SYSTEMS AND METHODS FOR RESELLING ELECTRONIC MERCHANDISE

Cross Reference to Related Information

This application claims the benefit of U.S. provisional patent application No. 60/165,873, filed November 16, 1999, entitled SYSTEMS AND METHODS FOR RESELLING ELECTRONIC MERCHANDISE by Stuart A. Fraser, Philip M. Ginsberg, Glenn D. Kirwin, and Howard W. Luthick, which is hereby incorporated by reference herein in its entirety.

Background of the Invention

The present invention relates to systems and methods for reselling electronic merchandise such as software, music, video, images, etc.

With the recent explosion in electronic communication, consumers have begun purchasing and receiving merchandise, such as software, music, video, images, etc., electronically without ever receiving a tangible copy of that merchandise. For example, a consumer that desires to purchase a new song by a musical artist may purchase and download an MP3 format copy of that song using a suitable Internet connection to a World Wide Web site, rather than purchasing and receiving a corresponding compact disc.

Unlike merchandise distributed on traditional media, such as records, tapes (e.g., 8 track, cassette, and video), magnetic disks, compact discs, digital video discs, etc., electronic merchandise is extremely vulnerable to damage such as being corrupted, being partially overwritten, being partially erased, etc. Because of this, a purchaser of electronic merchandise may lose valuable property because of a computer "glitch", virus, or crash.

Unlike merchandise distributed on traditional media, electronic merchandise is extremely easy to duplicate, and therefore difficult to verify as being the original and authorized copy of the merchandise, rather than a second, third, fourth, etc., generation and unauthorized copy of the merchandise. The difficulty in verifying authenticity is especially problematic when providing a resale mechanism for "used" electronic merchandise, or when purchasing "used" electronic merchandise, without running a risk of violating applicable copyright laws.

Accordingly, it is desirable to provide a service that verifies, repairs, and provides a resale mechanism for electronic merchandise.

Summary of the Invention

It is therefore an object of the present invention to provide systems and methods for reselling electronic merchandise.

This and other objects of the invention are accomplished in accordance with the principles of the present invention by providing a service that verifies the integrity of electronic merchandise, repairs the

electronic merchandise, and resells the electronic merchandise to consumers.

Initially, these systems and methods wait for a reseller to make a request to a service provider to resell electronic merchandise such as software, music, videos, images, etc. This request may be made via electronic mail, an on-line form, or any other suitable mechanism. Once the service provider receives a request to resell electronic merchandise, the service provider may ask the reseller to transfer the electronic merchandise to an Internet server and specify whether verification on the electronic merchandise should be performed and whether repair work should also be performed if the data is faulty. If a reseller does not specify whether to verify and repair electronic merchandise, the reseller's preferences from a previous transaction may be used. Once the data is received by the service provider, the data may be verified for authenticity and the content of the data may also be verified. If the content is damaged, repair work may be done using error correction methods.

Once verification and repair work are complete, the service provider may promote the error-free electronic merchandise in several ways. The service provider may advertise the merchandise on an advertising interface, auction the merchandise on a bidding interface, conduct a personal transaction to a person known to the reseller, or any other suitable form of promotion specified by a reseller. If no method of reselling is specified, the reseller's preferences from a previous transaction may be used.

When the service provider is notified of a buyer, the service provider may then notify the

reseller of the transaction. The error-free data may then be transferred from the service provider to the buyer. Encryption techniques may be used to transfer the electronic merchandise to the buyer and to prevent the reseller from viewing the electronic merchandise once the transaction between a reseller and buyer is complete.

The reselling process ensures that complete and accurate data is transferred from the reseller to the buyer and that the copyright laws are maintained.

Further features of the invention, its nature and various advantages, will be more apparent from the accompanying drawings and the following detailed description of the preferred embodiments.

Brief Description of the Drawings

FIG. 1 is a block diagram of one embodiment of hardware that may be used to implement the present invention.

FIG. 2 is a flow diagram of a process for transferring electronic merchandise from a reseller to a buyer in accordance with one embodiment of the present invention.

FIG. 3 is an illustrative display of an on-line form for a reseller to complete in accordance with one embodiment of the present invention.

FIG. 4 is a flow diagram of a process for creating a transaction between a reseller and a buyer in accordance with one embodiment of the present invention.

