

**FILED**

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**MICHAEL W. DOBBINS** IN THE UNITED STATES DISTRICT COURT  
CLERK, U.S. DISTRICT COURT FOR THE NORTHERN DISTRICT OF ILLINOIS  
EASTERN DIVISION

**DOCKETED**  
OCT 07 2002

DIVINE TECHNOLOGY VENTURES, an )  
Illinois general partnership, )

Plaintiff, )

v. )

ADVANCED COMFORT, INC. d/b/a )  
ABED.COM, a New York corporation, )

Defendant. )

**02C 7158**

Civil Action No. \_\_\_\_\_

Jury Trial Demanded

**JUDGE COAR**

**MAGISTRATE JUDGE SCHENKIER**

**COMPLAINT**

Plaintiff divine technology ventures ("divine") brings this complaint against defendant Advanced Comfort, Inc. d/b/a abed.com ("abed"), seeking damages, injunctive relief and other relief for patent infringement.

**THE PARTIES**

1. divine is an Illinois general partnership with its principal place of business at 1301 North Elston Avenue, Chicago, Illinois.

2. Upon information and belief, abed is a New York corporation with its principal place of business at 10 Stage Door Road, Fishkill, New York.

3. Upon information and belief, abed sells beds, mattresses and bedding. abed operates an interactive site on the World Wide Web at www.abed.com ("abed Site") through which customers in this District and elsewhere may order these products.

4. abed conducts continuous and systematic business in Illinois and this District. For example, it: (a) routinely offers to contract, via the abed Site, with persons in Illinois; and (b) promotes its goods and services to, and solicits contact from, persons in Illinois via the abed Site.

1-1

5. abed makes, uses, sells and/or offers for sale systems and processes to operate its business at the abed Site. The abed Site includes a network-based sales system that allows customers to purchase products over the Internet.

### **JURISDICTION AND VENUE**

6. This Court has jurisdiction over divine's patent infringement claims under 28 U.S.C. § 1331 and 1338(a).

7. This Court has personal jurisdiction over abed because it has transacted and is transacting business in this District, both generally and regarding the allegations in this Complaint, and because abed has committed tortious acts within this District.

8. Venue properly lies in this Court under 28 U.S.C. §§ 1391(b), (c) and 1400(b) because abed is subject to personal jurisdiction and has committed acts of patent infringement in this District.

### **COUNT I**

#### **Patent Infringement of U.S. Patent No. 5,715,314 – 35 U.S.C. § 271**

9. divine realleges and incorporates by reference the allegations in Paragraphs 1 through 8.

10. On February 3, 1998, United States Letters Patent No. 5,715,314 ("314 Patent") was duly and legally issued for an invention entitled "Network Sales System." A true and correct copy of the '314 Patent is attached as PX1.

11. divine owns all rights, title and interest in and to the '314 Patent.

12. abed has directly infringed the claims of the '314 Patent by making, using, selling and/or offering to sell its systems and processes to operate the abed Site.

13. divine gave written notice by letter dated July 25, 2002 to abed of its infringement of the '314 Patent.

14. abed will not stop making, using, selling and/or offering for sale its systems and processes to avoid infringing the '314 Patent.

15. abed's infringement has been deliberate, willful and wanton and with full knowledge of the '314 Patent.

16. abed's conduct has caused divine to suffer, and unless enjoined by the Court, will cause divine to continue to suffer damage to its operation, reputation and goodwill.

17. divine has no adequate remedy at law. abed's conduct has caused and, if not enjoined, will continue to cause irreparable damage to divine. As a result of abed's wrongful conduct, divine is entitled to injunctive relief.

## COUNT II

### **Patent Infringement of U.S. Patent No. 5,909,492 – 35 U.S.C. § 271**

18. divine realleges and incorporates by reference the allegations in Paragraphs 1 through 17.

19. On June 1, 1999, United States Letters Patent No. 5,909,492 ("492 Patent") was duly and legally issued for an invention entitled "Network Sales System." A true and correct copy of the '492 Patent is attached as PX2.

20. divine owns all rights, title and interest in and to the '492 Patent.

21. abed has directly infringed the claims of the '492 Patent by making, using, selling and/or offering to sell its systems and processes to operate the abed Site.

22. divine gave written notice by letter dated August 29, 2002 to abed of its infringement of the '492 Patent.

23. abed will not stop making, using, selling and/or offering for sale its systems and processes to avoid infringing the '492 Patent.

24. abed's infringement has been deliberate, willful and wanton and with full knowledge of the '492 Patent.

25. abed's conduct has caused divine to suffer, and unless enjoined by the Court, will cause divine to continue to suffer damage to its operation, reputation and goodwill.

26. divine has no adequate remedy at law. abed's conduct has caused and, if not enjoined, will continue to cause irreparable damage to divine. As a result of abed's wrongful conduct, divine is entitled to injunctive relief.

### **RELIEF REQUESTED**

WHEREFORE, divine requests that the Court enter a judgment in divine's favor and against abed and provide divine the following relief:

- A. Order, adjudge and decree that abed has infringed the '314 Patent in violation of 35 U.S.C. § 271;
- B. Order, adjudge and decree that abed willfully and knowingly infringed the '314 Patent;
- C. Order, adjudge and decree that abed's infringement of the '314 Patent is exceptional under 35 U.S.C. § 285;
- D. Order, adjudge and decree that abed has infringed the '492 Patent in violation of 35 U.S.C. § 271;
- E. Order, adjudge and decree that abed willfully and knowingly infringed the '492 Patent;
- F. Order, adjudge and decree that abed's infringement of the '492 Patent is exceptional under 35 U.S.C. § 285;

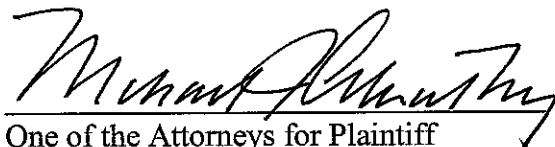
- G. Issue preliminary and permanent injunctive relief prohibiting abed and its respective parents, principals, officers, agents, affiliates, servants, attorneys, employees and all others in privity with it from:
- (i) infringing the '314 Patent; and
  - (ii) infringing the '492 Patent;
- H. Award divine damages for patent infringement including prejudgment interest and costs against abed under 35 U.S.C. § 284;
- I. Award divine three times its damages to compensate divine under 35 U.S.C. § 284;
- J. Award divine its reasonable attorneys' fees under 35 U.S.C. § 285; and
- K. Award such other and further relief as the Court may deem just.

**JURY DEMAND**

divine demands trial by jury.

Dated this 4th day of October 2002.

Respectfully submitted,



One of the Attorneys for Plaintiff  
divine technology ventures

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# EXHIBIT 1



US005715314A

**United States Patent** [19]  
**Payne et al.**

[11] **Patent Number:** 5,715,314  
 [45] **Date of Patent:** Feb. 3, 1998

[54] **NETWORK SALES SYSTEM**

[75] **Inventors:** Andrew C. Payne, Lincoln; Lawrence C. Stewart, Burlington; David J. Mackie, Cambridge, all of Mass.

[73] **Assignee:** Open Market, Inc., Cambridge, Mass.

[21] **Appl. No.:** 328,133

[22] **Filed:** Oct. 24, 1994

[51] **Int. CL<sup>6</sup>** ..... H04L 9/00

[52] **U.S. CL** ..... 380/24; 380/23; 380/25; 380/49; 380/50

[58] **Field of Search** ..... 380/4, 21, 23, 380/24, 25, 49, 50; 364/401, 406, 408, 284.4; 235/379, 380; 395/200.01, 200.02, 200.09, 925

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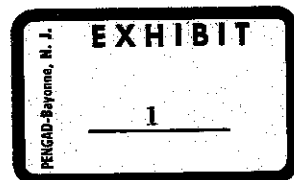
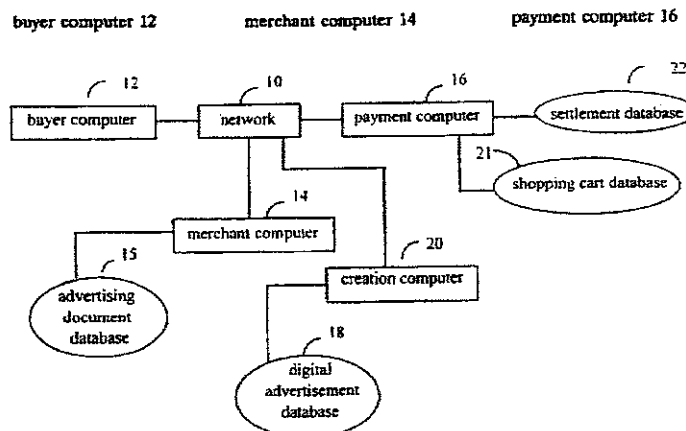
*Primary Examiner*—Bernarr E. Gregory  
*Attorney, Agent, or Firm*—Fish & Richardson P.C.

[57] **ABSTRACT**

A network-based sales system includes at least one buyer computer for operation by a user desiring to buy a product, at least one merchant computer, and at least one payment computer. The buyer computer, the merchant computer, and the payment computer are interconnected by a computer network. The buyer computer is programmed to receive a user request for purchasing a product, and to cause a payment message to be sent to the payment computer that comprises a product identifier identifying the product. The payment computer is programmed to receive the payment message, to cause an access message to be created that comprises the product identifier and an access message authenticator based on a cryptographic key, and to cause the access message to be sent to the merchant computer. The merchant computer is programmed to receive the access message, to verify the access message authenticator to ensure that the access message authenticator was created using the cryptographic key, and to cause the product to be sent to the user desiring to buy the product.

**48 Claims, 25 Drawing Sheets**

**Microfiche Appendix Included**  
 (1 Microfiche, 34 Pages)



5,715,314

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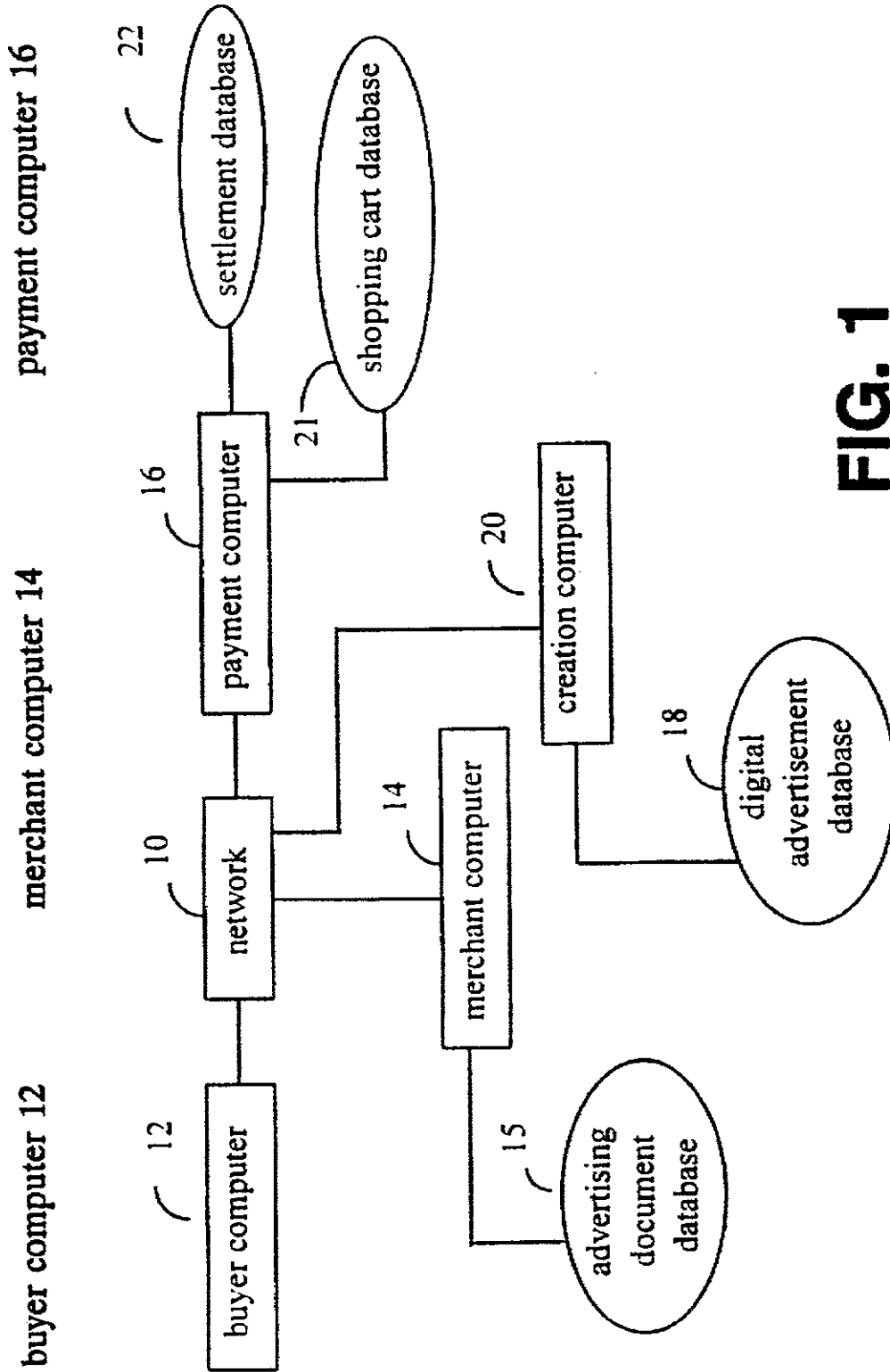


