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(54) **ONSITE BACKUP FOR INTERNET-BASED DATA PROCESSING**

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**Related U.S. Application Data**

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(60) Provisional application No. 60/143,093, filed on Jul. 9, 1999.

(51) **Int. Cl.**<sup>7</sup> ..... **G06F 12/00; G06F 17/60**

(52) **U.S. Cl.** ..... **707/204; 707/10; 705/51**

(58) **Field of Search** ..... 707/204, 10, 1, 707/100-101, 200, 201; 709/203, 227, 201; 705/1, 51; 713/201, 213

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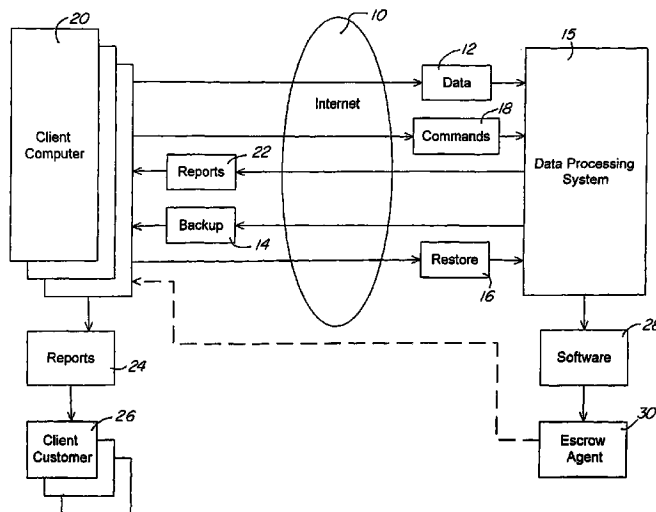
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(57) **ABSTRACT**

A system for onsite backup of internet-based data is provided. The system includes a central computer, a client computer, a communications link between the central computer and the Internet, and a communications link between the client computer and the Internet. The system also includes at least one database containing a plurality of data records accessible by the central computer, each data record containing a client identification number. Software executing on the central computer receives a data backup request, and software executing on the central computer transmits the data backup to the client computer.

