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(54) METHODS AND APPARATUS FOR TRANSFERRING DATA

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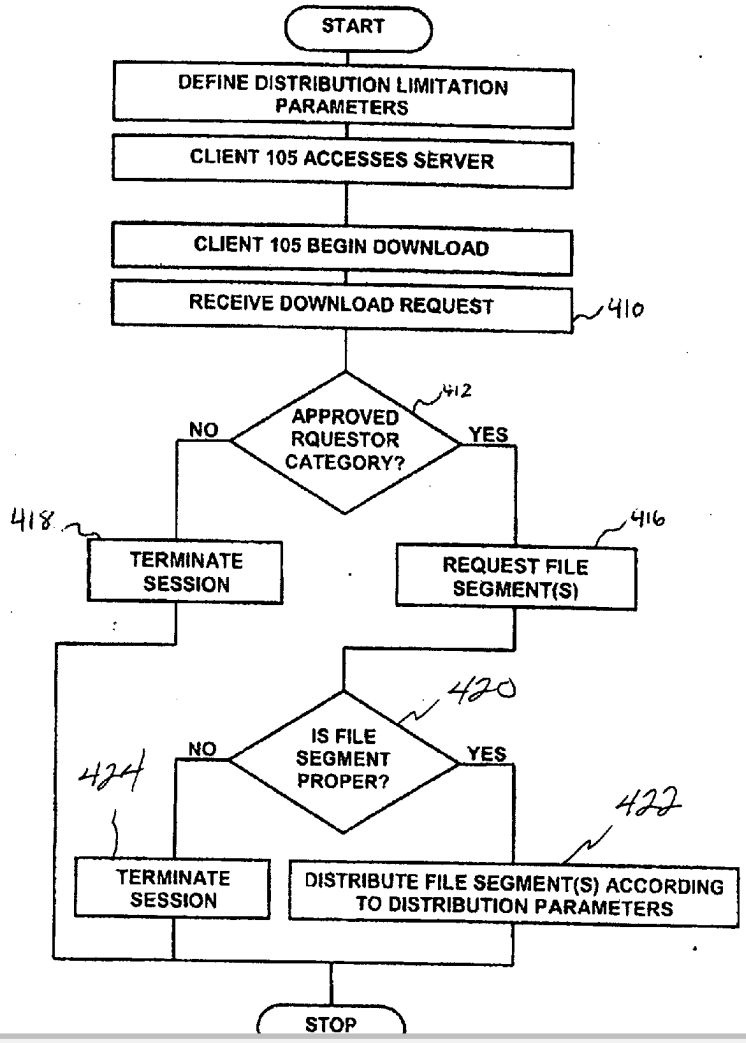
(57) **ABSTRACT**

Methods and apparatus for transferring data according to various aspects of the present invention may operate in conjunction with a computer system configured to connect to a p2p network. The computer may run a p2p communication program that receives a request for content via the p2p network. The computer determines whether to fulfill the request according to various criteria, such as whether the p2p communication program is currently accessing a second content from the p2p network and/or whether the first content is associated with the second content.