FIG. 1

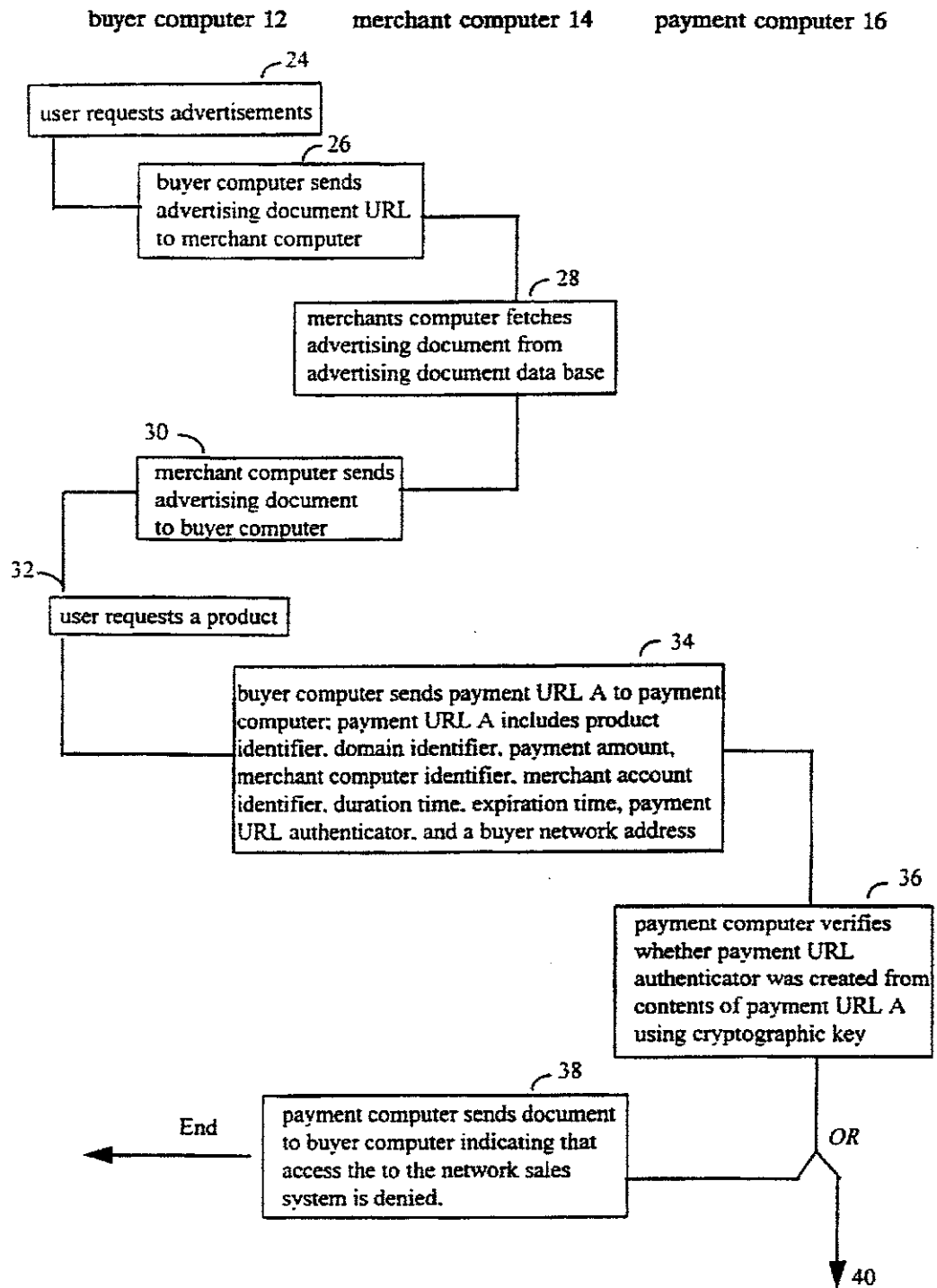


FIG. 2A

buyer computer 12

merchant computer 14

payment computer 16

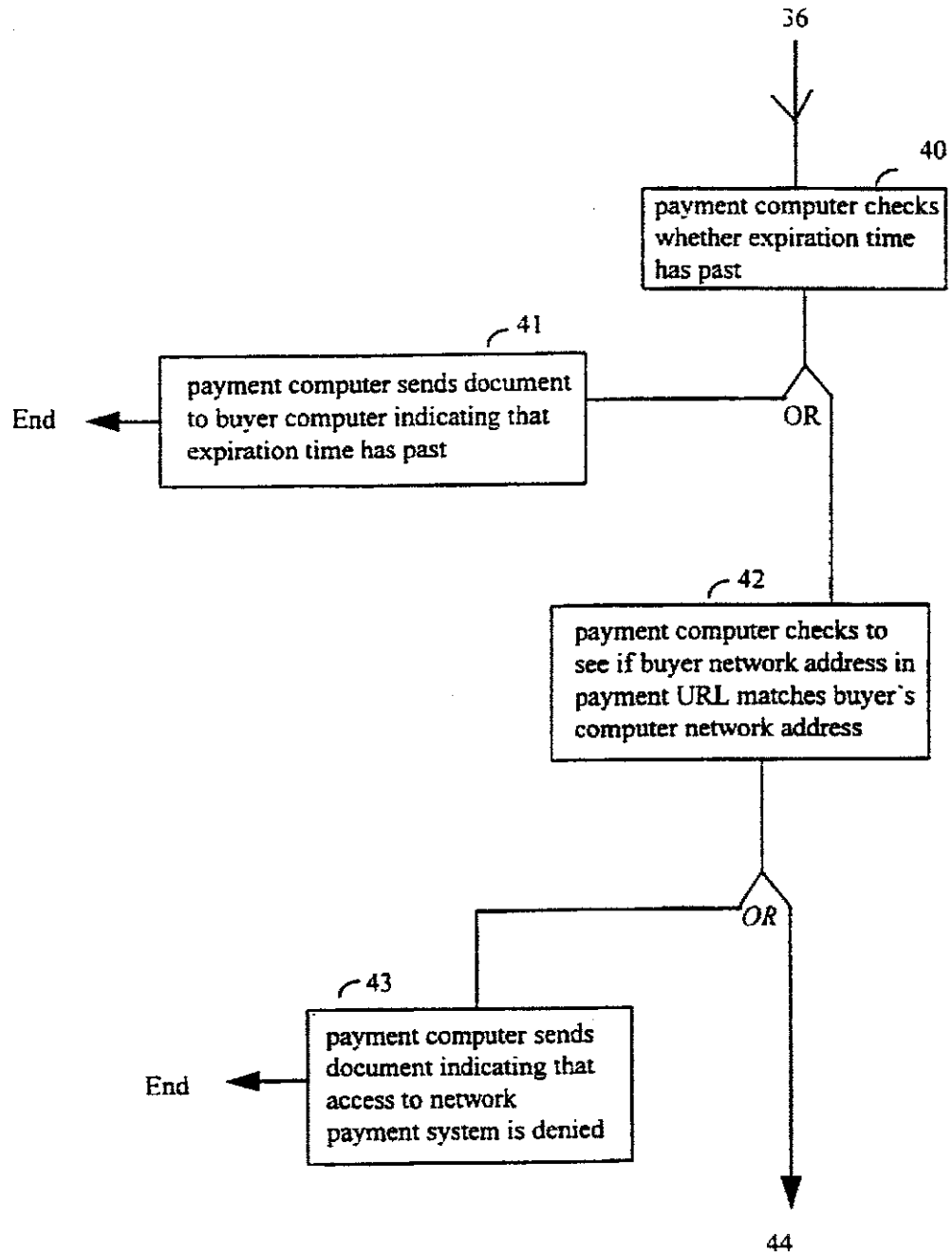


FIG. 2B

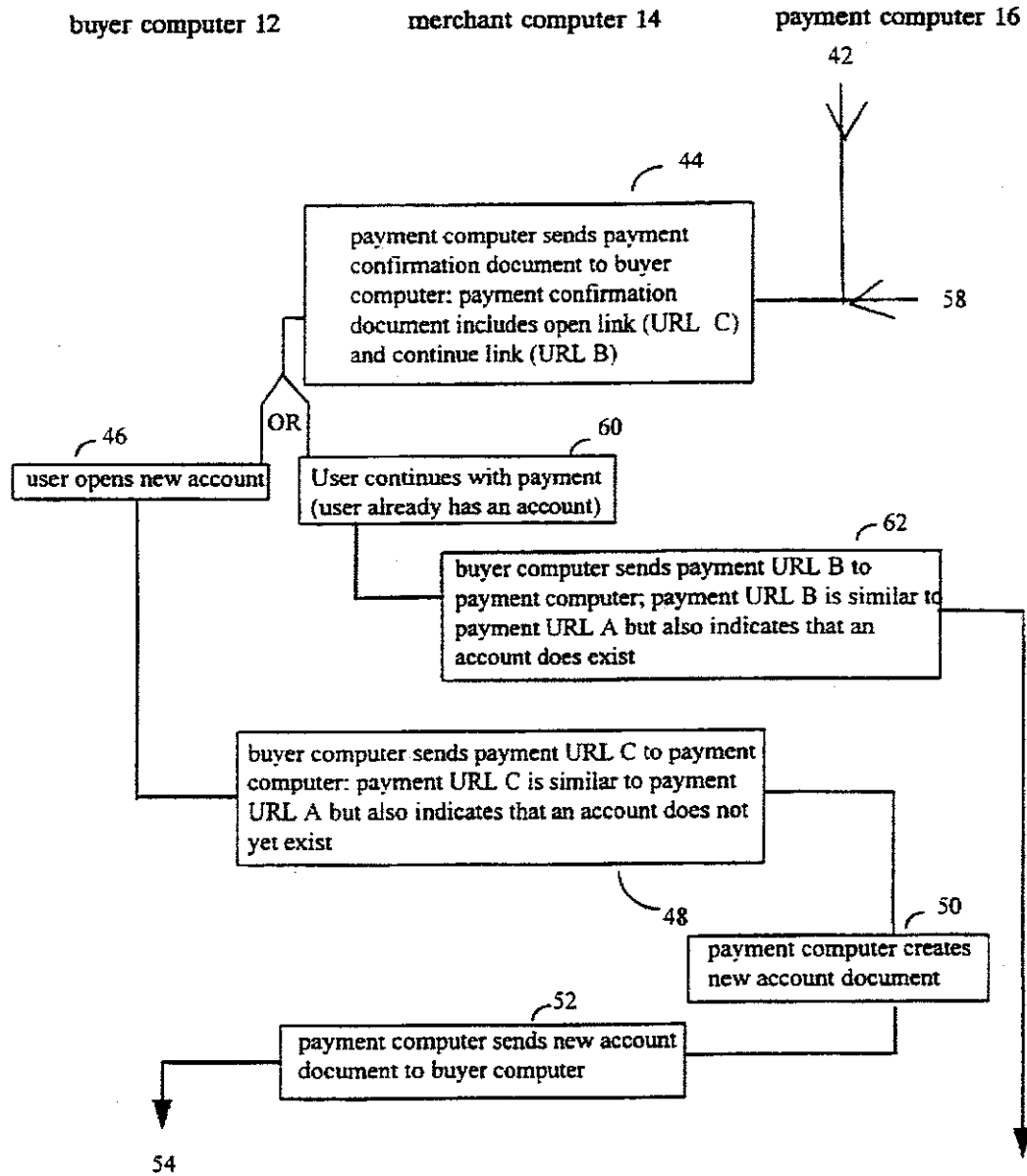


FIG. 2C

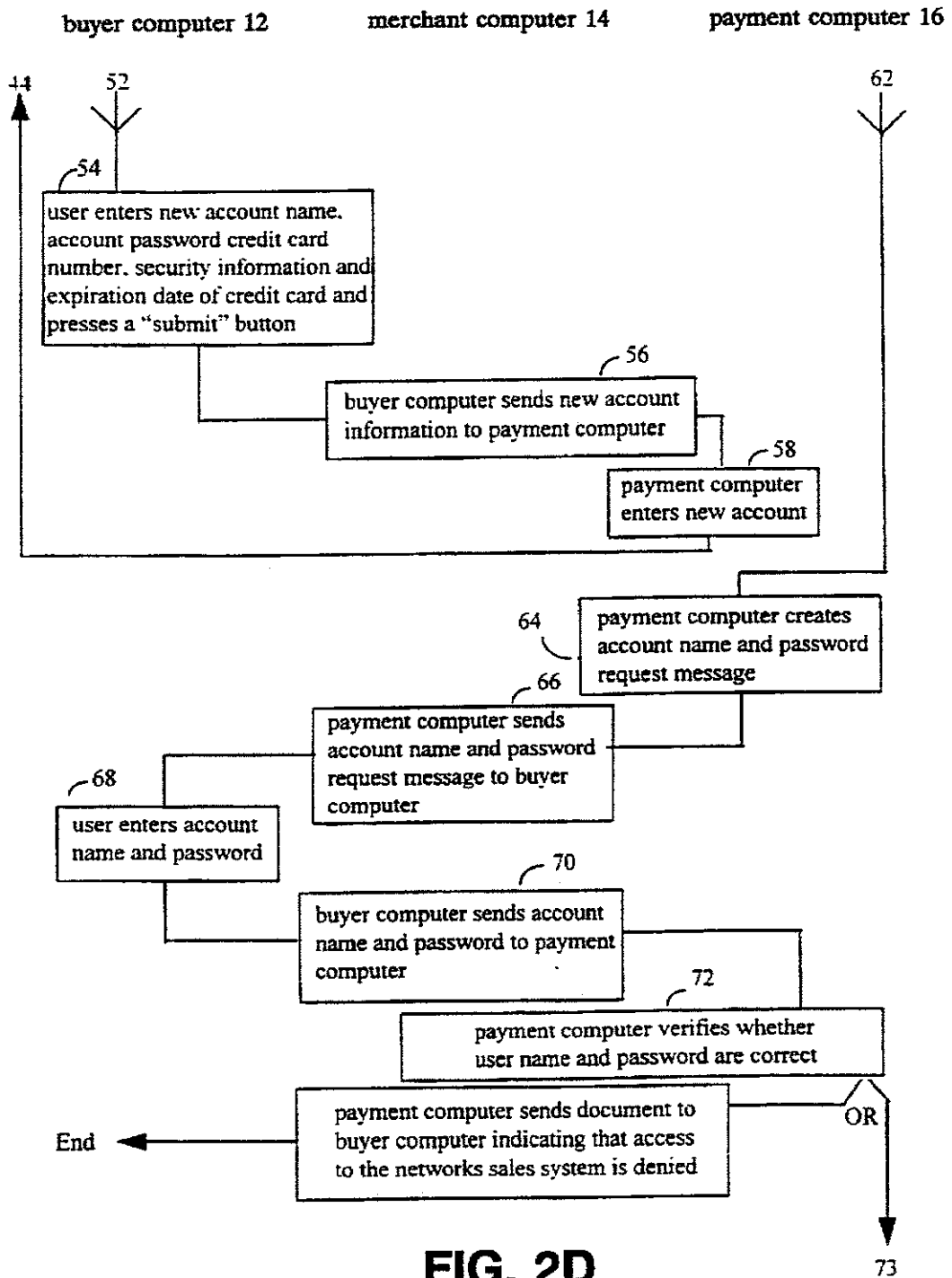


FIG. 2D

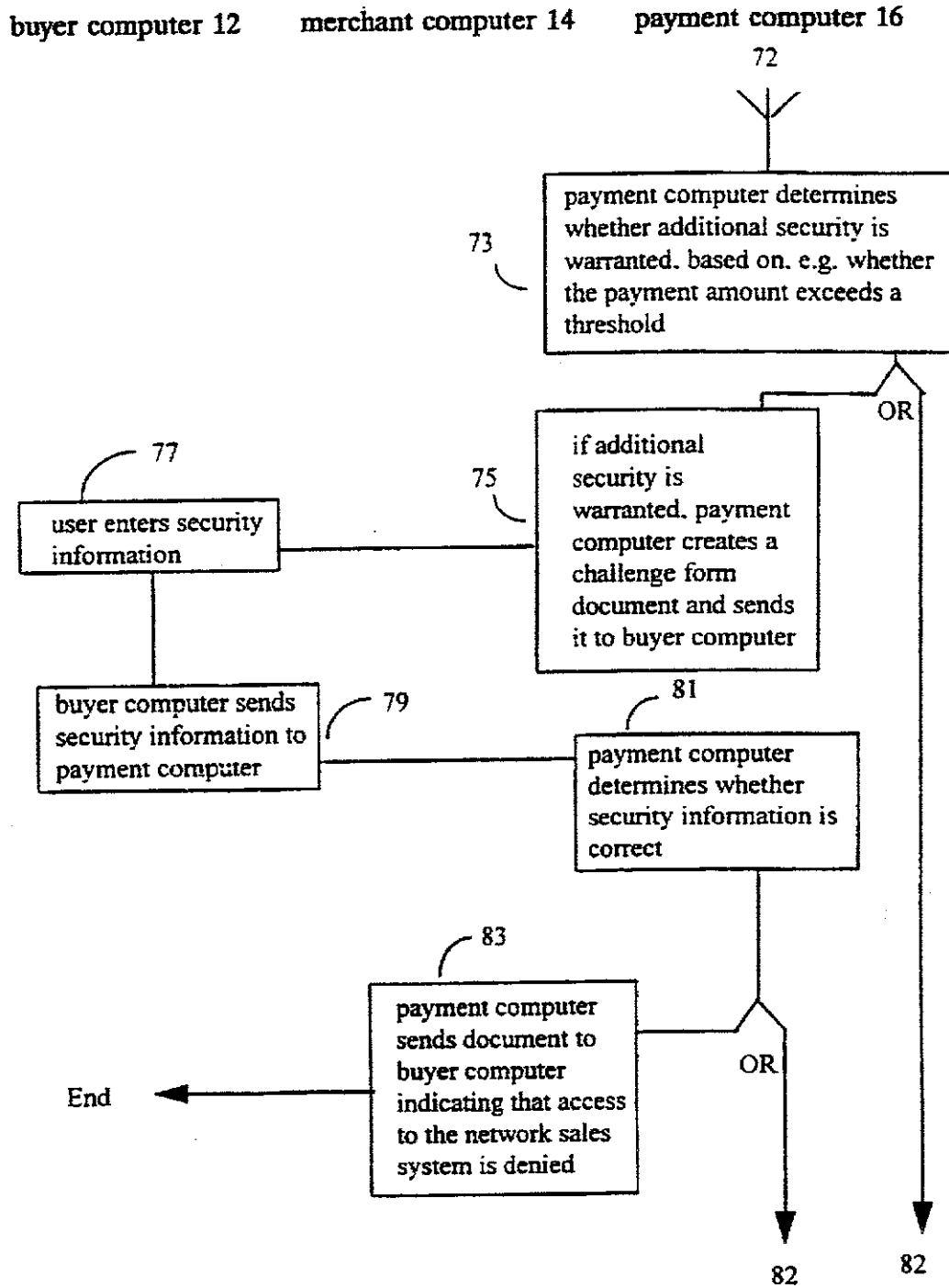


FIG. 2E

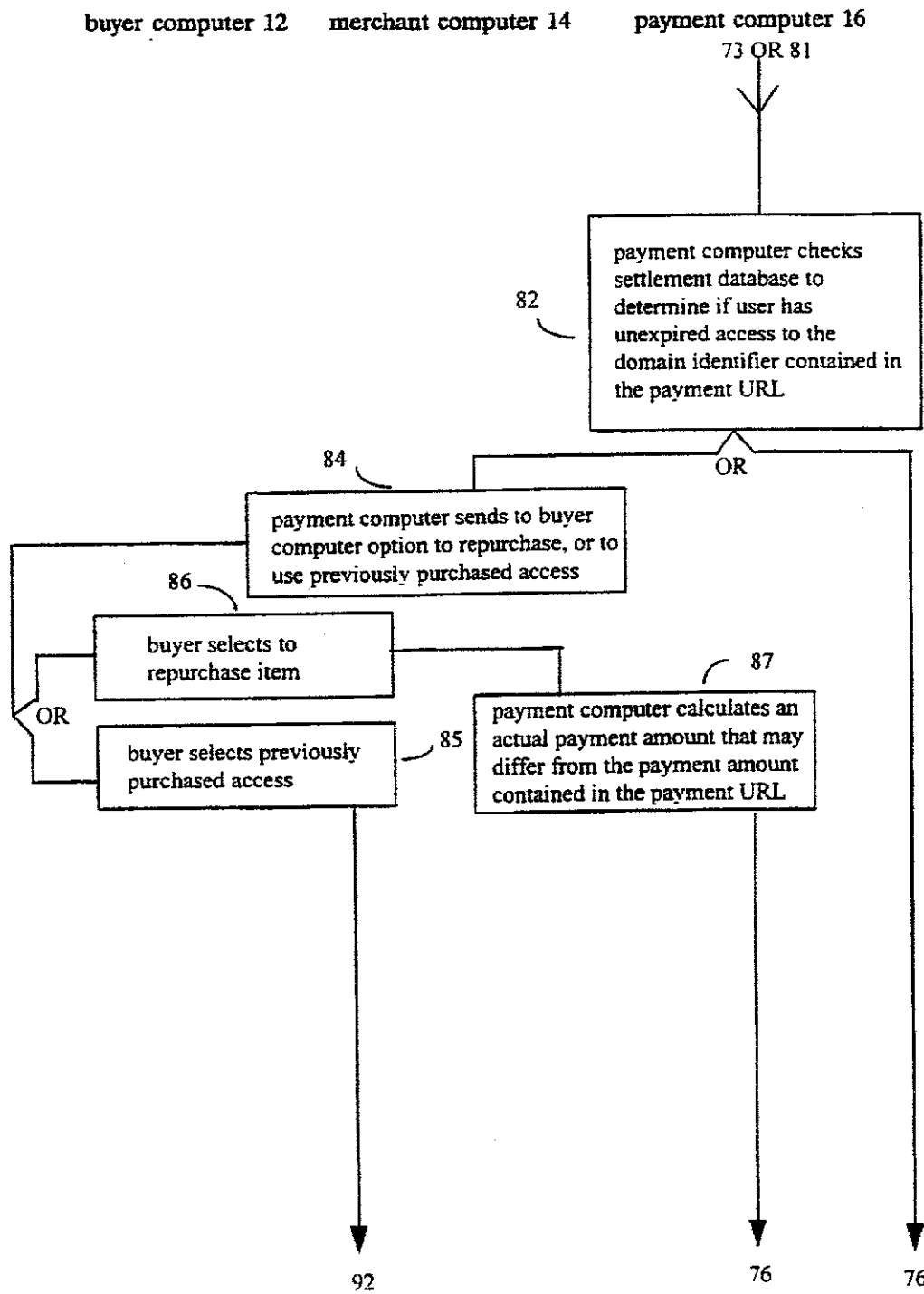


FIG. 2F

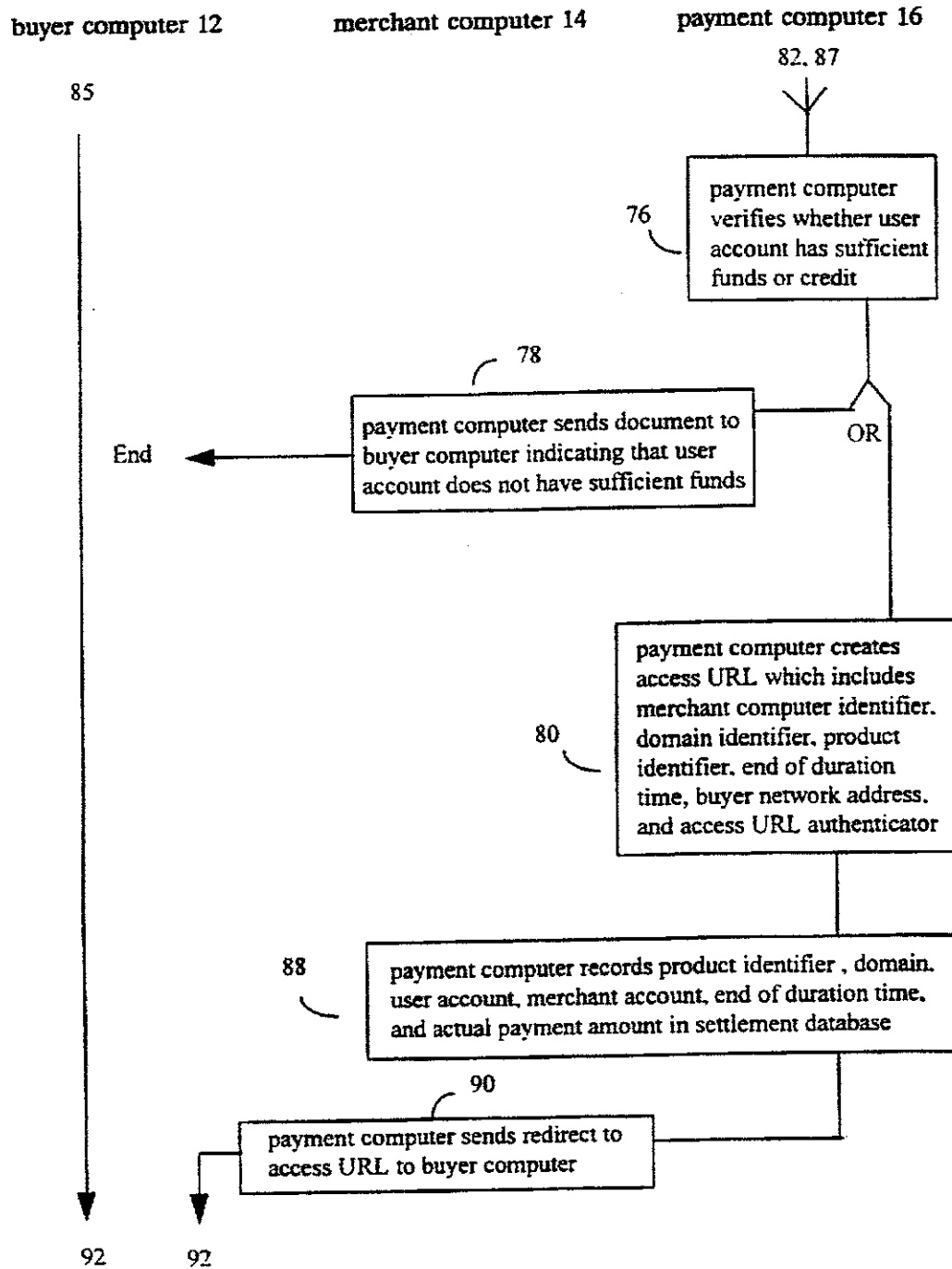


FIG. 2G



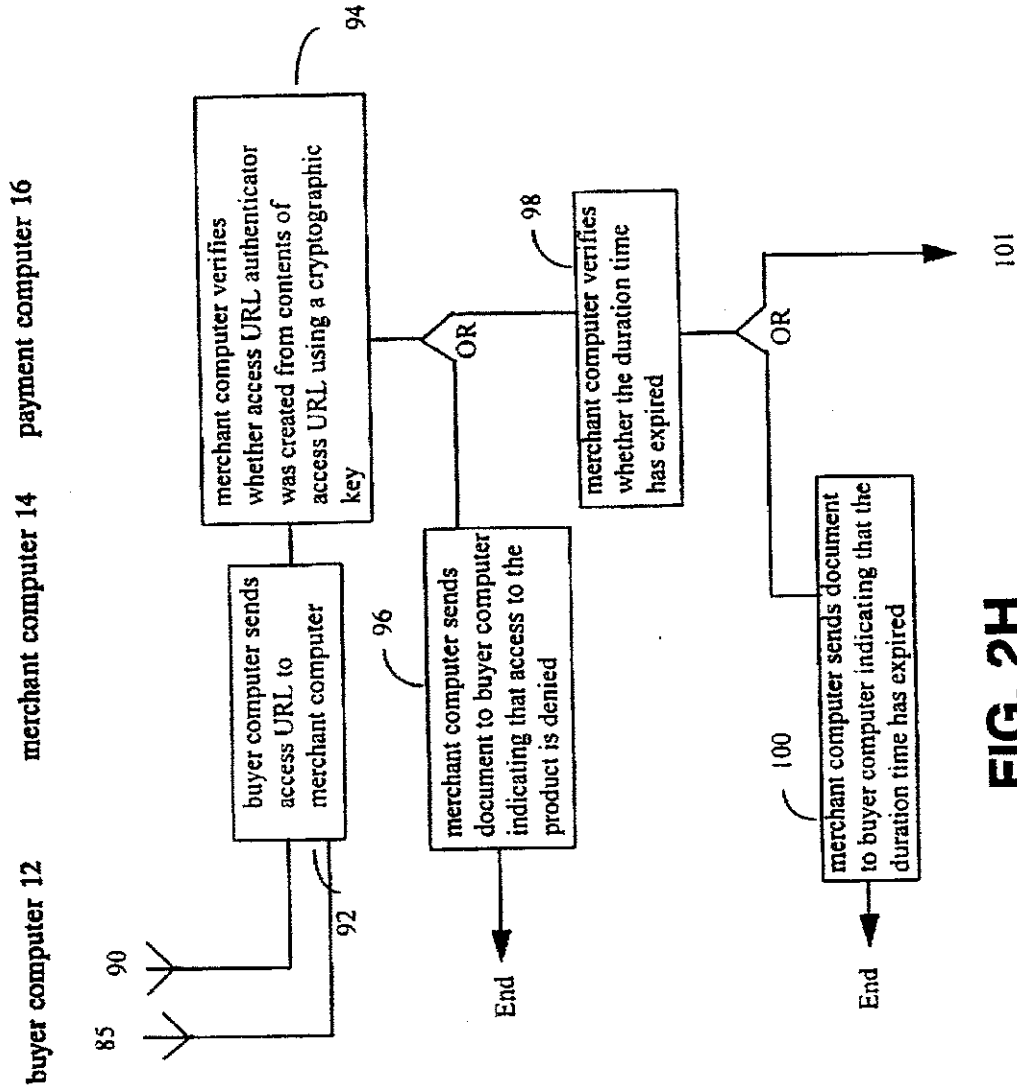


FIG. 2H

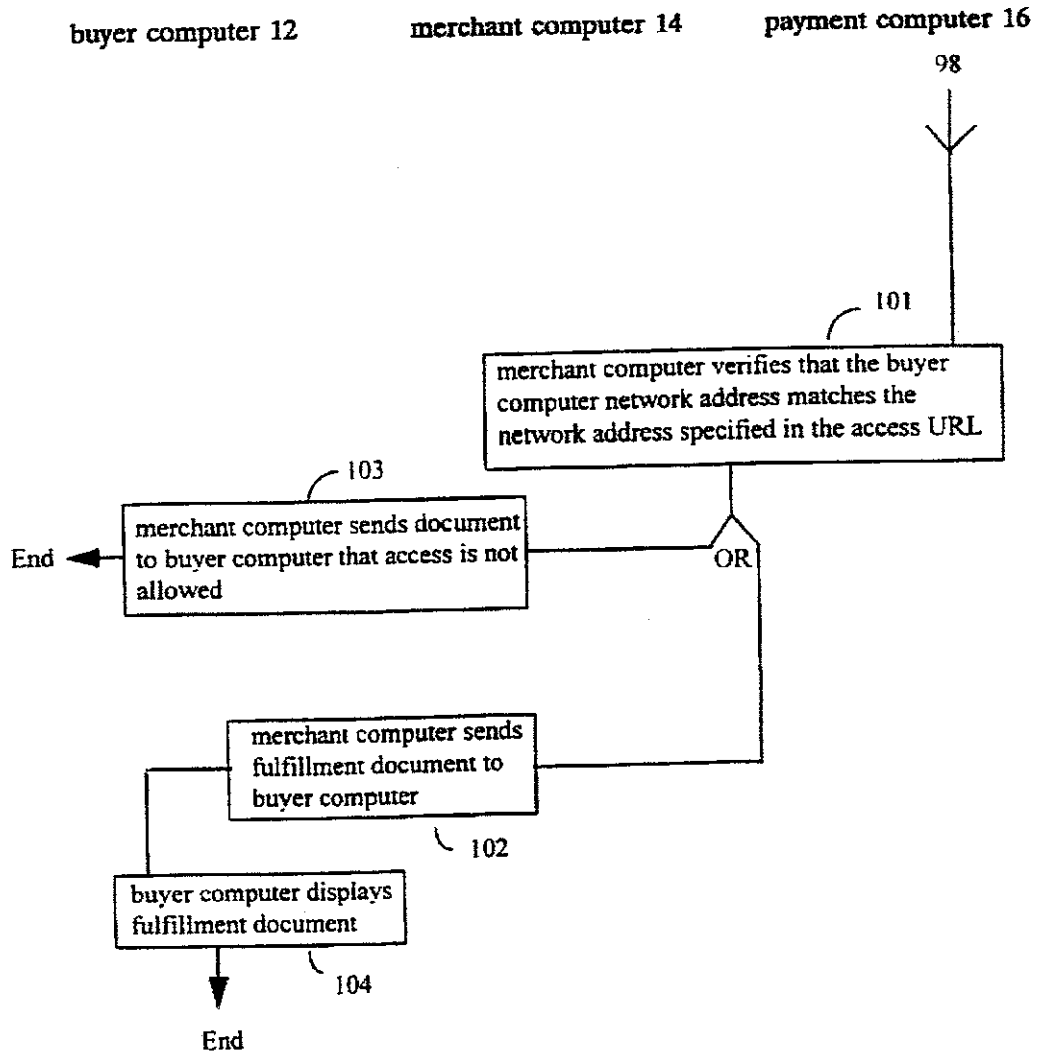


FIG. 21

buyer computer 12 merchant computer 14 payment computer 16

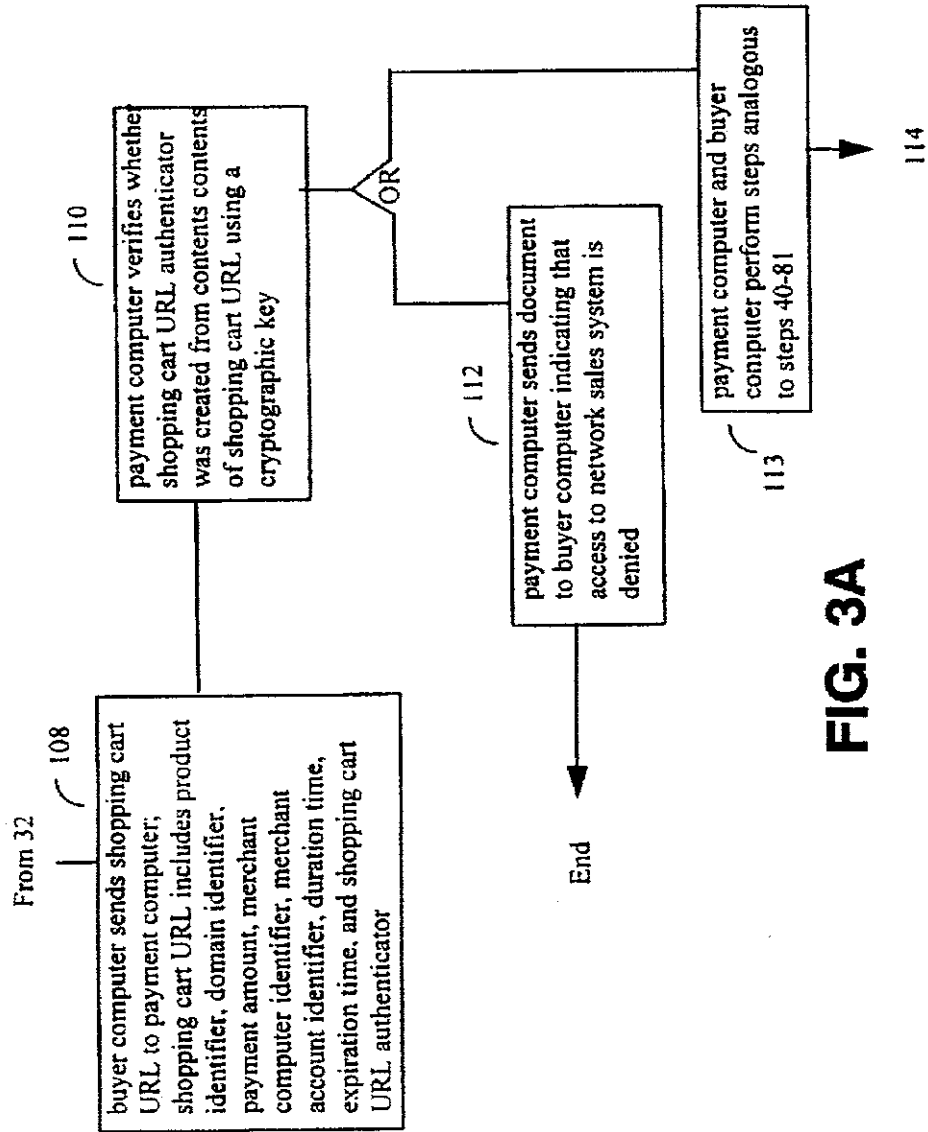


FIG. 3A

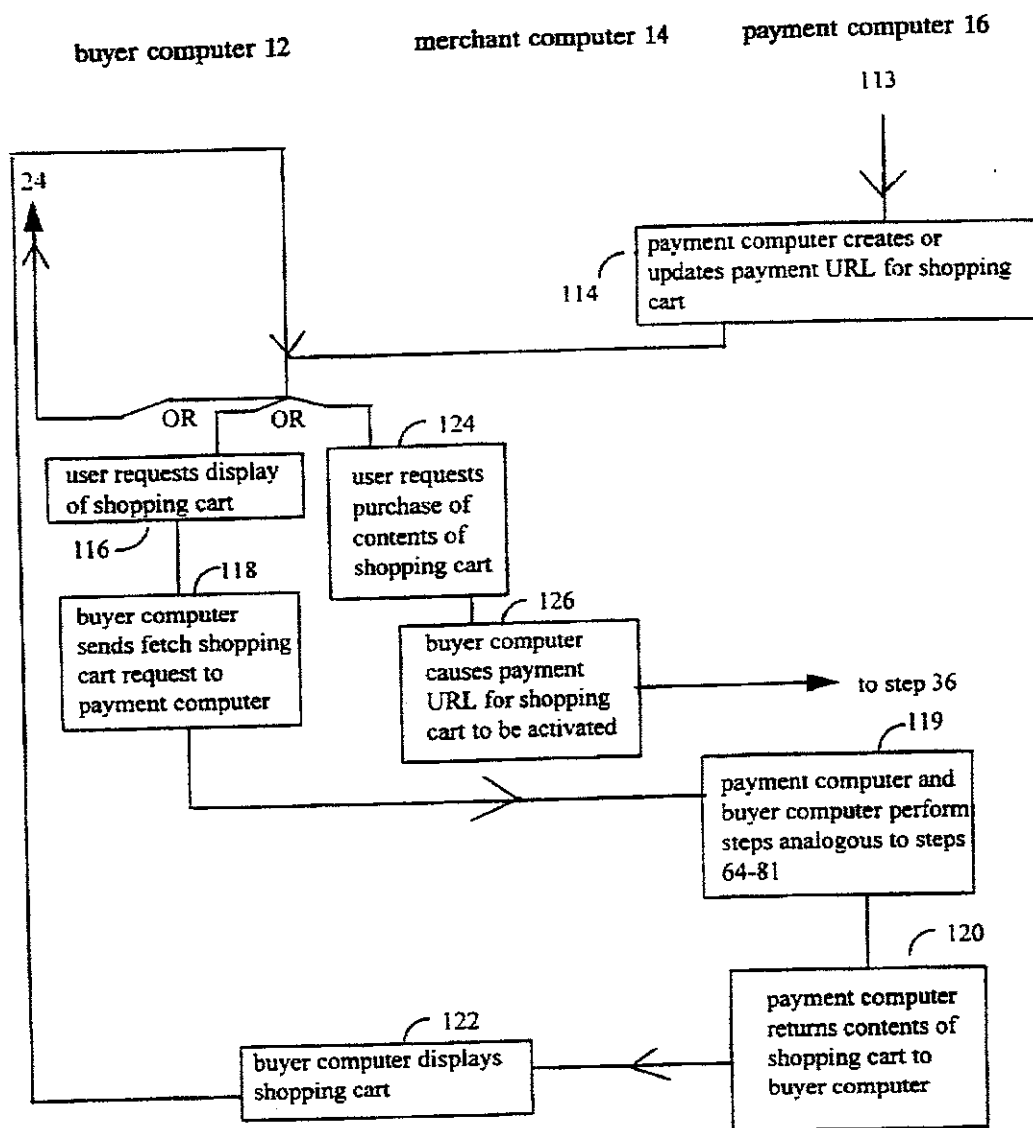


FIG. 3B

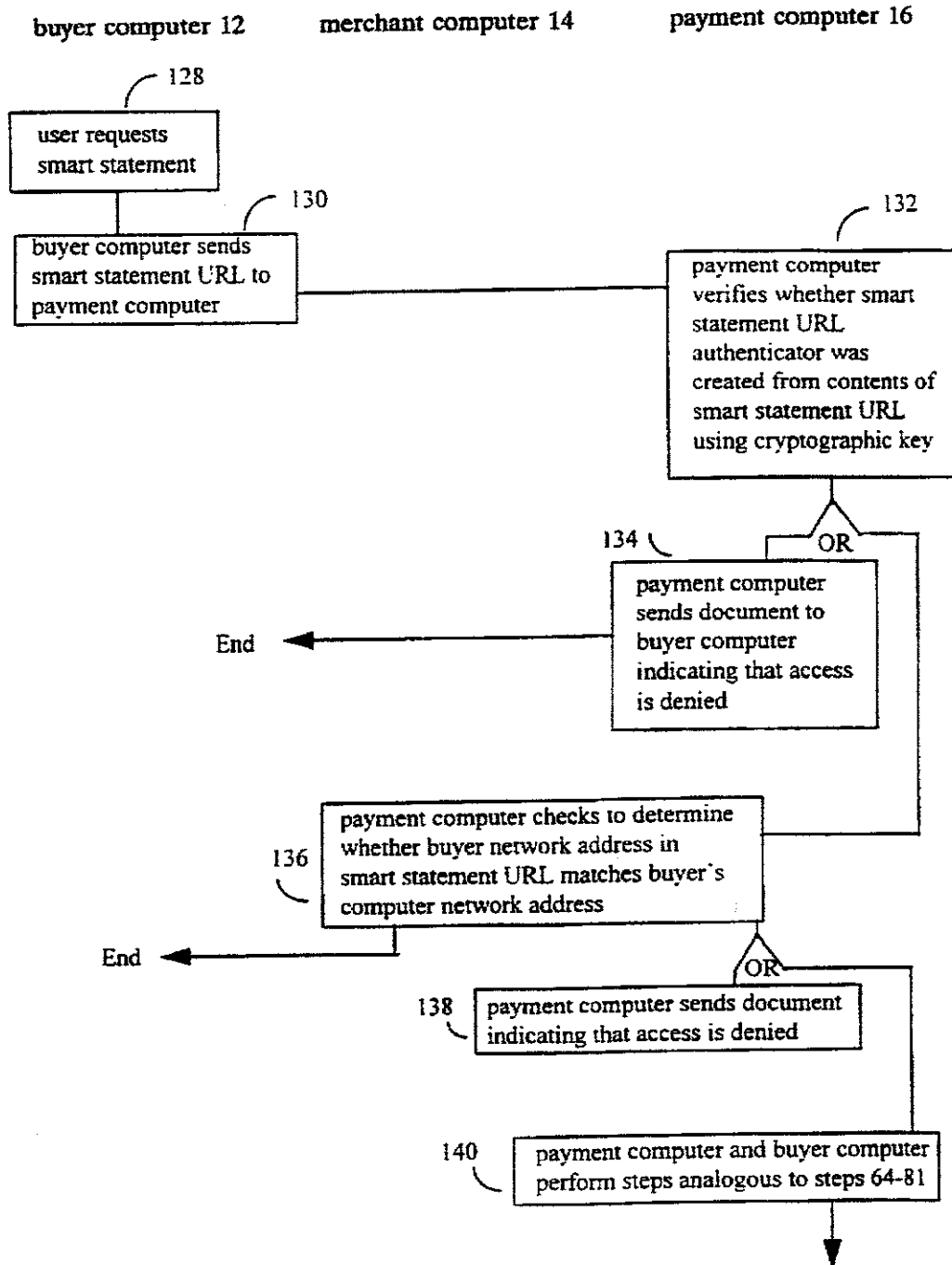


FIG. 4A

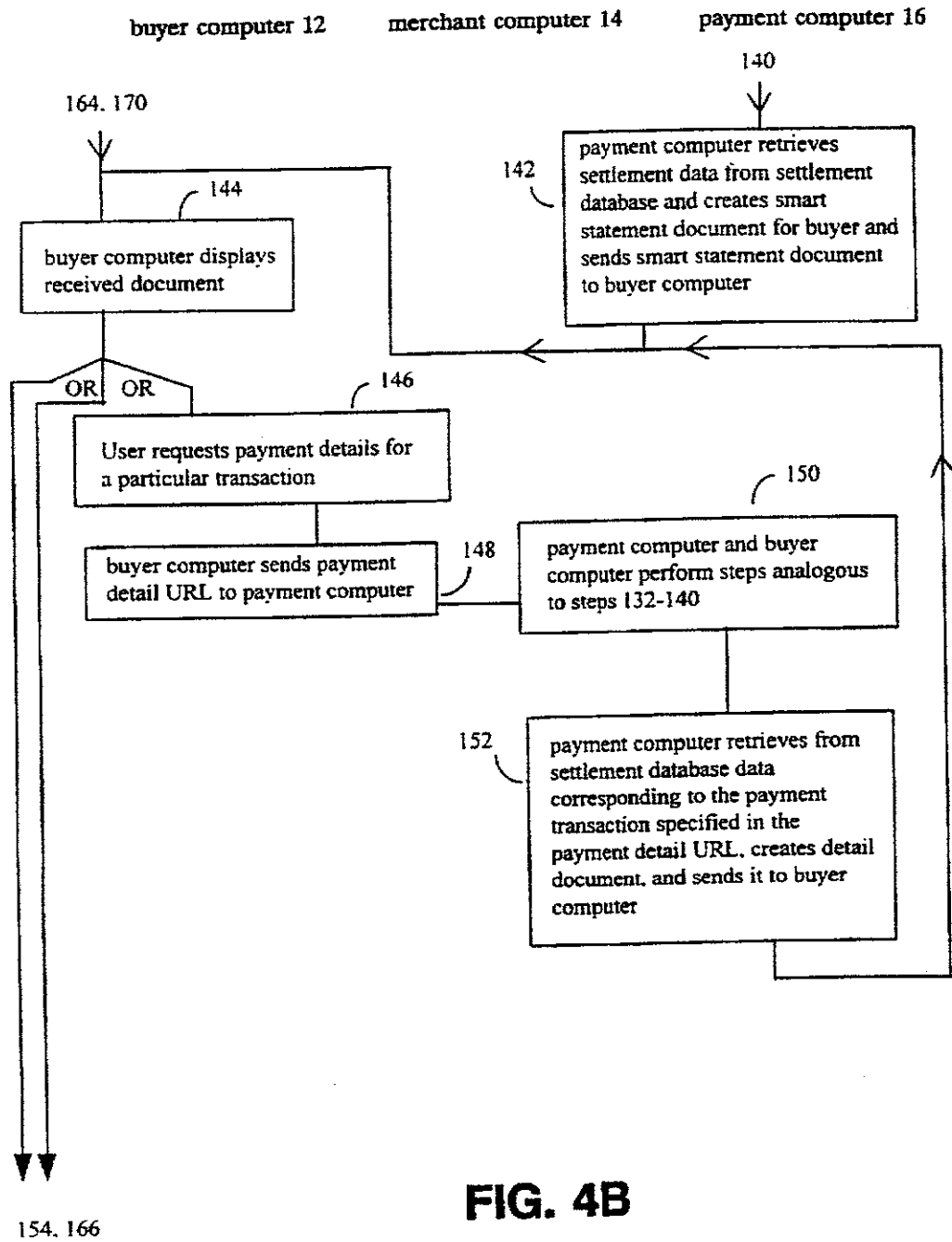


FIG. 4B

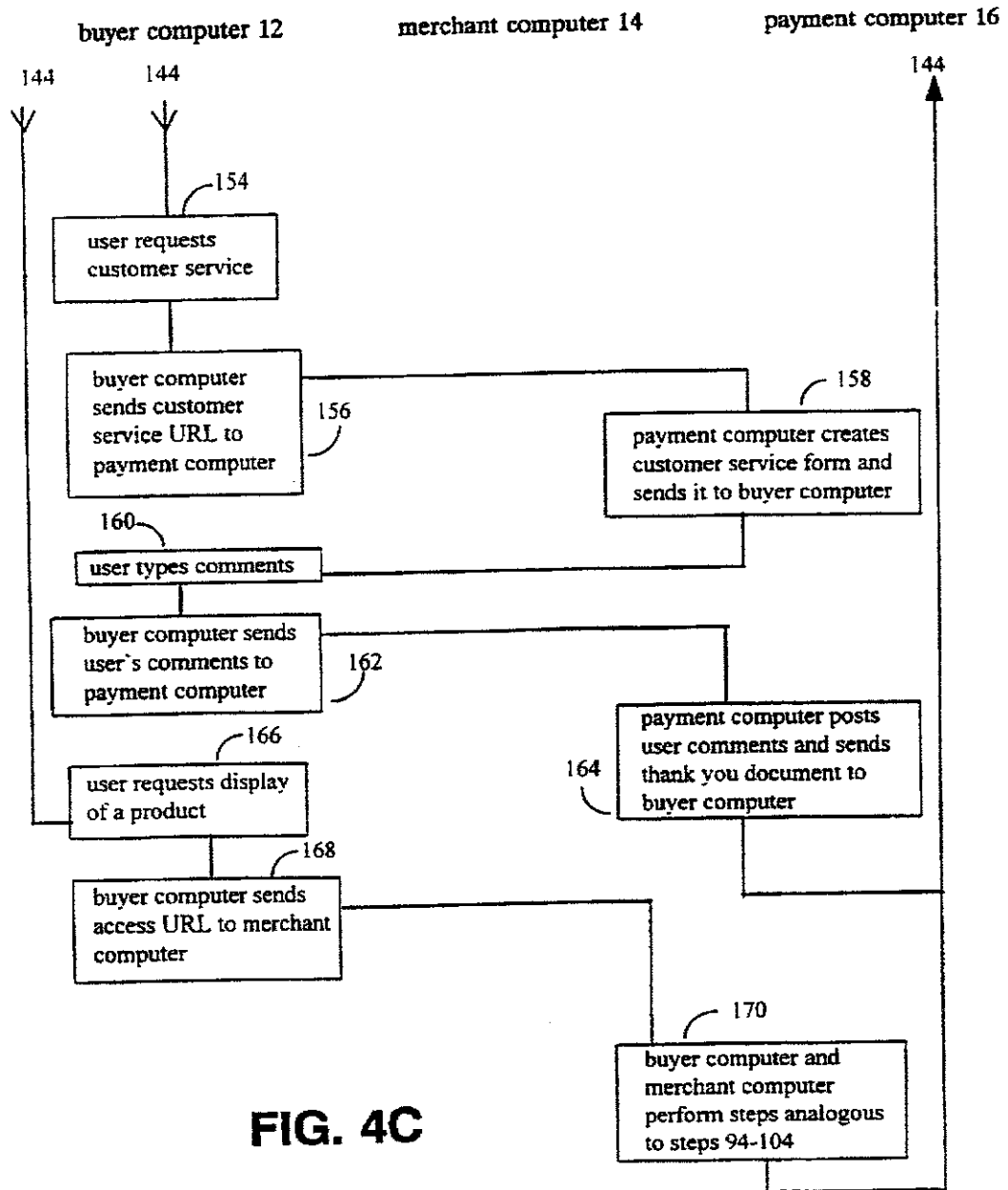


FIG. 4C

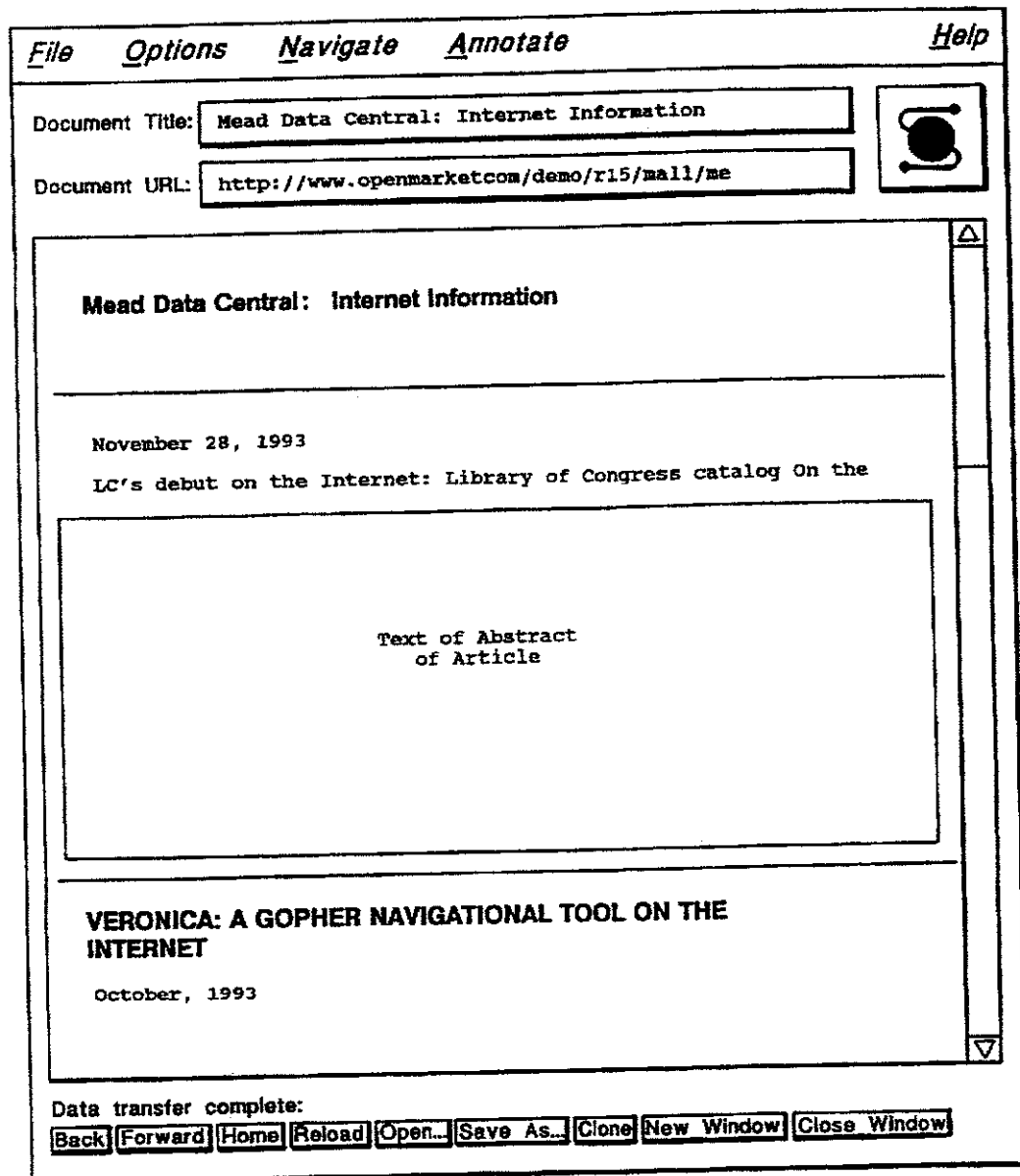


FIG. 5



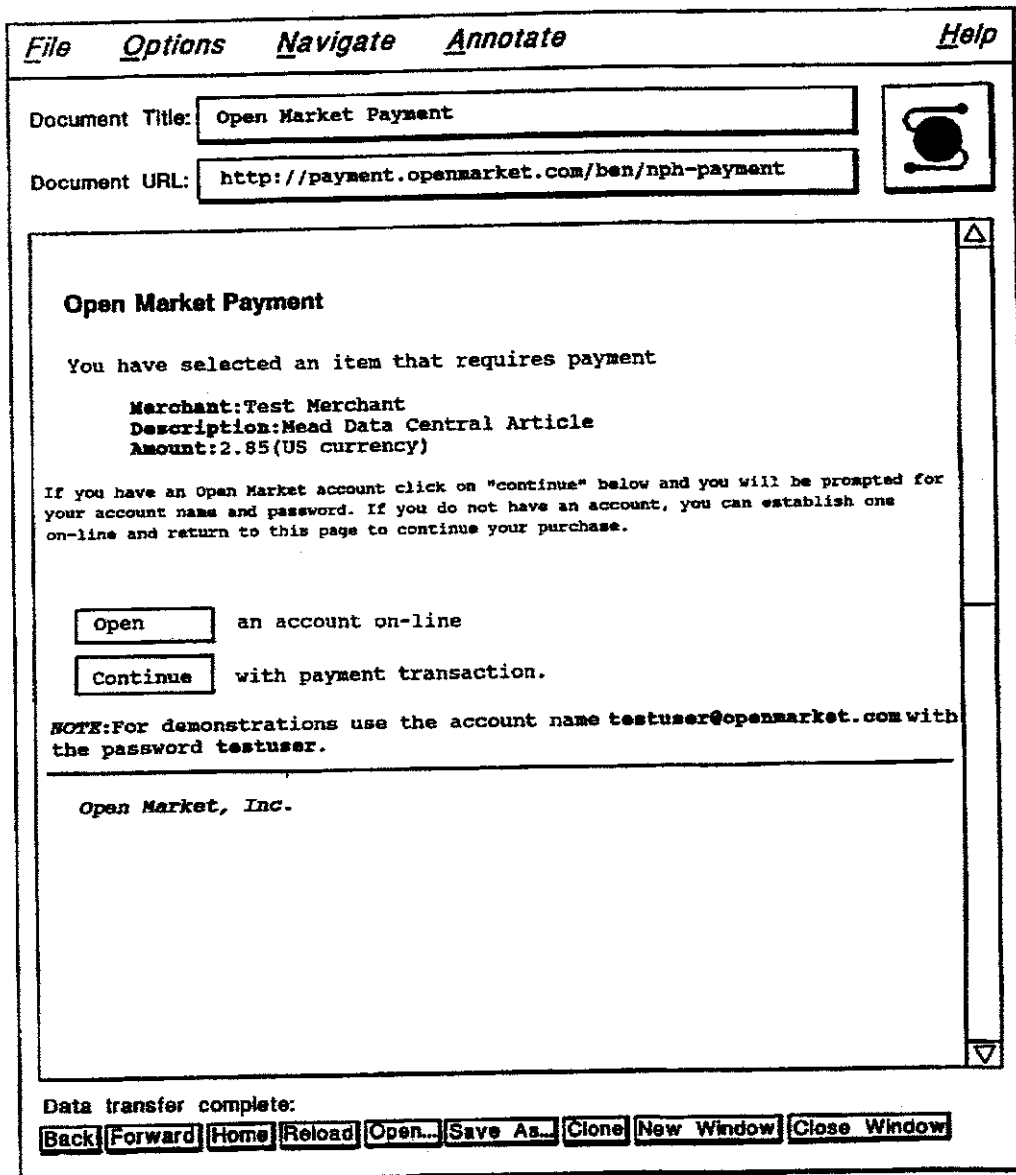



FIG. 6

File Options Navigate Annotate Help

Document Title:  

Document URL:

Card Number:

Expiration Date:  (format MM/YY)

Check the appropriate boxes:

I am the owner of the above credit card.

The above address is also the billing address for this credit card.

Your OpenMarket account statement is available on-line. At your option you may a copy of your statement automatically sent to your e-mail address at weekly or monthly intervals. Please choose a statement option.

Weekly statements  Monthly statements  No e-mail statements

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**Account name and password**

Please choose an account name and password for your OpenMarket account. We suggest using an account name that is unique and easy to remember such as your e-mail address. Your password should be 8 characters or longer.

Account Name

Password

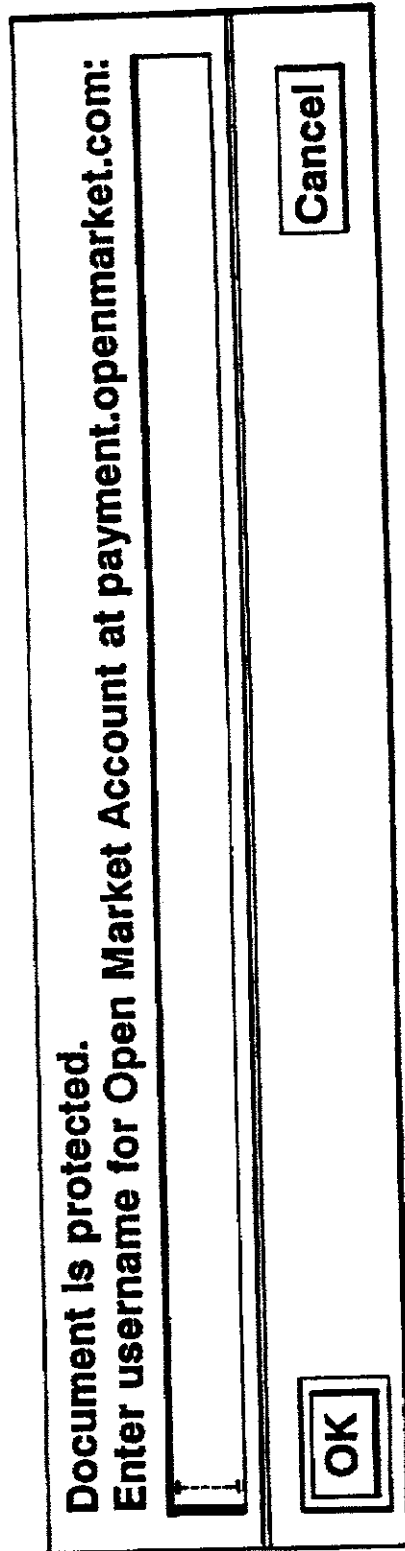
FIG. 7

**U.S. Patent**

Feb. 3, 1998

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**FIG. 8**

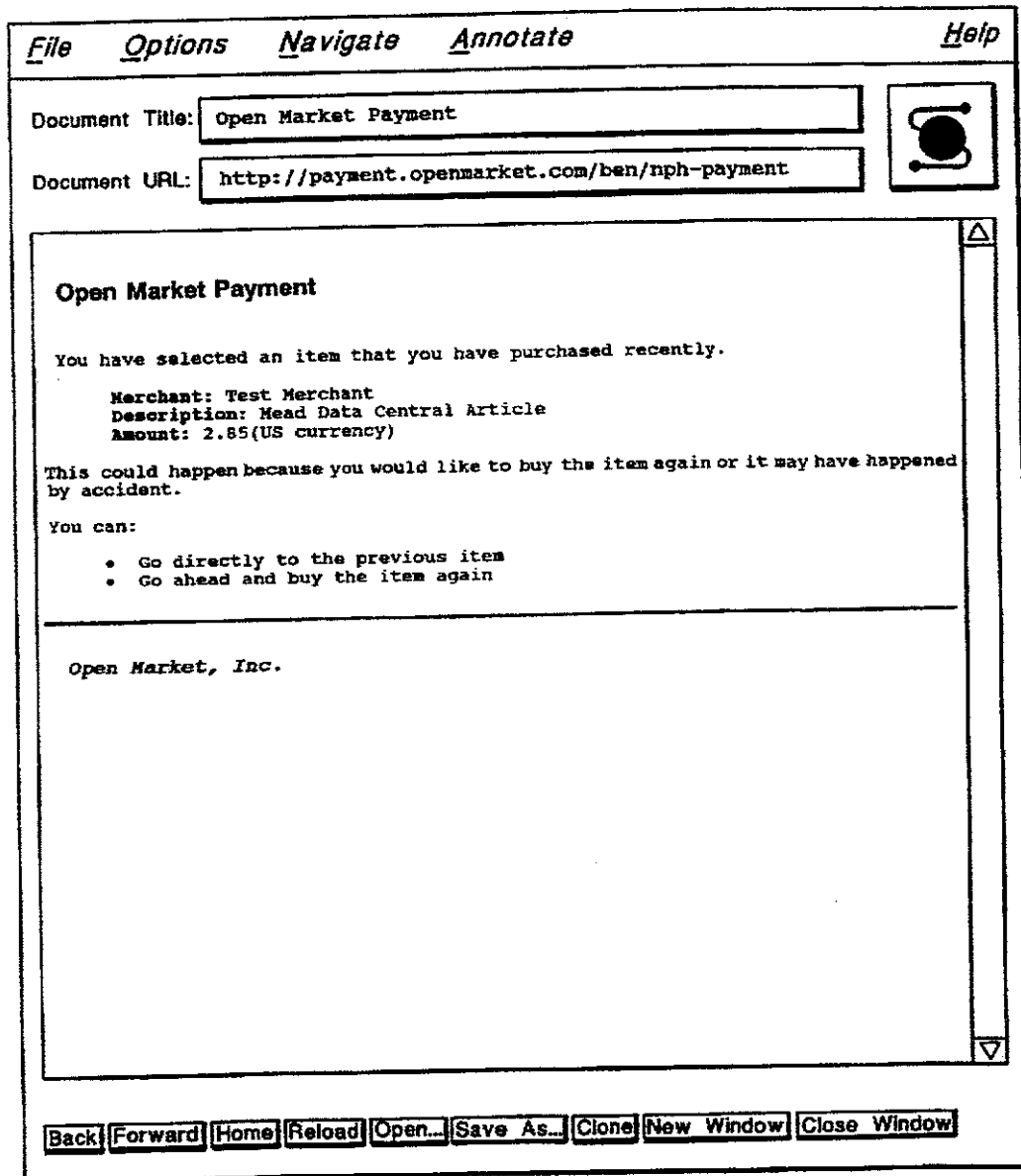


FIG. 9

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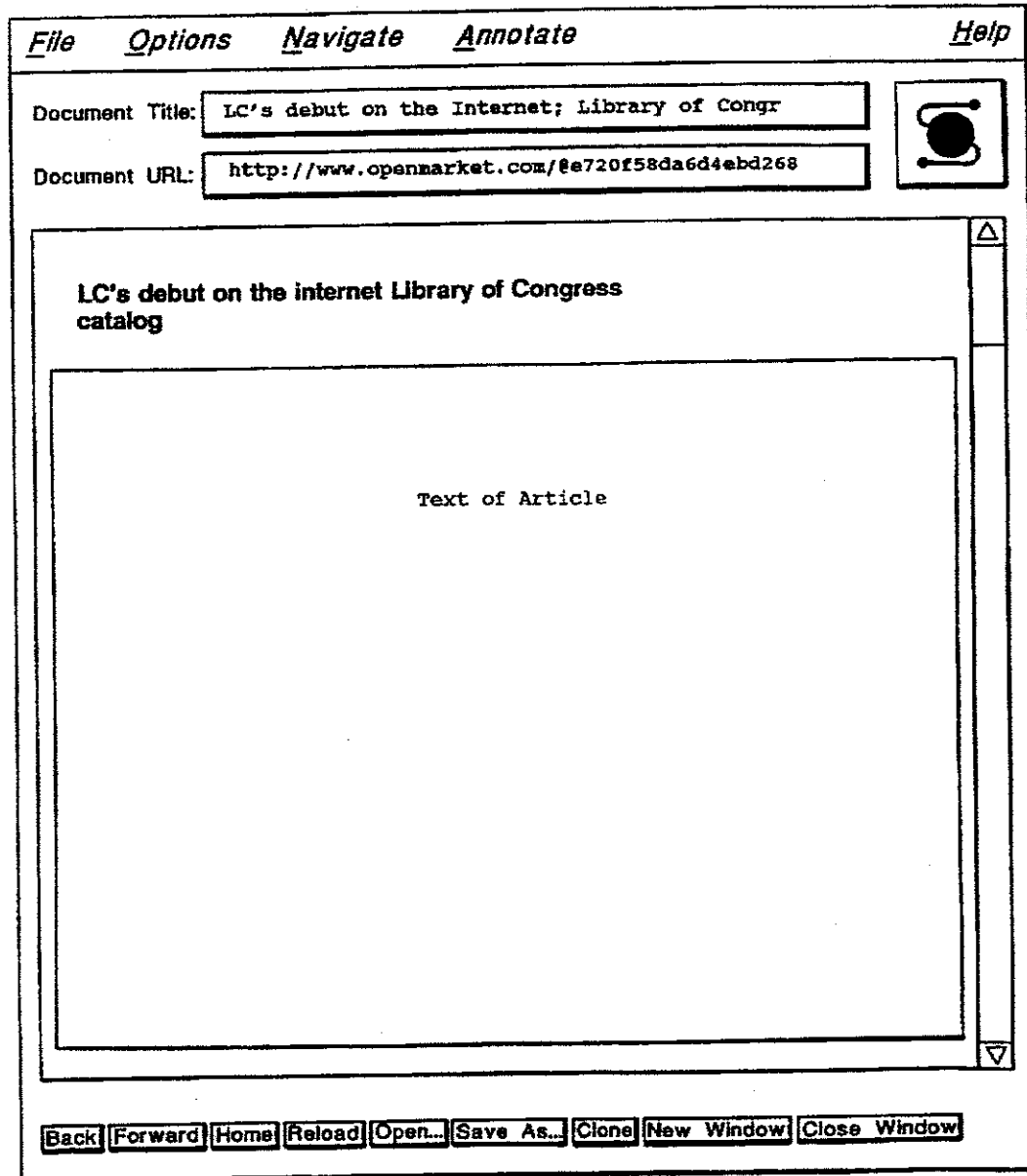


FIG. 10

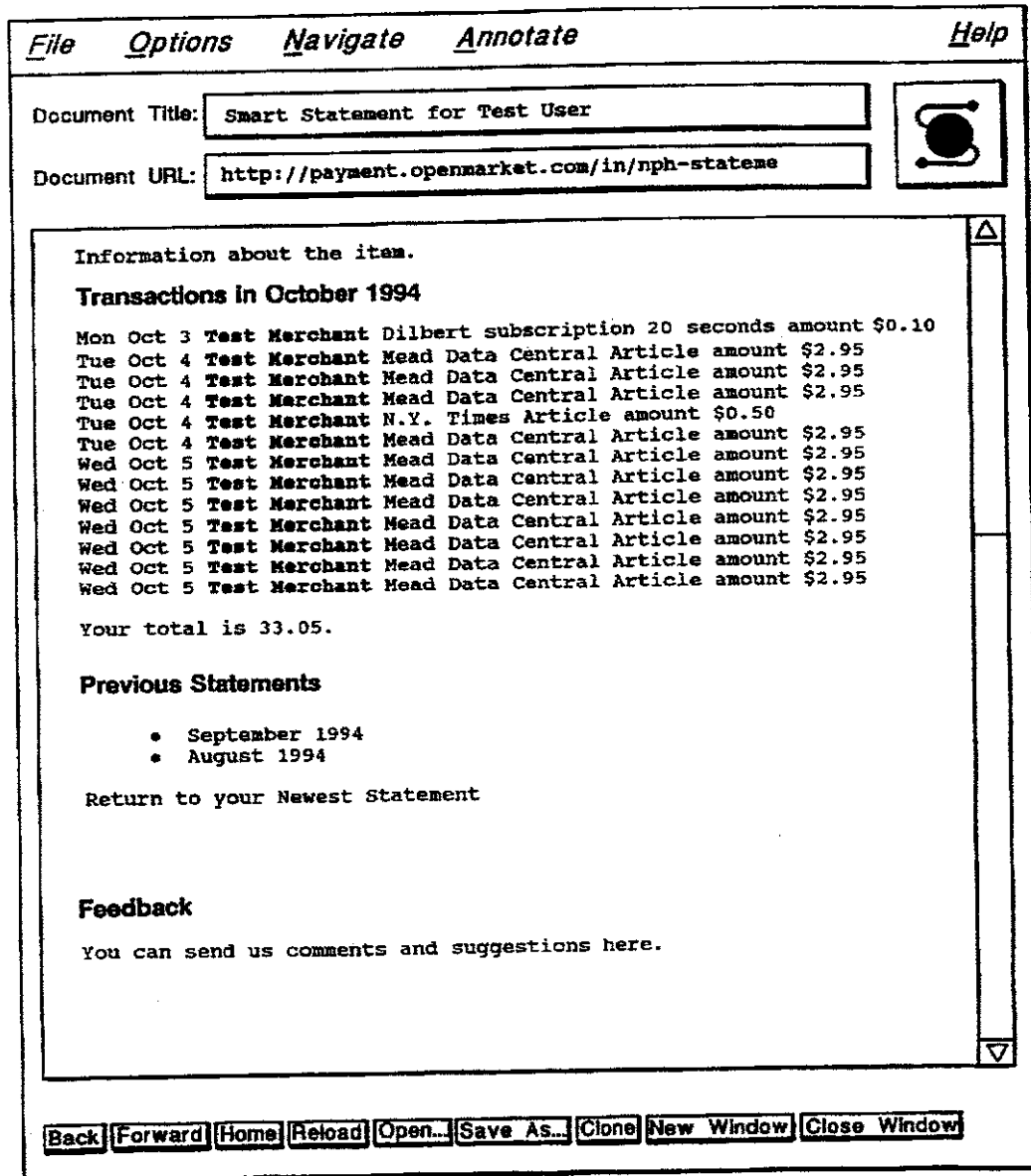


FIG. 11

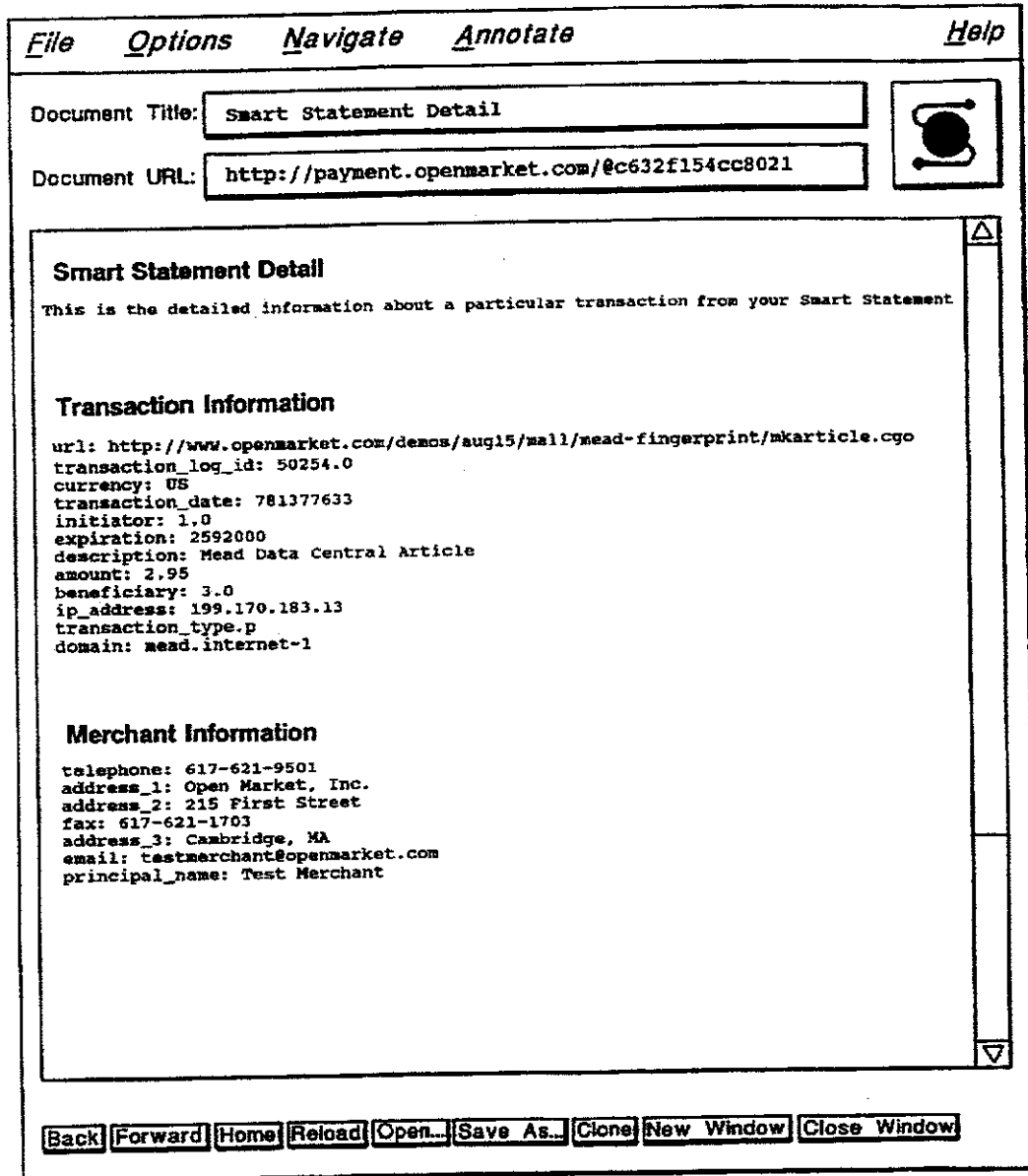


FIG. 12

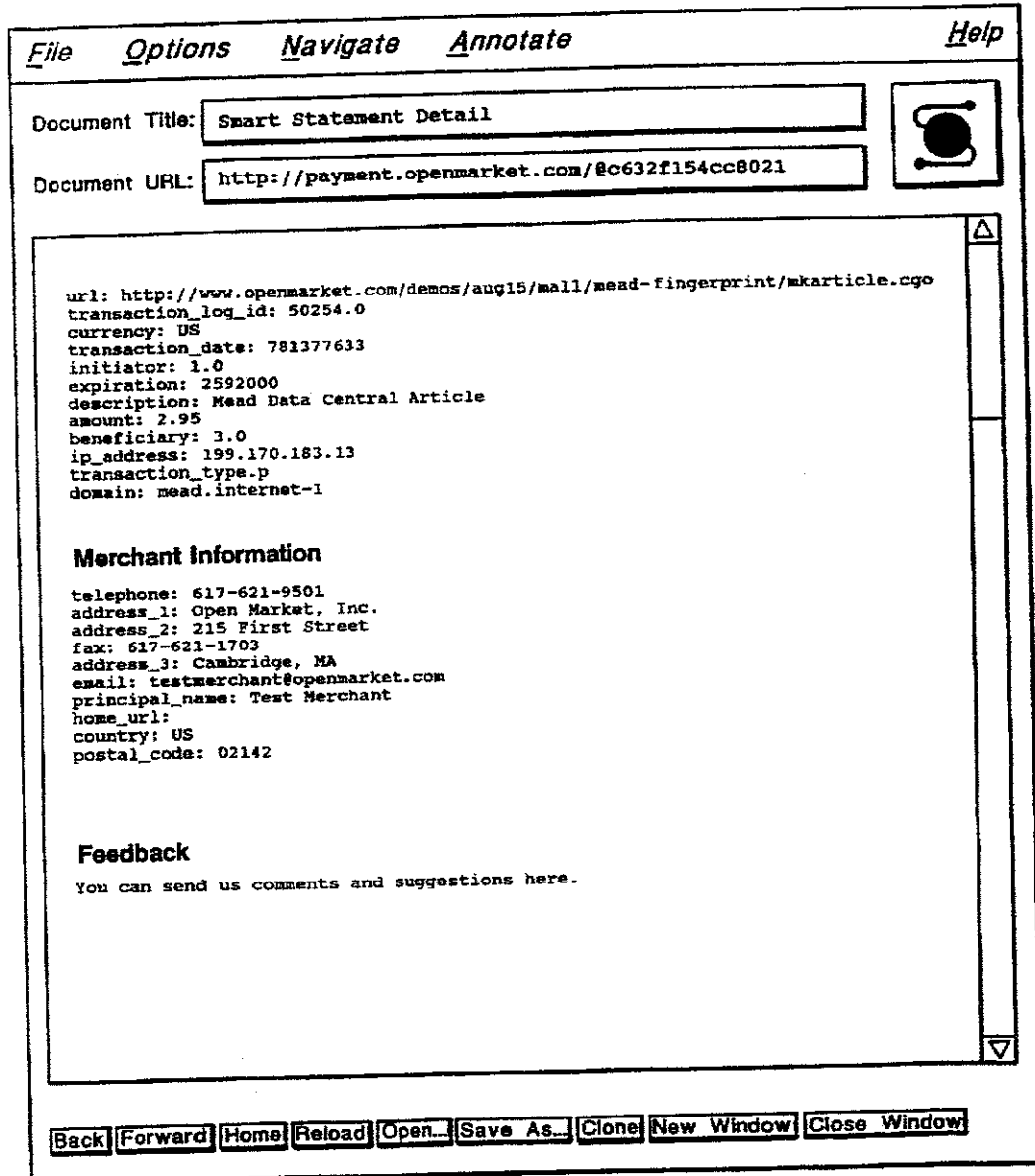



FIG. 13



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Document Title:  

Document URL:

Or if you prefer, you can send your comments via electronic mail to [feedback@openmarket.com](mailto:feedback@openmarket.com) or via FAX to +1.617.621.1703. If you would like a reply please include your e-mail address.

Your Open Market account name (optional):

Your E-mail address (optional):

Subject:

Your comments:

FIG. 14

5,715,314

1

## NETWORK SALES SYSTEM

## REFERENCES TO APPENDICES

Microfiche appendices A-G, 4 sheets of 192 images total, are being submitted with the present application.

A claim of copyright is hereby made by Open Market, Incorporated with respect to the software code contained in the microfiche appendices, as of the date of first issuance of a U.S. patent based on this application. The copyright owner has no objection to the facsimile reproduction by anyone of the microfiche appendices as they appear in the Patent and Trademark office patent file or records, but reserves all other copyright rights whatsoever.

This invention relates to user-interactive network sales systems for implementing an open marketplace for goods or services over computer networks such as the Internet.

U.S. patent application Ser. No. 08/168,519, filed Dec. 16, 1993 by David K. Gifford and entitled "Digital Active Advertising," the entire disclosure of which is hereby incorporated herein in its entirety by reference, now abandoned, describes a network sales system that includes a plurality of buyer computers, a plurality of merchant computers, and a payment computer. A user at a buyer computer asks to have advertisements displayed, and the buyer computer requests advertisements from a merchant computer, which sends the advertisements to the buyer computer. The user then requests purchase of an advertised product, and the buyer computer sends a purchase message to the merchant computer. The merchant computer constructs a payment order that it sends to the payment computer, which authorizes the purchase and sends an authorization message to the merchant computer. When the merchant computer receives the authorization message it sends the product to the buyer computer.

