 26 illustrated in

FIG. 3. Further, the source of the content may be a content file stored within the server apparatus 1. In this case, the server apparatus 1 may function as the content source 3. Alternatively, the source of the content may be a content file stored within one of the client apparatuses 2-1 through 2-N. In this latter case, one of the client apparatuses 2-1 through 2-N may function as the content source 3.

The social network 4 may provide one or more groups to which the users may belong, depending on common interests, hobbies, and the like. The social network 4 may be a social network website, such as "FACEBOOK" (registered trademark) or "GOOGLE+" (registered trademark), and the like.

In this example, a client-server architecture is adopted in order to implement asynchronous information sharing. The server apparatus 1 may receive comments of the individual users identified by the user IDs, with respect to content that may be acquirable from the content source 3 and is identified by the content ID, from the client apparatuses 2-1 through 2-N, and store the comments in the storage unit 12 in correspondence with a timeline of the content. The timeline may indicate a lapse of time from a time when monitoring of the content identified by the content ID is started by each of users of the client apparatuses 2-1 through 2-N. In other words, each comment of the user may be stored in correspondence with the timeline of the content so that the timeline indicates the lapse of time from the time when this user started monitoring this content for each comment of this user.

In addition, when the server apparatus 1 receives the information including the user ID and the content ID from the client apparatus 2-1, for example, the server apparatus 1 may identify a social network group to which the user ID belongs, by accessing the social network 4. The server apparatus 1 may retrieve the comments of the identified social network group, that is, the comments of the users belonging to the identified social network group stored in the storage unit 12 with respect to the content ID matching the content ID received from the client apparatus 2-1. The storage unit 12 may store the comments of each user, who monitored the content identified by the content ID matching the content ID received from the client apparatus 2-1, and belonging to the identified social network group.

Next, the server apparatus 1 may integrate the retrieved comments of the identified social network group according to the timeline of the content identified by the content ID. In the case in which the comments of the user of the client apparatus 2-1 with respect to the same content ID is also stored in the storage unit 12, the server apparatus 1 may exclude the comments of the user of the client apparatus 2-1 from the timeline integration. The server apparatus 1 may send the integrated comments of the users belonging to the identified social network group, preferably excluding the comments of the user of the client apparatus 2-1, to the client apparatus 2-1 to be displayed on the display device 22, for example.

FIG. 4 is a block diagram illustrating an example of a functional configuration of the server apparatus 1. The server apparatus 1 illustrated in FIG. 4 may include a

comment receiving unit (or module) 101, a comment storage unit (or module) 102, a retrieving unit (or module) 103, a matching unit (or module) 104, a timeline integration unit (or module) 105, and a sending unit (or module) 106. The units (or modules) 101, 103, 104, 105, and 106 may be formed by the CPU 11. The comment storage unit (or module) 102 may be formed by the storage unit 12.

In FIG. 4, the comment receiving unit 101 may receive comments of the individual users identified by the user IDs, with respect to the content that may be acquirable from the content source 3 and is identified by the content ID, from the client apparatuses 2-1 through 2-N, and store the comments in the comment storage unit 102 in correspondence with the timeline of the content. Each comment of the user is stored in correspondence with the timeline of the content so that the timeline indicates the lapse of time from the time when this user started monitoring this content for each comment of this user.

For example, the comments of each user may be formatted to have an information format including the user ID of the user, the content ID of the content, the comment time, and the comment content. A social network ID of the user may be used for the user ID, for example. The comment time is not the present clock time when the user who is monitoring the content submits the comments, but is the time elapsed from a time when the user started monitoring the content. Hence, the comment time is the time when the user starts to submit the user's comments, measured from the time when the user started monitoring the content. The comment time may be obtained in each client apparatus 2 using a clock and an internal timer of the CPU 21, for example. The

comment content includes the content of the comments.

In addition, when the server apparatus 1 receives the information including the user ID and the content ID from the client apparatus 2-1, for example, the retrieving unit 103 may identify the social network group to which the user ID belongs, by accessing the social network 4. The server apparatus 1 may determine that the user of the client apparatus 2-1 started monitoring the content, because the information received from the client apparatus 2-1 does not yet include the comments on the content. The retrieving unit 103 may then retrieve the comments of the identified social network group, that is, the comments of the users belonging to the identified social network group stored in the comment storage unit 102. The matching unit 104 may extract, from the comments of the identified social network group that are retrieved by the retrieving unit 103, the comments with respect to the content ID matching the content ID received from the client apparatus 2-1. The retrieving unit 103 and the matching unit 104 may form a retrieval unit (or module) to perform the functions of the retrieving unit 103 and the matching unit 104. The comment storage unit 102 may store the comments of each user, who monitored the content identified by the content ID matching the content ID received from the client apparatus 2-1, and belongs to the identified social network group.

Next, the timeline integration unit 105 may integrate the retrieved comments of the identified social network group according to the timeline of the content identified by the content ID. In the case in which the comments of the user of the client apparatus 2-1 with respect to the same

content ID is also stored in the comment storage unit 102, the timeline integration unit 105 may exclude the comments of the user of the client apparatus 2-1 from the timeline integration, based on the user ID. The sending unit 106 may send the integrated comments of the users belonging to the identified social network group, preferably excluding the comments of the user of the client apparatus 2-1, to the client apparatus 2-1 via the I/F 13 to be displayed on the display device 25, for example.

