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Allen

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[54] **METHOD AND SYSTEM FOR ENSURING ROYALTY PAYMENTS FOR DATA DELIVERED OVER A NETWORK**

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[51] **Int. Cl.**[7] **H04L 9/32**

[52] **U.S. Cl.** **705/52**; 705/77

[58] **Field of Search** 380/4; 705/51–54

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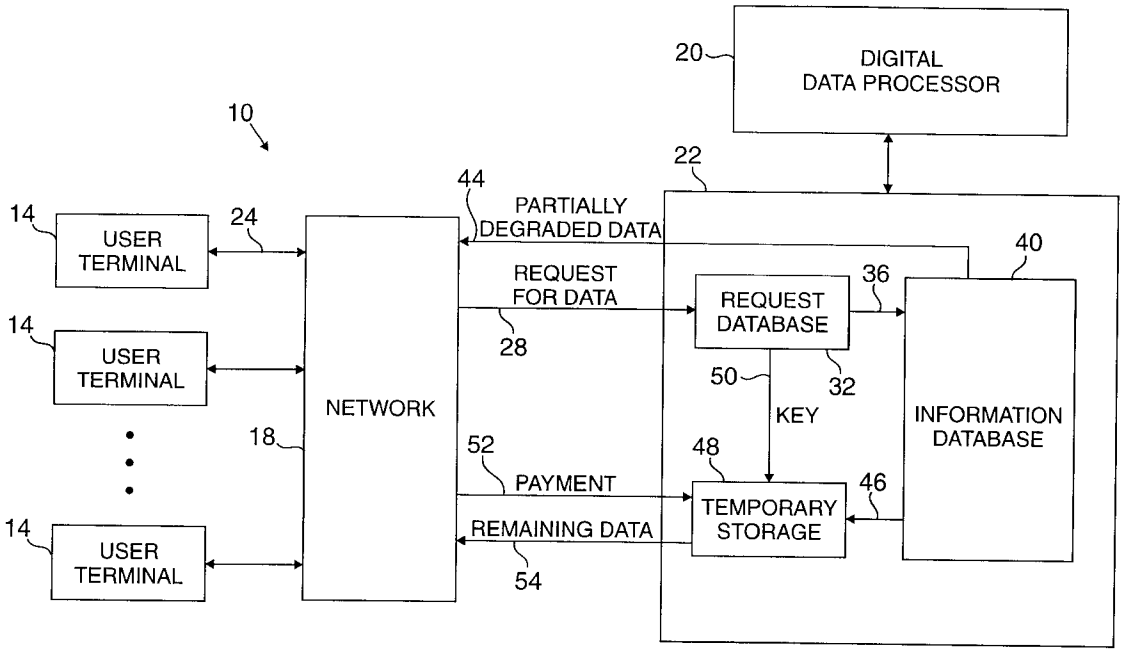
Primary Examiner—Gilberto Barrón, Jr.

[57] **ABSTRACT**

A method and system for delivering data over a communication network which ensures proper payment of royalties while preserving free access to data for purposes such as browsing or research. An exemplary method in accordance with the present invention includes the steps of providing a partially-degraded version of the data over the network, without payment of a royalty fee, to a customer at a user terminal connected to the network; and providing a higher quality version of the data to the customer over the network if the customer is entitled to receive the higher quality version. The determination as to whether the customer is so entitled may be made by, for example, determining if a royalty fee payment has been received. The partially-degraded version of the data is substantially recognizable when displayed, printed, played, run or otherwise utilized by the customer at the user terminal, and may be generated by, for example, deleting or encrypting a portion of the undegraded data. The higher quality version may be provided by transmitting the complete higher quality version, or transmitting remaining data such as the deleted portion or a decryption key, to the user terminal.