The above-mentioned patent application also describes an alternative implementation of the network sales system in which, when the user requests purchase of an advertised product, the buyer computer sends a payment order directly to the payment computer, which sends an authorization message back to the buyer computer that includes an unforgeable certificate that the payment order is valid. The buyer computer then constructs a purchase message that includes the unforgeable certificate and sends it to the merchant computer. When the merchant computer receives the purchase request it sends the product to the buyer computer, based upon the pre-authorized payment order.

## SUMMARY OF THE INVENTION

In one aspect, the invention provides a network-based sales system that includes at least one buyer computer for operation by a user desiring to buy a product, at least one merchant computer, and at least one payment computer. The buyer computer, the merchant computer, and the payment computer are interconnected by a computer network. The buyer computer is programmed to receive a user request for purchasing a product, and to cause a payment message to be sent to the payment computer that comprises a product identifier identifying the product. The payment computer is programmed to receive the payment message, to cause an access message to be created that comprises the product identifier and an access message authenticator based on a cryptographic key, and to cause the access message to be sent to the merchant computer. The merchant computer is programmed to receive the access message, to verify the access message authenticator to ensure that the access message authenticator was created using the cryptographic

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key, and to cause the product to be sent to the user desiring to buy the product.

The invention provides a simple design architecture for the network sales system that allows the merchant computer to respond to payment orders from the buyer computer without the merchant computer having to communicate directly with the payment computer to ensure that the user is authorized to purchase the product and without the merchant computer having to store information in a database regarding which buyers are authorized to purchase which products. Rather, when the merchant computer receives an access message from the buyer computer identifying a product to be purchased, the merchant computer need only check the access message to ensure that it was created by the payment computer (thereby establishing for the merchant computer that the buyer is authorized to purchase the product), and then the merchant computer can cause the product to be sent to the buyer computer who has been authorized to purchase the product.

In another aspect, the invention features a network-based sales system that includes at least one buyer computer for operation by a user desiring to buy products, at least one shopping cart computer, and a shopping cart database connected to the shopping cart computer. The buyer computer and the shopping cart computer are interconnected by a computer network. The buyer computer is programmed to receive a plurality of requests from a user to add a plurality of respective products to a shopping cart in the shopping cart database, and, in response to the requests to add the products, to send a plurality of respective shopping cart messages to the shopping cart computer each of which includes a product identifier identifying one of the plurality of products. The shopping cart computer is programmed to receive the plurality of shopping cart messages, to modify the shopping cart in the shopping cart database to reflect the plurality of requests to add the plurality of products to the shopping cart, and to cause a payment message associated with the shopping cart to be created. The buyer computer is programmed to receive a request from the user to purchase the plurality of products added to the shopping cart and to cause the payment message to be activated to initiate a payment transaction for the plurality of products added to the shopping cart.