**15 Claims, 3 Drawing Sheets**



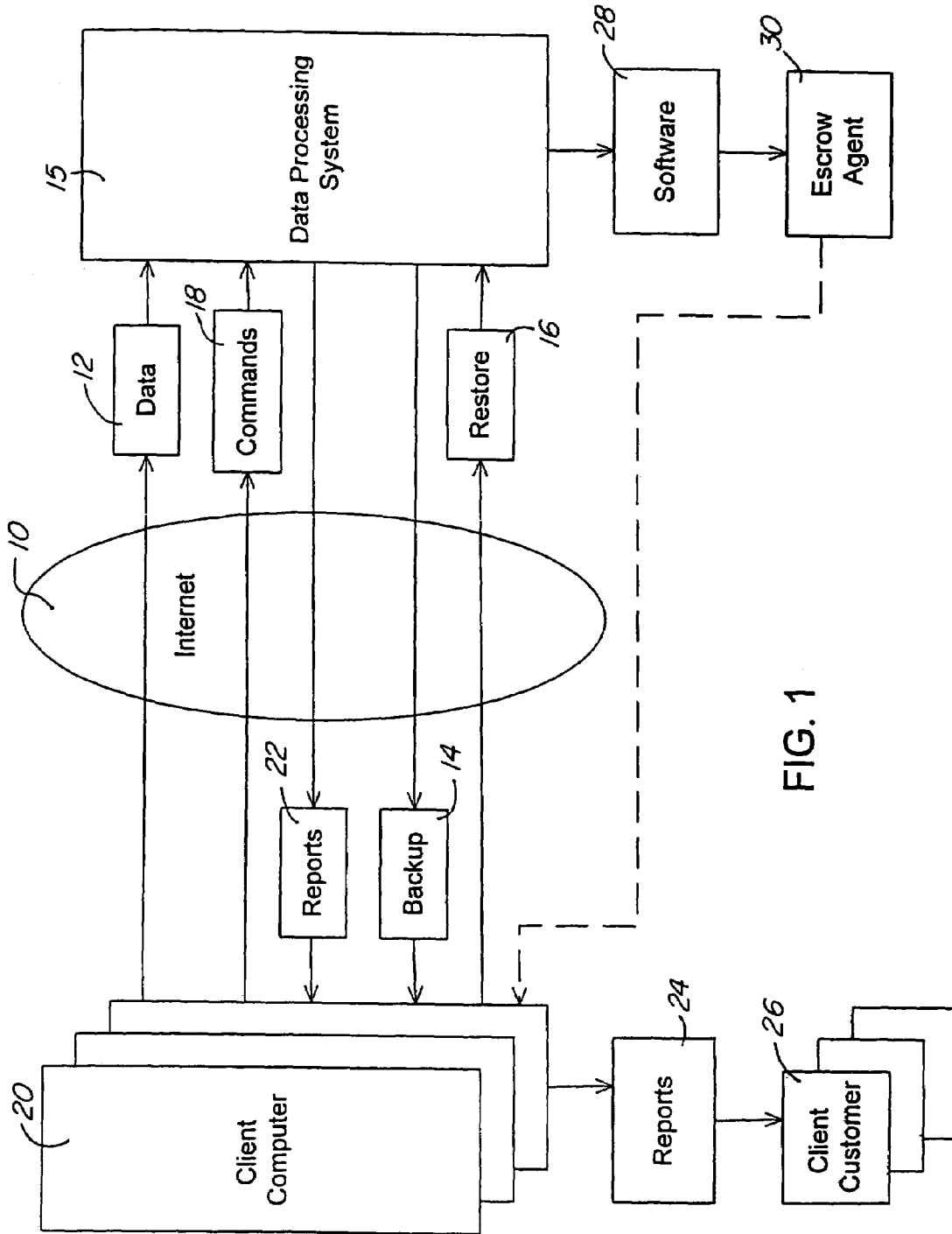