Detailed Description of the Preferred Embodiments

An illustrative system 10 for reselling electronic merchandise is shown in FIG. 1. As illustrated the service provided by the present invention may be implemented over an Internet server 14. Internet server 14 may be any suitable device for receiving, storing, and transferring data. Connected to Internet server 14 may be a service provider 16, which may be responsible for executing the transaction between a buyer 18 and a reseller 12 of electronic merchandise. Service provider 16 may be any suitable device for receiving, storing, and processing electronic merchandise. Reseller 12 and buyer 18 may be home personal computers (PCs)or any other suitable devices. There may be more than one reseller 12 and more than one buyer 18 connected to Internet server 14, although only one of each has been shown to avoid over-complicating the system.

Reseller 12, buyer 18, and service provider 16 may each be connected to Internet server 14 by separate communication links 5 or the same communication link 5. Communication link 5 may be any suitable, bi-directional communication path such as an Internet or network connection. Reseller 12, buyer 18, and service provider 16 may be connected by a local area network (LAN), a metropolitan area network (MAN), or a wide area network (WAN). Reseller 12, buyer 18, and service provider 16 may be part of separate networks (e.g., LAN, MAN, or WAN), but connected by an internetwork such as the Internet. Reseller 12, buyer 18, and service provider 16 may connect to Internet server 14 using a telephone modem, a cable modem, an Ethernet card, an Integrated Digital Services Network (ISDN) adapter, a wireless LAN adapter, a broadband

modem, or any other suitable connection device. Communication path 5 may be a copper twisted pair (e.g., CAT 5, 10BASE-T, etc.) a coaxial cable (e.g., 10BASE-2, 10BASE-5, etc.), a fiber optic cable (e.g. 10BASE-F, single mode fiber, multimode fiber, etc.), an antenna and base station, or any other suitable communication path. Depending on the medium through which data is sent, the data may be sent as analog data, digital data, electromagnetic waves, or a combination of the same. The device that bridges reseller 12, buyer 18 and service provider 16 to communication path 5 may be responsible for converting the data into a form suitable for transmission over the selected communication medium. Data that is sent over Internet server 14 using communication path 5 may employ various technologies for transmitting data such as a T1 carrier, an ISDN connection, a Digital Subscriber Line (DSL), or any other suitable technology for conveying digital data along copper wires (e.g., twisted pair, coaxial cable, etc.)

An embodiment of a process 20 for transferring electronic merchandise from reseller 12 to buyer 18 via service provider 16 over Internet server 14 is illustrated in FIG. 2. As shown, once process 20 has begun at step 22, service provider 16 receives a request from reseller 12 to resell electronic merchandise at step 24. Reseller 12 may request to resell merchandise by sending electronic mail to service provider 16, by submitting an on-line form on a web page of service provider 16, or by any other suitable method.

For example, in response to a request to resell, service provider 16 may have reseller 12 fill

out an on-line form 50 as shown in FIG. 3. Reseller 12 may be asked for information such as whether reseller 12 is a new or old customer 52, the reseller's biographical information 54, the type of electronic merchandise to resell 56, a brief description of the merchandise 58, the method of reselling 60, the minimum reselling price 62, whether the electronic merchandise should be verified or not 64, whether to repair the electronic merchandise if the data is invalid 66, the location of the electronic merchandise 68 on reseller 12, or any other relevant information that pertains to the sale of the electronic merchandise. "Type of Merchandise" 56 may have a pull-down bar in which reseller 12 may select "software", "music", "video", "images", or "other". If "other" is selected, reseller 12 may proceed to type in a new category of electronic merchandise not currently listed in the pull-down menu. "Brief Description" 58 may allow reseller 12 to enter in information about the electronic merchandise such as the name of the merchandise, a brief description of the features of the merchandise, and any other relevant information. This information may be displayed during promotion of the electronic merchandise to a potential buyer 18. "Method of Selling" 60 may also have a pull-down bar in which reseller 12 may select "advertisements", "auction", "personal transaction", or "other". If "other" is selected, reseller may type in a new method of selling not currently listed in the pull-down menu. "Perform Verification" 64 and "Repair" 66 may have a pull-down bar with an option to select either "Yes" or "No". "Attach File" 68 may allow reseller 12 to browse for the file location of the electronic merchandise so that the data may be

transferred electronically over Internet server 14 to service provider 16 and eventually to buyer 18.