In another aspect, the invention features a network-based link message system that includes at least one client computer for operation by a client user and at least one server computer for operation by a server user. The client computer and the server computer are interconnected by a computer network. The client computer is programmed to send an initial link message to the server computer. The server computer is programmed to receive the initial link message from the client computer and to create, based on information contained in the initial link message, a session link message that encodes a state of interaction between the client computer and the server computer. The session link message includes a session link authenticator, computed by a cryptographic function of the session link contents, for authenticating the session link message. The server computer is programmed to cause the session link message to be sent to the client computer. The client computer is programmed to cause the session link message to be sent to a computer in the network that is programmed to authenticate the session link message by examining the session link authenticator and that is programmed to respond to the session link message based on the state of the interaction between the client computer and the server computer.

In another aspect, the invention features a network-based sales system that includes a merchant database having a

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plurality of digital advertisements and a plurality of respective product fulfillment items, at least one creation computer for creating the merchant database, and at least one merchant computer for causing the digital advertisements to be transmitted to a user and for causing advertised products to be transmitted to the user. The creation computer and the merchant computer are interconnected by a computer network. The creation computer is programmed to create the merchant database, and to transmit the digital advertisements and the product fulfillment items to the merchant computer. The merchant computer is programmed to receive the digital advertisements and product fulfillment items, to receive a request for a digital advertisement from a user, to cause the digital advertisement to be sent to the user, to receive from the user an access message identifying an advertised product, and to cause the product to be sent to the user in accordance with a product fulfillment item corresponding to the product.

In another aspect, the invention features a hypertext statement system that includes a client computer for operation by a client user and one or more server computers for operation by a server user. The client computer and the server computers are interconnected by a computer network. At least one of the server computers is programmed to record purchase transaction records in a database. Each of the purchase transaction records includes a product description. The server computer is programmed to transmit a statement document that includes the purchase transaction records to the client computer. The client computer is programmed to display the product descriptions, to receive a request from the client user to display a product corresponding to a product description displayed by the client computer, and to cause a product hypertext link derived from a purchase transaction record to be activated. At least one of the server computers is programmed to respond to activation of the product hypertext link by causing the product to be sent to the client computer.

In another aspect, the invention features a network payment system that includes at least one buyer computer for operation by a user desiring to buy a product and at least one payment computer for processing payment messages from the buyer computer. The buyer computer and the payment computer are interconnected by a computer network. The buyer computer is programmed to cause a payment message to be sent to the payment computer. The payment message includes a product identifier identifying the product that the user desires to buy. The payment computer is programmed to receive the payment message, to cause an access message to be created to enable the user to access the product, and to record a purchase transaction record in the settlement database. The buyer computer is programmed to cause a request for purchase transaction records to be sent to the payment computer. The payment computer is programmed to receive the request for purchase transaction records and to cause a document derived from the purchase transaction records to be sent to the buyer computer.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a network sales system in accordance with the present invention.

FIG. 2 (2-A through 2-I) is a flowchart diagram illustrating the operation of a purchase transaction in the network sales system of FIG. 1.

FIG. 3 (3-A through 3-B) is a flowchart diagram illustrating the use of a shopping cart for the purchase of products in connection with the network sales system of FIG. 1.

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FIG. 4 (4-A through 4-C) is a flowchart diagram illustrating the operation of a smart statement in the network sales system of FIG. 1.

FIG. 5 is a screen snapshot of an advertising document that the merchant computer sends to the buyer computer in FIG. 2.

FIG. 6 is a screen snapshot of a confirmation document that the payment computer sends to the buyer computer in FIG. 2.

FIG. 7 is a screen snapshot of a new account document that the payment computer sends to the buyer computer in FIG. 2.

FIG. 8 is a screen snapshot of an account name prompt that the buyer computer creates in FIG. 2.

FIG. 9 is a screen snapshot of a document that the payment computer sends to the buyer computer in FIG. 2 and that provides an option either to repurchase or to use a previously purchased access.

FIG. 10 is a screen snapshot of a fulfillment document that the merchant computer sends to the buyer computer in FIG. 2.

FIG. 11 is a screen snapshot of a smart statement document that the payment computer sends to the buyer computer in FIG. 4.

FIGS. 12 and 13 are screen snapshots of a transaction detail document that the payment computer sends to the buyer computer in FIG. 4.

FIG. 14 is a screen snapshot of a customer service form that the payment computer sends to the buyer computer in FIG. 4.

#### DETAILED DESCRIPTION

With reference to FIG. 1, a network sales system in accordance with the present invention includes a buyer computer 12 operated by a user desiring to buy a product, a merchant computer 14, which may be operated by a merchant willing to sell products to the buyer or by a manager of the network sales system, a payment computer 16 typically operated by a manager of the network sales system, and a creation computer 20 typically operated by the merchant. The buyer, merchant, payment, and creation computers are all inter-connected by a computer network 10 such as the Internet.

Creation computer 20 is programmed to build a "store" of products for the merchant. A printout of a computer program for use in creating such a "store" in accordance with the present invention is provided as Appendix F.

The products advertised by merchant computer 14 may be, for example, newspaper or newsletter articles available for purchase by buyers. Creation computer 20 creates a digital advertisement database 18 that stores advertising documents (which may for example be in the form of summaries of newspaper or newsletter articles, accompanied by prices) and product fulfillment items (which may be the products themselves if the products can be transmitted over the network, or which may be hard goods identifiers if the products are hard goods, i.e., durable products as opposed to information products). Creation computer 20 transmits contents of the advertising document database 18 to merchant computer 14 to enable the merchant computer to cause advertisements and products to be sent to buyers. Merchant computer 14 maintains advertising documents locally in advertising document database 15. In an alternative embodiment, the creation computer does not have a local digital advertisement database, but instead updates a remote

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advertising document database on a merchant computer. These updates can be accomplished using HTML forms or other remote database technologies as is understood by practitioners of the art.

Payment computer 16 has access to a settlement database 22 in which payment computer 16 can record details of purchase transactions. The products may be organized into various "domains" of products, and payment computer 16 can access settlement database 22 to record and retrieve records of purchases of products falling within the various domains. Payment computer 16 also has access to a shopping cart database 21 in which a "shopping cart" of products that a user wishes to purchase can be maintained as the user shops prior to actual purchase of the contents of the shopping cart.

With reference to FIG. 2, a purchase transaction begins when a user at buyer computer 12 requests advertisements (step 24) and buyer computer 12 accordingly sends an advertising document URL (universal resource locator) to merchant computer 14 (step 26). The merchant computer fetches an advertising document from the advertising document database (step 28) and sends it to the buyer computer (step 30). An example of an advertising document is shown in FIG. 5. Details of URLs and how they are used are found in the microfiche Appendix G.

The user browses through the advertising document and eventually requests a product (step 32). This results in the buyer computer sending payment URL A to the payment computer (step 34). Payment URL A includes a product identifier that represents the product the user wishes to buy, a domain identifier that represents a domain of products to which the desired product belongs, a payment amount that represents the price of the product, a merchant computer identifier that represents merchant computer 14, a merchant account identifier that represents the particular merchant account to be credited with the payment amount, a duration time that represents the length of time for which access to the product is to be granted to the user after completion of the purchase transaction, an expiration time that represents a deadline beyond which this particular payment URL cannot be used, a buyer network address, and a payment URL authenticator that is a digital signature based on a cryptographic key. The payment URL authenticator is a hash of other information in the payment URL, the hash being defined by a key shared by the merchant and the operator of the payment computer.

In an alternative embodiment, step 34 consists of the buyer computer sending a purchase product message to the merchant computer, and the merchant computer provides payment URL A to the buyer computer in response to the purchase product message. In this alternative embodiment, payment URL A contains the same contents as above. The buyer computer then sends the payment URL A it has received from the merchant computer to the payment computer.

When the payment computer receives the payment URL it verifies whether the payment URL authenticator was created from the contents of the payment URL using the cryptographic key (step 36). If not, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step 38). Otherwise, the payment computer determines whether the expiration time has past (step 40). If it has, the payment computer sends a document to the buyer computer indicating that the time has expired (step 41). Otherwise, the payment computer checks the buyer computer network

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address to see if it matches the one specified in the payment URL (step 42). If it does not match, the payment computer sends a document to the buyer computer indicating that access to the network payment system is denied (step 43).

Otherwise, the payment computer sends a payment confirmation document to the buyer computer, the payment confirmation document including an "open" link and a "continue" link (step 44).

An example of a confirmation document is shown in FIG. 6. The confirmation document asks the user to click on a "continue" button if the user already has an account with the payment computer, or to click on an "open" button if the user does not already have an account and wishes to open one.

If the user clicks on the "open" button (step 46), the buyer computer sends payment URL C to the payment computer (step 48), payment URL C being similar to payment URL A but also indicating that the user does not yet have an account. The payment computer creates a new account document (step 50) and sends it to the buyer computer (step 52). An example of a new account document is shown in FIG. 7. When the user receives the new account document he enters the new account name, an account password, a credit card number, the credit card expiration date, and security information such as the maiden name of the user's mother (step 54), and presses a "submit" button (not shown in FIG. 7). The buyer computer sends the new account information to the payment computer (step 56), which enters the new account in the settlement database (step 58).

If the user clicks on the "continue" button (step 60), the buyer computer sends payment URL B to the payment computer (step 62), payment URL B being similar to payment URL A but also indicating that the user already has an account. The payment computer then instructs the buyer computer to provide the account name and password (steps 64 and 66), and the buyer computer prompts the user for this information by creating an account name prompt (example shown in FIG. 8) and a similar password prompt. The user enters the information (step 68) and the buyer computer sends the account name and password to the payment computer (step 70).

The payment computer verifies whether the user name and password are correct (step 72). If they are not correct, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step 74). Otherwise, the payment computer determines whether additional security is warranted, based on, e.g., whether the payment amount exceeds a threshold (step 73). If additional security is warranted, the payment computer creates a challenge form document and sends it to the buyer computer (step 75). The user enters the security information (step 77), the buyer computer sends the security information to the payment computer (step 79), and the payment computer determines whether the security information is correct (step 81). If it is not correct, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step 83).

If the security information is correct, or if additional security was not warranted, the payment computer checks the settlement database to determine whether the user has unexpired access to the domain identifier contained in the payment URL (step 82). If so, the payment computer sends to the buyer computer a document providing an option either to repurchase or to use the previously purchased access (step 84). An example of such a document is shown in FIG. 9. The

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user can respond to the recent purchase query document by choosing to access the previously purchased document (step 85) or to go ahead and buy the currently selected product (step 86).

If the user chooses to access the previously purchased document, the buyer computer skips to step 92 (see below). If the user chooses to buy the currently selected product, the payment computer calculates an actual payment amount that may differ from the payment amount contained in the payment URL (step 87). For example, the purchase of a product in a certain domain may entitle the user to access other products in the domain for free or for a reduced price for a given period of time.

The payment computer then verifies whether the user account has sufficient funds or credit (step 76). If not, the payment computer sends a document to the buyer computer indicating that the user account has insufficient funds (step 78). Otherwise, the payment computer creates an access URL (step 80) that includes a merchant computer identifier, a domain identifier, a product identifier, an indication of the end of the duration time for which access to the product is to be granted, the buyer network address, and an access URL authenticator that is a digital signature based on a cryptographic key. The access URL authenticator is a hash of other information in the access URL, the hash being defined by a key shared by the merchant and the operator of the payment computer. The payment computer then records the product identifier, the domain, the user account, the merchant account, the end of duration time, and the actual payment amount in the settlement database (step 88).

The payment computer then sends a redirect to access URL to the buyer computer (step 90), which sends the access URL to the merchant computer (step 92). The merchant computer verifies whether the access URL authenticator was created from the contents of the access URL using the cryptographic key (step 94). If not, the merchant computer sends a document to the buyer computer indicating that access to the product is denied (step 96).

Otherwise, the merchant computer verifies whether the duration time for access to the product has expired (step 98). This is done because the buyer computer can request access to a purchased product repeatedly. If the duration time has expired, the merchant computer sends a document to the buyer computer indicating that the time has expired (step 100). Otherwise the merchant computer verifies that the buyer computer network address is the same as the buyer network address in the access URL (step 101), and if so, sends a fulfillment document to the buyer computer (step 102), which is displayed by the buyer computer (step 104). An example of a fulfillment document is shown in FIG. 10. Otherwise, the merchant computer sends a document to the buyer computer indicating that access is not allowed (step 103).

With reference now to FIG. 3, when the merchant computer sends the advertising document to the buyer computer, the user may request that a product be added to a shopping cart in the shopping cart database rather than request that the product be purchased immediately. The buyer computer sends a shopping cart URL to the payment computer (step 108), the shopping cart URL including a product identifier, a domain identifier, a payment amount, a merchant computer identifier, a merchant account identifier, a duration time, an expiration time, and a shopping cart URL authenticator that is a digital signature based on a cryptographic key. The shopping cart URL authenticator is a hash of other information in the shopping cart URL, the hash being defined by

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a key shared by the merchant and the operator of the payment computer.

The payment computer verifies whether the shopping cart URL authenticator was created from the contents of the shopping cart URL using a cryptographic key (step 110). If not, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step 112). Otherwise, before any modification to a user's shopping cart is allowed, user authentication is performed (step 113) in a manner analogous to steps 40-81. Once the user is authenticated, the payment computer creates or updates a payment URL for the shopping cart (step 114).

The user then either requests more advertisements (step 24 in FIG. 2) and possibly adds another product to the shopping cart, requests display of the shopping cart (step 116), or requests purchase of the entire contents of the shopping cart (step 124). If the user requests display of the shopping cart (step 116), the buyer computer sends a fetch shopping cart request to the payment computer (step 118), and the payment computer and buyer computer (step 119) perform steps analogous to steps 64-81. The payment computer returns the contents of the shopping cart to the buyer computer (step 120), which displays the contents of the shopping cart (step 122). If the user requests that the entire contents of the shopping cart be purchased (step 124) the buyer computer causes the payment URL for the shopping cart to be activated (step 126) and the payment URL is processed in a manner analogous to the processing of payment URLs for individual products (beginning with step 36 in FIG. 2).

With reference now to FIG. 4, a user can request display of a "smart statement" that lists purchase transactions for a given month (step 128). When the buyer computer receives such a request, it sends a smart statement URL to the payment computer (step 130).

When the payment computer receives the smart statement URL, it verifies whether the smart statement URL authenticator was created from the contents of the smart statement URL using a cryptographic key (step 132). If not, the payment computer sends a document to the buyer computer indicating that access is denied (step 134). Otherwise, the payment computer checks to determine whether the buyer network address in the smart statement URL matches the buyer computer's actual network address (step 136). If not, the payment computer sends a document to the buyer computer indicating that access is denied (step 138). Otherwise (step 140), the payment computer and buyer computer perform a set of steps analogous to steps 64-81 in FIG. 2 (payment computer requests account name and password, user provides the requested information, and payment computer verifies the information).

In an alternative embodiment steps 132-138 are omitted.

After verification of account information is complete, the payment computer retrieves the requested settlement data from the settlement database, creates a smart statement document for the buyer, and sends the smart statement document to the buyer computer (step 142). An example of a smart statement document is shown in FIG. 11. Each purchase transaction record in the smart statement document includes the data of the transaction, the name of the merchant, an identification of the product, and the payment amount for the product. The smart statement document also includes a transaction detail URL for each purchase transaction (these URLs, or hypertext links, are discussed below and are not shown in FIG. 11). The smart statement docu-

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ment also identifies previous statements that the user may wish to have displayed.

The buyer computer displays the retrieved document (step 144), and the user may request transaction details for a particular transaction listed on the smart statement (step 146). If so, the buyer computer sends a transaction detail URL (or "payment detail URL") to the payment computer (step 148). The transaction detail URL includes a transaction identifier, a buyer network address, and a transaction detail URL authenticator. When the payment computer receives the transaction detail URL, it performs (step 150) a set of steps analogous to steps 132-140 (verification of URL authenticator, buyer network address, and account information). The payment computer then retrieves from the settlement database data corresponding to the payment transaction specified in the transaction detail URL, creates a transaction detail document, and sends it to the buyer computer (step 152).

An example of a transaction detail document is shown in FIGS. 12 and 13. The document displays a number of items of information about the transaction, including the transaction date, end of the duration time ("expiration"), a description of the product, the payment amount, the domain corresponding to the product, an identification of the merchant, and the merchant's address.

The smart statement document and the transaction detail document both include customer service URLs (hypertext links) that allow the user to request customer service (i.e., to send comments and suggestions to the payment computer). When the user requests customer service (step 154), the buyer computer sends the customer service URL to the payment computer (step 156), which creates a customer service form and sends it to the buyer computer (step 158). An example of a customer service form is shown in FIG. 14. The user types comments into the customer service form (step 160), and the buyer computer sends the user's comments to the payment computer (step 162). The payment computer then posts the user comments and sends a thank you document to the buyer computer (step 164).

A user may request display of a product included in the smart statement. When the user requests that the product be displayed (step 166), the buyer computer sends the access URL contained in the smart statement document to the merchant computer (step 168), and the buyer computer and merchant computer perform a set of steps analogous to steps 94-104 in FIG. 2 (authentication of access URL, verification whether duration time has expired, verification of buyer network address, and transmission of fulfillment document to buyer computer).

Whenever the present application states that one computer sends a URL to another computer, it should be understood that in preferred embodiments the URL is sent in a standard HTTP request message, unless a URL message is specified as a redirection in the present application. The request message includes components of the URL as described by the standard HTTP protocol definition. These URL components in the request message allow the server to provide a response appropriate to the URL. The term "URL" as used the present application is an example of a "link," which is a pointer to another document or form (including multimedia documents, hypertext documents including other links, or audio/video documents).

When the present application states that one computer sends a document to another computer, it should be understood that in preferred embodiments the document is a success HTTP response message with the document in the

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body of the message. When the present application states that a server sends an account name and password request message to the client, it should be understood that in preferred embodiments the account name and password request message is an unauthorized HTTP response. A client computer sends account name and password information to a server as part of a request message with an authorization field.

The software architecture underlying the particular preferred embodiment is based upon the hypertext conventions of the World Wide Web. Appendix A describes the Hypertext Markup Language (HTML) document format used to represent digital advertisements. Appendix B describes the HTML forms fill out support in Mosaic 2.0. Appendix C is a description of the Hypertext Transfer Protocol (HTTP) between buyer and merchant computers. Appendix D describes how documents are named with Uniform Resource Locators (URLs) in the network of computers, and Appendix E describes the authentication of URLs using digital signatures.

A printout of a computer program for use in creating and operating such a "store" in accordance with the present invention is provided as Appendix F. A printout of a computer program for use in operating other aspects of the network sales system in accordance with the present invention is provided in the microfiche appendix G.

There has been described a new and useful network-based sales system. It is apparent that those skilled in the art may make numerous modifications and departures from the specific embodiments described herein without departing from the spirit and scope of the claimed invention.

What is claimed is:

1. A network-based sales system, comprising:

at least one buyer computer for operation by a user desiring to buy a product;

at least one merchant computer; and

at least one payment computer;

said buyer computer, said merchant computer, and said payment computer being interconnected by a computer network;

said buyer computer being programmed to receive a user request for purchasing a product, and to cause a payment message to be sent to said payment computer that comprises a product identifier identifying said product;

said payment computer being programmed to receive said payment message, to cause an access message to be created that comprises said product identifier and an access message authenticator based on a cryptographic key, and to cause said access message to be sent to said merchant computer; and

said merchant computer being programmed to receive said access message, to verify said access message authenticator to ensure that said access message authenticator was created using said cryptographic key, and to cause said product to be sent to said user desiring to buy said product.

2. A network-based sales system in accordance with claim 1, wherein said payment message and said access message each comprises a universal resource locator.

3. A network-based sales system in accordance with claim 1, wherein said payment computer is programmed to identify said merchant computer upon receipt of said payment message from said buyer computer.

4. A network-based sales system in accordance with claim 1, wherein said access message comprises a buyer network address.

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5. A network-based sales system in accordance with claim 4, wherein:
- said product can be transmitted from one computer to another; and
- said merchant computer causes said product to be sent to said user by transmitting said product to said buyer network address only.
6. A network-based sales system in accordance with claim 4, wherein said merchant computer is programmed to verify whether said buyer network address in said access message matches the actual network address of said buyer computer.
7. A network-based sales system in accordance with claim 1, wherein said payment message comprises a buyer network address.
8. A network-based sales system in accordance with claim 7, wherein said payment computer is programmed to verify whether said buyer network address in said payment message matches the actual network address of said buyer computer.
9. A network-based sales system in accordance with claim 1, wherein said access message authenticator comprises a cryptographic function of contents of said access message based on said cryptographic key.
10. A network-based sales system in accordance with claim 1, wherein said payment computer is programmed to verify said payment message authenticator to ensure that said payment message authenticator was created using said cryptographic key.
11. A network-based sales system in accordance with claim 10, wherein said payment message authenticator comprises a cryptographic function of contents of said payment message based on said cryptographic key.
12. A network-based sales system in accordance with claim 1, wherein said payment message comprises a payment amount.
13. A network-based sales system in accordance with claim 1, wherein said payment message comprises a merchant account identifier that identifies a merchant account.
14. A network-based sales system in accordance with claim 1, wherein said buyer computer is programmed to transmit a user account identifier to said payment computer that identifies a user account.
15. A network-based sales system in accordance with claim 14, wherein:
- said payment message comprises a payment amount; and
- said payment computer is programmed to ensure that said user account has sufficient funds or credit to cover said payment amount.
16. A network-based sales system in accordance with claim 14, wherein:
- said payment message comprises a payment amount and a merchant account identifier that identifies a merchant account; and
- said payment computer is programmed to record said payment amount, said user account, and said merchant account in a settlement database.
17. A network-based sales system in accordance with claim 16, wherein:
- said payment message comprises a domain identifier; and
- said payment computer is programmed to record said domain identifier and said user account in a settlement database.
18. A network-based sales system in accordance with claim 17, wherein said payment computer is programmed to check said settlement database, upon receipt of said payment message, to determine whether said user account has previously purchased a product associated with said domain identifier.

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19. A network-based sales system in accordance with claim 18, wherein said payment computer is programmed to determine an actual payment amount for said product identified by said product identifier in said payment message based on whether said user account has previously purchased a product associated with said domain identifier.
20. A network-based sales system in accordance with claim 1, wherein said buyer computer is programmed to transmit a user authenticator to said payment computer and said payment computer is programmed to verify said user authenticator.
21. A network-based sales system in accordance with claim 20, wherein said user authenticator comprises a password.
22. A network-based sales system in accordance with claim 20, wherein:
- said buyer computer is programmed to transmit security information to said payment computer;
- said payment computer is programmed to transmit a challenge form to said buyer computer under a predetermined condition, said challenge form asking for said security information previously transmitted by said buyer computer to said payment computer;
- said payment computer is programmed to respond to said challenge form by querying said user for said security information and transmitting said security information to said payment computer; and
- said payment computer is programmed to verify authenticity of said security information.
23. A network-based sales system in accordance with claim 22, wherein:
- said payment message comprises a payment amount; and
- said predetermined condition comprises receipt of a payment amount in said payment message that exceeds a threshold.
24. A network-based sales system in accordance with claim 1, wherein said payment message comprises a merchant computer identifier that identifies said merchant computer.
25. A network-based sales system in accordance with claim 24, wherein said access message comprises said merchant computer identifier.
26. A network-based sales system in accordance with claim 1, wherein said payment message comprises a duration time that specifies a length of time for which access to said product is to be granted.
27. A network-based sales system in accordance with claim 26, wherein said payment computer is programmed to use said duration time to compute an end of duration time and to cause said end of duration time to be included in said access message.
28. A network-based sales system in accordance with claim 27, wherein said merchant computer is programmed to verify, upon receipt of said access message, that said end of duration time has not past.
29. A network-based sales system in accordance with claim 1, wherein said payment message comprises an expiration time after which said payment message can no longer be used.
30. A network-based sales system in accordance with claim 29, wherein said payment computer is programmed to verify, upon receipt of said payment message, that said expiration time has not past.
31. A network-based sales system in accordance with claim 1, wherein:
- said payment computer is programmed to cause said access message to be sent to said buyer computer; and

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said buyer computer is programmed to cause said access message received from said payment computer to be sent to said merchant computer.

32. A network-based sales system, comprising:  
at least one buyer computer for operation by a user  
desiring to buy a product;  
at least one merchant computer; and  
at least one payment computer;  
said buyer computer, said merchant computer, and said  
payment computer being interconnected by a computer  
network;

said buyer computer being programmed to receive a user  
request for purchasing a product, and to cause a pay-  
ment URL to be sent to said payment computer that  
comprises a product identifier identifying said product,  
a payment amount, and a payment URL authenticator  
comprising a cryptographic function of contents of said  
payment URL based on a cryptographic key;

said payment computer being programmed to receive said  
payment URL, to verify said payment URL authenti-  
cator to ensure that said payment URL authenticator  
was created using said cryptographic key, to ensure that  
said user has sufficient funds or credit to cover said  
payment amount, to identify said merchant computer  
operated by said merchant willing to sell said product  
to said buyer, to cause an access URL to be created that  
comprises said product identifier and an access URL  
authenticator comprising a cryptographic function of  
contents of said access URL based on a cryptographic  
key, and to cause said access URL to be sent to said  
buyer computer;

said buyer computer being programmed to cause said  
access URL received from said payment computer to be  
sent to said merchant computer; and

said merchant computer being programmed to receive  
said access URL, to verify said access URL authenti-  
cator to ensure that said access URL authenticator was  
created using said cryptographic key, and to cause said  
product to be sent to said user desiring to buy said  
product.

33. A method of operating a payment computer in a  
computer network comprising at least one buyer computer  
for operation by a user desiring to buy a product, at least one  
merchant computer, and at least one payment computer, the  
method comprising the steps of:

receiving, at said payment computer, a payment message  
that said buyer computer has caused to be sent to said  
payment computer in response to a user request for  
purchasing a product, said payment message compris-  
ing a product identifier identifying said product;

causing an access message to be created that comprises  
said product identifier and an access message authenti-  
cator based on a cryptographic key; and

causing said access message to be sent to said merchant  
computer, said merchant computer being programmed  
to receive said access message, to verify said access  
message authenticator to ensure that said access mes-  
sage authenticator was created using said cryptographic  
key, and to cause said product to be sent to said user  
desiring to buy said product.

34. A network-based sales system, comprising:  
at least one buyer computer for operation by a user  
desiring to buy products;  
at least one shopping cart computer; and  
a shopping cart database connected to said shopping cart  
computer;

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said buyer computer and said shopping cart computer  
being interconnected by a computer network;

said buyer computer being programmed to receive a  
plurality of requests from a user to add a plurality of  
respective products to a shopping cart in said shopping  
cart database, and, in response to said requests to add  
said products, to send a plurality of respective shopping  
cart messages to said shopping cart computer each of  
which comprises a product identifier identifying one of  
said plurality of products;

said shopping cart computer being programmed to receive  
said plurality of shopping cart messages, to modify said  
shopping cart in said shopping cart database to reflect  
said plurality of requests to add said plurality of prod-  
ucts to said shopping cart, and to cause a payment  
message associated with said shopping cart to be cre-  
ated; and

said buyer computer being programmed to receive a  
request from said user to purchase said plurality of  
products added to said shopping cart and to cause said  
payment message to be activated to initiate a payment  
transaction for said plurality of products added to said  
shopping cart;

said shopping cart being a stored representation of a  
collection of products, said shopping cart database  
being a database of stored representations of collections  
of products, and said shopping cart computer being a  
computer that modifies said stored representations of  
collections of products in said database.

35. A network-based sales system in accordance with  
claim 34, wherein said shopping cart computer is pro-  
grammed to cause said payment message to be created  
before said buyer computer causes said payment message to  
be activated.

36. A network-based sales system in accordance with  
claim 34, wherein said buyer computer is programmed to  
receive a request from said user to display said plurality of  
products added to said shopping cart.

37. A network-based sales system in accordance with  
claim 36, wherein said buyer computer is programmed to  
transmit a fetch shopping cart request to said payment  
computer in response to receipt of said request from said  
user.

38. A network-based sales system in accordance with  
claim 37, wherein:

said payment computer is programmed to respond to said  
fetch shopping cart request by transmitting a message  
to said buyer computer indicating said plurality of  
products added to said shopping cart; and

said buyer computer is programmed to display said plu-  
rality of products added to said shopping cart.

39. A method of operating a shopping cart computer in a  
computer network comprising at least one buyer computer  
for operation by a user desiring to buy products, at least one  
shopping cart computer, and a shopping cart database con-  
nected to said shopping cart computer, said method com-  
prising the steps of:

receiving, at said shopping cart computer, a plurality of  
shopping cart messages sent to said shopping cart  
computer by said buyer computer in response to receipt  
of a plurality of requests from a user to add a plurality  
of respective products to a shopping cart in said shop-  
ping cart database, each of said shopping cart messages  
comprising a product identifier identifying one of said  
plurality of products;

modifying said shopping cart in said shopping cart data-  
base to reflect said plurality of requests to add said  
plurality of products to said shopping cart; and



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causing a payment message associated with said shopping cart to be created;

said buyer computer being programmed to receive a request from said user to purchase said plurality of products added to said shopping cart and to cause said payment message to be activated to initiate a payment transaction for said plurality of products added to said shopping cart;

said shopping cart being a stored representation of a collection of products, said shopping cart database being a database of stored representations of collections of products, and said shopping cart computer being a computer that modifies said stored representations of collections of products in said database.

40. A network-based link message system, comprising: at least one client computer for operation by a client user; and

at least one server computer for operation by a server user; said client computer and said server computer being interconnected by a computer network;

said client computer being programmed to send an initial link message to said server computer;

said server computer being programmed to receive said initial link message from said client computer, to create, based on information contained in said initial link message, a session link message that encodes a state of interaction between said client computer and said server computer, said session link message comprising a session link authenticator, computed by a cryptographic function of said session link contents, for authenticating said session link message, and to cause said session link message to be sent to said client computer;

said client computer being programmed to cause said session link message to be sent to a computer in said network that is programmed to authenticate said session link message by examining said session link authenticator and that is programmed to respond to said session link message based on said state of said interaction between said client computer and said server computer.

41. A network-based link message system in accordance with claim 40, wherein:

said client computer comprises a buyer computer for operation by a user desiring to buy a product;

said server computer comprises a payment computer for operation by a manager of said network-based link message system; and

said network-based link message system further comprises a merchant computer for operation by a merchant willing to sell said product to said buyer.

42. A network-based link message system in accordance with claim 41, wherein said computer that is programmed to

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authenticate said session link message comprises said merchant computer.

43. A network-based link message system in accordance with claim 41, wherein said initial link message comprises a payment message to said payment computer that comprises a product identifier identifying said product.

44. A network-based link message system in accordance with claim 43, wherein said session link message comprises an access message that comprises said product identifier to be created.

45. A network-based link message system in accordance with claim 44, wherein said merchant computer is programmed to respond to said access message by causing said product to be sent to said user desiring to buy said product.

46. A network-based link message system in accordance with claim 40, wherein said initial link message and said session link message comprise universal resource locators.

47. A network-based link message system in accordance with claim 40, wherein:

said session link authenticator comprises a cryptographic function of contents of said session link message based on a cryptographic key; and

said computer to which said client computer is programmed to cause said session link message to be sent is programmed to verify that said session link authenticator was created using said cryptographic key.

48. A method of operating a server computer in a network-based link message system comprising at least one client computer for operation by a client user and at least one server computer for operation by a server user, said client computer and said server computer being interconnected by a computer network, said method comprising the steps of:

receiving, at said server computer, an initial link message sent to said server computer by said client computer;

creating, based on information contained in said initial link message, a session link message that encodes a state of interaction between said client computer and said server computer, said session link message comprising a session link authenticator, computed by a cryptographic function of said session link contents, for authenticating said session link message; and

causing said session link message to be sent to said client computer;

said client computer being programmed to cause said session link message to be sent to a computer in said network that is programmed to authenticate said session link message by examining said session link authenticator and that is programmed to respond to said session link message based on said state of said interaction between said client computer and said server computer.

\* \* \* \* \*

# EXHIBIT 2



US005909492A

**United States Patent** [19]

[11] **Patent Number:** 5,909,492

**Payne et al.**

[45] **Date of Patent:** Jun. 1, 1999

[54] **NETWORK SALES SYSTEM**

[75] **Inventors:** Andrew C. Payne, Lincoln; Lawrence C. Stewart, Burlington, both of Mass.; David J. Mackie, Brookdale, Calif.

[73] **Assignee:** Open Market, Incorporated, Cambridge, Mass.

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[21] **Appl. No.:** 08/878,396

[22] **Filed:** Jun. 18, 1997

**Related U.S. Application Data**

[63] Continuation of application No. 08/328,133, Oct. 24, 1994, Pat. No. 5,715,314.