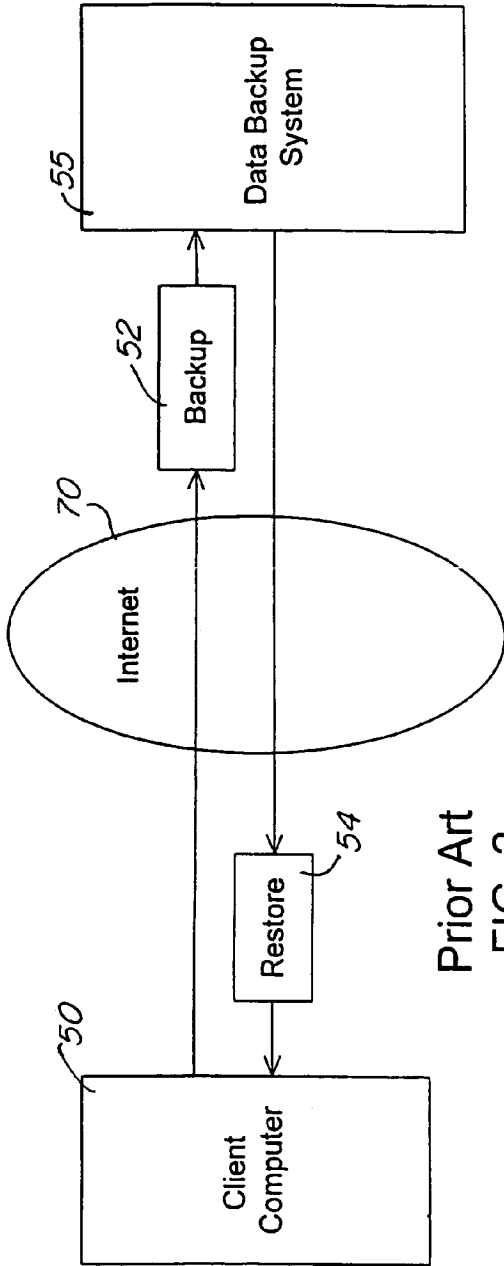
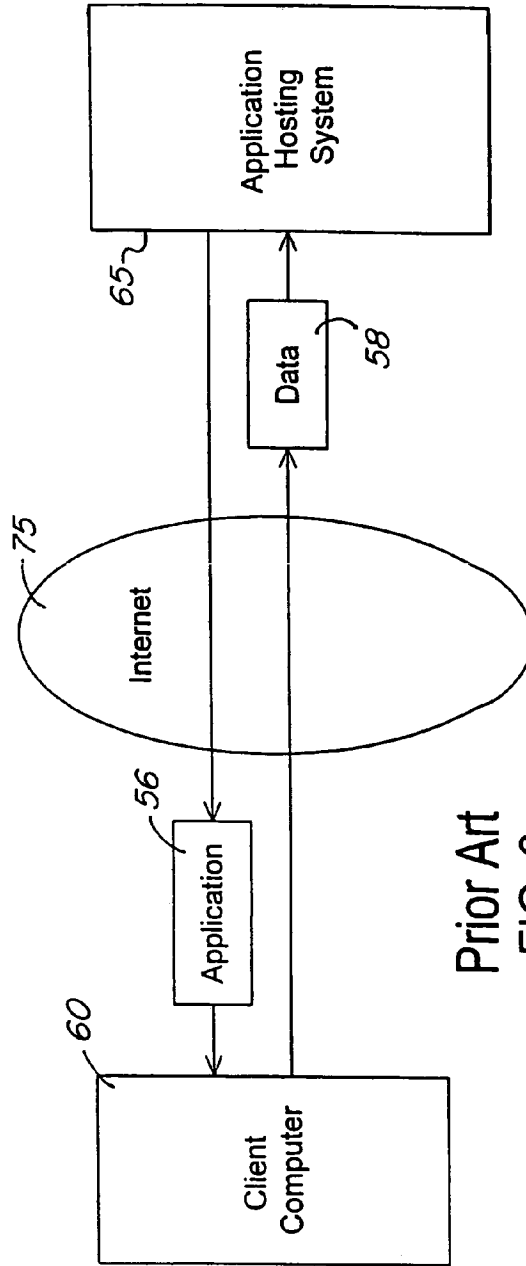