27 Claims, 2 Drawing Sheets



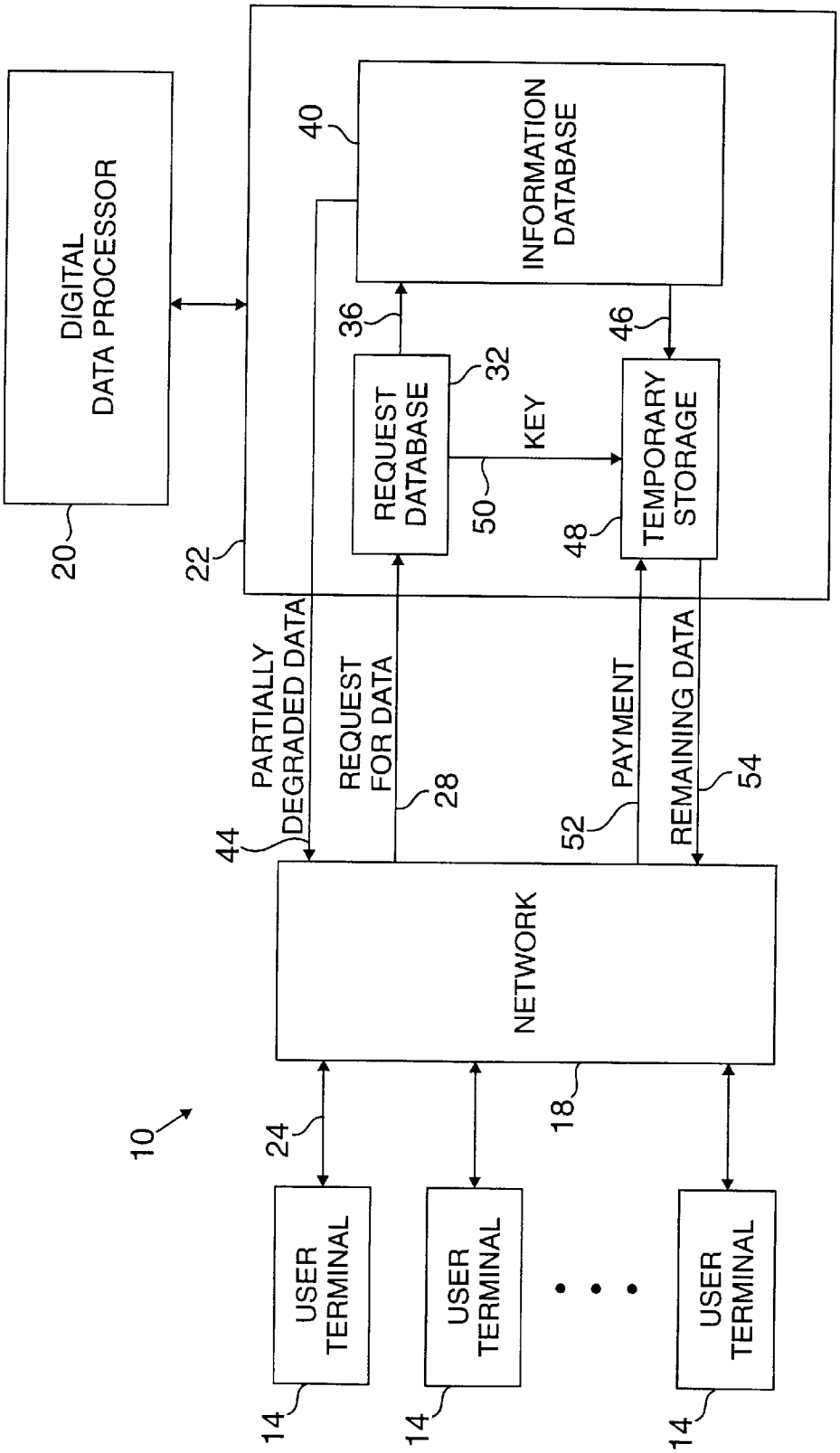


FIG. 1

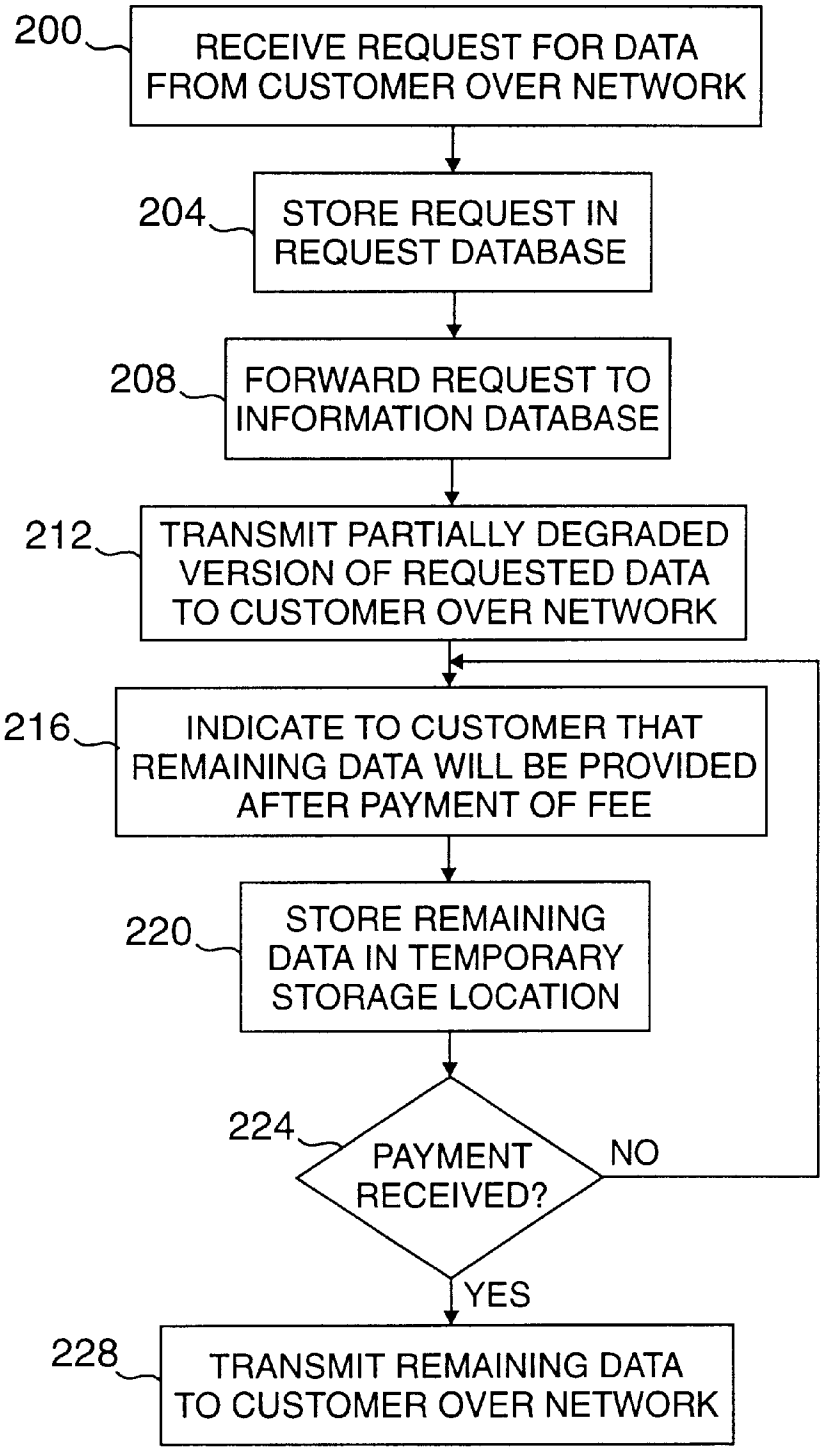


FIG. 2

METHOD AND SYSTEM FOR ENSURING ROYALTY PAYMENTS FOR DATA DELIVERED OVER A NETWORK

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to improvements in communication systems and services. More particularly, the present invention relates to techniques for ensuring payment of royalties for copyrighted data delivered over a communication network.

2. Description of Prior Art

The recent expansion of wide area computer communication networks, such as the Internet, as well as the planned development of the so-called information superhighway, promise ready availability of an infinite array of data to users around the world. The data available over the network may include, for example, text, audio, video and other animation, still images and virtual reality sensations. A serious problem in implementing the information superhighway or other wide area communication network is the fundamental conflict between ready access to network data, and the need for the data creators to receive appropriate royalties. Failure to provide adequate royalties for creators may limit the amount and quality of available data. On the other hand, a strict requirement of royalty payments prior to data delivery would place an excessive burden on users, particularly those involved in education and research, and limit the effectiveness of the network as a widely-used communication medium.