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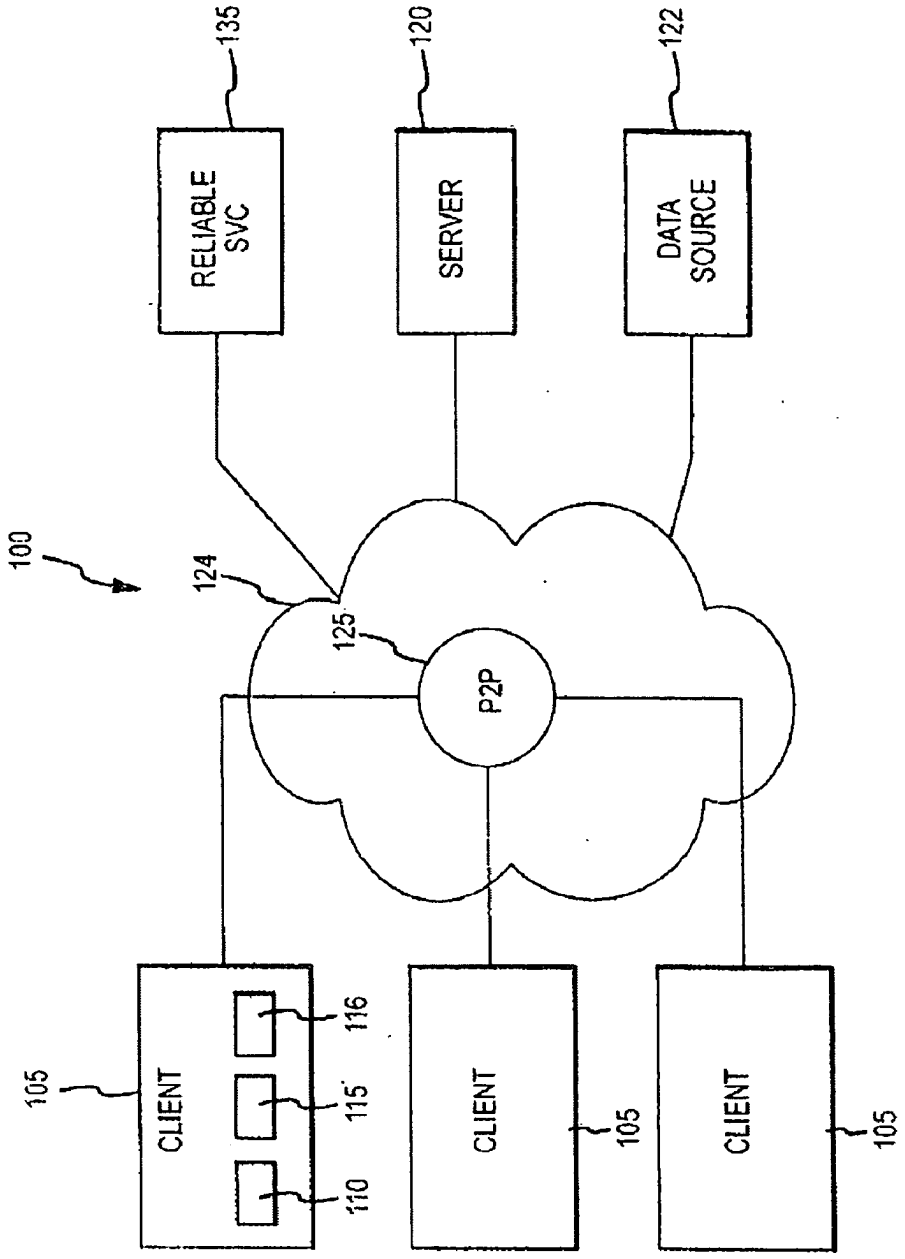