FIG. 1



Prior Art  
FIG. 2



Prior Art  
FIG. 3

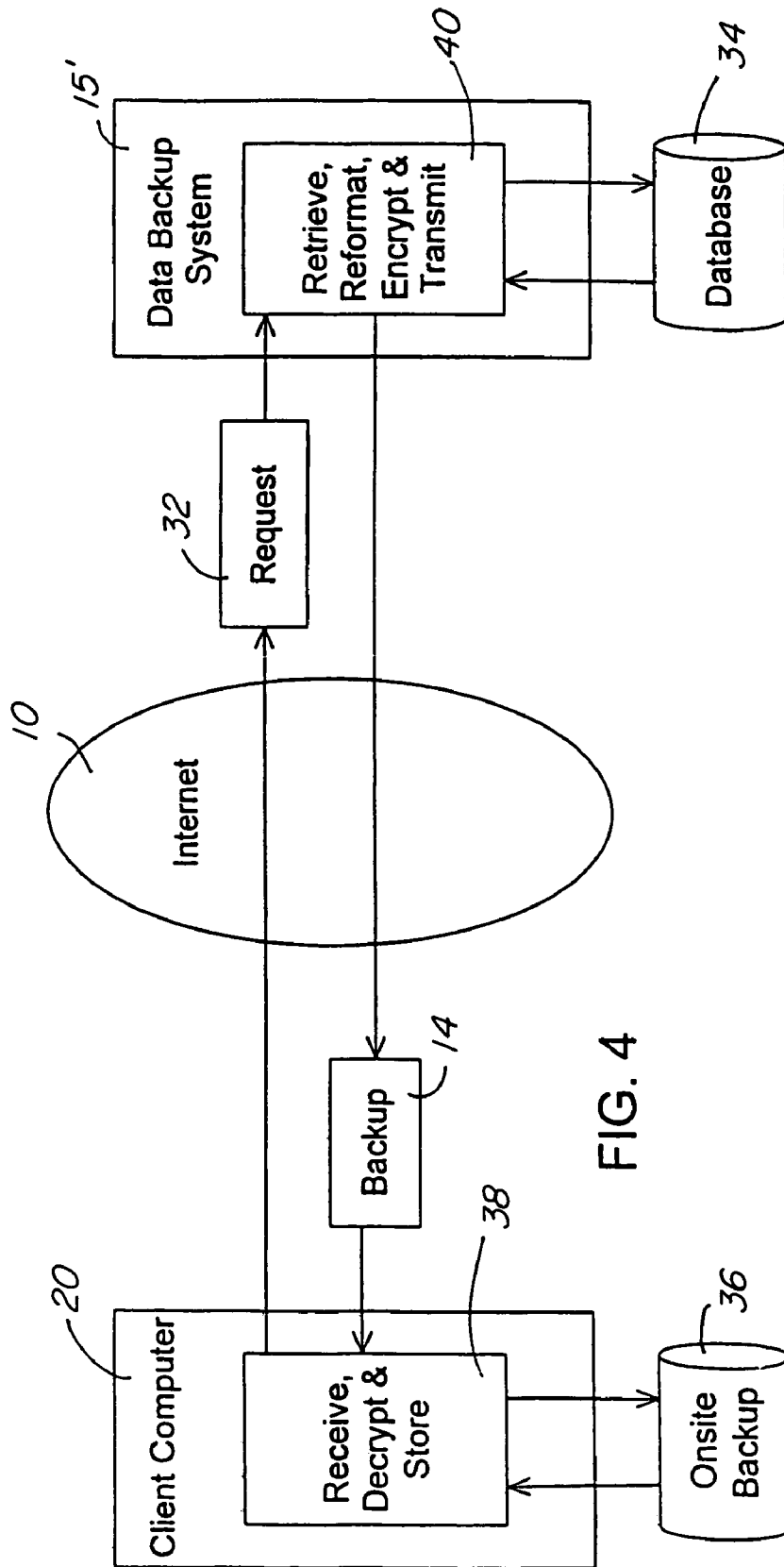


FIG. 4

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## ONSITE BACKUP FOR INTERNET-BASED DATA PROCESSING

### CLAIM OF PRIORITY

This application is a continuation in part of U.S. patent application Ser. No. 09/610,709 filed Jul. 7, 2000, now abandoned, which claims the benefit of the filing date of U.S. Provisional Patent Application Ser. No. 60/143,093 filed Jul. 9, 1999.

### FIELD OF THE INVENTION

The invention relates to outsourced, Internet-based data processing and more particularly to safeguarding customer/client data when a business outsources data processing to third party Internet-based systems.

### BACKGROUND OF THE INVENTION

In an effort to improve customer service, companies are increasingly moving their data processing systems onto the Internet and providing web interfaces for their customers to see and manipulate their own data. Examples include my prior U.S. Pat. No. 5,895,468 and related U.S. application Ser. No. 09/237,521. Many other Internet based order entry and payment billing systems also exist.

Also companies are or soon will be outsourcing data processing for their own customers to third parties who, for example, develop and host the companies' web sites. This cuts costs and relieves companies of having to hire software expertise to service their customers and also relieves them of having to maintain hardware for scalability and to prevent service outages which erode customer confidence in the company. Further, hardware can be located in one place to minimize maintenance and bandwidth costs, while software and data entry can be located in one or multiple places where it is least expensive and can offer 24/7 coverage.