As a result, asynchronous comment sharing may be achieved at the client apparatus 2-1, for example, as the user of the client apparatus 2-1 monitors the content while sharing the comments of other users in the same social network group, with respect to the same content, according to a common timeline for the content. In other words, the user of the client apparatus 2-1 may experience situations in the content that is being output at the client apparatus 2-1, virtually at the same timings as when the other users in the same social network group experienced and commented on the situations, because the time when the monitoring of the content is started by the user of the client apparatus 2-1 is matched to the time when the monitoring of the content is started by the other users on the common timeline.

FIG. 5 is a diagram illustrating an example of comments from the user of the client apparatus 2-1, and FIG. 6 is a diagram illustrating an example of an information format of the comments illustrated in FIG. 5.

FIG. 5 illustrates the example of the comments for a video content that is identified by a video ID, submitted from

the user having a user ID @Tom. The video content is an example of the content, and the video ID is an example of the content ID. The comment times 5:18, 13:23, and the like on the timeline are the times elapsed from the time when this user started viewing the video content. For example, at the comment time 5:18, the comments submitted by this user includes comments in text "Interesting, funny", and comments in an "icon" that represents a smiling expression.

The comments may include at least one of first comments in text, and second comments, wherein the second comments are represented by at least one of symbols, icons, animation, graphics, and audio or video clips.

In other words, the user may add at least one of, or a combination of, symbols, icons, animation, graphics, audio or video clips, and the like that may represent expressions, feelings, moods, and the like of the user, as the second comments, to the user's first comments in text, or vice versa. As an example, expressions, feelings, moods, and the like of the user may include "interesting", "funny", "fake", "bad", "frightened", "doubt", "not true", "surprising", and the like.

The comments illustrated in FIG. 5 that are submitted by the user having the user ID @Tom may be sent to the server apparatus 1 with the information format illustrated in FIG. 6.

The storage unit 12 of the server apparatus 1 may store the user's photo or avatar image with respect to the user ID. Alternatively, the client apparatus 2 may attach the

user's photo or avatar image to the user ID when sending the information to the server apparatus 1. In this case, the integrated comments sent from the server apparatus 1 may include the user's photo or avatar image attached to the user ID for easy identification of the user.

FIG. 7 is a diagram illustrating an example of the integrated comments. FIG. 7 illustrates the example in which the server apparatus 1 receives Tom's user ID @Tom from the client terminal 2-1, and retrieves the social network group {@Jerry, @Billy, @Jean, ...} to which the user Tom belongs. More particularly, the retrieving unit 103 of the server apparatus 1 may retrieve the user IDs @Jerry, @Billy, @Jean, ... of Tom's friends Jerry, Billy, Jean, ... who belong to the same social network group as the user Tom.

To improve security, user authentication may be required by the server apparatus 1 in order to retrieve the social network group to which the user Tom belongs. However, a description on the user authentication itself will be omitted in this specification, because such user authentication may be made according to known techniques.

The matching unit 104 of the server apparatus 1 may match the video content being monitored by the user Tom, with the video content monitored by his friends Jerry, Billy, Jean, ... who belong to the same social network group as the user Tom. The timeline integration unit 105 of the server apparatus 1 may use the matching result of the matching unit 104 in order to integrate the comments from his friends Jerry, Billy, Jean, ... who belong to the same social network group as the user Tom on the video content

being monitored by the user Tom. The timeline integration unit 105 may arrange the comments on the matched video content from the friends of the same social network group as the user Tom into a single integrated comment in the order of the comment time, as illustrated in FIG. 7, for example.

When the user having the user ID @Tom starts monitoring the video content at the client apparatus 2-1, the integrated comment for the same video content may be downloaded from the server apparatus 1 to the client apparatus 2-1. Thus, the user, Tom, may browse the integrated comments on the video content from Tom's friends belonging to the same social network group as Tom, according to the video content monitoring (or playing) timeline, that is, according to a common timeline for the video content.

When integration of the comments of selected users is preferred, a code may be added to the user ID to indicate the priority of the user ID, for example. As an example, the priority of the user ID of each user belonging to one social network group may be determined depending on the content. In this case, the comments of the users having the user IDs added with the code indicating the priority of the video content may be selected with priority over the users having the user IDs added with the code indicating an animation content, for example, even when the users belong to the same social network group. The integration of the comments of the selected users may avoid an excessively large amount of comment information from being output at the client apparatus 2-1 of the user who is monitoring the content.

FIG. 8 is a flowchart for explaining an example of an information sharing process in one embodiment of the present invention. The information sharing process illustrated in FIG. 8 may be executed by the CPU 11 of the server apparatus 1.

In step S1, the comment receiving unit 101 receives comments of the individual users identified by the user IDs, with respect to the content that may be acquirable from the content source 3 and is identified by the content ID, from the client apparatuses 2-1 through 2-N, and stores the comments in the comment storage unit 102 in correspondence with the timeline of the content, as described above in conjunction with FIG. 4.