If reseller 12 is new to the service, reseller 12 may be required to fill in new information in all the blanks on form 50. Upon submission of the form, the new information will then be stored in a database in service provider 16. However, if reseller 12 has previously used the service, reseller's information may already be stored in a database in service provider 16. Reseller 12 may only be required to fill in the blanks marked by an asterisk 70, which may include "New Customer" 52, "Name" 54, "Type of Merchandise" 56, "Brief Description" 58, "Method of Selling" 60, "Perform Verification" 64, "Attach File" 68, and any other relevant information. However, if reseller 12 wishes to change his previous settings, reseller 12 may enter in new information, which may replace the information previously stored in the database. Upon completion of the form, reseller 12 may press "Submit" button 72 to send the information to service provider 16. Or reseller 12 may press "Cancel" button 74 to cancel the current order.

There may be several ways to transfer the electronic merchandise data from reseller 12 to service provider 16. Reseller 12 may use electronic mail to send the file as an attachment. Service provider 16 may access particular electronic merchandise files on Internet server 14 that were placed by reseller 12 using File Transfer Protocol (FTP) server, Hypertext Transfer Protocol (HTTP), or any other suitable method. Service provider 16 may also remotely login to reseller 12 using a user identifier and password to access the files on reseller 12. During the transfer of files,

the data may be encrypted to prevent wire tapping and other methods of obtaining an unauthorized copy of the electronic merchandise. This may be implemented using Data Encryption Standard (DES) or any other suitable encryption technique.

Turning back to FIG. 2, once service provider 16 has received a request to sell along with an on-line form and a copy of the electronic merchandise at step 24, process 20 may verify the merchandise. Verification may involve verifying the copyright of the merchandise as well as verifying the content of the merchandise.

Copyright verification may take place at step 26. The different forms of verifying the authenticity of copyrights may include digital watermarking, digital signatures, the International Standard Recording Code (ISRC), or any other method of copyright verification. Digital watermarks may include an identifying code that conveys information that may identify the originator of the merchandise or may identify the recipient of the merchandise. A watermark key or password may be required to extract such watermarks. In addition, watermarks may contain instructions that permit or limit the use of copying, which would be detected by recording devices. Digital fingerprinting is a type of watermark that uses a serial number to identify the owner of the merchandise as well as the recipient. A digital signature may be used in public key cryptosystems (PKCS). The original owner of merchandise uses a private key to generate a unique signature that verifies the authenticity of the merchandise. ISRC is a digitally encrypted code that

conveys copyright information relevant to the electronic merchandise.

With unique identifying codes, there may be a universal database that maintains a record of all current and prior owners of all electronic merchandise. When service provider 16 receives the merchandise, service provider 16 may extract the code from the watermark, fingerprint, or digital signature and look up the code on the universal database. If the owner of the merchandise listed on the database is not reseller 12, then service provider 16 may determine that reseller 12 does not have a valid copy of the merchandise and may not permit a transaction to occur. However, if the information indicates that reseller 12 has an authentic copy of the merchandise, a transaction may be permitted occur and the universal database may update its records to reflect buyer 18 as owning the copyright title to the particular merchandise.

At step 28, the validity of the copyright verification may be checked. If the merchandise is authentic, process 20 may then go to step 30. However, if the merchandise is a second, third, fourth, etc. generation copy of the merchandise or if reseller 12 still has possession of a copy of the merchandise that was previously sold, process 20 may go to step 42 and no further transaction may occur.

Process 20 may next inquire whether to perform a verification function on the merchandise at step 30. This determination may be based on a specific inquiry made to reseller 12 in response to receiving the request, or based upon information previously provided by reseller 12 to service provider 16. If reseller 12 has added new information or made changes

to the on-line form, service provider 16 may update its database to add the preferences of a new customer or to reflect the new preferences of an existing customer.

If the merchandise is to be verified, process 20 may verify the electronic merchandise at step 32. This function may be performed by service provider 16 using any suitable method known in the art, for example, by comparing the merchandise to known-good merchandise, performing a checksum algorithm, using the cyclic redundancy check (CRC), or any other suitable error-detection method. In comparing the received merchandise with known-good merchandise, the data stream of both may be compared bit by bit. Data errors occurring prior to transmission and during transmission may be detected. Once an incorrect bit has been detected, an error flag may be set and process 20 may move to step 34. The data may also be compared using a checksum algorithm to compare the total number of bits or using the CRC to check for a remainder. If the number of bits do not agree or there is a remainder, an error flag may be set and process 20 may move to step 34. However, checksum and CRC algorithms may not always detect errors, and thus alternate and/or additional methods of verifying the content of electronic merchandise may be implemented.