[51] **Int. Cl.<sup>6</sup>** H04L 9/00

[52] **U.S. Cl.** 380/24; 380/23; 380/25; 380/49; 380/50; 705/26; 705/27; 705/39; 705/40; 705/44

[58] **Field of Search** 380/4, 9, 21, 23, 380/24, 25, 49, 50; 235/379, 380; 705/26, 27, 39, 40, 41, 42, 43, 44, 14, 16

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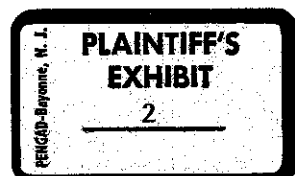
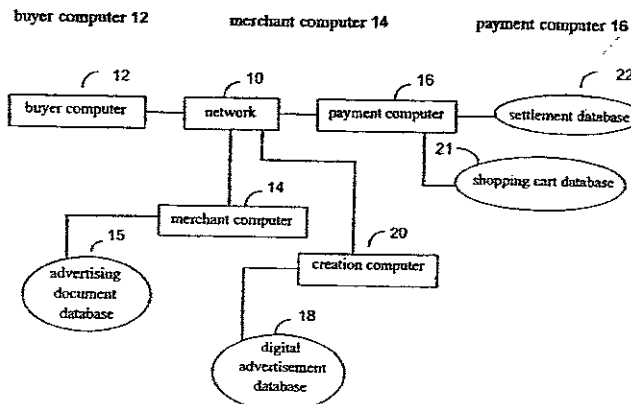
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*Primary Examiner*—Bernarr E. Gregory  
*Attorney, Agent, or Firm*—Fish & Richardson P.C.

[57] **ABSTRACT**

A network-based sales system includes at least one buyer computer for operation by a user desiring to buy a product, at least one merchant computer, and at least one payment computer. The buyer computer, the merchant computer, and the payment computer are interconnected by a computer network. The buyer computer is programmed to receive a user request for purchasing a product, and to cause a payment message to be sent to the payment computer that comprises a product identifier identifying the product. The payment computer is programmed to receive the payment message, to cause an access message to be created that comprises the product identifier and an access message authenticator based on a cryptographic key, and to cause the access message to be sent to the merchant computer. The merchant computer is programmed to receive the access message, to verify the access message authenticator to ensure that the access message authenticator was created using the cryptographic key, and to cause the product to be sent to the user desiring to buy the product.

38 Claims, 25 Drawing Sheets



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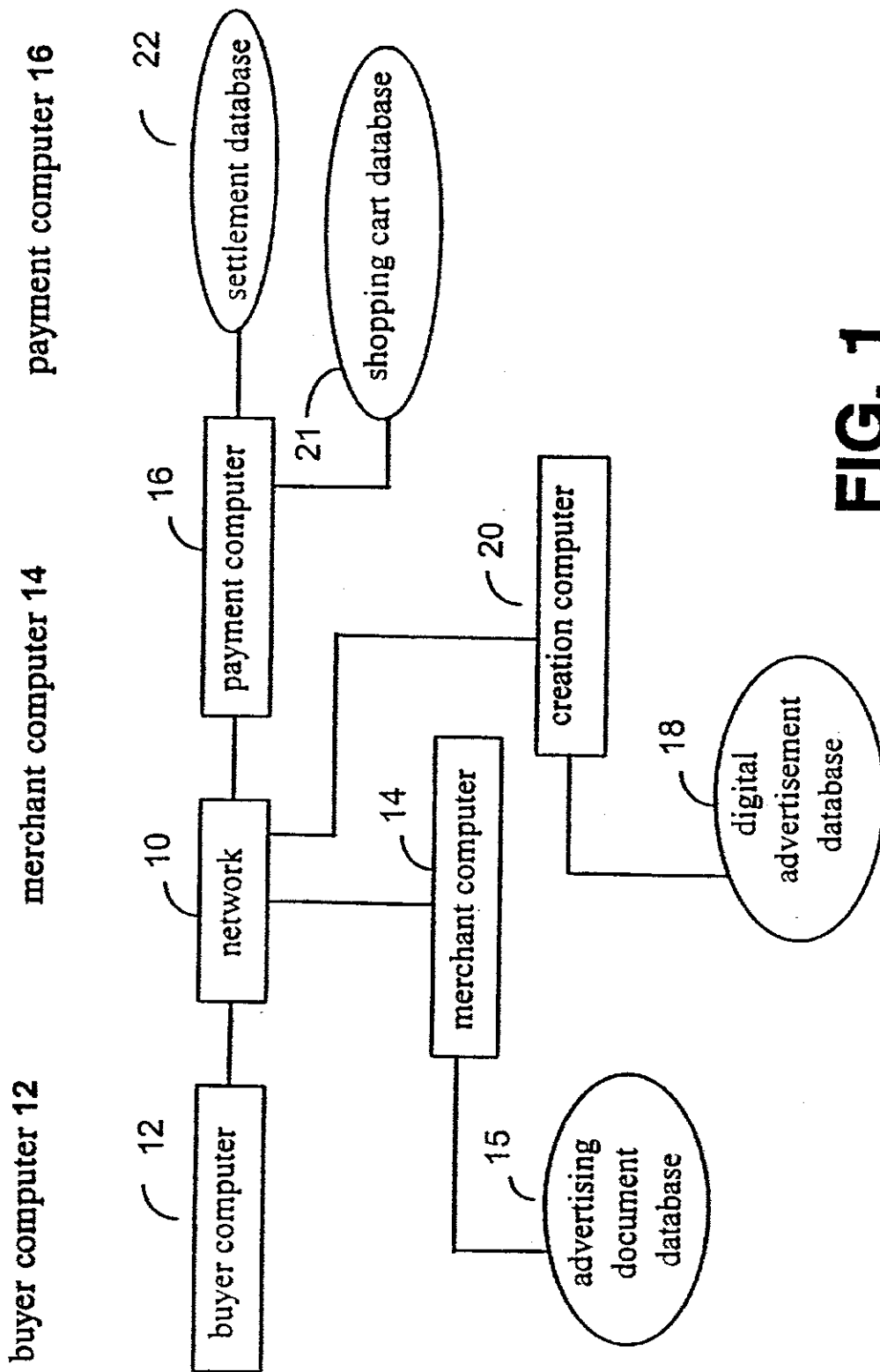