In step S2, the comment receiving unit 101 decides whether the information received from the client apparatus 2-1, for example, includes the user ID and the content ID. When the decision result in step S2 is NO, step S3 decides whether the information received from the client apparatus 2-1, for example, includes the user's comments. When the decision result in step S3 is YES, step S4 stores the user's comments in the comment storage unit 102. On the other hand, when the decision result in step S3 is NO, or after step S4, the process returns to step S1. The comment receiving unit 101 may perform steps S3 and S4. In step S3, the comment receiving unit 101 may discard information other than the user's comments.

When the decision result in step S2 is YES, the process advances to step S5. In step S5, the retrieving unit 103 identifies the social network group to which the user ID

belongs, by accessing the social network 4. In step S6, the retrieving unit 103 retrieves the comments of the identified social network group, that is, the comments of the users belonging to the identified social network group stored in the comment storage unit 102.

In step S7, the matching unit 104 extracts, from the comments of the identified social network group that are retrieved in step S6, the comments with respect to the content ID matching the content ID received from the client apparatus 2-1, and the timeline integration unit 105 integrates the retrieved comments of the identified social network group according to the timeline of the content identified by the content ID. In step S8, the sending unit 106 sends the integrated comments of the users belonging to the identified social network group to the client apparatus 2-1 via the I/F 13 to be displayed on the display device 22, for example.

As a result, asynchronous comment sharing may be achieved at the client apparatus 2-1, for example, as the user of the client apparatus 2-1 monitors the content while sharing the comments of other users in the same social network group, with respect to the same content, according to a common timeline for the content.

In the embodiment described above, the non-transitory computer-readable storage medium may include a semiconductor memory device, a magnetic recording medium, a magneto-optic recording medium, an optical recording medium, and the like.

All examples and conditional language recited herein are

intended for pedagogical purposes to aid the reader in understanding the invention and the concepts contributed by the inventor to furthering the art, and are to be construed as being without limitation to such specifically recited examples and conditions, nor does the organization of such examples in the specification relate to a showing of the superiority and inferiority of the invention. Although the embodiments of the present invention have been described in detail, it should be understood that the various changes, substitutions, and alterations could be made hereto without departing from the spirit and scope of the invention.

CLAIMS

1. A server apparatus communicable with a plurality of client apparatuses, comprising:

a processor; and

a storage unit configured to store comments received from the plurality of client apparatuses with respect to content, in correspondence with a timeline of the content, wherein the timeline indicates a lapse of time from a time when monitoring of the content identified by a content ID is started by each of users of the plurality of client apparatuses,

wherein the processor is configured to:

receive a user ID identifying a user of a first client apparatus amongst the plurality of client apparatuses, and the content ID identifying the content, from the first client apparatus;

identify a group to which the user ID belongs, and retrieve from the storage unit the comments of the identified group that are related to the content ID matching the content ID from the first client apparatus;

integrate the retrieved comments of the group according to the timeline of the content identified by the content ID; and

send the integrated comments to the first client apparatus.

2. The server apparatus as claimed in claim 1, wherein the processor is further configured to store comments related to the content ID and received from the first client apparatus in the storage unit.

3. The server apparatus as claimed in claim 1, wherein

the group forms a social network.

4. The server apparatus as claimed in claim 1, wherein the processor is further configured to identify the social network to which the user ID belongs by accessing the social network via a network.

5. The server apparatus as claimed in claim 1, wherein the comments include at least one of first comments in text, and second comments, wherein the second comments are represented by at least one of symbols, icons, animation, graphics, and audio or video clips.

6. The server apparatus as claimed in claim 1, wherein the content is acquired from a source selected from a video sharing website, a recording medium, a television or cable broadcasting program, and a music or video server.

7. An information sharing method comprising the steps of:

storing, in a storage unit by a server apparatus, comments received from a plurality of client apparatuses with respect to content, in correspondence with a timeline of the content, wherein the timeline indicates a lapse of time from a time when monitoring of the content identified by a content ID is started by each of users of the plurality of client apparatuses;

receiving, by the server apparatus, a user ID identifying a user of a first client apparatus amongst the plurality of client apparatuses, and the content ID identifying the content, from the first client apparatus;

identifying, by the server apparatus, a group to which the user ID belongs, and retrieving from the storage

unit by the server apparatus, the comments of the identified group that are related to the content ID matching the content ID from the first client apparatus;

integrating, by the server apparatus, the retrieved comments of the group according to the timeline of the content identified by the content ID; and

sending, by the server apparatus, integrated comments to the first client apparatus.

8. The information sharing method as claimed in claim 7, further comprising the step of:

storing, by the server apparatus, comments related to the content ID and received from the first client apparatus in the storage unit.

9. The information sharing method as claimed in claim 7, wherein the group forms a social network.

10. The information sharing method as claimed in claims 7, wherein the identifying step identifies the social network to which the user ID belongs by accessing the social network via a network.