Once the merchandise has been verified, process 20 may inquire whether the merchandise is intact at step 34. If the merchandise is not intact, as may be indicated by a indicator such as a flag generated in step 32, process 20 may determine whether to repair the merchandise at step 36. Similar to determining whether to perform verification or not, this determination may be based on information

currently requested or previously received from reseller 12. If a repair is to be made, then the repair may be performed at step 38.

Repairing may be done using any suitable method known in the art, for example, by replacing the faulty portion of the merchandise from a known-good copy, by reconstructing the faulty portion, or by any other suitable error-correction technique. Using the known-good copy, the data stream bits for the entire merchandise may be compared bit by bit using logic operations. Upon finding an incorrect bit, that bit may be inverted (e.g. a "1" bit is inverted to a "0" bit, and a "0" bit is inverted to a "1" bit) and the process continues until all bits have been compared. Another similar method of correcting the data is by comparing packets of data instead of comparing one bit at a time. If the packets do not match, the corresponding packet of bits from the known-good copy replaces the faulty packet of the reseller's data. Data errors occurring prior to transmission and during transmission may be corrected.

Lastly, at step 40, process 20 may resell the merchandise to buyer 18. FIG. 4 shows a process 100 for creating a transaction between reseller 12 and buyer 18. As shown, once process 100 has begun at step 102, reseller 12 may select the sale to be performed in any method known in the art, for example, by displaying advertisements on various web sites, by hosting an auction, through a personal transaction, or any other suitable method. If another method is desired, the seller may proceed to type in a new method of selling not currently listed in the menu.

Process 100 may retrieve information on the selected selling method at step 106 and may inquire which selling method to implement at step 108. If the selected form of selling is advertising, process 100 may proceed to step 110 to post an advertisement indicating the name of the electronic merchandise, a brief description of the merchandise, the asking price, contact information, and any other relevant information. The advertisement may be posted on a web page on the service provider's site, on a general electronic merchandise postings web site, on a banner or pop-up window, or any other suitable advertising medium. Once potential buyer 18 has contacted service provider 16 about the electronic merchandise, process 100 moves to step 112 where service provider 16 notifies reseller 12 of interested buyer 18. Upon acceptance of the sale, the electronic merchandise may then be transferred from service provider 16 to buyer 18 at step 120 and the transaction process completed at step 122.

If the selected form of selling is through an auction, process 100 may proceed to step 114 to post on a bidding site the merchandise name, a brief description of the merchandise, a minimum bid, contact information, and any other relevant information. A bidding site may be a web page on the service provider's site, on a general auction web site, or any other suitable bidding medium. At step 116, the merchandise may be posted for a certain time period, after which time the highest bid will have the opportunity to purchase the electronic merchandise. Upon receipt of the highest bidder that the bid won, service provider 16 may notify the highest bidder and

process 100 may move to step 118 where service provider 16 notifies reseller 12 of interested buyer 18. Upon acceptance of the sale, the electronic merchandise may be transferred from service provider 16 to buyer 18 at step 120 and the transaction process completed at step 122.

If the selected form of selling is through a personal transaction, process 100 may proceed directly to step 120, transfer the electronic merchandise from service provider 16 to buyer 18 at step 120, and complete process 100 at step 122.

After service provider 16 transfers the merchandise to buyer 18, reseller 12 has lost all rights to the electronic merchandise. In order to prevent reseller 12 from violating copyright laws after delivering merchandise to buyer 18, encryption techniques may be used at step 120 to insure that once the electronic merchandise is transferred from reseller 12 to buyer 18, reseller 12 no longer has access to the electronic merchandise. There may be several options for service provider 16 to implement this copyright protection. Encryption software may be utilized to encrypt reseller's electronic merchandise so that reseller 12 is unable to view or hear the merchandise after reselling it. This encryption may be in the form of inserting extra data or noise to prevent a clear image or sound, placing a password block on the data, scrambling the data so that the data is no longer readable, or any other suitable method. Even if reseller 12 is able to maintain a copy of the merchandise previously sold, reseller 12 may be prevented from trying to resell the same merchandise because of a special identifier code in a watermark or

digital signature that is maintained in a universal database.

Once the merchandise has been delivered to buyer 18, and reseller 12 no longer has access to the electronic merchandise, process 20 may complete at step 38.

As can be seen, systems and methods for reselling electronic merchandise are provided. It will be understood that the foregoing is only illustrative principles of the invention and that various modifications can be made by those skilled in the art without departing from the scope and spirit of the invention, which is limited only by the claims that follow.