One difficulty companies face when considering whether to outsource data-processing to third party, Internet-based systems is the safeguarding of their and their clients' data. This problem is exacerbated when the company has a duty or professional responsibility to safeguard the data, such as a publicly traded company, law firm or medical practice. Another difficulty companies face in considering to outsource is continuity of service if, for example, the third party were to go out of business.

Many companies who currently perform their own data processing and are sensitized to the need to safeguard their and their customers' data have recently connected their LANs to the Internet, and are beginning to use third-party, Internet-based backup services (see FIG. 2). This provides a prudent off-site backup but does not offer the benefits of outsourcing the data processing to the Internet. Internet data backup companies include, inter alia, and Storage Tek.

Internet-based application service providers, so-called "ASPs" are known and provide the advantage that hardware and software maintenance and upgrades are centrally managed by a third and not by each user or each LAN (see FIG. 3). User data may even be stored on the internet site, however, the data is still entered and manipulated by each user on his LAN/computer and the data manipulation and reporting is handled by each user on his LAN/computer.

What is desired, therefore, is an Internet-based data processing system which safeguards data providing an incentive for companies to outsource their data processing.

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Safeguarding applications, and especially any user customized settings, would also be desirable.

### SUMMARY OF THE INVENTION

It is an object of the invention to safeguard the integrity of client data in an Internet-based data processing system or business.

Another object of the invention is to provide third party Internet-based data processing in which clients have access to and control over their own data.

A further object of the invention is to provide an Internet-based data processing system in which clients can obtain a copy of their data for on-site backup.

Yet another object of the invention is to provide a system of the above character in which the backup is provided in a format other than that used by the third party data processing system.

Yet a further object of the invention is to provide a system of the above character in which the data is encrypted to protect its confidentiality.

Still another object of the invention is to safeguard the third-party data processing software for use by the client in the event the third party were to go out of business.

These and other objects and advantages will become more apparent from the following detailed description considered with reference to the accompanying drawings.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of an Internet-based data processing system providing backup on clients' sites.

FIG. 2 is a block diagram of prior art systems providing Internet backup for data processing on clients' sites.

FIG. 3 is a block diagram of prior art systems providing Internet hosting of application and storage of data.

FIG. 4 is a block diagram of the system of FIG. 1 illustrating additional format conversion and encryption features.

### DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 is a block diagram of an Internet-based data processing system providing backup on clients' sites. The client computer 20 and data processing system 15 are connected by an Internet communications link 10. The client computer 20 executes software (FIG. 4 No. 38), residing on the data processing system 15, for storing data on the data processing system. The client computer 20 executes software, residing on the data processing system 15, for displaying, updating, and deleting data 12 stored on the central data processing system 15. The data processing system 15 transmits 14 a copy of stored data to the client computer 20. The client computer 20 issues commands 18 for transmitting (restoring) data 16 back to the data processing system 15. The client computer 20 executes software (FIG. 4 No. 38), residing on the data processing system 15, requesting reports from the data processing system 15. The data processing system 15 transmits reports 22 to the client computer 20. The client computer can generate reports 24 and transmit said generated reports to a client customer 26.

FIG. 2 is a block diagram of prior art systems providing Internet backup for data processing on clients' sites. The client computer 50 and data backup system 55 are connected by an Internet communications link 70. Data displayed, manipulated, and deleted (not shown) by the client computer

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50 is stored on the client computer 50. The client computer 50 executes software for transmitting a copy of data 52 to the data backup system 55. The client computer executes software for retrieving data 54 stored on the data backup system 55. There is no onsite backup of data for the client computer 50 to retrieve.

FIG. 3 is a block diagram of prior art systems providing Internet hosting of application and storage of data. The client computer 60 and application hosting system 65 are connected by an Internet communications link 75. Data displayed, manipulated, and deleted (not shown) by the client computer 60 is stored on the application hosting system 65. There is no onsite backup of data for the client computer 60 to access.