FIG. 1

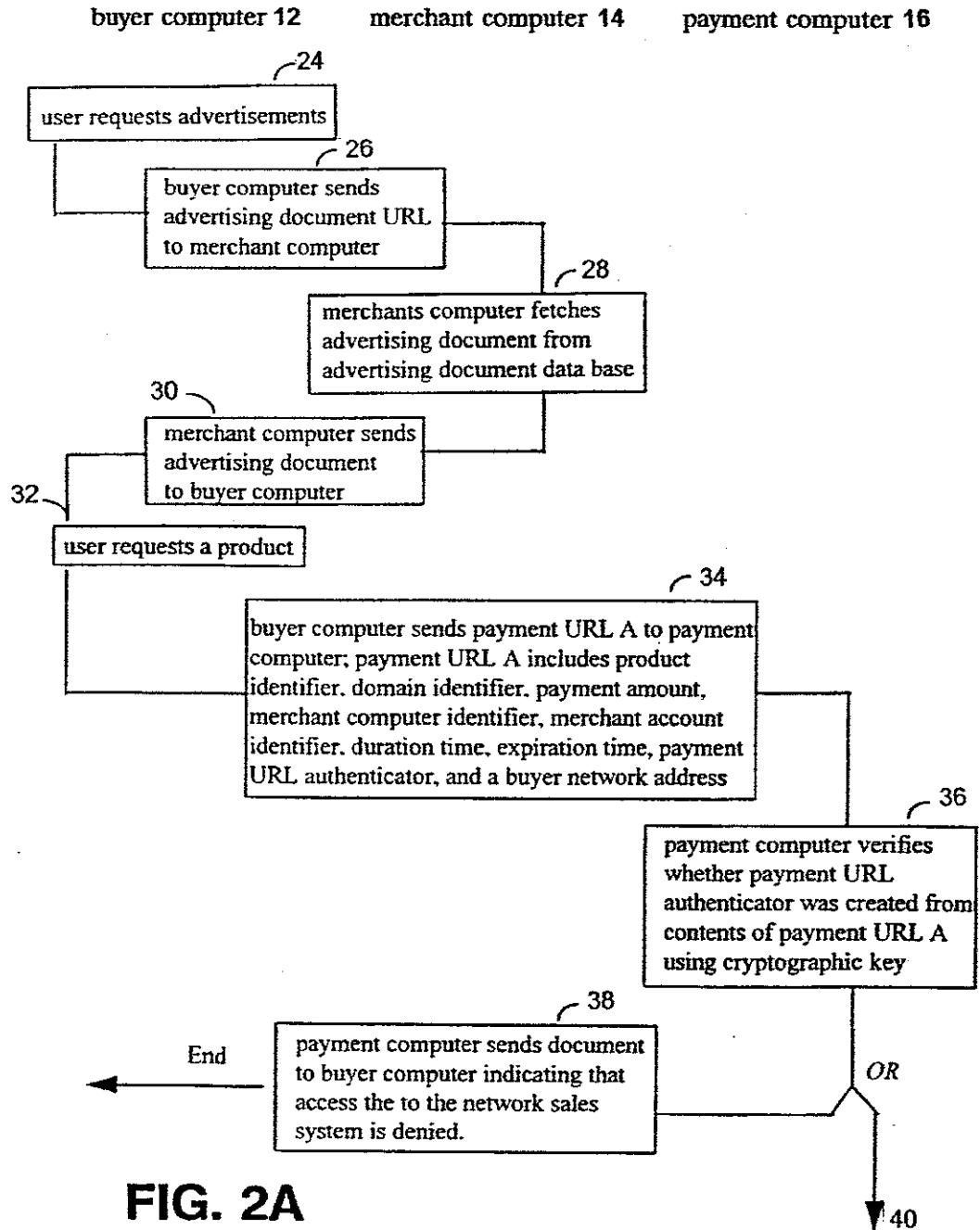


FIG. 2A

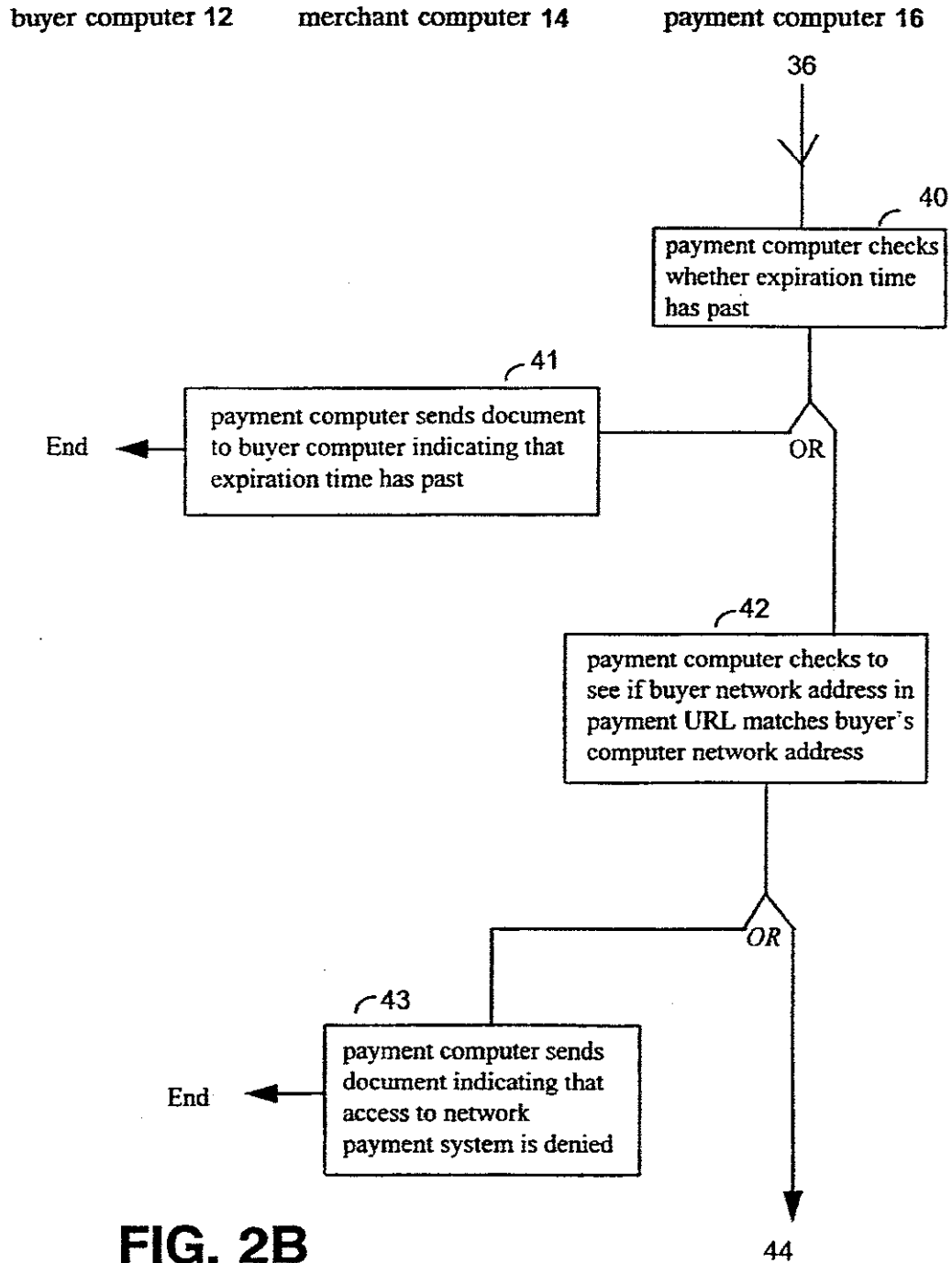


FIG. 2B

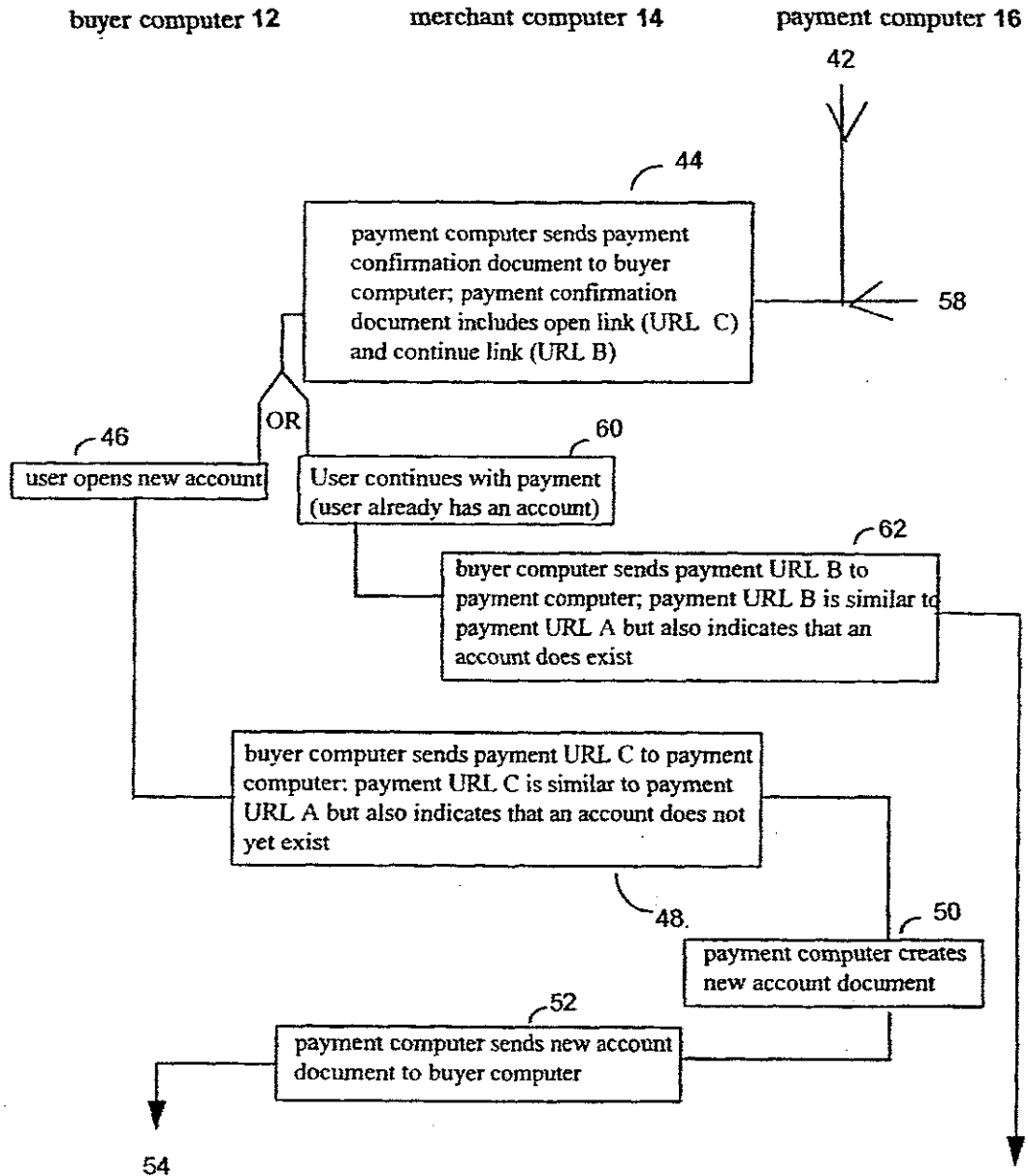


FIG. 2C



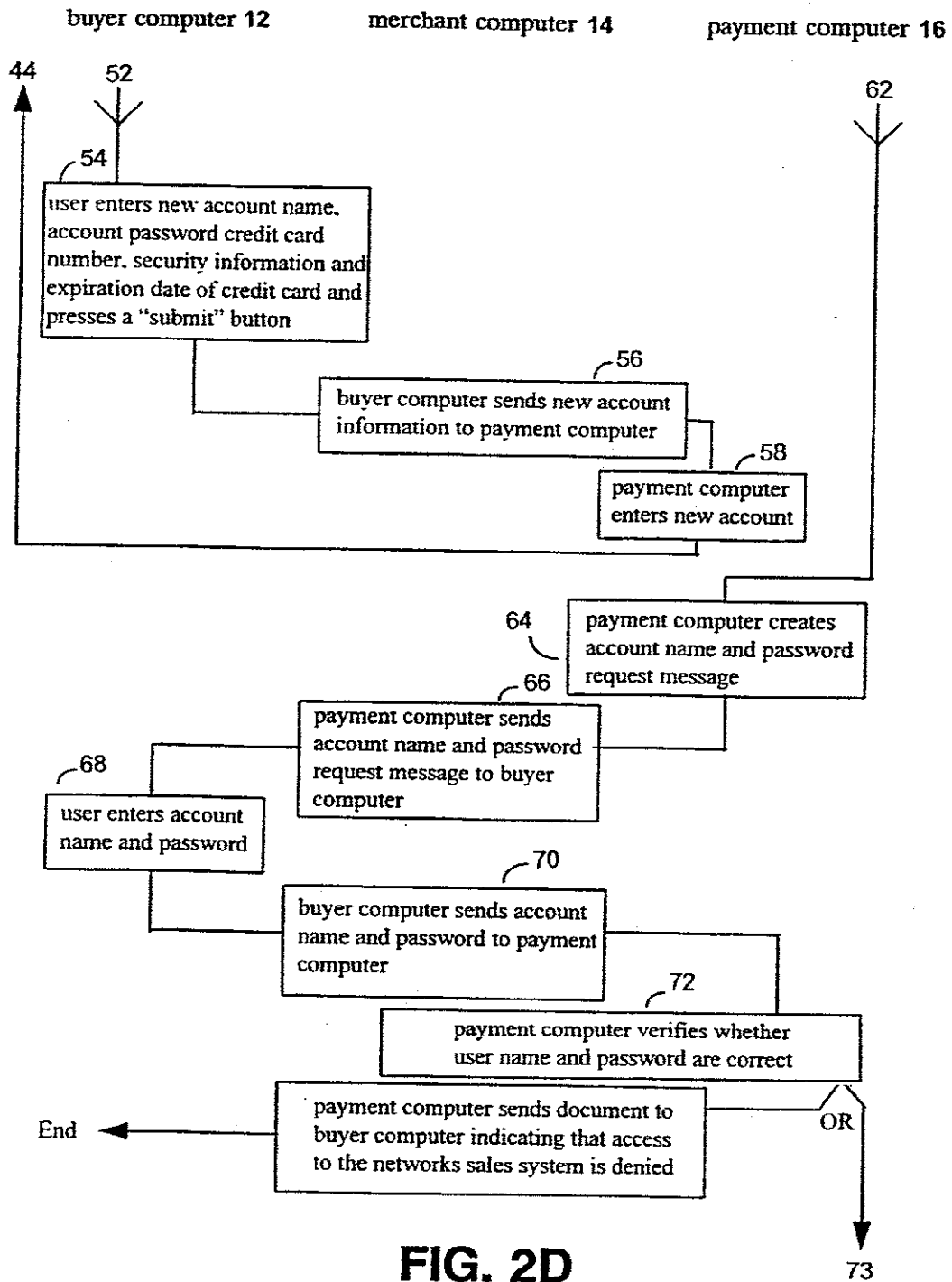


FIG. 2D

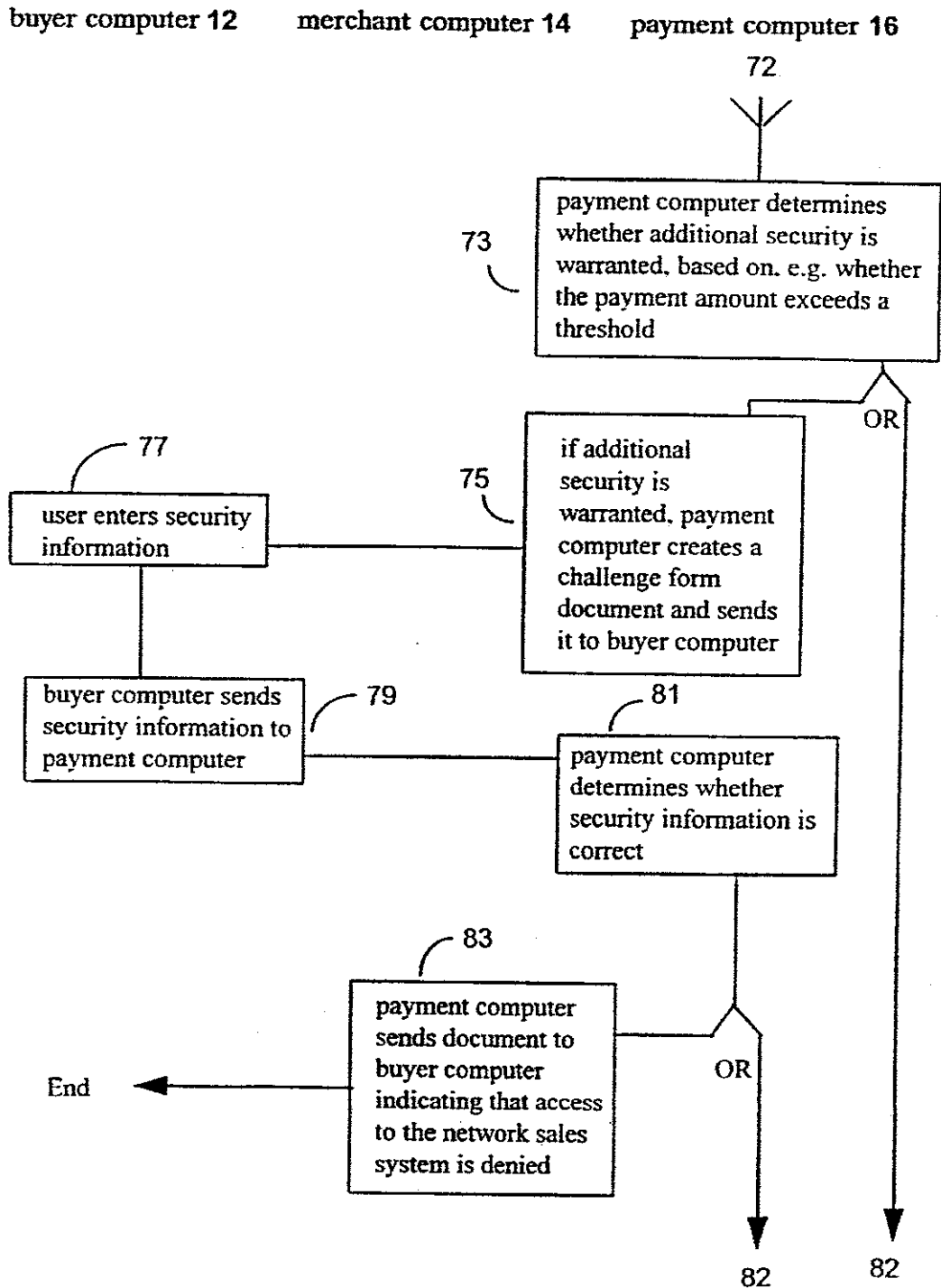


FIG. 2E

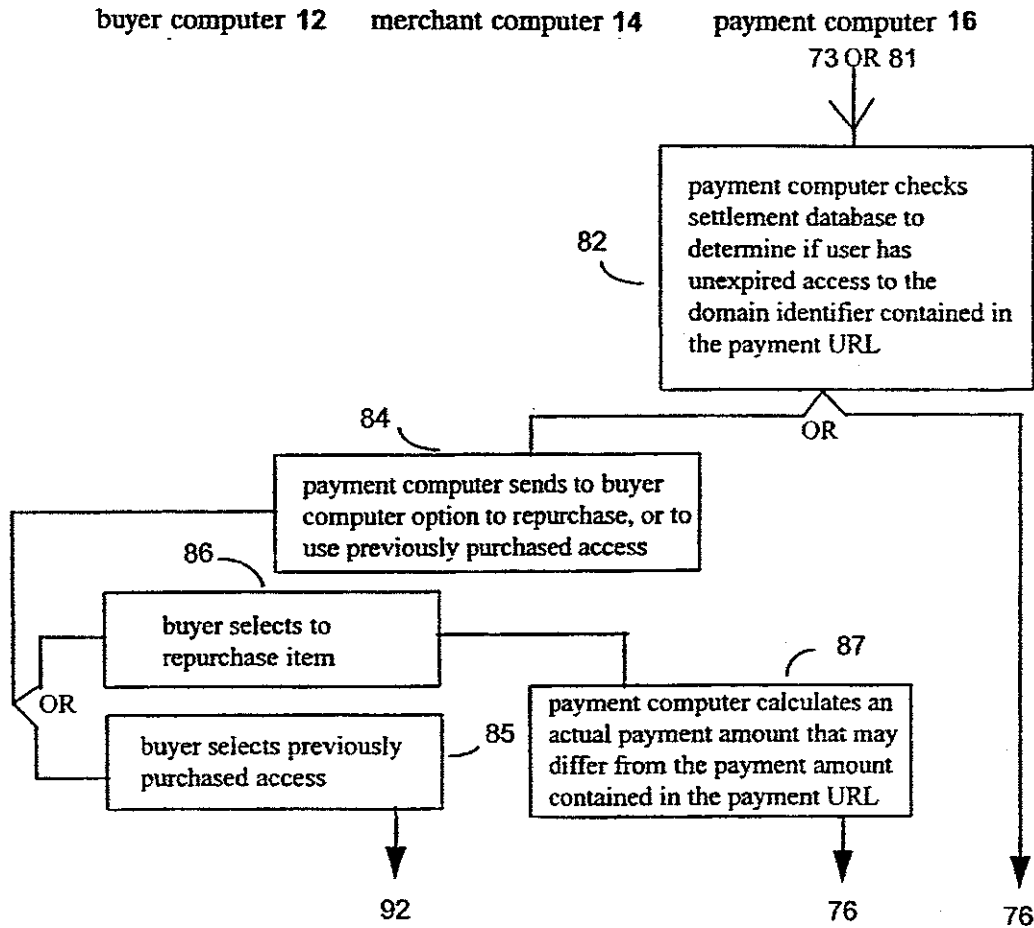


FIG. 2F

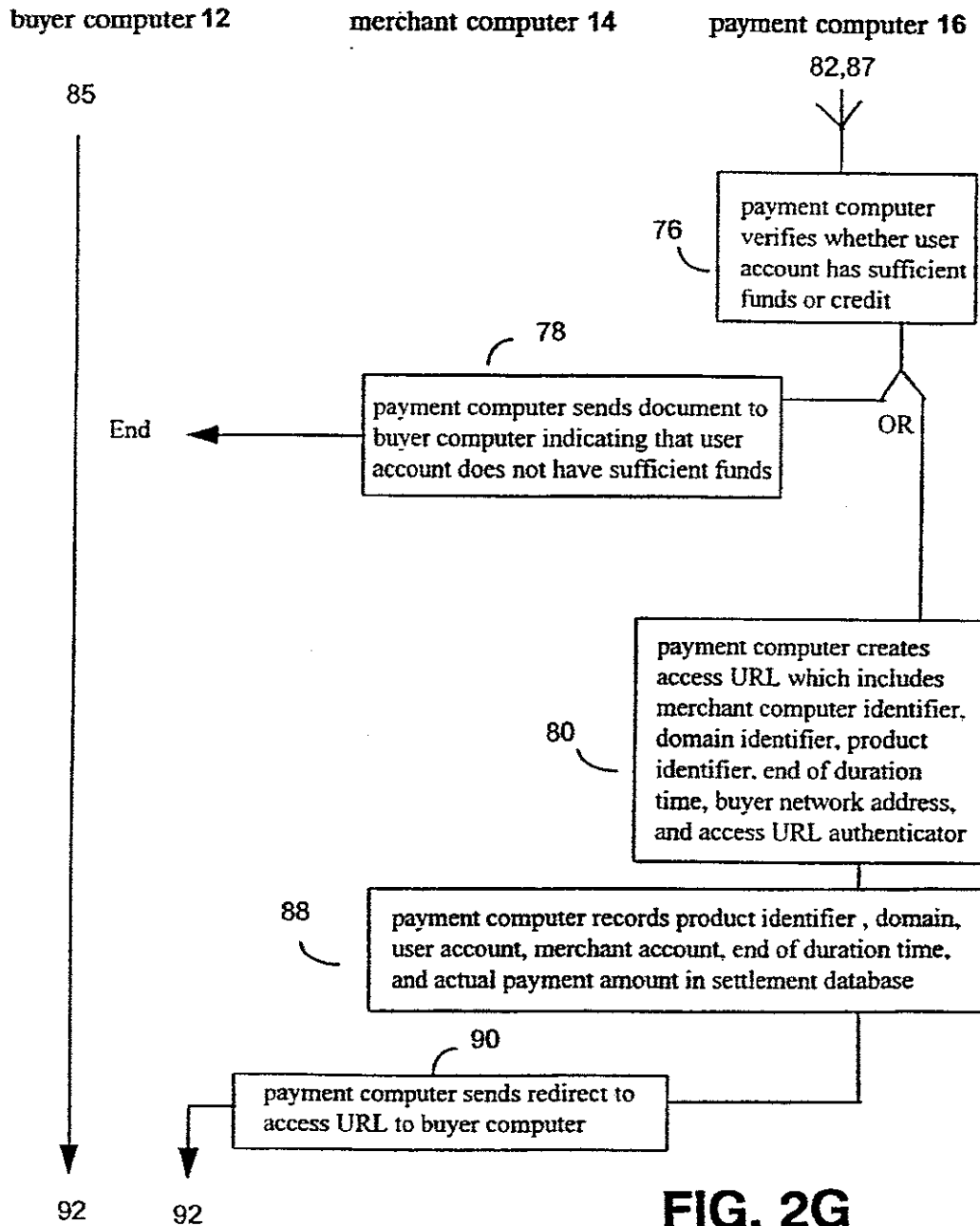


FIG. 2G

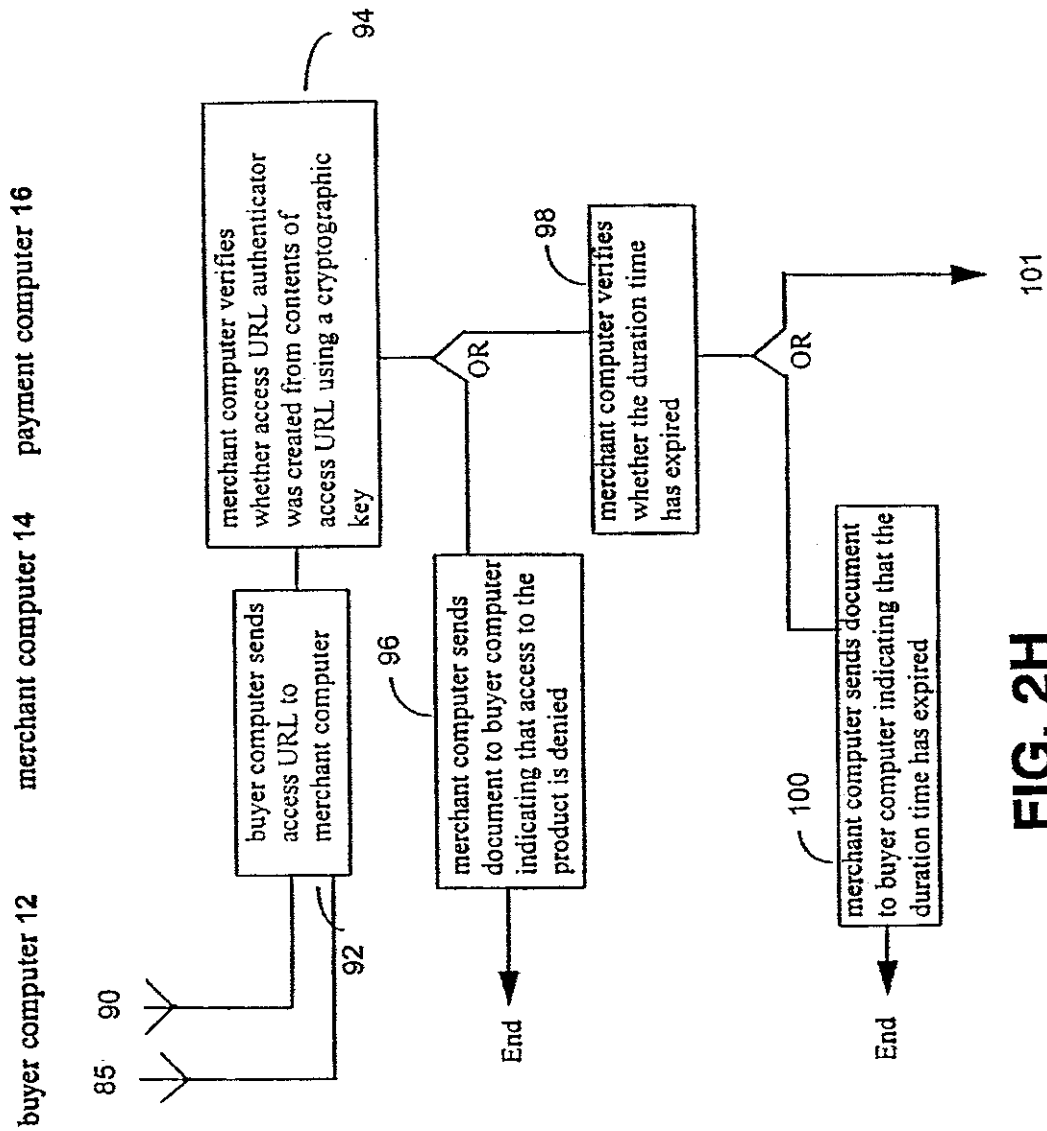


FIG. 2H

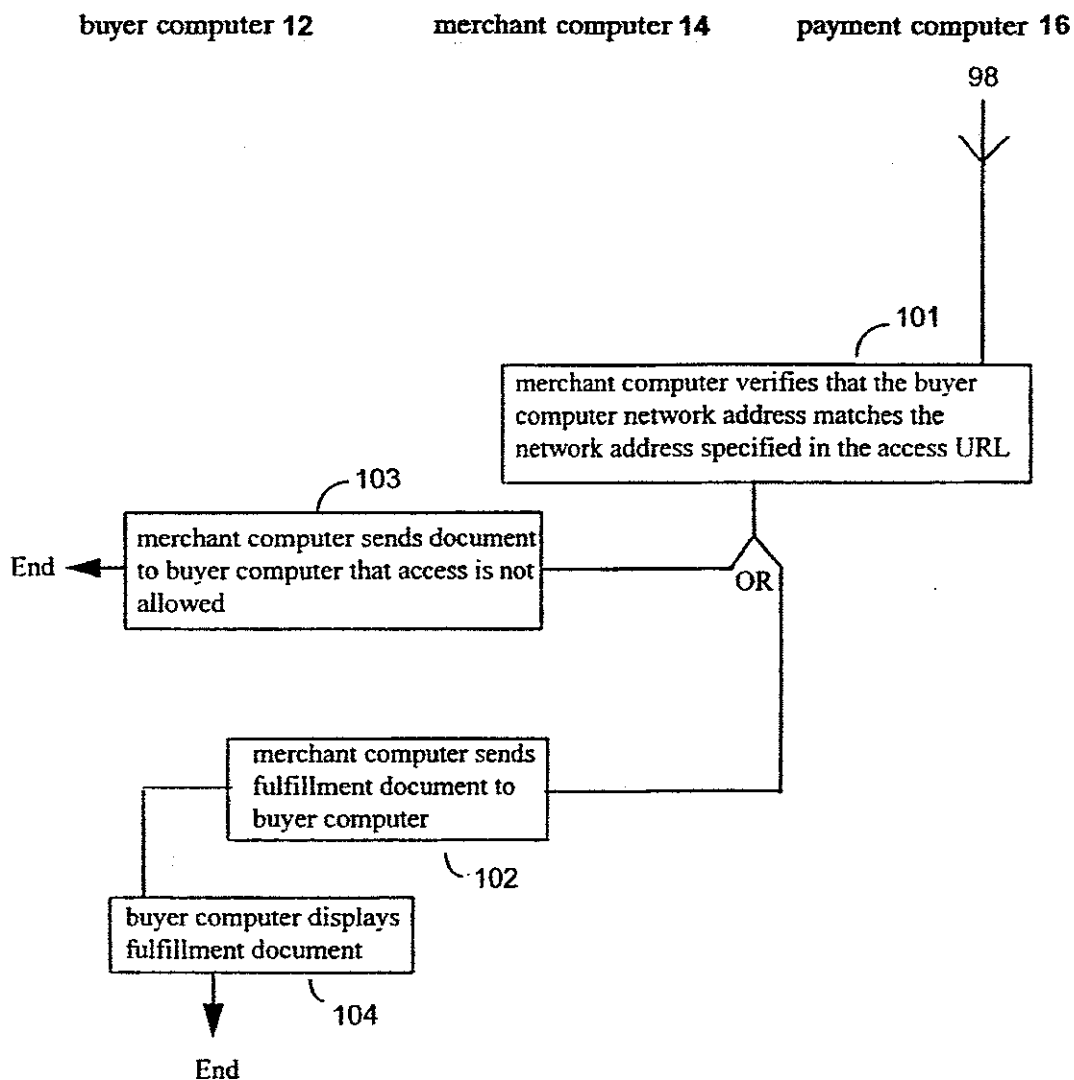


FIG. 21

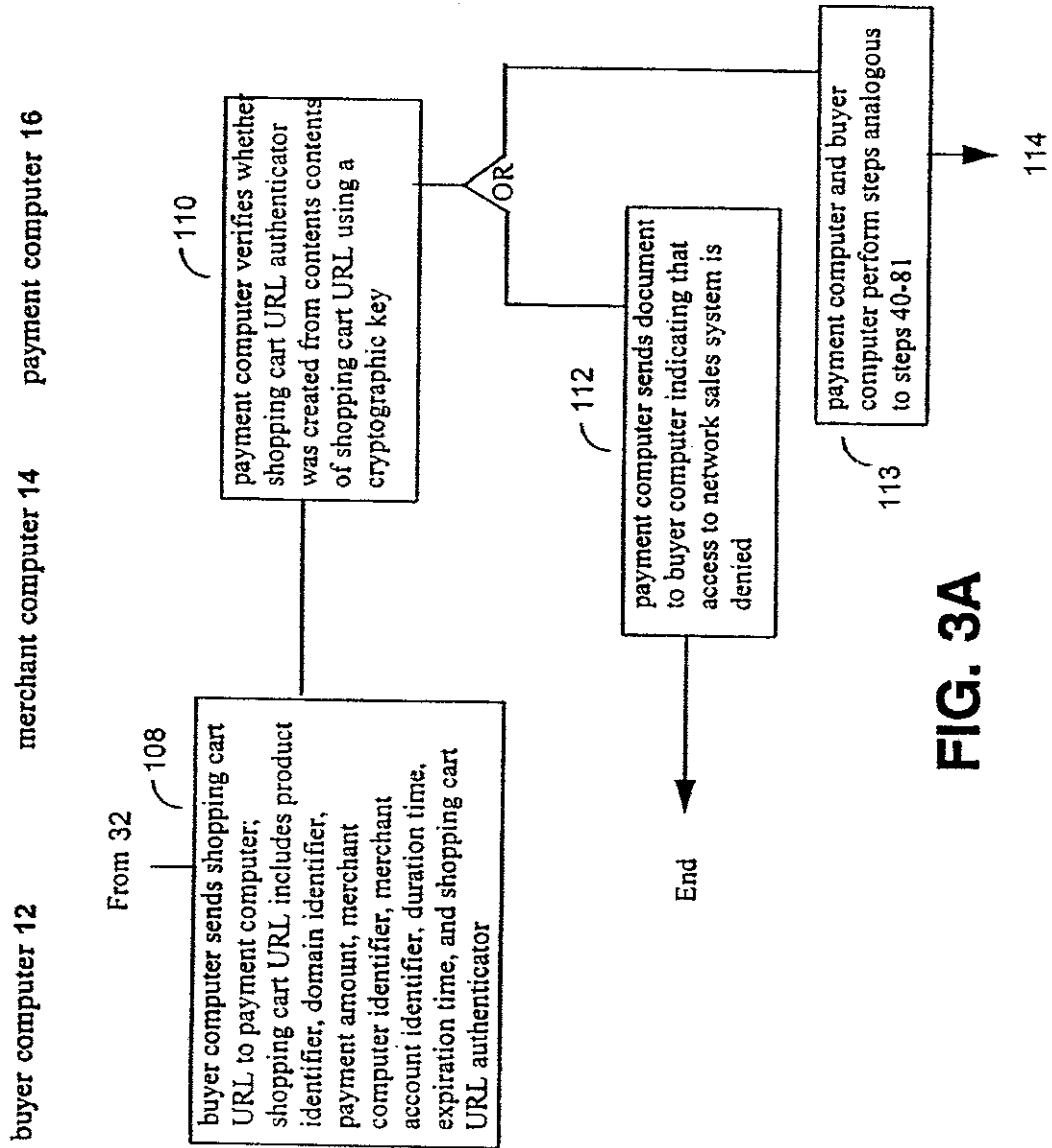


FIG. 3A

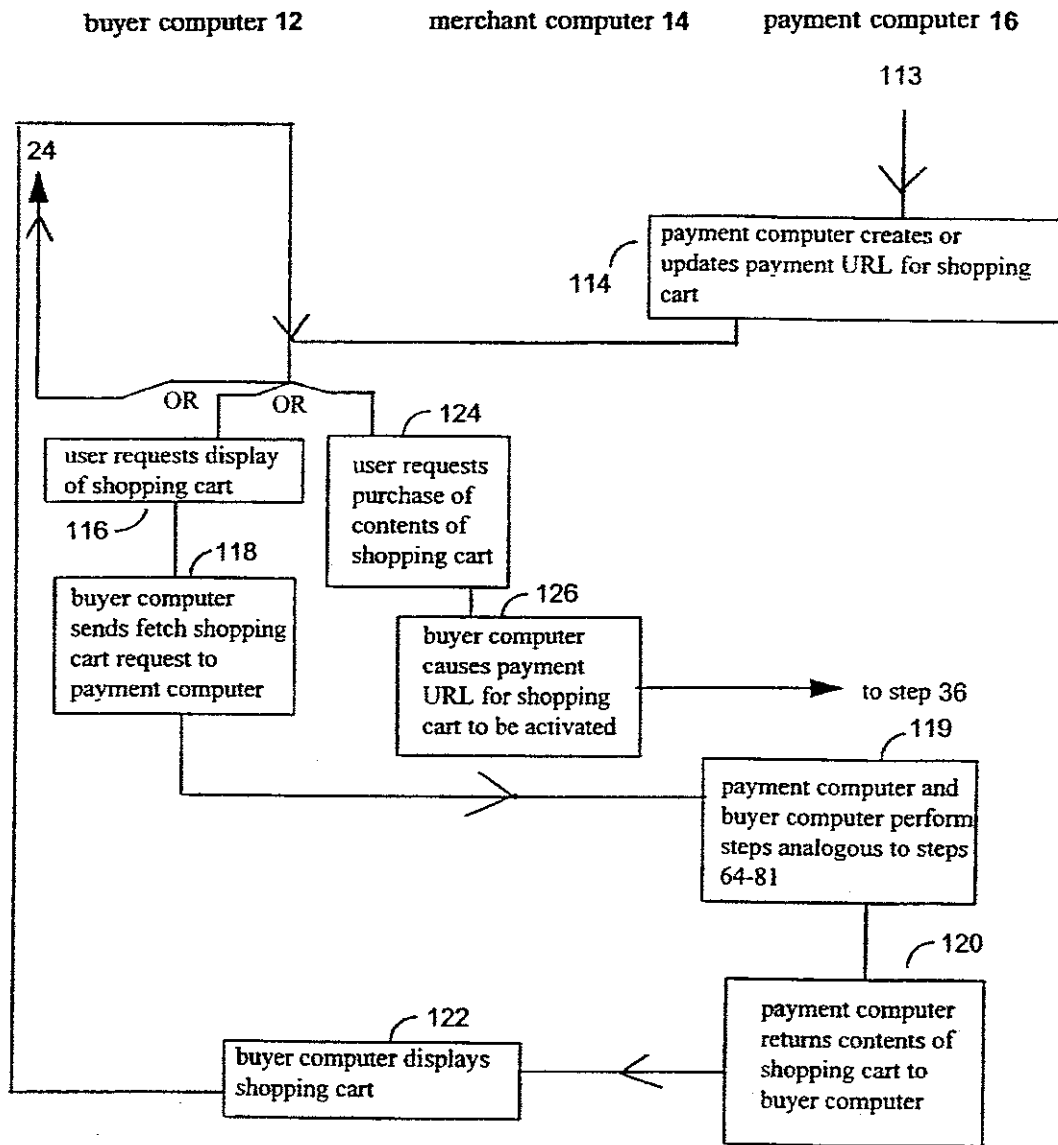


FIG. 3B



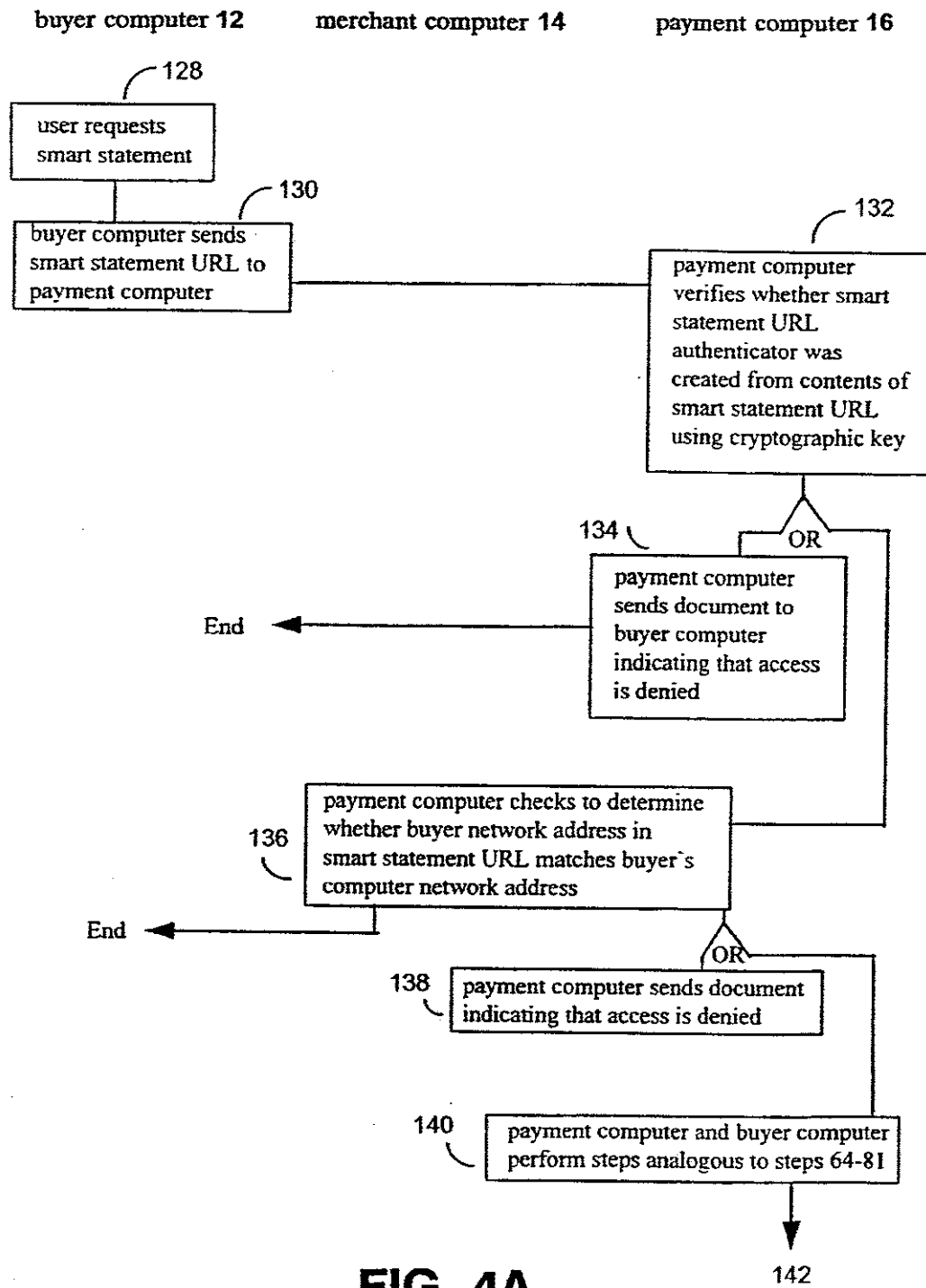
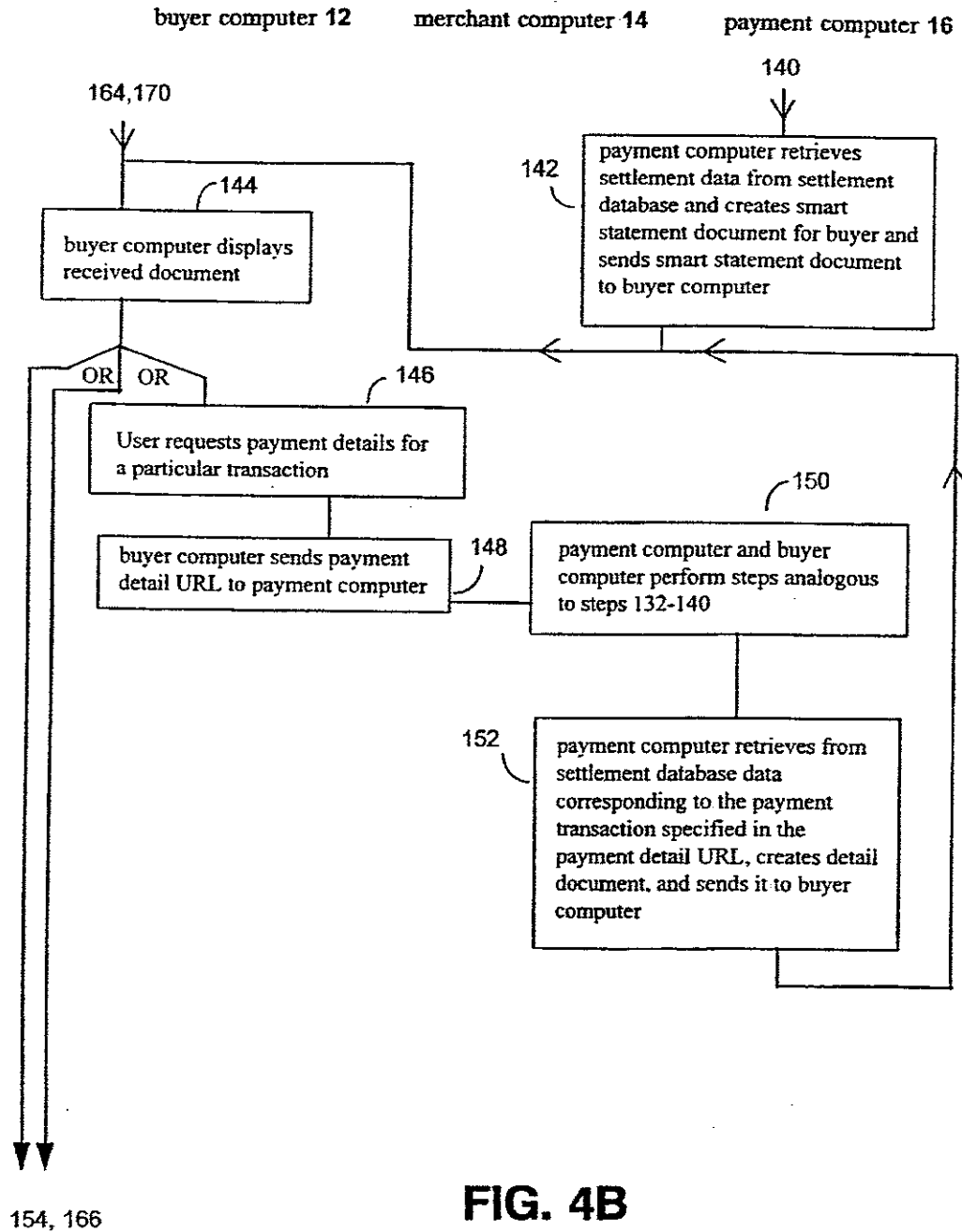


FIG. 4A



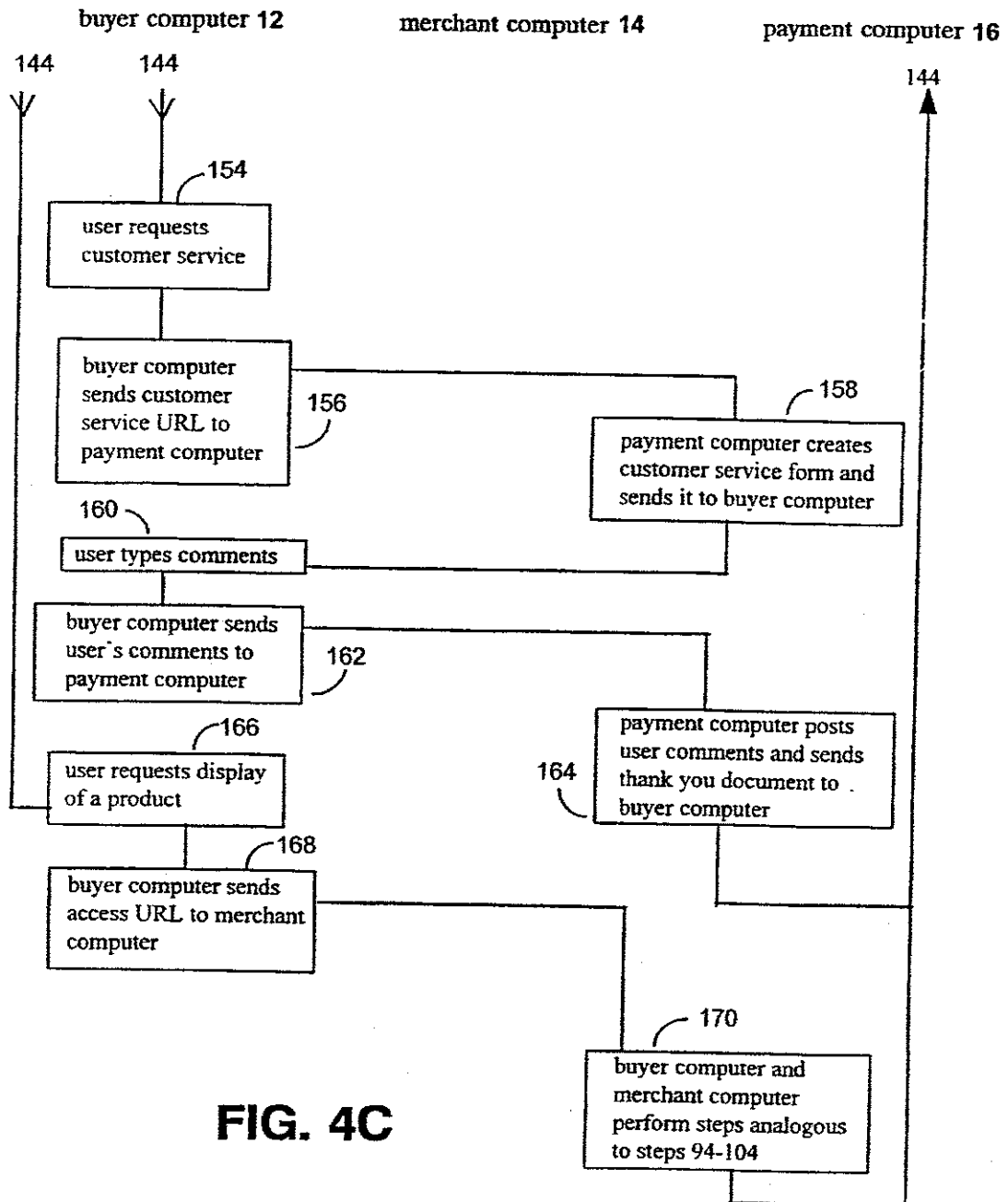


FIG. 4C

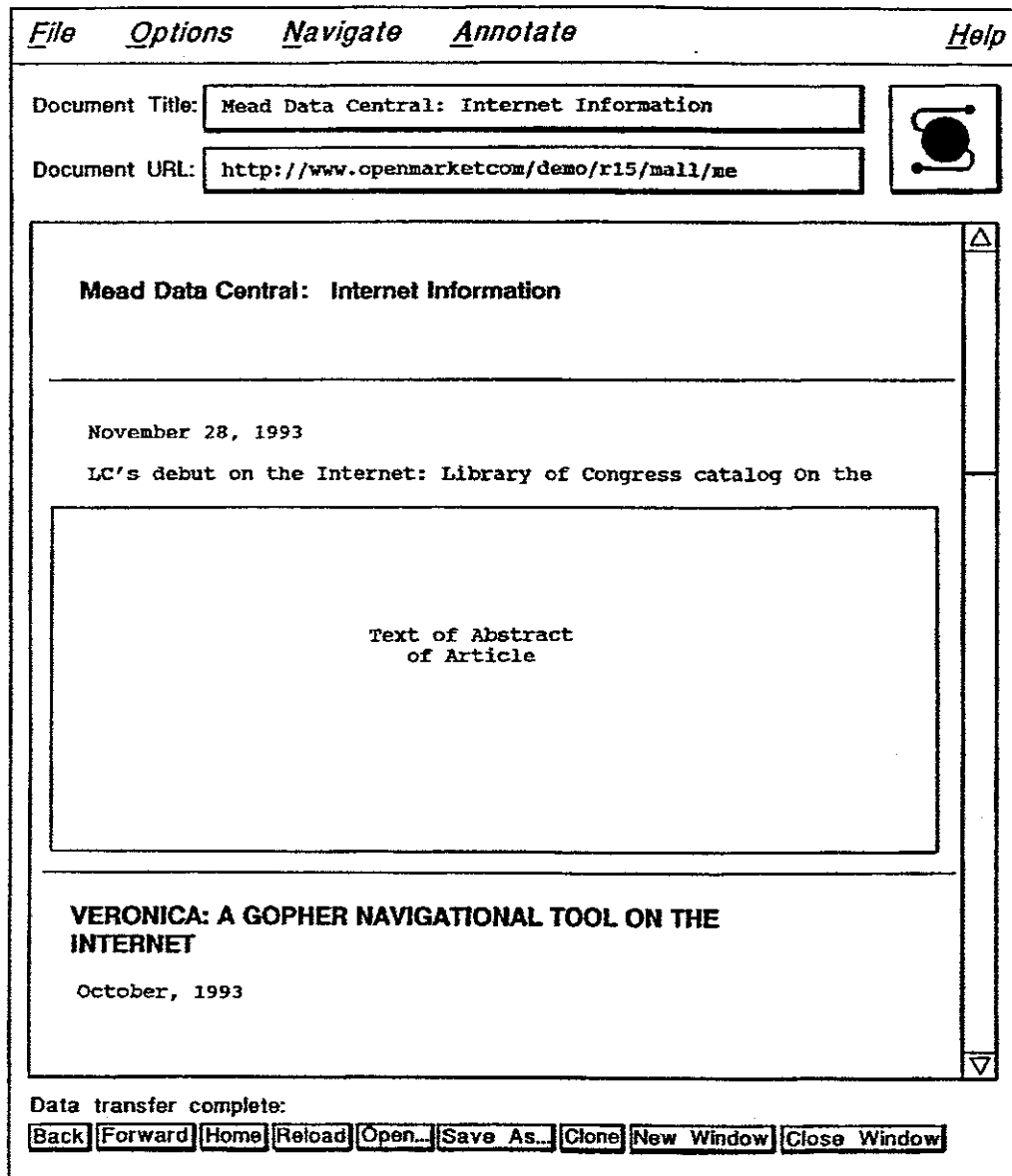


FIG. 5

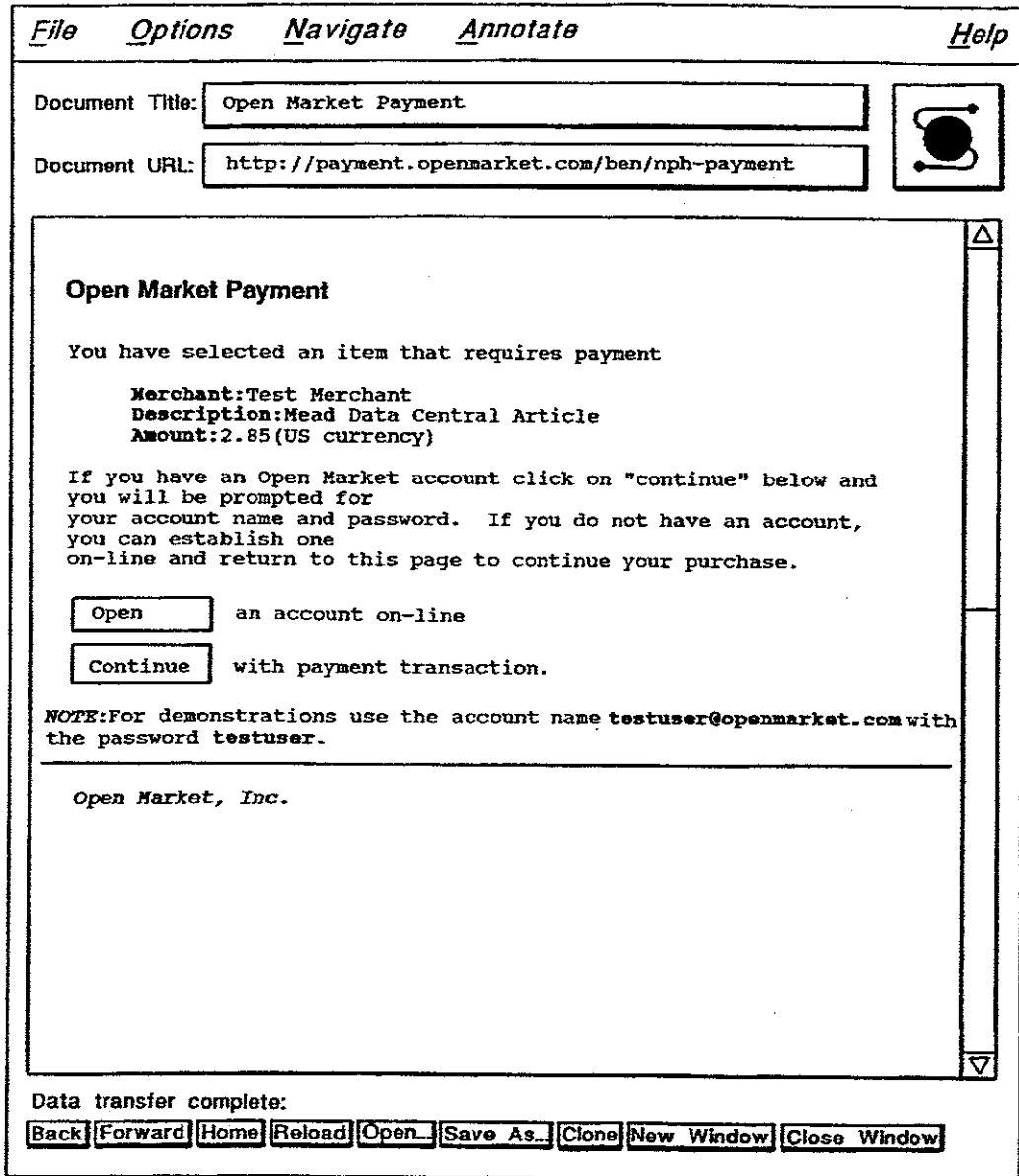



FIG. 6

*File Options Navigate Annotate Help*

Document Title:  

Document URL:

Card Number:

Expiration Date:  (format MM/YY)

Check the appropriate boxes:

I am the owner of the above credit card.