11. The information sharing method as claimed in claim 7, wherein the comments include at least one of first comments in text, and second comments, wherein the second comments are represented by at least one of symbols, icons, animation, graphics, and audio or video clips.

12. The information sharing method as claimed in claim 7, wherein the content is acquired from a source selected from a video sharing website, a recording medium, a television or cable broadcasting program, and a music or

video server.

13. A non-transitory computer-readable storage medium having stored therein a program for causing a computer to execute a process of the server apparatus, the process comprising:

storing, in a storage unit, comments received from a plurality of client apparatuses with respect to content, in correspondence with a timeline of the content, wherein the timeline indicates a lapse of time from a time when monitoring of the content identified by a content ID is started by each of users of the plurality of client apparatuses;

receiving a user ID identifying a user of a first client apparatus amongst the plurality of client apparatuses, and the content ID identifying the content from the first client apparatus;

identifying a group to which the user ID belongs, and retrieving from the storage unit the comments of the identified group that are related to the content ID matching the content ID from the first client apparatus;

integrating the retrieved comments of the group according to the timeline of the content identified by the content ID; and

sending integrated comments to the first client apparatus.

14. The non-transitory computer-readable storage medium as claimed in claim 13, wherein the process further comprises:

storing comments related to the content ID and received from the first client apparatus in the storage unit.

15. The non-transitory computer-readable storage medium as claimed in claim 13, wherein the group forms a social network.

16. The non-transitory computer-readable storage medium as claimed in claim 13, wherein the identifying process identifies the social network to which the user ID belongs by accessing the social network via a network.

17. The non-transitory computer-readable storage medium as claimed in claim 13, wherein the comments include at least one of first comments in text, and second comments, wherein the second comments are represented by at least one of symbols, icons, animation, graphics, and audio or video clips.

18. The non-transitory computer-readable storage medium as claimed in claim 13, wherein the content is acquired from a source selected from a video sharing website, a recording medium, a television or cable broadcasting program, and a music or video server.

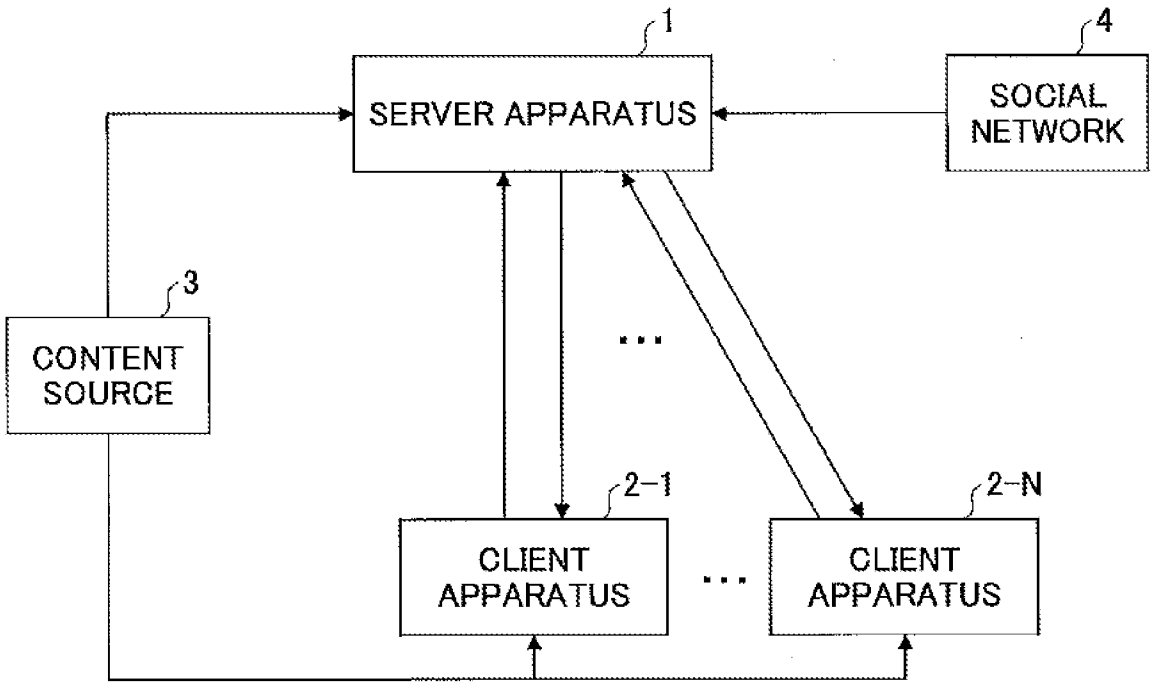
1
SERVER APPARATUS
4
SOCIAL NETWORK
3
CONTENT SOURCE
2-1
CLIENT APPARATUS
2-N
CLIENT APPARATUS