A prior art technique presently used to ensure royalty payments for data transferred by computer network involves encrypting the data prior to transfer. After a user has paid an appropriate royalty fee, the user receives a decryption key which allows the encrypted data to be converted to a usable form. Unfortunately, encryption often converts the data to a completely unrecognizable form, such that users unfamiliar with the data content will be unable to determine its usefulness without first paying the royalty. Users are placed at a significant disadvantage in conducting research, which often involves examining large amounts of unknown data. For example, a high school or college student using the network to research paintings from a particular period or artist will likely want to browse through a large number of still images, on the order of 100 or more. If a database provider charged the student to view each and every image, the cost would unduly limit the scope of the research.

Similar problems are encountered by users interested in copyrighted music or lyrics, newspaper and magazine articles, published court decisions, U.S. and foreign patents, articles in scientific and technical journals, and a wide variety of other data. Although these types of data are currently available in a number of different databases which users may access over a network, prior art techniques generally do not allow users to access any useful portion of the data without first agreeing to pay for the delivered data. For example, U.S. Pat. No. 5,050,213 discloses a prior art system which allows users of an encrypted CD-ROM database to browse through the database on a browsing workstation containing proprietary computer and display components. However, the user typically must perform the browsing at the proprietary workstation, rather than over a network using a standard personal computer, and generally must pay a fee to gain access to data even for browsing. In addition, the user browses a full quality version of the data even though a lesser quality version may be sufficient to determine suitability of the data. This system is thus inefficient and not conducive to widespread data access over a network.

The prior art data delivery systems also fail to recognize that a liberal access policy can be in the best interests of information creators. If people are not exposed to high quality information, people will not come to depend on it and seek it out. Providing widespread access to information can thus be considered a form of advertising or investment for creators. As noted above, however, the access should be provided in a way which enables the creators to recover the royalties they deserve. Prior art network data delivery techniques have failed to resolve this conflict satisfactorily and are generally incompatible with the liberal and widespread access goals of the much-publicized information superhighway.

As is apparent from the above, a need exists for a method and system which ensure payment of royalties for high quality data delivered over a communication network, without unduly restricting widespread access to the data for browsing, education and other purposes.

SUMMARY OF THE INVENTION

The present invention provides a method and system for ensuring payment of royalties for data delivered over a communication network. The present invention resolves the conflict between free access and payment of royalties by providing liberal access to partially-degraded data suitable for browsing or research, and charging users a royalty to receive a higher quality version of the data suitable for purposes such as entertainment.

In accordance with one aspect of the present invention, a method of delivering data to a user terminal over a communication network is provided. The exemplary method includes the steps of providing a partially-degraded version of the data over the network, without payment of a royalty fee, to a customer at the user terminal; and providing a higher quality version of the data to the customer over the network if the customer is entitled to receive the higher quality version. The determination as to whether the customer is so entitled may be made by, for example, determining if a royalty fee payment has been received. The partially-degraded version of the data is substantially recognizable when displayed, printed, played, run or otherwise utilized at the user terminal, and may be generated by, for example, deleting or encrypting a portion of the undegraded data. The higher quality version may be provided by transmitting the complete higher quality version, or transmitting remaining data such as the deleted portion or a decryption key, to the user terminal.

In accordance with another aspect of the present invention, a data delivery method is provided which includes the steps of receiving a request for the data from a customer at one of the user terminals; retrieving the requested data from the information database; partially degrading the data such that after the partial degradation the data remains substantially recognizable when utilized by the customer; transmitting the partially-degraded data to the customer over the communication network; determining whether the customer is entitled to receive a higher quality version of the data; and providing the higher quality version to the customer if the customer is entitled to receive it.

In accordance with another aspect of the present invention, a system for delivering data over a network is provided. The system includes a provider database containing the data; and a digital data processor connected to the

provider database, for processing a request for the data from a customer at the user terminal, such that a partially-degraded version of the data is provided to the customer over the network, without payment of a royalty fee, and a higher quality version of the data is provided to the customer over the network, for example, upon payment of the royalty fee. Again, the partially-degraded version, when displayed or otherwise utilized at the user terminal, is substantially recognizable to the customer and suitable for limited usage.

In accordance with a further aspect of the present invention, a customer may be provided with an option of selecting a version of the desired data at one of a number of different data quality levels, and the amount of royalty payment required to receive a given version may vary depending on the quality level selected. In this manner, users need not pay for a higher quality version of the data than necessary for a given application.