The above address is also the billing address for this credit card.

Your OpenMarket account statement is available on-line. At your option you may a copy of your statement automatically sent to your e-mail address at weekly or monthly intervals. Please choose a statement option.

Weekly statements  Monthly statements  No e-mail statements

---

**Account name and password**

Please choose an account name and password for your OpenMarket account. We suggest using an account name that is unique and easy to remember such as your e-mail address. Your password should be 8 characters or longer.

Account Name

Password

Data transfer complete:

FIG. 7

**Document is protected.**  
**Enter username for Open Market Account at payment.openmarket.com:**

**FIG. 8**

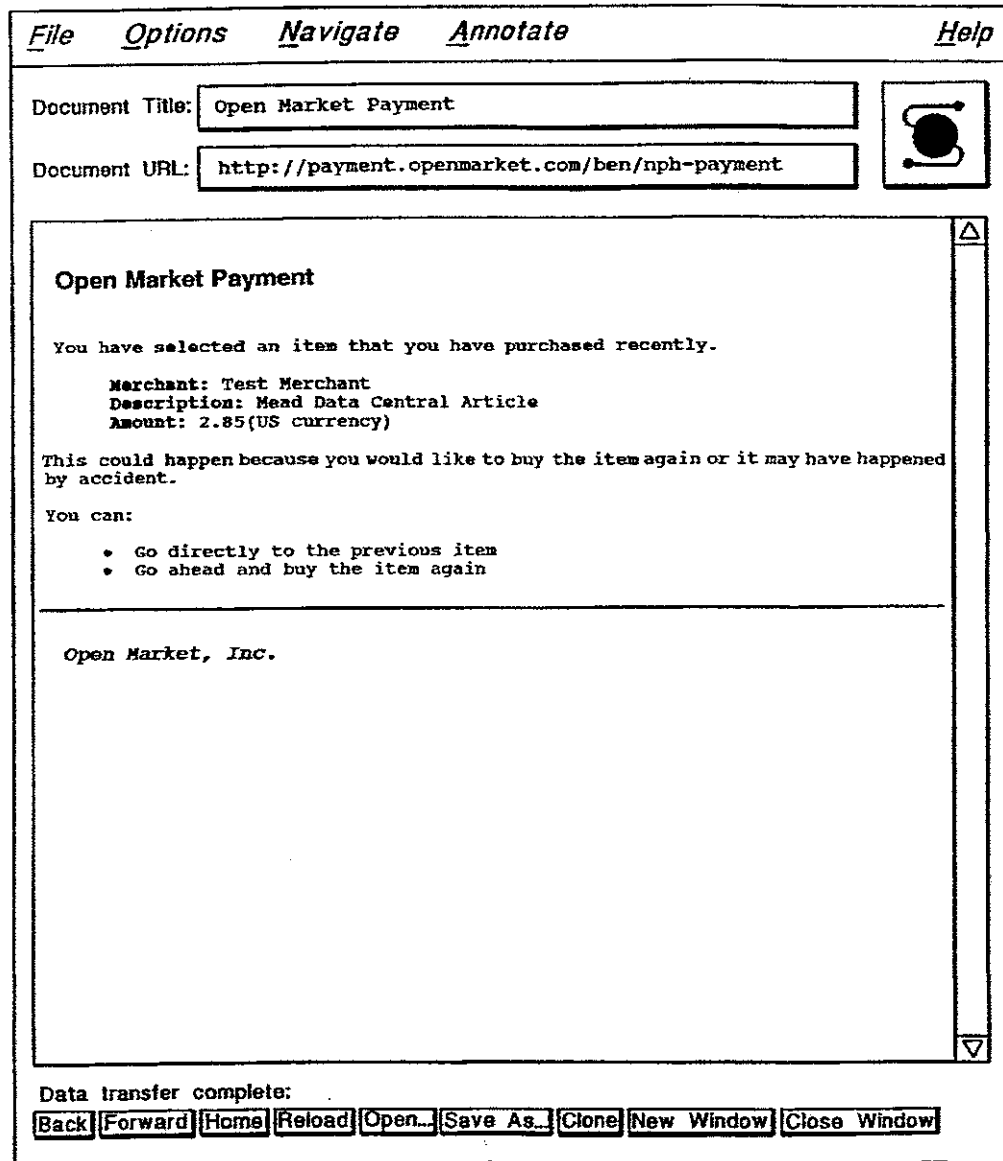


FIG. 9



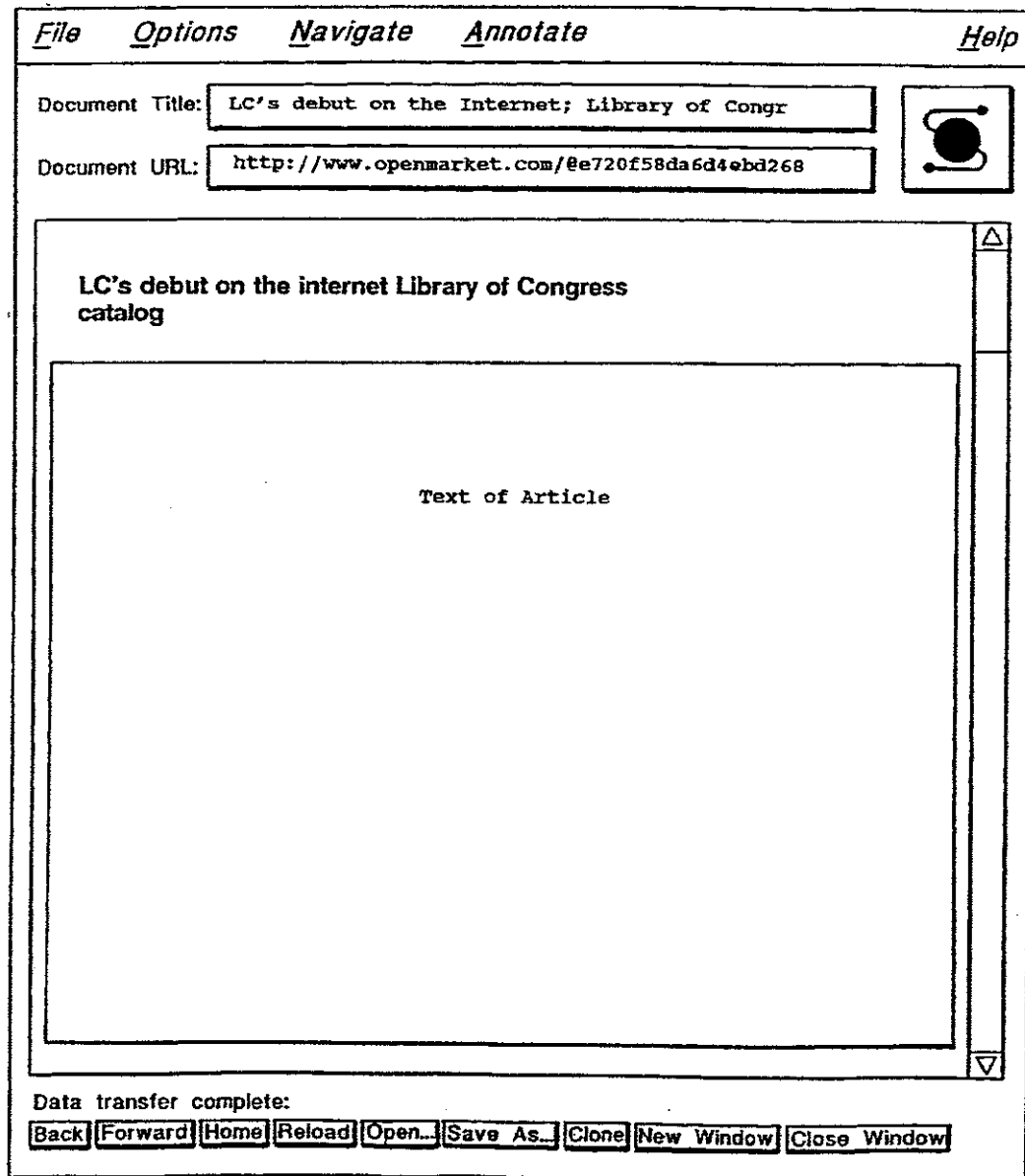


FIG. 10

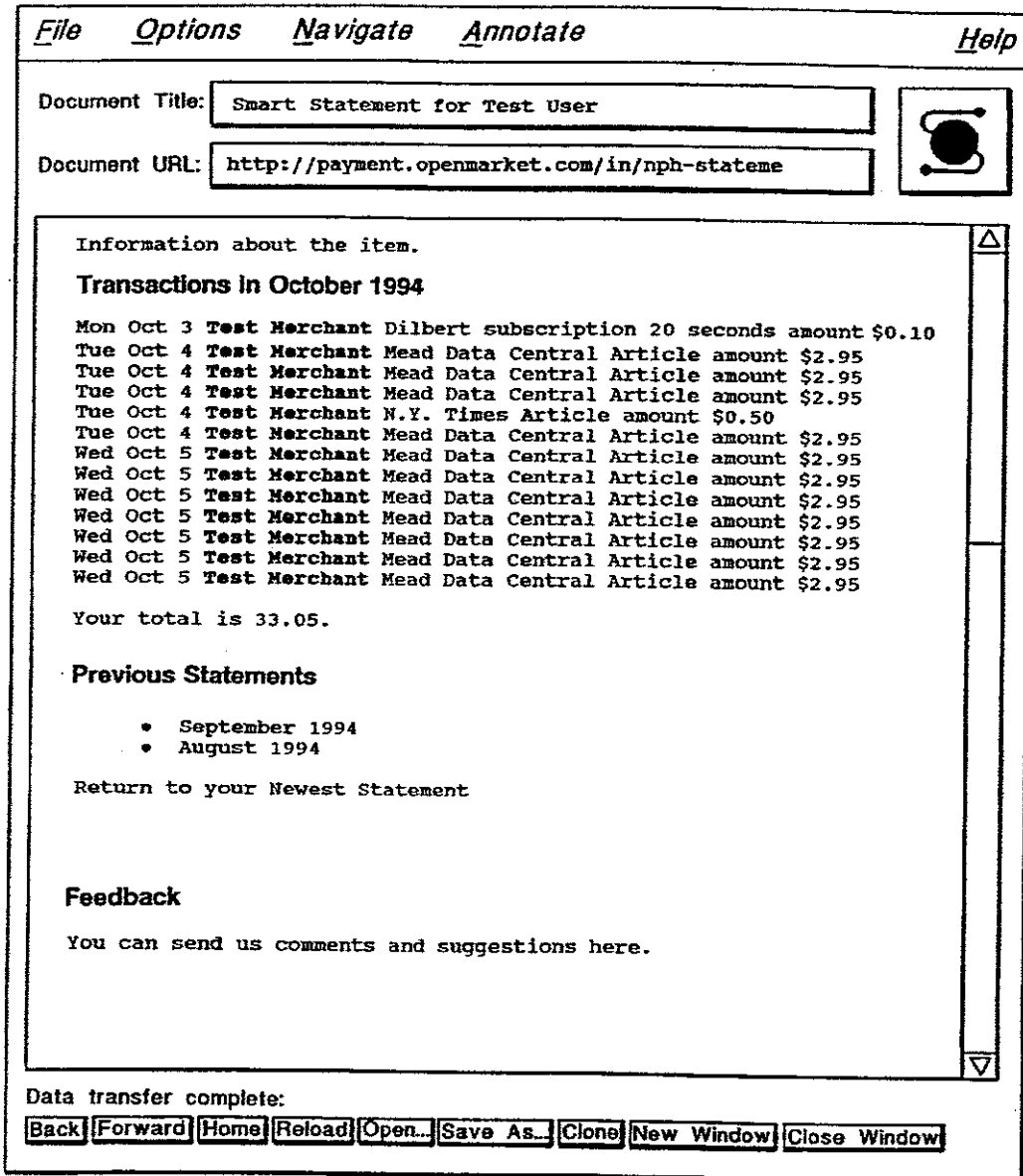


FIG. 11

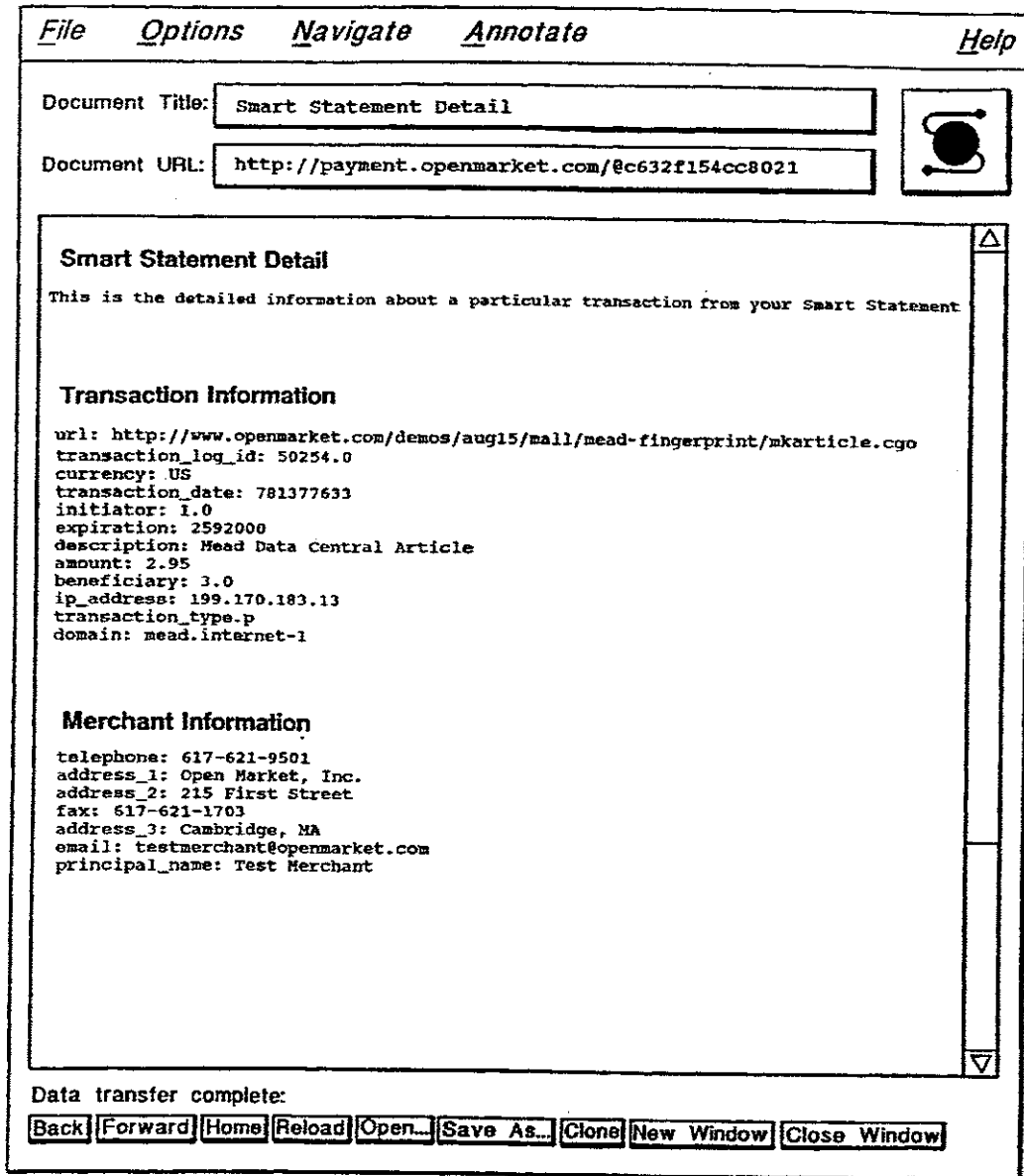


FIG. 12

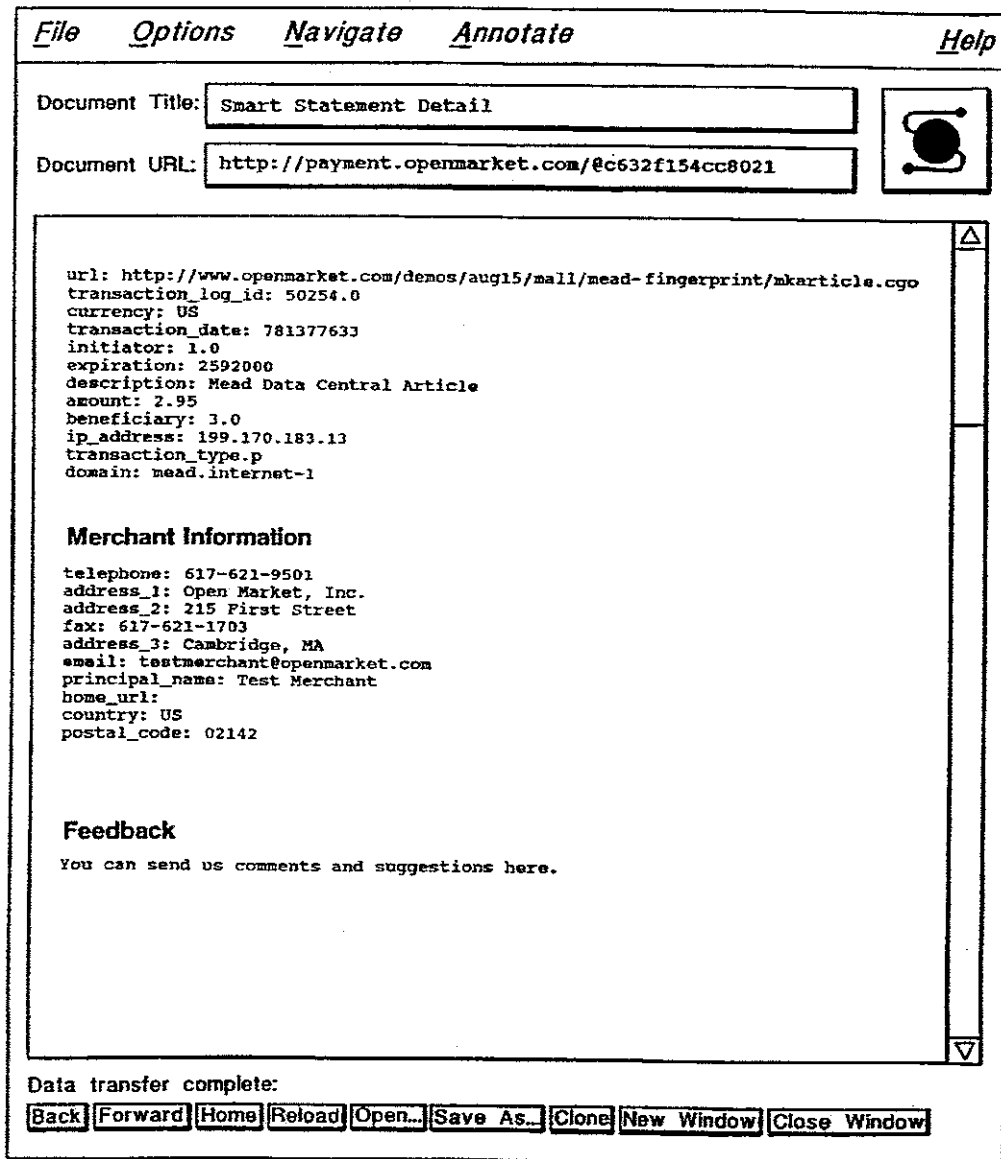



FIG. 13

*File Options Navigate Annotate Help*

Document Title:  

Document URL:

Or if you prefer, you can send your comments via electronic mail to [feedback@openmarket.com](mailto:feedback@openmarket.com) or via FAX to +1.617.621.1703. If you would like a reply please include your e-mail address.

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Your Open Market account name (optional):

Your E-mail address (optional):

Subject:

Your comments:

Data transfer complete:

FIG. 14

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**NETWORK SALES SYSTEM**  
**CROSS REFERENCE TO RELATED**  
**APPLICATION**

This is a continuation of U.S. patent application Ser. No. 08/328,133, filed Oct. 24, 1994, now U.S. Pat. No. 5,715,314.

**REFERENCE TO MICROFICHE APPENDICES**

Microfiche Appendices A-G are being submitted with the present application, being 4 sheets with 220 total pages.

**BACKGROUND OF THE INVENTION**

This invention relates to user-interactive network sales systems for implementing an open marketplace for goods or services over computer networks such as the Internet.

U.S. patent application Ser. No. 08/168,519, filed Dec. 16, 1993 by David K. Gifford and entitled "Digital Active Advertising," now abandoned, the entire disclosure of which is hereby incorporated herein in its entirety by reference, describes a network sales system that includes a plurality of buyer computers, a plurality of merchant computers, and a payment computer. A user at a buyer computer asks to have advertisements displayed, and the buyer computer requests advertisements from a merchant computer, which sends the advertisements to the buyer computer. The user then requests purchase of an advertised product, and the buyer computer sends a purchase message to the merchant computer. The merchant computer constructs a payment order that it sends to the payment computer, which authorizes the purchase and sends an authorization message to the merchant computer. When the merchant computer receives the authorization message it sends the product to the buyer computer.

The above-mentioned patent application also describes an alternative implementation of the network sales system in which, when the user requests purchase of an advertised product, the buyer computer sends a payment order directly to the payment computer, which sends an authorization message back to the buyer computer that includes an unforgeable certificate that the payment order is valid. The buyer computer then constructs a purchase message that includes the unforgeable certificate and sends it to the merchant computer. When the merchant computer receives the purchase request it sends the product to the buyer computer, based upon the pre-authorized payment order.

**SUMMARY OF THE INVENTION**

In one aspect, the invention provides a network-based sales system that includes at least one buyer computer for operation by a user desiring to buy a product, at least one merchant computer, and at least one payment computer. The buyer computer, the merchant computer, and the payment computer are interconnected by a computer network. The buyer computer is programmed to receive a user request for purchasing a product, and to cause a payment message to be sent to the payment computer that comprises a product identifier identifying the product. The payment computer is programmed to receive the payment message, to cause an access message to be created that comprises the product identifier and an access message authenticator based on a cryptographic key, and to cause the access message to be sent to the merchant computer. The merchant computer is programmed to receive the access message, to verify the access message authenticator to ensure that the access

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message authenticator was created using the cryptographic key, and to cause the product to be sent to the user desiring to buy the product.

The invention provides a simple design architecture for the network sales system that allows the merchant computer to respond to payment orders from the buyer computer without the merchant computer having to communicate directly with the payment computer to ensure that the user is authorized to purchase the product and without the merchant computer having to store information in a database regarding which buyers are authorized to purchase which products. Rather, when the merchant computer receives an access message from the buyer computer identifying a product to be purchased, the merchant computer need only check the access message to ensure that it was created by the payment computer (thereby establishing for the merchant computer that the buyer is authorized to purchase the product), and then the merchant computer can cause the product to be sent to the buyer computer who has been authorized to purchase the product.

In another aspect, the invention features a network-based sales system that includes at least one buyer computer for operation by a user desiring to buy products, at least one shopping cart computer, and a shopping cart database connected to the shopping cart computer. The buyer computer and the shopping cart computer are interconnected by a computer network. The buyer computer is programmed to receive a plurality of requests from a user to add a plurality of respective products to a shopping cart in the shopping cart database, and, in response to the requests to add the products, to send a plurality of respective shopping cart messages to the shopping cart computer each of which includes a product identifier identifying one of the plurality of products. The shopping cart computer is programmed to receive the plurality of shopping cart messages, to modify the shopping cart in the shopping cart database to reflect the plurality of requests to add the plurality of products to the shopping cart, and to cause a payment message associated with the shopping cart to be created. The buyer computer is programmed to receive a request from the user to purchase the plurality of products added to the shopping cart and to cause the payment message to be activated to initiate a payment transaction for the plurality of products added to the shopping cart.

In another aspect, the invention features a network-based link message system that includes at least one client computer for operation by a client user and at least one server computer for operation by a server user. The client computer and the server computer are interconnected by a computer network. The client computer is programmed to send an initial link message to the server computer. The server computer is programmed to receive the initial link message from the client computer and to create, based on information contained in the initial link message, a session link message that encodes a state of interaction between the client computer and the server computer. The session link message includes a session link authenticator, computed by a cryptographic function of the session link contents, for authenticating the session link message. The server computer is programmed to cause the session link message to be sent to the client computer. The client computer is programmed to cause the session link message to be sent to a computer in the network that is programmed to authenticate the session link message by examining the session link authenticator and that is programmed to respond to the session link message based on the state of the interaction between the client computer and the server computer.

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In another aspect, the invention features a network-based sales system that includes a merchant database having a plurality of digital advertisements and a plurality of respective product fulfillment items, at least one creation computer for creating the merchant database, and at least one merchant computer for causing the digital advertisements to be transmitted to a user and for causing advertised products to be transmitted to the user. The creation computer and the merchant computer are interconnected by a computer network. The creation computer is programmed to create the merchant database, and to transmit the digital advertisements and the product fulfillment items to the merchant computer. The merchant computer is programmed to receive the digital advertisements and product fulfillment items, to receive a request for a digital advertisement from a user, to cause the digital advertisement to be sent to the user, to receive from the user an access message identifying an advertised product, and to cause the product to be sent to the user in accordance with a product fulfillment item corresponding to the product.

In another aspect, the invention features a hypertext statement system that includes a client computer for operation by a client user and one or more server computers for operation by a server user. The client computer and the server computers are interconnected by a computer network. At least one of the server computers is programmed to record purchase transaction records in a database. Each of the purchase transaction records includes a product description. The server computer is programmed to transmit a statement document that includes the purchase transaction records to the client computer. The client computer is programmed to display the product descriptions, to receive a request from the client user to display a product corresponding to a product description displayed by the client computer, and to cause a product hypertext link derived from a purchase transaction record to be activated. At least one of the server computers is programmed to respond to activation of the product hypertext link by causing the product to be sent to the client computer.

In another aspect, the invention features a network payment system that includes at least one buyer computer for operation by a user desiring to buy a product and at least one payment computer for processing payment messages from the buyer computer. The buyer computer and the payment computer are interconnected by a computer network. The buyer computer is programmed to cause a payment message to be sent to the payment computer. The payment message includes a product identifier identifying the product that the user desires to buy. The payment computer is programmed to receive the payment message, to cause an access message to be created to enable the user to access the product, and to record a purchase transaction record in the settlement database. The buyer computer is programmed to cause a request for purchase transaction records to be sent to the payment computer. The payment computer is programmed to receive the request for purchase transaction records and to cause a document derived from the purchase transaction records to be sent to the buyer computer.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a network sales system in accordance with the present invention.

FIG. 2 (2-A through 2-I) is a flowchart diagram illustrating the operation of a purchase transaction in the network sales system of FIG. 1.

FIG. 3 (3-A through 3-B) is a flowchart diagram illustrating the use of a shopping cart for the purchase of products in connection with the network sales system of FIG. 1.

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FIG. 4 (4-A through 4-C) is a flowchart diagram illustrating the operation of a smart statement in the network sales system of FIG. 1.

FIG. 5 is a screen snapshot of an advertising document that the merchant computer sends to the buyer computer in FIG. 2.

FIG. 6 is a screen snapshot of a confirmation document that the payment computer sends to the buyer computer in FIG. 2.

FIG. 7 is a screen snapshot of a new account document that the payment computer sends to the buyer computer in FIG. 2.

FIG. 8 is a screen snapshot of an account name prompt that the buyer computer creates in FIG. 2.

FIG. 9 is a screen snapshot of a document that the payment computer sends to the buyer computer in FIG. 2 and that provides an option either to repurchase or to use a previously purchased access.

FIG. 10 is a screen snapshot of a fulfillment document that the merchant computer sends to the buyer computer in FIG. 2.

FIG. 11 is a screen snapshot of a smart statement document that the payment computer sends to the buyer computer in FIG. 4.

FIGS. 12 and 13 are screen snapshots of a transaction detail document that the payment computer sends to the buyer computer in FIG. 4.

FIG. 14 is a screen snapshot of a customer service form that the payment computer sends to the buyer computer in FIG. 4.

#### DETAILED DESCRIPTION

With reference to FIG. 1, a network sales system in accordance with the present invention includes a buyer computer 12 operated by a user desiring to buy a product, a merchant computer 14, which may be operated by a merchant willing to sell products to the buyer or by a manager of the network sales system, a payment computer 16 typically operated by a manager of the network sales system, and a creation computer 20 typically operated by the merchant. The buyer, merchant, payment, and creation computers are all inter-connected by a computer network 10 such as the Internet.

Creation computer 20 is programmed to build a "store" of products for the merchant. A printout of a computer program for use in creating such a "store" in accordance with the present invention is provided as Appendix F.

The products advertised by merchant computer 14 may be, for example, newspaper or newsletter articles available for purchase by buyers. Creation computer 20 creates a digital advertisement database 18 that stores advertising documents (which may for example be in the form of summaries of newspaper or newsletter articles, accompanied by prices) and product fulfillment items (which may be the products themselves if the products can be transmitted over the network, or which may be hard goods identifiers if the products are hard goods, i.e., durable products as opposed to information products). Creation computer 20 transmits contents of the advertising document database 18 to merchant computer 14 to enable the merchant computer to cause advertisements and products to be sent to buyers. Merchant computer 14 maintains advertising documents locally in advertising document database 15. In an alternative embodiment, the creation computer does not have a local digital advertisement database, but instead updates a remote

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advertising document database on a merchant computer. These updates can be accomplished using HTML forms or other remote database technologies as is understood by practitioners of the art.

Payment computer 16 has access to a settlement database 22 in which payment computer 16 can record details of purchase transactions. The products may be organized into various "domains" of products, and payment computer 16 can access settlement database 22 to record and retrieve records of purchases of products falling within the various domains. Payment computer 16 also has access to a shopping cart database 21 in which a "shopping cart" of products that a user wishes to purchase can be maintained as the user shops prior to actual purchase of the contents of the shopping cart.

With reference to FIG. 2, a purchase transaction begins when a user at buyer computer 12 requests advertisements (step 24) and buyer computer 12 accordingly sends an advertising document URL (universal resource locator) to merchant computer 14 (step 26). The merchant computer fetches an advertising document from the advertising document database (step 28) and sends it to the buyer computer (step 30). An example of an advertising document is shown in FIG. 5. Details of URLs and how they are used are found in Appendix G.

The user browses through the advertising document and eventually requests a product (step 32). This results in the buyer computer sending payment URL A to the payment computer (step 34). Payment URL A includes a product identifier that represents the product the user wishes to buy, a domain identifier that represents a domain of products to which the desired product belongs, a payment amount that represents the price of the product, a merchant computer identifier that represents merchant computer 14, a merchant account identifier that represents the particular merchant account to be credited with the payment amount, a duration time that represents the length of time for which access to the product is to be granted to the user after completion of the purchase transaction, an expiration time that represents a deadline beyond which this particular payment URL cannot be used, a buyer network address, and a payment URL authenticator that is a digital signature based on a cryptographic key. The payment URL authenticator is a hash of other information in the payment URL, the hash being defined by a key shared by the merchant and the operator of the payment computer.

In an alternative embodiment, step 34 consists of the buyer computer sending a purchase product message to the merchant computer, and the merchant computer provides payment URL A to the buyer computer in response to the purchase product message. In this alternative embodiment, payment URL A contains the same contents as above. The buyer computer then sends the payment URL A it has received from the merchant computer to the payment computer.

When the payment computer receives the payment URL it verifies whether the payment URL authenticator was created from the contents of the payment URL using the cryptographic key (step 36). If not, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step 38). Otherwise, the payment computer determines whether the expiration time has past (step 40). If it has, the payment computer sends a document to the buyer computer indicating that the time has expired (step 41). Otherwise, the payment computer checks the buyer computer network

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address to see if it matches the one specified in the payment URL (step 42). If it does not match, the payment computer sends a document to the buyer computer indicating that access to the network payment system is denied (step 43).

Otherwise, the payment computer sends a payment confirmation document to the buyer computer, the payment confirmation document including an "open" link and a "continue" link (step 44).

An example of a confirmation document is shown in FIG. 6. The confirmation document asks the user to click on a "continue" button if the user already has an account with the payment computer, or to click on an "open" button if the user does not already have an account and wishes to open one.

If the user clicks on the "open" button (step 46), the buyer computer sends payment URL C to the payment computer (step 48), payment URL C being similar to payment URL A but also indicating that the user does not yet have an account. The payment computer creates a new account document (step 50) and sends it to the buyer computer (step 52). An example of a new account document is shown in FIG. 7. When the user receives the new account document he enters the new account name, an account password, a credit card number, the credit card expiration date, and security information such as the maiden name of the user's mother (step 54), and presses a "submit" button (not shown in FIG. 7). The buyer computer sends the new account information to the payment computer (step 56), which enters the new account in the settlement database (step 58).