Fig.1

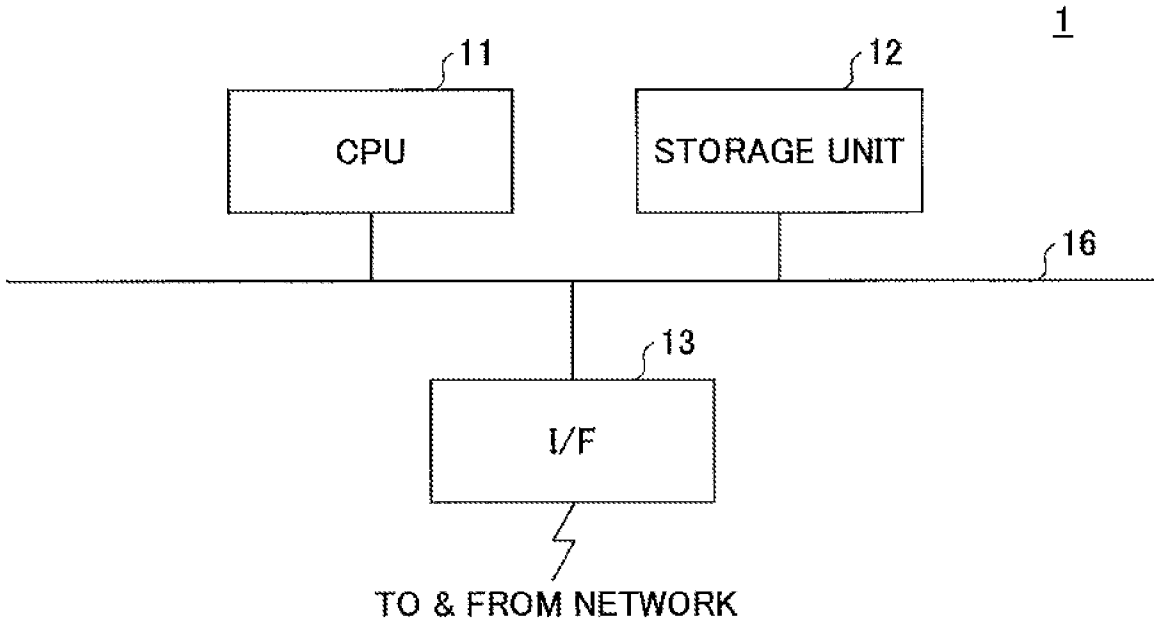
1
11
CPU
12
STORAGE UNIT
16
13
I/F
TO & FROM NETWORK

Fig.2

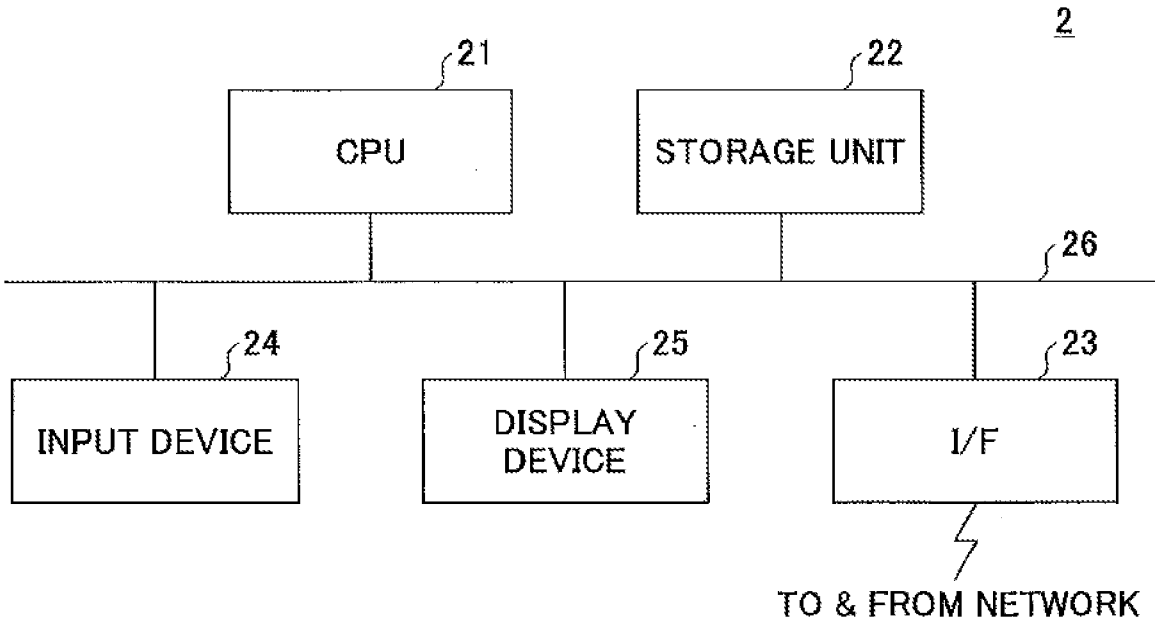
2
21
CPU
22
STORAGE UNIT
26
24
INPUT DEVICE
25
DISPLAY DEVICE
23
I/F
TO & FROM NETWORK