FIG. 1

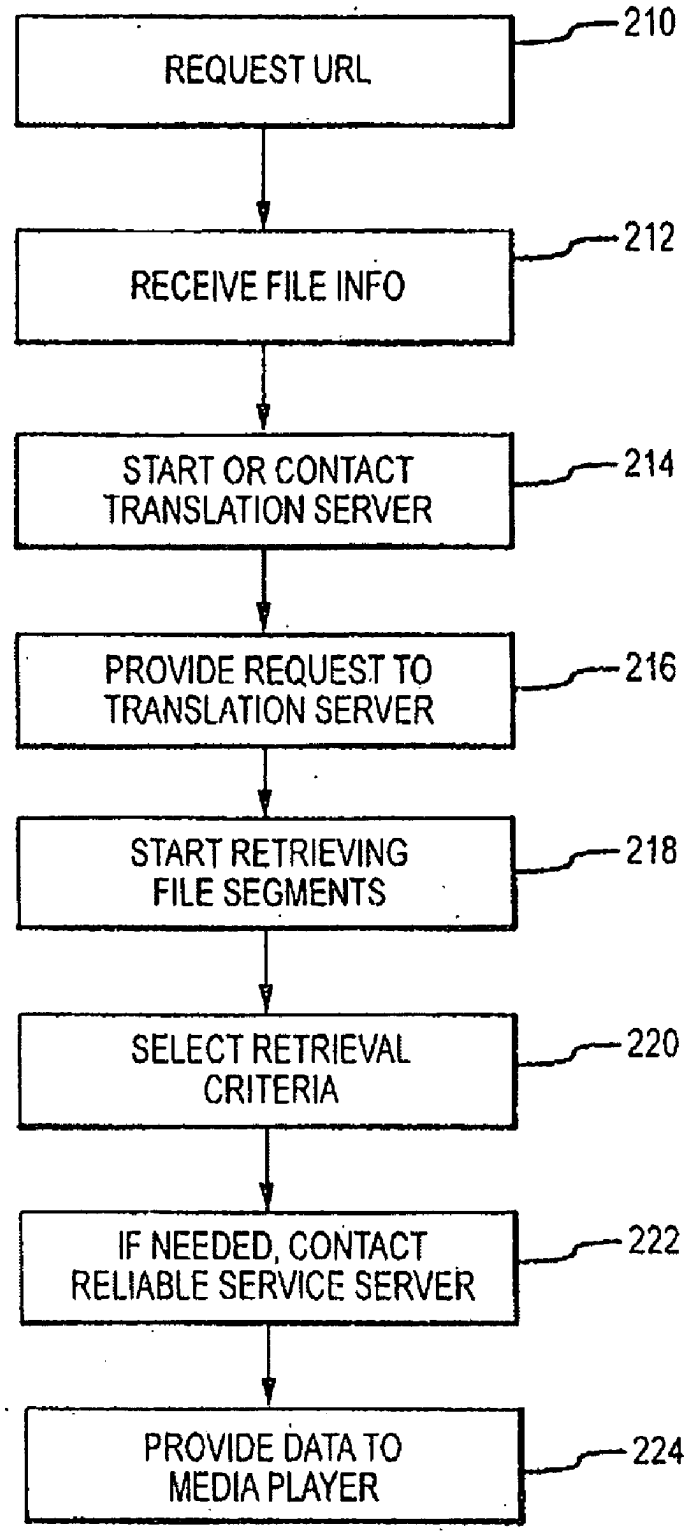


FIG.2

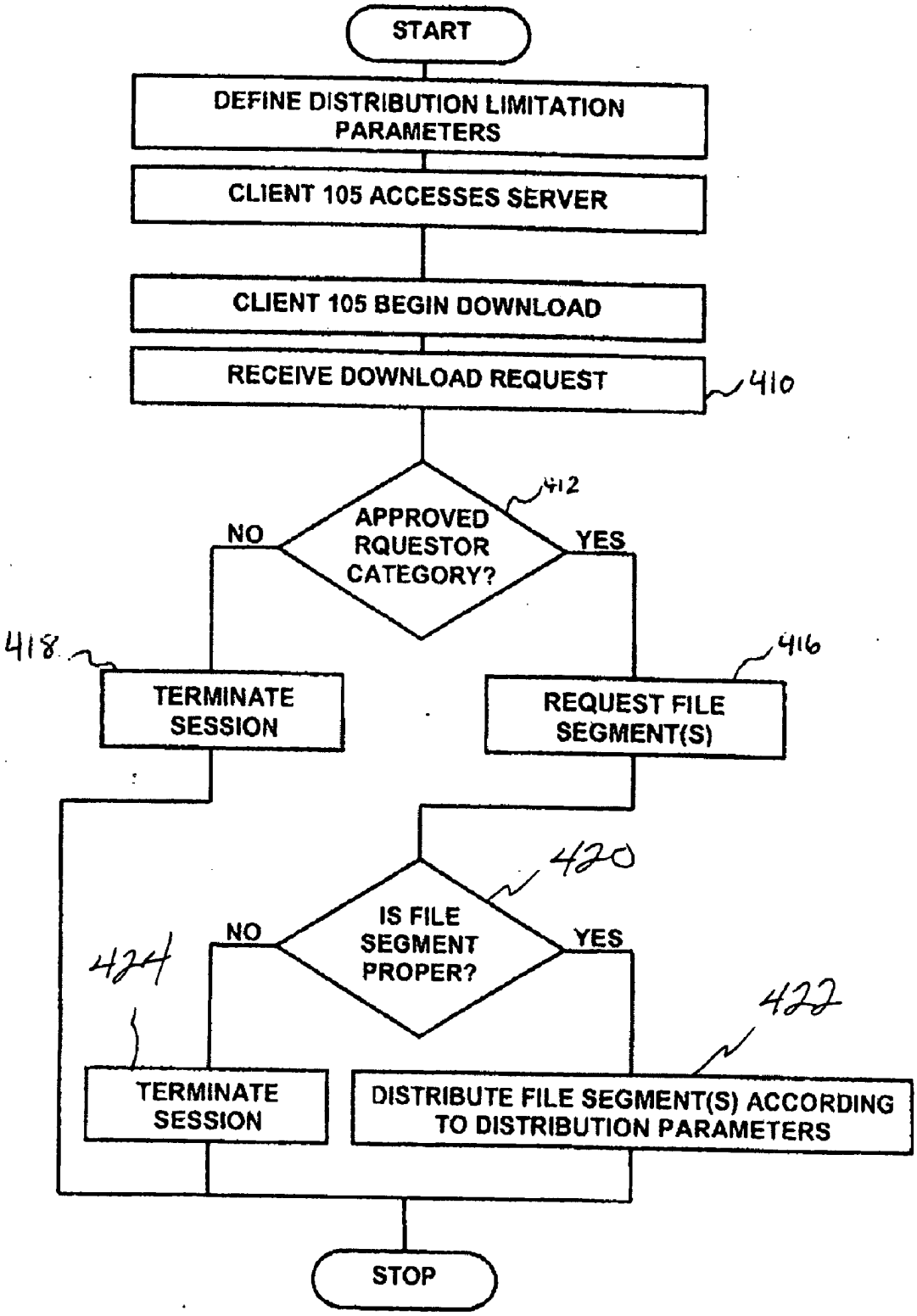


FIG. 3

# METHODS AND APPARATUS FOR TRANSFERRING DATA

## CROSS-REFERENCES TO RELATED APPLICATIONS

**[0001]** This application claims the benefit of U.S. Provisional Patent Application No. 61/018,031, filed Dec. 31, 2007.