FIG. 4 is a block diagram of the system of FIG. 1 illustrating additional format conversion and encryption features. This additional feature allows a client to back-up data on-site that is securely stored in a plurality of formats the client may require. The client computer 20 transmits a request 32 to the data backup system 15'. The data backup system 15' accesses data (stored on the data backup system 34), reformats the data, encrypts the data, and transmits the data 40, 14 to the client computer 20. The client computer 20 receives, decrypts, and stores 38 the data onsite 36.

It is to be understood that although specific embodiments of the invention have been described herein in detail, such description is for purposes of illustration only and modifications may be made thereto by those skilled in the art within the scope of the invention.

What is claimed is:

1. A system for onsite backup of internet-based data comprising:

- a central computer;
- a client computer;
- a communications link between said central computer and the Internet;
- a communications link between said client computer and the Internet;
- at least one database containing a plurality of data records accessible by said central computer, each data record containing a client identification number;
- software executing on said central computer for receiving a data backup request from said client computer;
- software executing on said central computer for transmitting said data backup to said client computer for onsite backup of internet-based data on said client computer.

2. The system of claim 1 further comprising of software executing on said client computer for storing said data backup in a location accessible to said client computer.

3. The system of claim 2 further comprising of software executing on said central computer for retrieving said data backup.

4. A system for onsite backup of internet-based data comprising:

- a central computer;
- a client computer;
- a communications link between said central computer and the Internet;
- a communications link between said client computer and the Internet;
- at least one database containing a plurality of data records accessible by said central computer, each data record containing a client identification number;
- software executing on said central computer for receiving commands from said client computer;
- software executing on said central computer for receiving data from said client computer;
- software executing on said central computer for storing said received data in said database;

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software executing on said central computer for generating a data backup request;

software executing on said central computer for transmitting said data backup request through the internet;

software executing on said central computer for receiving a reply to said data backup request;

software executing on said central computer for transmitting said data backup to said client computer for onsite backup of internet-based data on said client computer.

5. The system of claim 4 further comprising of software executing on said client computer for storing said data backup in a location accessible to said client computer.

6. The system of claim 4 further comprising of software executing on said central computer for retrieving said data backup.

7. A system for onsite backup of internet-based data comprising:

- a central computer;
- a client computer;
- a communications link between said central computer and the Internet;
- a communications link between said client computer and the Internet;
- at least one database containing a plurality of data records accessible by said central computer, each data record containing a client identification number;
- software executing on said central computer for receiving commands from said client computer, for receiving data from said client computer, and for storing said data in said database;
- software executing on said central computer for receiving a data backup request and for receiving a data format conversion request;
- software executing on said central computer for retrieving said data from said database and for converting said data to a format corresponding to said data format conversion request;
- software executing on said central computer for encrypting said data backup;
- software executing on said central computer for transmitting said data backup to said client computer for onsite backup of internet-based data on said client computer; and
- software executing on said client computer for decrypting said data backup.

8. The system of claim 7 further comprising of software executing on said client computer for storing said data backup in a location accessible to said client computer.

9. The system of claim 7 further comprising of software executing on said central computer for retrieving said data backup.

10. A system for local storage of data through the Internet comprising:

- a central computer connected to the Internet;
- a client computer connected to the Internet;
- at least one storage having a plurality of client data records, said at least one storage accessible by said central computer, each client data record having an identifier that relates the client data record to a client;
- a client data request, sent from said client computer via the Internet to said central computer; and
- client data corresponding to said client data request, sent from said central computer via the Internet to said client computer and saved on said client computer.

11. The system according to claim 10 wherein said client data is encrypted prior to being sent to said client computer to be saved thereon.

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**12.** The system according to claim **10** further comprising a data format conversion request, sent from the client computer to said central computer.

**13.** The system according to claim **12** wherein said central computer converts said client data to a format corresponding to said data format conversion request.

**14.** The system according to claim **13** wherein the conversion of said client data to a format corresponding to said

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data format conversion request occurs prior to said client data being sent from the client computer to said central computer.

**15.** The system according to claim **12** wherein said client data is encrypted prior to being sent to said client computer to be saved thereon.

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