Fig.3

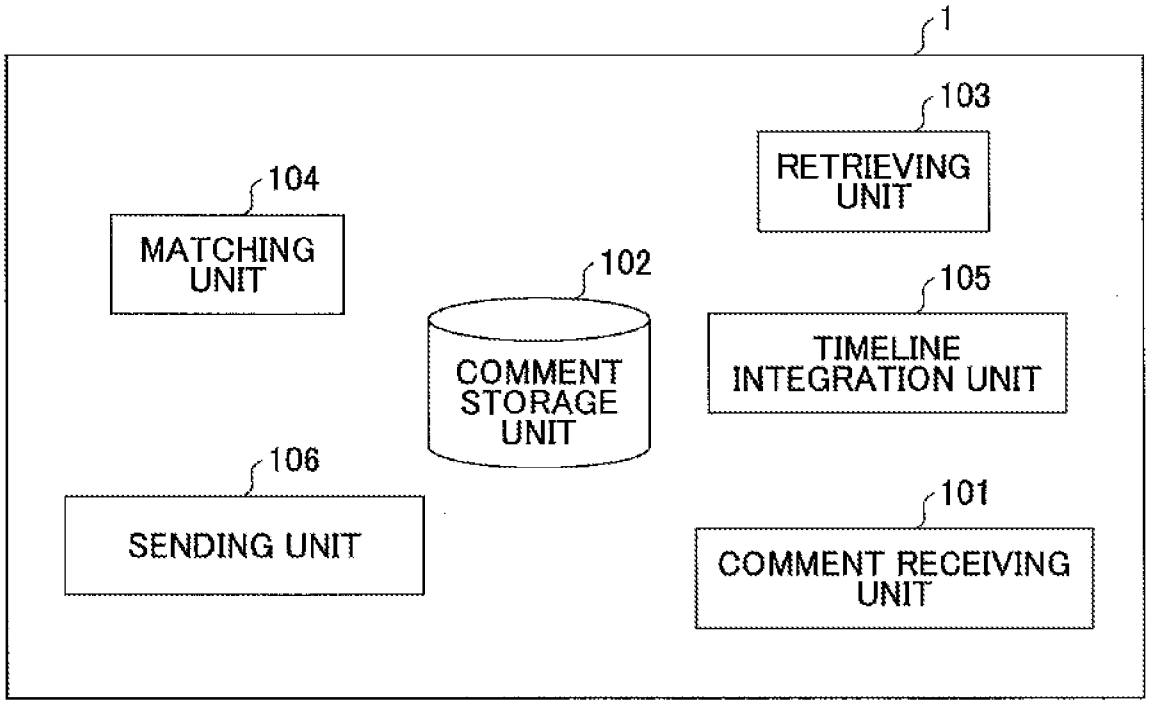
1
103
RETRIEVING UNIT
104
MATCHING UNIT
102
COMMENT STORAGE UNIT
105
TIMELINE INTEGRATION UNIT
106
SENDING UNIT
101
COMMENT RECEIVING UNIT

Fig.4

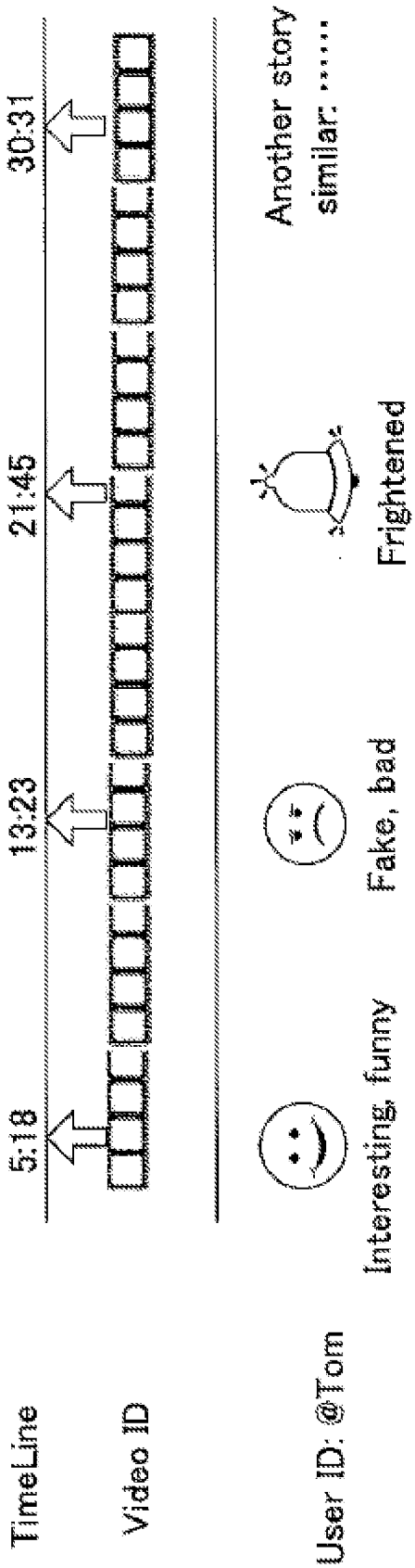
TimeLine
5:18
13:23
21:45
30:31
Video ID
User ID: @Tom
Interesting, funny
Fake, bad
Frightened
Another story
similar ·····