If the user clicks on the "continue" button (step 60), the buyer computer sends payment URL B to the payment computer (step 62), payment URL B being similar to payment URL A but also indicating that the user already has an account. The payment computer then instructs the buyer computer to provide the account name and password (steps 64 and 66), and the buyer computer prompts the user for this information by creating an account name prompt (example shown in FIG. 8) and a similar password prompt. The user enters the information (step 68) and the buyer computer sends the account name and password to the payment computer (step 70).

The payment computer verifies whether the user name and password are correct (step 72). If they are not correct, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step 74). Otherwise, the payment computer determines whether additional security is warranted, based on, e.g., whether the payment amount exceeds a threshold (step 73). If additional security is warranted, the payment computer creates a challenge form document and sends it to the buyer computer (step 75). The user enters the security information (step 77), the buyer computer sends the security information to the payment computer (step 79), and the payment computer determines whether the security information is correct (step 81). If it is not correct, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step 83).

If the security information is correct, or if additional security was not warranted, the payment computer checks the settlement database to determine whether the user has unexpired access to the domain identifier contained in the payment URL (step 82). If so, the payment computer sends to the buyer computer a document providing an option either to repurchase or to use the previously purchased access (step 84). An example of such a document is shown in FIG. 9. The



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user can respond to the recent purchase query document by choosing to access the previously purchased document (step 85) or to go ahead and buy the currently selected product (step 86).

If the user chooses to access the previously purchased document, the buyer computer skips to step 92 (see below). If the user chooses to buy the currently selected product, the payment computer calculates an actual payment amount that may differ from the payment amount contained in the payment URL (step 87). For example, the purchase of a product in a certain domain may entitle the user to access other products in the domain for free or for a reduced price for a given period of time.

The payment computer then verifies whether the user account has sufficient funds or credit (step 76). If not, the payment computer sends a document to the buyer computer indicating that the user account has insufficient funds (step 78). Otherwise, the payment computer creates an access URL (step 80) that includes a merchant computer identifier, a domain identifier, a product identifier, an indication of the end of the duration time for which access to the product is to be granted, the buyer network address, and an access URL authenticator that is a digital signature based on a cryptographic key. The access URL authenticator is a hash of other information in the access URL, the hash being defined by a key shared by the merchant and the operator of the payment computer. The payment computer then records the product identifier, the domain, the user account, the merchant account, the end of duration time, and the actual payment amount in the settlement database (step 88).

The payment computer then sends a redirect to access URL to the buyer computer (step 90), which sends the access URL to the merchant computer (step 92). The merchant computer verifies whether the access URL authenticator was created from the contents of the access URL using the cryptographic key (step 94). If not, the merchant computer sends a document to the buyer computer indicating that access to the product is denied (step 96).

Otherwise, the merchant computer verifies whether the duration time for access to the product has expired (step 98). This is done because the buyer computer can request access to a purchased product repeatedly. If the duration time has expired, the merchant computer sends a document to the buyer computer indicating that the time has expired (step 100). Otherwise the merchant computer verifies that the buyer computer network address is the same as the buyer network address in the access URL (step 101), and if so, sends a fulfillment document to the buyer computer (step 102), which is displayed by the buyer computer (step 104). An example of a fulfillment document is shown in FIG. 10. Otherwise, the merchant computer sends a document to the buyer computer indicating that access is not allowed (step 103).

With reference now to FIG. 3, when the merchant computer sends the advertising document to the buyer computer, the user may request that a product be added to a shopping cart in the shopping cart database rather than request that the product be purchased immediately. The buyer computer sends a shopping cart URL to the payment computer (step 108), the shopping cart URL including a product identifier, a domain identifier, a payment amount, a merchant computer identifier, a merchant account identifier, a duration time, an expiration time, and a shopping cart URL authenticator that is a digital signature based on a cryptographic key. The shopping cart URL authenticator is a hash of other information in the shopping cart URL, the hash being defined by

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a key shared by the merchant and the operator of the payment computer.

The payment computer verifies whether the shopping cart URL authenticator was created from the contents of the shopping cart URL using a cryptographic key (step 110). If not, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step 112). Otherwise, before any modification to a user's shopping cart is allowed, user authentication is performed (step 113) in a manner analogous to steps 40-81. Once the user is authenticated, the payment computer creates or updates a payment URL for the shopping cart (step 114).

The user then either requests more advertisements (step 24 in FIG. 2) and possibly adds another product to the shopping cart, requests display of the shopping cart (step 116), or requests purchase of the entire contents of the shopping cart (step 124). If the user requests display of the shopping cart (step 116), the buyer computer sends a fetch shopping cart request to the payment computer (step 118), and the payment computer and buyer computer (step 119) perform steps analogous to steps 64-81. The payment computer returns the contents of the shopping cart to the buyer computer (step 120), which displays the contents of the shopping cart (step 122). If the user requests that the entire contents of the shopping cart be purchased (step 124) the buyer computer causes the payment URL for the shopping cart to be activated (step 126) and the payment URL is processed in a manner analogous to the processing of payment URLs for individual products (beginning with step 36 in FIG. 2).

With reference now to FIG. 4, a user can request display of a "smart statement" that lists purchase transactions for a given month (step 128). When the buyer computer receives such a request, it sends a smart statement URL to the payment computer (step 130).

When the payment computer receives the smart statement URL, it verifies whether the smart statement URL authenticator was created from the contents of the smart statement URL using a cryptographic key (step 132). If not, the payment computer sends a document to the buyer computer indicating that access is denied (step 134). Otherwise, the payment computer checks to determine whether the buyer network address in the smart statement URL matches the buyer computer's actual network address (step 136). If not, the payment computer sends a document to the buyer computer indicating that access is denied (step 138). Otherwise (step 140), the payment computer and buyer computer perform a set of steps analogous to steps 64-81 in FIG. 2 (payment computer requests account name and password, user provides the requested information, and payment computer verifies the information).

In an alternative embodiment steps 132-138 are omitted.

After verification of account information is complete, the payment computer retrieves the requested settlement data from the settlement database, creates a smart statement document for the buyer, and sends the smart statement document to the buyer computer (step 142). An example of a smart statement document is shown in FIG. 11. Each purchase transaction record in the smart statement document includes the data of the transaction, the name of the merchant, an identification of the product, and the payment amount for the product. The smart statement document also includes a transaction detail URL for each purchase transaction (these URLs, or hypertext links, are discussed below and are not shown in FIG. 11). The smart statement docu-

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ment also identifies previous statements that the user may wish to have displayed.

The buyer computer displays the retrieved document (step 144), and the user may request transaction details for a particular transaction listed on the smart statement (step 146). If so, the buyer computer sends a transaction detail URL (or "payment detail URL") to the payment computer (step 148). The transaction detail URL includes a transaction identifier, a buyer network address, and a transaction detail URL authenticator. When the payment computer receives the transaction detail URL, it performs (step 150) a set of steps analogous to steps 132-140 (verification of URL authenticator, buyer network address, and account information). The payment computer then retrieves from the settlement database data corresponding to the payment transaction specified in the transaction detail URL, creates a transaction detail document, and sends it to the buyer computer (step 152).

An example of a transaction detail document is shown in FIGS. 12 and 13. The document displays a number of items of information about the transaction, including the transaction date, end of the duration time ("expiration"), a description of the product, the payment amount, the domain corresponding to the product, an identification of the merchant, and the merchant's address.

The smart statement document and the transaction detail document both include customer service URLs (hypertext links) that allow the user to request customer service (i.e., to send comments and suggestions to the payment computer). When the user requests customer service (step 154), the buyer computer sends the customer service URL to the payment computer (step 156), which creates a customer service form and sends it to the buyer computer (step 158). An example of a customer service form is shown in FIG. 14. The user types comments into the customer service form (step 160), and the buyer computer sends the user's comments to the payment computer (step 162). The payment computer then posts the user comments and sends a thank you document to the buyer computer (step 164).

A user may request display of a product included in the smart statement. When the user requests that the product be displayed (step 166), the buyer computer sends the access URL contained in the smart statement document to the merchant computer (step 168), and the buyer computer and merchant computer perform a set of steps analogous to steps 94-104 in FIG. 2 (authentication of access URL, verification whether duration time has expired, verification of buyer network address, and transmission of fulfillment document to buyer computer).

Whenever the present application states that one computer sends a URL to another computer, it should be understood that in preferred embodiments the URL is sent in a standard HTTP request message, unless a URL message is specified as a redirection in the present application. The request message includes components of the URL as described by the standard HTTP protocol definition. These URL components in the request message allow the server to provide a response appropriate to the URL. The term "URL" as used in the present application is an example of a "link," which is a pointer to another document or form (including multimedia documents, hypertext documents including other links, or audio/video documents).

When the present application states that one computer sends a document to another computer, it should be understood that in preferred embodiments the document is a success HTTP response message with the document in the

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body of the message. When the present application states that a server sends an account name and password request message to the client, it should be understood that in preferred embodiments the account name and password request message is an unauthorized HTTP response. A client computer sends account name and password information to a server as part of a request message with an authorization field.

The software architecture underlying the particular preferred embodiment is based upon the hypertext conventions of the World Wide Web. Appendix A describes the Hypertext Markup Language (HTML) document format used to represent digital advertisements, Appendix B describes the HTML forms fill out support in Mosaic 2.0, Appendix C is a description of the Hypertext Transfer Protocol (HTTP) between buyer and merchant computers, Appendix D describes how documents are named with Uniform Resource Locators (URLs) in the network of computers, and Appendix E describes the authentication of URLs using digital signatures.

A printout of a computer program for use in creating and operating such a "store" in accordance with the present invention is provided as Appendix F. A printout of a computer program for use in operating other aspects of the network sales system in accordance with the present invention is provided in Appendix G.

There has been described a new and useful network-based sales system. It is apparent that those skilled in the art may make numerous modifications and departures from the specific embodiments described herein without departing from the spirit and scope of the claimed invention.

What is claimed is:

1. A network-based sales system, comprising:

a merchant database comprising a plurality of digital advertisements and a plurality of respective product fulfillment items;

at least one creation computer for creating said merchant database; and

at least one merchant computer for causing said digital advertisements to be transmitted to a user and for causing advertised products to be transmitted to said user;

said creation computers, said merchant computer, and a payment computer being interconnected by a public packet switched computer network;

said creation computer being programmed to create said merchant database, and to transmit said digital advertisements and said product fulfillment items over said network to said merchant computer;

said merchant computer being programmed to receive said digital advertisements and product fulfillment items over said network, to receive over said network a request for a digital advertisement from a user, to cause said digital advertisement to be sent to said user over said network, to receive over said network from said user a product request message identifying an advertised product, to receive an access message over said network created by said payment computer, and to cause said product to be sent to said user in accordance with a product fulfillment item corresponding to said product and based upon receipt by the merchant computer of the access message.

2. A network-based sales system in accordance with claim 1, wherein each of said digital advertisements comprises an abstract of a product and a price.

3. A network-based sales system in accordance with claim 2, wherein:

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at least one of said product fulfillment items comprises a product itself; and  
 said creation computer is programmed to transmit said product to said merchant computer with said digital advertisements.

4. A network-based sales system in accordance with claim 2, wherein:  
 at least one of said product fulfillment items comprises a hard good identifier; and  
 said creation computer is programmed to transmit said hard good identifier to said merchant computer with said digital advertisements.

5. A method of operating a merchant computer in a network-based sales system comprising a merchant database that comprises a plurality of digital advertisements and a plurality of respective product fulfillment items, at least one creation computer for creating said merchant database, and at least one merchant computer for causing said digital advertisements to be transmitted to a user and for causing advertised products to be transmitted to said user, and at least one payment computer, said creation computer, said merchant computer, and said payment computer being interconnected by a public packet switched computer network, said method comprising the steps of:  
 receiving, at said merchant computer, said digital advertisements and said product fulfillment items, said digital advertisements and said product fulfillment items having been transmitted over said network to said merchant computer by said creation computer, said merchant database comprising said digital advertisements and said product fulfillment items having been created by said creation computer;  
 receiving over said network a request for a digital advertisement from a user;  
 causing said digital advertisement to be sent to said user over said network;  
 receiving over said network from said user a product request message identifying an advertised product;  
 receiving over said network an access message created by said payment computer; and  
 causing said product to be sent to said user in accordance with a product fulfillment item corresponding to said product and based upon receipt by the merchant computer of the access message.

6. A hypertext statement system, comprising:  
 a client computer for operation by a client user; and  
 a plurality of server computers for operation by a server user;  
 said client computer and said server computers being interconnected by a public packet switched computer network;  
 at least one of said server computers being programmed to record information pertaining to purchase transaction records in a database, each of said purchase transaction records comprising a product description, and to cause a statement document comprising said purchase transaction records to be transmitted to said client computer over said network;  
 said client computer being programmed to display said product descriptions, to receive a request from said client user to display a product corresponding to a product description displayed by said client computer, and to cause a product hypertext link derived from a purchase transaction record to be activated;  
 at least one of said server computers, other than a server computer that transmitted said statement document to

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said client computer, being programmed to respond to activation of said product hypertext link by causing said product to be sent to said client computer over said network.

7. A hypertext statement system in accordance with claim 6, wherein:  
 said client computer is programmed to receive a request from said client user to display transaction details corresponding to a product description displayed by said client computer and to cause a transaction detail hypertext link corresponding to said product description to be activated; and  
 at least one of said server computers is programmed to respond to activation of said transaction detail hypertext link by transmitting said transaction details to said client computer as a transaction detail document.

8. A hypertext statement system in accordance with claim 7, wherein:  
 said transaction detail document further comprises a customer service form hypertext link;  
 said client computer is programmed to receive a request from said client user to display a customer service form and to cause said customer service form hypertext link to be activated; and  
 at least one of said server computers is programmed to respond to activation of said customer service form hypertext link by transmitting said customer service form to said client computer.

9. A hypertext statement system in accordance with claim 6, wherein:  
 said statement document further comprises a customer service form hypertext link;  
 said client computer is programmed to receive a request from said client user to display a customer service form and to cause said customer service form hypertext link to be activated; and  
 at least one of said server computers is programmed to respond to activation of said customer service form hypertext link by transmitting said customer service form to said client computer.

10. A method of operating a server computer in a hypertext statement system comprising a client computer for operation by a client user, and a plurality of server computers for operation by a server user, said client computer and said server computers being interconnected by a public packet switched computer network, said method comprising the steps of:  
 recording, at one of said server computers, information pertaining to purchase transaction records in a database, each of said purchase transaction records comprising a product description; and  
 causing a statement document comprising said purchase transaction records to be transmitted to said client computer over said network;  
 said client computer being programmed to display said product descriptions, to receive a request from said client user to display a product corresponding to a product description displayed by said client computer, and to cause a product hypertext link derived from a purchase transaction record to be activated;  
 at least one of said server computers, other than a server computer that transmitted said statement document to said client computer, being programmed to respond to activation of said product hypertext link by causing said product to be sent to said client computer over said network.

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11. A network payment system, comprising:  
 at least one buyer computer for operation by a user desiring to buy a product; and  
 at least one payment computer for processing payment messages from said buyer computer;  
 said buyer computer, said payment computer, and a merchant computer being interconnected by a public packet switched computer network;  
 said buyer computer being programmed to cause a payment message to be sent to said payment computer over said network;  
 said payment computer being programmed to receive said payment message, to cause an access message to be created for transmission over said network to said merchant computer to enable said user to access said product upon verification by said merchant computer that said access message was created by said payment computer, and to record information pertaining to a purchase transaction record in said settlement database;  
 said buyer computer being programmed to cause a request for a purchase transaction record to be sent to said payment computer over said network; and  
 said payment computer being programmed to receive said request for said purchase transaction record and to cause a document derived from said purchase transaction record to be sent to said buyer computer over said network.

12. The network payment system of claim 11 wherein the payment message comprises a product identifier identifying the product that the user desires to buy.

13. A method of operating a payment computer in a network payment system comprising at least one buyer computer for operation by a user desiring to buy a product, and at least one payment computer for processing payment messages from said buyer computer, and at least one merchant computer, said buyer computer, said payment computer, and said merchant computer being interconnected by a public packet switched computer network, said method comprising the steps of:

receiving, at said payment computer, a payment message that said buyer computer has caused to be sent to said payment computer over said network;  
 causing an access message to be created for transmission to a merchant computer over said network to enable said user to access said product upon verification by said merchant computer that said access message was created by said payment computer;  
 recording information pertaining to a purchase transaction record in said settlement database;  
 receiving over said network a request for a purchase transaction record that said buyer computer has caused to be sent to said payment computer; and  
 causing a document derived from said purchase transaction record to be sent to said buyer computer over said network.

14. The method of claim 13 wherein the payment message comprises a product identifier identifying the product that the user desires to buy.

15. A hypertext statement system, comprising:  
 a client computer for operation by a client user; and  
 one or more server computers for operation by a server user;  
 the client computer and the server computers being interconnected by a public packet switched computer network;

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at least one of the server computers being programmed to record information pertaining to purchase transaction records in a database, and to transmit a statement document comprising the purchase transaction records to the client computer over the network;

the client computer being programmed to display the statement document to receive a request from the client user to display transaction details corresponding to a portion of the statement document displayed by the client computer, and to cause a transaction detail hypertext link corresponding to the portion of the statement document to be activated;

at least one of the server computers being programmed to respond to activation of the transaction detail hypertext link by transmitting the transaction details to the client computer over the network as a transaction detail document.

16. A method of operating a server computer in a hypertext statement system comprising a client computer for operation by a client user, and one or more server computers for operation by a server user, the client computer and the server computers being interconnected by a public packet switched computer network, the method comprising the steps of:

recording, at one of the server computers, information pertaining to purchase transaction records in a database; and

transmitting a statement document comprising the purchase transaction records to the client computer over the network;

the client computer being programmed to display the statement document, to receive a request from the client user to display transaction details corresponding to a portion of the statement document displayed by the client computer, and to cause a transaction detail hypertext link corresponding to the portion of the statement document to be activated;

at least one of the server computers being programmed to respond to activation of the transaction detail hypertext link by transmitting the transaction details to the client computer over the network as a transaction detail document.

17. A network-based sales system, comprising:

at least one buyer computer for operation by a user desiring to buy products;

at least one shopping cart computer; and  
 a shopping cart database connected to the shopping cart computer;

the buyer computer and the shopping cart computer being interconnected by a public packet switched computer network;

the buyer computer being programmed to receive a plurality of requests from a user to add a plurality of respective products to a shopping cart in the shopping cart database, and, in response to the requests to add the products, to send a plurality of respective shopping cart messages over the network to the shopping cart computer each of which comprises a product identifier identifying one of the plurality of products and at least one of which comprises a universal resource locator;

the shopping cart computer being programmed to receive the plurality of shopping cart messages, to modify the shopping cart in the shopping cart database to reflect the plurality of requests to add the plurality of products to the shopping cart, and to cause a payment message

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associated with the shopping cart to be created, the payment message comprising a universal resource locator; and

the buyer computer being programmed to receive a request from the user to purchase the plurality of products added to the shopping cart and to cause the payment message to be activated to initiate a payment transaction for the plurality of products added to the shopping cart;

the shopping cart being a stored representation of a collection of products, the shopping cart database being a database of stored representations of collections of products, and the shopping cart computer being a computer that modifies the stored representations of collections of products in the database.

18. A method of operating a shopping cart computer in a public packet switched computer network comprising at least one buyer computer for operation by a user desiring to buy products, at least one shopping cart computer, and a shopping cart database connected to the shopping cart computer, the method comprising the steps of:

receiving, at the shopping cart computer, a plurality of shopping cart messages sent over the network to the shopping cart computer by the buyer computer in response to receipt of a plurality of requests from a user to add a plurality of respective products to a shopping cart in the shopping cart database, each of the shopping cart messages comprising a product identifier identifying one of the plurality of products and at least one of which comprises a universal resource locator;

modifying the shopping cart in the shopping cart database to reflect the plurality of requests to add the plurality of products to the shopping cart; and

causing a payment message associated with the shopping cart to be created, the payment message comprising a universal resource locator;

the buyer computer being programmed to receive a request from the user to purchase the plurality of products added to the shopping cart and to cause the payment message to be activated to initiate a payment transaction for the plurality of products added to the shopping cart;

the shopping cart being a stored representation of a collection of products, the shopping cart database being a database of stored representations of collections of products, and the shopping cart computer being a computer that modifies the stored representations of collections of products in the database.

19. A network-based sales system, comprising:

at least one buyer computer for operation by a user desiring to buy a product;

at least one merchant computer; and

at least one payment computer;

the buyer computer, the merchant computer, and the payment computer being interconnected by a computer network;

the buyer computer being programmed to receive a user request for purchasing a product, and to cause a payment message to be sent to the payment computer that comprises a product identifier identifying the product;

the payment computer being programmed to receive the payment message, to cause an access message to be created that comprises a product identifier identifying the product and an access message authenticator based on a cryptographic key, and to cause the access message to be sent to the merchant computer; and

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the merchant computer being programmed to receive the access message, to cause the access message authenticator to be verified to ensure that the access message authenticator was created using the cryptographic key, and to cause the product to be received by the user desiring to buy the product.

20. A network-based sales system in accordance with claim 19 wherein the buyer computer is programmed to cause the payment message to be sent to the payment computer by sending a purchase product message to the merchant computer, the merchant computer being programmed to receive the purchase product message, and in response thereto, to send the payment message to the payment computer.

21. A network-based sales system in accordance with claim 19 wherein the merchant computer is programmed itself to verify the access message authenticator.

22. A network-based sales system in accordance with claim 19 wherein the merchant computer is programmed to cause every access message authenticator received by the merchant computer to be verified.

23. A network-based sales system in accordance with claim 19, wherein the payment message comprises a payment amount.

24. A network-based sales system in accordance with claim 19, wherein the payment computer is programmed to record the product identifier and the payment amount.

25. A network-based sales system in accordance with claim 24, wherein the product identifier and the payment amount are recorded in a settlement database.

26. A network-based sales system in accordance with claim 19, wherein the payment message comprises a merchant computer identifier.

27. A network-based sales system in accordance with claim 19, wherein the payment message comprises a payment message authenticator based on a cryptographic key.

28. A network-based sales system in accordance with claim 27, wherein the payment computer is programmed to verify the payment message authenticator to ensure that the payment message authenticator was created using the cryptographic key.

29. A network-based sales system in accordance with claim 19 wherein the computer network is a public packet-switched communications network.

30. A method of operating a payment computer in a computer network comprising at least one buyer computer for operation by a user desiring to buy a product, at least one merchant computer, and at least one payment computer, the method comprising the steps of:

receiving, at the payment computer, a payment message that the buyer computer has caused to be sent to the payment computer in response to a user request for purchasing a product, the payment message comprising a product identifier identifying the product;

causing an access message to be created that comprises a product identifier identifying the product and an access message authenticator based on a cryptographic key; and

causing the access message to be sent to the merchant computer, the merchant computer being programmed to receive the access message, to cause the access message authenticator to be verified to ensure that the access message authenticator was created using the cryptographic key, and to cause the product to be received by the user desiring to buy the product.

31. A network-based sales system, comprising:

at least one buyer computer for operation by a user desiring to buy a product;

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at least one merchant computer; and  
 at least one payment computer;  
 the buyer computer, the merchant computer, and the payment computer being interconnected by a public packet switched computer network;  
 the buyer computer being programmed to receive a request from a user for purchasing a product, and to cause a payment message to be sent over the network to the payment computer;  
 the payment computer being programmed to receive the payment message, and, if purchase of the product by the user has not been previously recorded in a settlement database, to cause the user to be charged for the product and to create a new record in the settlement database reflecting purchase of the product by the user, to cause an access message to be created, and to cause the access message to be sent over the network to the merchant computer; and  
 the merchant computer being programmed to receive the access message and to cause the user to receive the product.

32. The network-based sales system of claim 31 wherein: the payment computer is programmed to cause the access message to be created using a cryptographic key; and at least one of the computers is programmed to use the access message in a cryptographic process to ensure that the user has paid for the product.

33. A method of operating a payment computer in a public packet switched computer network comprising at least one buyer computer for operation by a user desiring to buy a product, at least one merchant computer, and at least one payment computer, the method comprising the steps of:  
 receiving, at the payment computer, a payment message that the buyer computer has caused to be sent over the network to the payment computer in response to a request from a user for purchasing a product, and, if purchase of the product by the user has not been previously recorded in a settlement database, causing the user to be charged for the product and creating a new record in the settlement database reflecting purchase of the product by the user;  
 causing an access message to be created; and  
 causing the access message to be sent over the network to the merchant computer, the merchant computer being programmed to receive the access message and to cause the user to receive the product.

34. The method of claim 33 wherein at least one of the computers is programmed to use the access message in a cryptographic process to ensure that the user has paid for the product.

35. A network-based sales system, comprising:  
 at least one buyer computer for operation by a user desiring to buy products;  
 at least one shopping cart computer; and  
 a shopping cart database connected to the shopping cart computer;  
 the buyer computer and the shopping cart computer being interconnected by a public packet switched computer network;  
 the buyer computer being programmed to receive a plurality of requests from a user to add a plurality of respective products to a shopping cart in the shopping cart database, and, in response to the requests to add the products, to send a plurality of respective shopping cart

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messages over the network to the shopping cart computer each of which comprises a product identifier identifying one of the plurality of products;  
 the shopping cart computer being programmed to receive the plurality of shopping cart messages, and to modify the shopping cart in the shopping cart database to reflect the plurality of requests to add the plurality of products to the shopping cart; and  
 the buyer computer being programmed to receive a request from the user to purchase the plurality of products added to the shopping cart and to cause a payment message to be activated to initiate a payment transaction for the plurality of products added to the shopping cart;  
 the shopping cart being a stored representation of a collection of products, the shopping cart database being a database of stored representations of collections of products, and the shopping cart computer being a computer that modifies the stored representations of collections of products in the database.

36. A method of operating a shopping cart computer in a public packet switched computer network comprising at least one buyer computer for operation by a user desiring to buy products, at least one shopping cart computer, and a shopping cart database connected to the shopping cart computer, the method comprising the steps of:  
 receiving, at the shopping cart computer, a plurality of shopping cart messages sent over the network to the shopping cart computer by the buyer computer in response to receipt of a plurality of requests from a user to add a plurality of respective products to a shopping cart in the shopping cart database, each of the shopping cart messages comprising a product identifier identifying one of the plurality of products; and  
 modifying the shopping cart in the shopping cart database to reflect the plurality of requests to add the plurality of products to the shopping cart;  
 the buyer computer being programmed to receive a request from the user to purchase the plurality of products added to the shopping cart and to cause a payment message to be activated to initiate a payment transaction for the plurality of products added to the shopping cart;  
 the shopping cart being a stored representation of a collection of products, the shopping cart database being a database of stored representations of collections of products, and the shopping cart computer being a computer that modifies the stored representations of collections of products in the database.

37. A network-based sales system, comprising:  
 a merchant database comprising a plurality of digital advertisements and a plurality of respective product fulfillment items;  
 at least one creation computer for creating the merchant database; and  
 at least one merchant computer for causing the digital advertisements to be transmitted to a user and for causing advertised products to be transmitted to the user;  
 the creation computer and the merchant computer being interconnected by a public packet switched computer network;  
 the creation computer being programmed to create the merchant database, and to transmit the digital advertisements and the product fulfillment items over the network to the merchant computer;

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the merchant computer being programmed to receive the digital advertisements and product fulfillment items over the network, to receive over the network a request for a digital advertisement from a user, to cause the digital advertisement to be sent to the user over the network, to receive over the network from the user a product request message identifying an advertised product, and to cause the product to be sent to the user in accordance with a product fulfillment item corresponding to the product;

at least a portion of the digital advertisements transmitted by the creation computer to the merchant computer over the network being authenticated by at least one digital signature.

38. A method of operating a merchant computer in a network-based sales system comprising a merchant database that comprises a plurality of digital advertisements and a plurality of respective product fulfillment items, at least one creation computer for creating the merchant database, and at least one merchant computer for causing the digital advertisements to be transmitted to a user and for causing advertised products to be transmitted to the user, the creation computer and the merchant computer being interconnected by a public packet switched computer network, the method comprising the steps of:

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receiving, at the merchant computer, the digital advertisements and the product fulfillment items, the digital advertisements and the product fulfillment items having been transmitted over the network to the merchant computer by the creation computer, the merchant database comprising the digital advertisements and the product fulfillment items having been created by the creation computer;

receiving over the network a request for a digital advertisement from a user;

causing the digital advertisement to be sent to the user over the network;

receiving over the network from the user a product request message identifying an advertised product; and causing the product to be sent to the user in accordance with a product fulfillment item corresponding to the product;

at least a portion of the digital advertisements transmitted by the creation computer to the merchant computer over the network being authenticated by at least one digital signature.

\* \* \* \* \*

**UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF ILLINOIS**

**DOCKETED**

**OCT 07 2002**

**Civil Cover Sheet**

This automated JS-44 conforms generally to the manual JS-44 approved by the Judicial Conference of the United States in September 1974. The data is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. The information contained herein neither replaces nor supplements the filing and service of pleadings or other papers as required by law. This form is authorized for use only in the Northern District of Illinois.

**Plaintiff(s): DIVINE TECHNOLOGY VENTURES,  
an Illinois general partnership**

**Defendant(s): ADVANCED COMFORT, INC. d/b/a  
ABED.COM, a New York corporation**

County of Residence: Cook County, Illinois

County of Residence:

Plaintiff's Atty: See Attached

Defendant's Atty:

**II. Basis of Jurisdiction: 3. Federal Question (U.S. not a party)**

**02C 715 8**

**III. Citizenship of Principal  
Parties (Diversity Cases Only)**

Plaintiff: - N/A

Defendant: - N/A

**JUDGE COAR**

**IV. Origin : 1. Original Proceeding**

**MAGISTRATE JUDGE SCHENKIER**

**V. Nature of Suit: 830 Patent**

**VI. Cause of Action: 35 U.S.C. 271 - patent infringement**

**VII. Requested in Complaint**

Class Action: **No**

Dollar Demand:

Jury Demand: **Yes**

**VIII. This case IS NOT a refiling of a previously dismissed case.**

**FILED-ED5  
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CLERK  
U.S. DISTRICT COURT**

**Signature:**

**Date:**

**Oct. 4, 2002**

If any of this information is incorrect, please go back to the Civil Cover Sheet Input form using the *Back* button in your browser and change it. Once correct, print this form, sign and date it and submit it with your new civil action. **Note: You may need to adjust the font size in your browser display to make the form print properly.** Revised: 06/28/00

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**ATTACHMENT**

1(c) ATTORNEYS (FIRM NAME, ADDRESS, AND TELEPHONE NUMBER)

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(312) 372-1121

**UNITED STATES DISTRICT COURT**  
NORTHERN DISTRICT OF ILLINOIS

**DOCKETED**  
OCT 07 2002

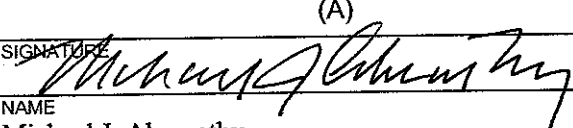
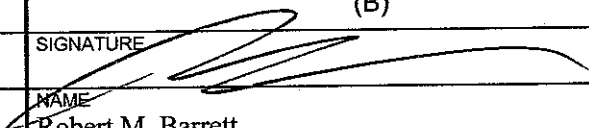

**02C 715 8**

In the Matter of **DIVINE TECHNOLOGY VENTURES**  
v.  
**ADVANCED COMFORT, INC. d/b/a ABED.COM**  
Case Number:

**JUDGE COAR**  
**MAGISTRATE JUDGE SCHENKIER**

APPEARANCES ARE HEREBY FILED BY THE UNDERSIGNED AS ATTORNEY(S) FOR:  
**DIVINE TECHNOLOGY VENTURES**

Plaintiff

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IDENTIFICATION NUMBER (SEE ITEM 4 ON REVERSE) 6183736	IDENTIFICATION NUMBER (SEE ITEM 4 ON REVERSE) 6180039
MEMBER OF TRIAL BAR? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	MEMBER OF TRIAL BAR? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
TRIAL ATTORNEY? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	TRIAL ATTORNEY? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
DESIGNATED AS LOCAL COUNSEL? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	DESIGNATED AS LOCAL COUNSEL? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
(C)	(D)
SIGNATURE 	SIGNATURE
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TELEPHONE NUMBER (312) 372-1121	TELEPHONE NUMBER
IDENTIFICATION NUMBER (SEE ITEM 4 ON REVERSE) 6255717	IDENTIFICATION NUMBER (SEE ITEM 4 ON REVERSE)
MEMBER OF TRIAL BAR? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	MEMBER OF TRIAL BAR? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
TRIAL ATTORNEY? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	TRIAL ATTORNEY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
DESIGNATED AS LOCAL COUNSEL? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	DESIGNATED AS LOCAL COUNSEL? YES <input type="checkbox"/> NO <input type="checkbox"/>

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U.S. DISTRICT COURTS

PLEASE COMPLETE IN ACCORDANCE WITH INSTRUCTIONS ON REVERSE.

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