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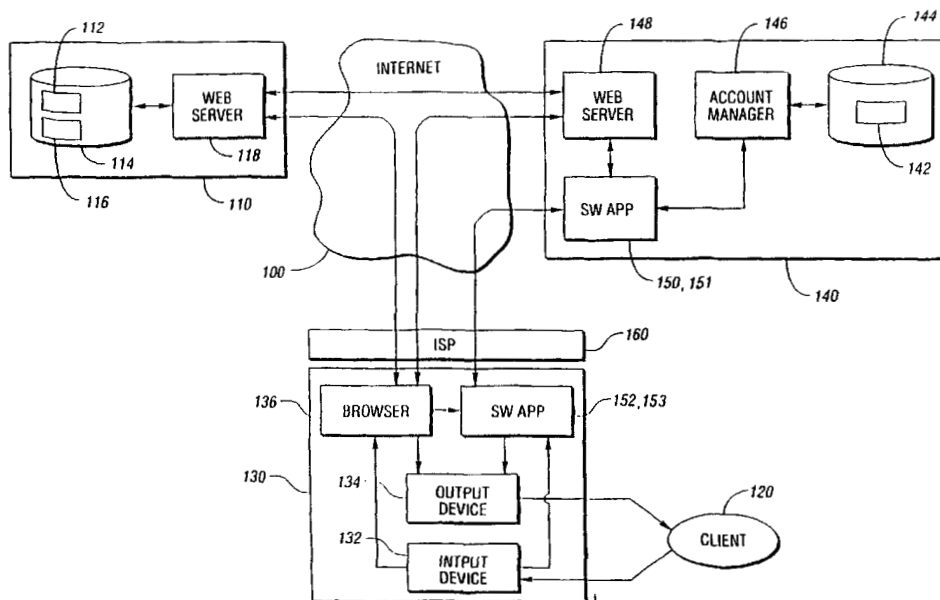
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(54) Title: METHOD FOR NETWORK-BASED STORAGE SITE SERVICES



(57) Abstract: Selected files are downloaded across a network from a remote site into a client's storage space account established within a storage site. Selection of the files is provided by a client operating at a user site connected to the network. A data request identifying the selected files to be downloaded, and containing an identifier is generated at the user site and sent to the storage site. The storage site authenticates the identifier, and if successful, generates and sends a download request to the remote site to download the selected files. The remote site responds to the download request by downloading the selected files to the storage site where they are stored in the client's storage space account.



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## METHOD FOR NETWORK-BASED STORAGE SITE SERVICES

### TECHNICAL FIELD

The present invention relates to the field of network-based storage spaces having client accounts, and methods for downloading client-selected files from  
5 remote sites into the client accounts.

### BACKGROUND ART

Internet-based storage space sites provide clients with storage space accounts typically ranging from ten megabytes minimum to hundreds of gigabytes. These storage space accounts offer several conveniences for the clients. For  
10 example, clients may expand the data storage capacities of their individual computers and network file servers without investing in additional hardware. As the clients storage capacity needs grow, additional storage space can usually be leased as necessary to meet the growing needs. In another example, responsibility for  
15 maintenance and backup tasks for the storage space accounts may be handled by the storage site managers. This frees the client from the time, manpower and equipment required to perform these tasks. In yet another example, some storage space vendors provide software for use on the client's computer that makes the on-line storage space account appear as another hard drive attached to the client's computer. This results in a storage space account that is simple to understand and use.

20 Once the client has uploaded files to their storage space account, those files are available to the client from anywhere on the Internet. This is an extremely useful capability for clients who require access to these files while on travel away from their home location. Traditionally, files required during travel are either loaded into the hard drive of a laptop computer or loaded into removable media, such as a  
25 floppy disk, before departing from the home location. Whether the client is a student going to a local library to work on a report, or a businessman traveling cross-country, all of the required files have to be available and carried by the client. Using

Internet-based storage space, the client can travel without the files and then download them once they reach their destination.