Fig.5

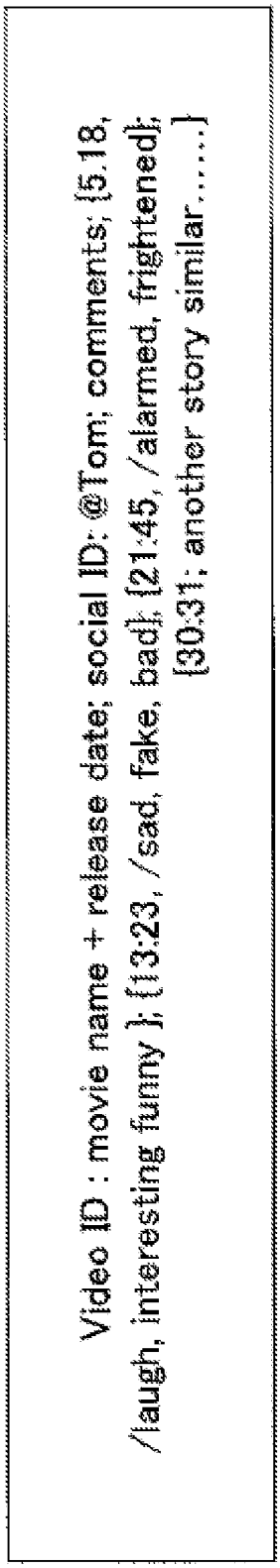
Video ID : movie name + release date; social ID: @Tom; comments: {5.18, /laugh, interesting funny }; {13:23, /sad, fake, bad}; {21:45, /alarmed, frightened}; {30:31; another story similar.....}

Fig.6

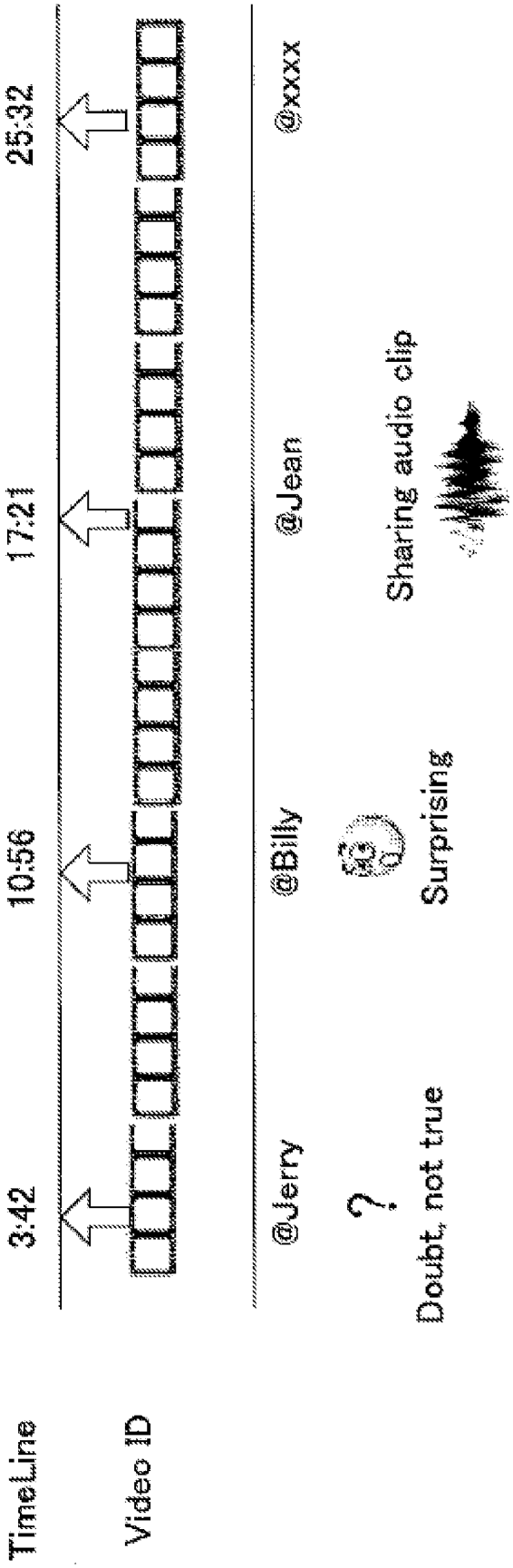
TimeLine
Video ID
3:42
10:56
17:21
25:32
@Jerry
@Billy
@Jean
@xxxx
?
Doubt, not true
Surprising
Sharing audio clip