## BACKGROUND

**[0002]** Increasingly, the Internet and other networks are used to transfer digital media in the form of video and music files. To access these files, a user may navigate to a website that provides links to music and video files that are stored on a web server. To view or listen to those files, a user may download them directly from the web server. Servers that provide content to a large number of users must, accordingly, have sufficient bandwidth to serve those files. For many organizations, the expense of acquiring sufficient bandwidth to provide a satisfactory user experience is prohibitive.

**[0003]** In an effort to minimize the expense and difficulty associated with the distribution of a large amount of content through a network, various peer-to-peer (p2p) protocols and associated networks have been developed, such as BitTorrent, Gnutella, Skype, etc. A p2p network distributes content through the network using the computing power and bandwidth available to the network's individual users to transfer files instead of relying entirely on the bandwidth of a single server or group of servers.

**[0004]** In p2p networks, as a peer is receiving content, the peer may also be transmitting content to other peers. The peer responds to requests at any time to provide content to other peers, regardless of the content, the requesting peer, or the resources of the peer. Resources dedicated to servicing requests of other peers may degrade performance. As a result, the transfer rate for a particular file may be substantially diminished when servicing requests from other peers. In addition, the user may misinterpret the loss of performance as a deficiency attributable to the content requested by the user or to the content source.

## SUMMARY OF THE INVENTION

**[0005]** Methods and apparatus for transferring data according to various aspects of the present invention may operate in conjunction with a computer system configured to connect to a p2p network. The computer may run a p2p communication program that receives a request for content via the p2p network. The computer determines whether to fulfill the request according to various criteria, such as whether the p2p communication program is currently accessing a second content from the p2p network and/or whether the first content is associated with the second content.

## BRIEF DESCRIPTION OF THE DRAWING FIGURES

**[0006]** Representative elements, operational features, applications and/or advantages of the present invention reside in the details of construction and operation as more depicted, described and claimed. Reference is made to the accompanying drawings, wherein like numerals typically refer to like

**[0007]** FIG. **1** is a block diagram of a system for transferring data according to various aspects of the present invention;

**[0008]** FIG. **2** is a flow diagram of a system for transferring data according to various aspects of the present invention; and

**[0009]** FIG. **3** is a flow diagram for processing content requests according to various aspects of the present invention.

**[0010]** Elements and steps in the figures are illustrated for simplicity and clarity and have not necessarily been rendered according to any particular sequence. For example, steps that may be performed concurrently or in a different order are illustrated in the figures to help to improve understanding of embodiments of the present invention.

**[0011]** Representative elements, operational features, applications and/or advantages of the present invention reside in the details of construction and operation as more fully hereafter described or otherwise identified. The description may refer to the accompanying drawings, images. figures, etc., wherein like numerals (if any) refer to like parts throughout. Elements. operational features. applications and/or advantages are illustrated by certain exemplary embodiments recited in the disclosure herein.

**[0012]** Elements in the figures, drawings, images, etc. are illustrated for simplicity and clarity and have not necessarily been drawn to scale. For example, the dimensions of some of the elements in the figures may be exaggerated relative to other elements to help improve understanding of various embodiments of the present invention. Furthermore, the terms 'first', 'second', and the like herein, if any, are used for distinguishing between similar elements and not necessarily for describing a sequential or chronological order. Moreover, the terms 'front', 'back', 'top', 'bottom', 'over', 'under', and the like in the disclosure and/or in the exemplary embodiments, if any, are generally employed for descriptive purposes and not necessarily for comprehensively describing exclusive relative position. Any of the preceding terms so used may be interchanged under appropriate circumstances such that various embodiments of the invention, for example, are capable of operation in other configurations and/or orientations than those explicitly illustrated or otherwise described.

## DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

**[0013]** The present descriptions relate to exemplary embodiments of the invention and the inventor's conception of the best mode and are not intended to limit the scope, applicability or configuration of the invention in any way. Instead, the following description is intended to provide convenient illustrations for implementing various embodiments of the invention. Changes may be made in the function and/or arrangement of any of the elements described in the disclosed exemplary embodiments without departing from the spirit and scope of the invention.

**[0014]** Referring to FIG. **1**, a system for transferring data **100** according to various aspects of the present invention may function with multiple computers exchanging data. For example, the present exemplary system for transferring data **100** operates in conjunction with multiple clients **105** connected to each other and/or one or more remote servers **120** and/or other data sources **122** via a medium **124**. Data is transferred among the various clients **105**, servers **120**, and/or

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