5 Clients may also use their storage space accounts to store files that they obtain from other sources, including downloads from other web sites on the Internet. To store a file from a remote web site, most clients must perform a two-step process. First, the client must download the desired file from the remote web site to his own computer. Second, the desired file is then uploaded from the client's computer to the storage space account. This approach requires the desired files to be transferred across the client's Internet connection twice (once during the download and once during the subsequent upload). It also requires the client's computer to have sufficient local storage capacity to buffer the desired file as it is being downloaded.

15 The download-buffer-upload process can be a problem for many portable devices such as laptop computers, personal electronic assistants, palmtop devices, enhanced cellular phone and other similar devices that can be connected to the Internet. Some of these portable devices, such as enhanced cellular phones, lack sufficient memory to buffer large files during the download portion of the process. New technology such as micro-drives make it possible to increase the memory capacity, but such solutions tend not to be economically viable. More memory translates into an increased cost to own, and an increased power drain on the batteries of the portable devices. Furthermore, those portable devices that have sufficient buffering capacity often have limited bandwidth interfaces to the Internet. Downloading and then uploading large files can take a significant amount of time.

25 Several Internet-based storage space vendors offer services that allow the client to bypass downloading and buffering the files in the client's computer. These services allow the remote web site to download a client-selected file directly into the client's storage space account. Speed of the direct download is limited not by the client's Internet connection, but by the remote web site's ability to transmit the files. The maximum size of the downloaded file is limited by the free space

available in the client's account instead of the free space available on the client's computer.

5 There are, however, two drawbacks to these services. First, the remote web site must incorporate a script into their web pages to support proprietary protocols necessary to implement the direct download into the client's account. If the remote web site does not implement these scripts, then the direct download cannot be performed. Here, the client must resort to downloading the files to his own computer first and then uploading them into his account. Second, the client must provide the remote web site with key account information. The remote web site  
10 needs to know the Internet address of the storage space site to which it is sending the file, and an account number into which the files are being stored. The client must also provide the remote web site with authentication information that grants the remote web site permission to download into the client's account. This authentication information is required by the storage space site to prevent  
15 unauthorized downloads. Clients concerned about the security of their accounts must decide if the remote web site can be trusted with the client's authentication information.

20 What is desired is a method for operating the storage space account that eliminates the two drawbacks of the present services. Clients should be able to download files into his account from any remote web site, not just those implementing the proprietary protocol scripts. Clients should also be able to safeguard their accounts by keeping authentication information away from the remote web sites. All that the remote web site requires is the Internet address where the files are to be sent, and which protocol to use in sending the files.

## 25 DISCLOSURE OF INVENTION

The present invention is a method and information storage media recording computer programs for downloading files across a network from a remote site into a client's account within a storage site. A client operating from a user site on the network selects the files to be downloaded. The client initiates the download

by sending a data request from the user site to the remote site. File locations for each file to be downloaded are identified in the data request. Upon reception of the data request, the storage site sends a download request to the remote site identifying the selected files. The remote site responds by sending the files to the storage site.

5 Downloaded files received at the storage site are then stored in the client's account. A notification may be sent by the storage site to the client once the downloaded files have been transferred to the storage site.

Identification of the files for downloading can be accomplished by least two methods. First, the client sends a request to the remote site to inquire about

10 available downloadable files. The remote site responds by sending a file list having the address locations of the available downloadable files. Selection of the files to be downloaded can be made from the file list. As the files are selected, their respective file locations are copied into the data request. In the second method, the client enters the file locations manually at the user site using a keyboard or other input device.

15 Security for the client's account may be provided by authenticating the data requests at the storage site. This may be accomplished by sending an identifier, for example a user identification and password, contemporaneously with each data request. If the identifier is authentic, then the data request is accepted. If the identifier fails authentication, then the data request is rejected. In an alternative

20 embodiment, authentication may take place once when the client performs a login to the account. Here, the identifier is sent only once when the client logs in. Until the client has successfully logged in, the storage site rejects all data requests destined for the client's account. An advantage of these methods is that authentication data is provided only to the storage site, and not to the remote sites.

25 Downloading of the selected files from the storage site to the client's user site may take place any time after the selected files have been downloaded to the storage site. First, the client sends a download request identifying the desired files to the storage site. The storage site responds by transferring the identified files to the user site.

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