Fig.7

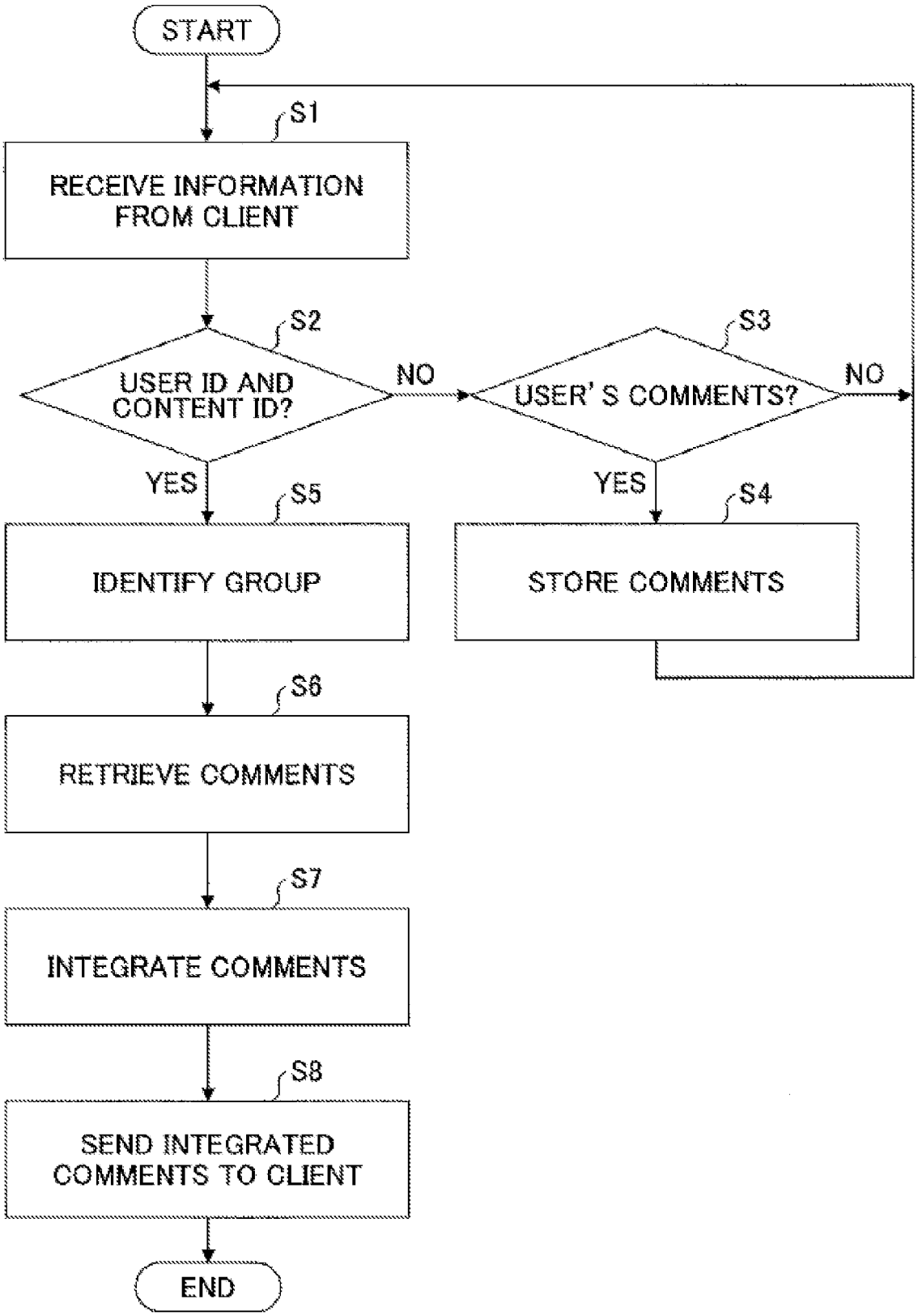
START
S1
RECEIVE INFORMATION FROM CLIENT
S2
USER ID AND CONTENT ID?
NO
S3
USER' S COMMENTS?
NO
YES
YES
S5
S4
IDENTIFY GROUP
STORE COMMENTS
S6
RETRIEVE COMMENTS
S7
INTEGRATE COMMENTS
S8
SEND INTEGRATED COMMENTS TO CLIENT
END

Fig.8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2013/077836

A. CLASSIFICATION OF SUBJECT MATTER

H04N 21/258 (2011.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: H04N, G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNPAT, CNKI, EPODOC, WPI: social, network+, comments, group, timeline, time, video, audio, storage, processor, client, ID, asynchronous

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2012/0159527 A1 (MICROSOFT CORPORATION) 21 June 2012 (21.06.2012) description, paragraphs [0049]-[0093] and figures 3, 6-11C	1-18
Y	US 2009/0249223 A1 (BARSOOK, Jonathan David et al.) 01 October 2009 (01.10.2009) description, paragraphs [0044]-[0045] and figures 4, 5	1-18
A	CN 102946549 A (NANJING UNIVERSITY) 27 February 2013 (27.02.2013) the whole document	1-18
A	CN 103136326 A (SONY CORPORATION) 05 June 2013 (05.06.2013) the whole document	1-18

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim (S) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 February 2014 (21.02.2014)	**27 Mar. 2014 (27.03.2014)**
Name and mailing address of the ISA/CN The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451	Authorized officer LI, Weihua Telephone No. (86-10)62413676

Form PCT/ISA /210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2013/077836

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
US 2012/0159527 A1	21.06.2012	CN 102595212 A	18.07.2012
US 2009/0249223 A1	01.10.2009	WO 2009123958 A1	08.10.2009
CN 102946549 A	27.02.2013	None	
CN 103136326 A	05.06.2013	US 2013145248 A1	06.06.2013
		KR 20130062883 A	13.06.2013
		JP 2013118649 A	13.06.2013