The present invention ensures payment of royalties for data received over a communication network in part because delivered data generally remains partially-degraded until an appropriate royalty is paid. At the same time, network users are provided with substantially free access to a wide array of data which is readily recognizable and usable for limited purposes such as research. The users can therefore browse through a variety of available data to decide which data to purchase in a higher quality or undegraded form.

Additional features and advantages of the present invention will become readily apparent by reference to the following detailed description and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a block diagram of an exemplary system for delivering data over a network in accordance with the present invention.

FIG. **2** is a flow diagram illustrating an exemplary method of delivering data over a network in accordance with the present invention.

DETAILED DESCRIPTION

FIG. **1** is a block diagram of an exemplary system **10** for delivering data in accordance with the present invention. The system **10** includes a number of user terminals **14**, a network **18**, a digital data processor **20** and a provider database **22**. The user terminals **14** may be, for example, personal computer terminals, and are connected in a manner well-known in the art to communicate over network **18** with other user terminals and the provider database **22**. The network **18** may be a local-area network (LAN), a wide-area-network (WAN), a local or long-distance telephone switching network, or any of a number of other communication networks. The line **24** provides a bidirectional communication link between user terminal **14** and network **18** and may represent, for example, a telephone line or a high rate data line.

The provider database **22** may be, for example, one of many databases which maintain a link with network **18** over telephone lines, high rate data lines, and the like. Although the provider database **22** is shown in FIG. **1** as including several distinct lines interconnecting the database **22** with network **18**, those skilled in the art will recognize that all communications between network **18** and provider database **22** may take place over a single line, such as a single telephone line or high rate data line. The digital data processor **20** directs the operations of provider database **22**, and may be, for example, a microcomputer, a mainframe computer, or a group of networked computers. The data processor **20** and provider database **22** are generally maintained by a provider which charges users to deliver copyrighted data. A wide variety of data is currently available from such providers, including text, video and still images. Additional types of data are projected to become available with the continued development of communication networks such as the Internet. The provider database **22** may be accessed from user terminal **14** in a conventional manner, such as by dialing a number using a modem in the user terminal. A connection is then established between a particular user terminal **14** and provider database **22** through the network **18**. For illustrative purposes, FIG. **1** shows direct connections between provider database **22** and network **44**, although it should be understood that the connection lines generally pass through and are controlled by digital data processor **20**.

A customer makes a request from his or her user terminal **14** to view data which is stored in provider database **22**. The request for data is transmitted through the network **18** over line **28** and directed by digital data processor **20** to a request database **32**. The request database **32** stores the customer request in order to track the interaction between the customer and the database **22**. The request database also provides the request to an information database **40** which contains the desired data. The information database **40** provides a partially-degraded version of the desired data over line **44** to the network **18** and thereby to the customer at user terminal **14**. A partially-degraded version is defined herein as a version which, when displayed, printed, played, run or otherwise utilized at the user terminal, is substantially recognizable to the customer as a particular type of data and is therefore suitable for use in browsing and/or research or for other purposes which do not require full resolution undegraded data. In one embodiment of the invention, the partially-degraded version, also referred to herein as partially-degraded data, is a subset of the complete undegraded data. The customer may use the partially-degraded version of the data to determine if the data is of sufficient importance or desirability to justify the payment of a royalty to obtain a higher quality or undegraded version.

The information database **40** may be directed by digital data processor **20** to provide, for example, a complete undegraded version of the requested data over a line **46** to a temporary storage **48**. The temporary storage may be a group of memory locations within database **22** which are set aside for temporary storage of data previously delivered to customers in a partially-degraded form. The temporary storage **48** facilitates the transfer of remaining data, or transfer of a higher quality or undegraded version of the data, to the customer upon payment of a fee.

In one embodiment of the present invention, the data is provided in its undegraded form from information database **40** to temporary storage **48**. The temporary storage **48** receives a payment or payment authorization over a line **52** indicating that the customer previously provided with the partially-degraded data has paid or promised to pay the required royalty and is entitled to receive the data in its undegraded form. The temporary storage then releases the remaining data over a line **54** onto the network **18** and thereby to the user terminal **14**. Because the partially-degraded version of the data has already been transferred to the user terminal, it is not necessary to download the complete set of requested data to the user upon payment of the fee. The present invention thus provides efficient transfer of data from provider database **22** to the user terminal **14**.

In an alternative embodiment of the present invention, the partially-degraded version of the data provided to the user

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