What is Claimed is:

1. A method for reselling electronic merchandise between a seller and a buyer via a service provider comprising:

requesting the reselling of electronic merchandise;

verifying the authenticity of the electronic merchandise;

verifying the electronic merchandise to detect data errors; and

transferring the electronic merchandise from the seller to the buyer.

2. The method defined in claim 1 wherein requesting to resell electronic merchandise comprises filling out an on-line form.

3. The method defined in claim 2 wherein filling out an on-line form further comprises filling out information on at least one of biographical information, type of electronic merchandise, brief description of merchandise, method of selling, minimum selling price, whether to perform verification, and whether to perform repair.

4. The method defined in claim 2 wherein filling out an on-line form further comprises providing the location of the electronic merchandise.

5. The method defined in claim 4 wherein providing the location of the electronic merchandise further comprises transferring the file.

6. The method defined in claim 2 wherein filling out an on-line form further comprises storing a reseller's information in a service provider's database.

7. The method defined in claim 1 wherein verifying the authenticity of the electronic merchandise comprises providing an identifier code on the electronic merchandise.

8. The method defined in claim 7 wherein providing the identifier code further comprises providing a universal database that associates the identifier code with the current owner of the electronic merchandise.

9. The method defined in claim 7 wherein providing the identifier code further comprises incorporating the identifier code in at least one of a digital watermark, a digital fingerprint, or and digital signature.

10. The method defined in claim 1 wherein verifying the electronic merchandise comprises determining whether verification was selected in an on-line form.

11. The method defined in claim 1 wherein verifying the electronic merchandise comprises determining whether verification was selected in information stored in a service provider's database.

12. The method defined in claim 1 wherein verifying the electronic merchandise comprises comparing the electronic merchandise to known-good merchandise.

13. The method defined in claim 1 wherein verifying the electronic merchandise comprises performing a checksum algorithm.

14. The method defined in claim 1 wherein verifying the electronic merchandise comprises performing a cyclic redundancy check.

15. The method defined in claim 1 wherein verifying the electronic merchandise comprises providing an indicator to signal that an error has occurred in the electronic merchandise.

16. The method defined in claim 1 wherein verifying the electronic merchandise comprises repairing data errors in the electronic merchandise.

17. The method defined in claim 16 wherein repairing the electronic merchandise further comprises repairing the data errors based on an indicator set during verification.

18. The method defined in claim 16 wherein repairing the electronic merchandise comprises replacing a faulty portion of the electronic merchandise with a replacement portion from a known-good copy.

19. The method defined in claim 16 wherein repairing the electronic merchandise comprises reconstructing a faulty portion of the electronic merchandise.

20. The method defined in claim 1 wherein transferring the electronic merchandise comprises using the selling method specified by the seller.

21. The method defined in claim 20 wherein providing the selling method specified by the seller comprises obtaining information from an on-line form.

22. The method defined in claim 20 wherein providing the selling method specified by the seller comprises obtaining information from a service provider's database.

23. The method defined in claim 20 wherein providing the selling method specified by the seller comprises advertising the electronic merchandise on a web site.

24. The method defined in claim 23 wherein advertising the electronic merchandise on the web site comprises posting at least one of a merchandise name, a brief description, a selling price, and contact information.

25. The method defined in claim 23 wherein advertising the electronic merchandise on the web site comprises notifying the seller when the electronic merchandise is purchased.

26. The method defined in claim 20 wherein providing the selling method specified by the seller comprises auctioning the merchandise on a bidding site.

27. The method defined in claim 26 wherein auctioning the electronic merchandise on the bidding site comprises posting at least one of a merchandise name, a brief description, a minimum selling price, and contact information.

28. The method defined in claim 26 wherein auctioning the merchandise on the bidding site comprises accepting a highest bid within a given time period.

29. The method defined in claim 26 wherein auctioning the merchandise on the bidding site comprises notifying a seller when the electronic merchandise is purchased.

30. The method defined in claim 20 wherein providing the selling method specified by the seller comprises providing a personal transaction between the seller and the buyer.

31. The method defined in claim 20 wherein providing the selling method specified by the seller comprises transferring the electronic merchandise from the service provider to the buyer.

32. The method defined in claim 20 wherein providing the selling method specified by the seller comprises providing copyright protection.

33. The method defined in claim 32 wherein providing copyright protection comprises providing encryption software to prevent the seller from using the electronic merchandise after a completed transaction.