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REDENBACHER & BROWN, LLP
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Attorneys for Plaintiff, j2 GLOBAL COMMUNICATIONS, INC.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

j2 GLOBAL COMMUNICATIONS, INC.,
Plaintiff,
vs.
SAVETZ PUBLISHING, INC.,
Defendant.

Civil Action No.: C 08-04469 EDL

**PROPOSED STIPULATION AND
ORDER FOR FILING BY j2 GLOBAL
COMMUNICATIONS, INC. OF FIRST
AMENDED COMPLAINT FOR
INFRINGEMENT OF PATENTS AND
FOR RESETTING DUE DATES
UNDER THE PATENT LOCAL RULES**

COME NOW plaintiff j2 Global Communications, Inc. (“j2”) and defendant Savetz Publishing, Inc. (“Savetz”), by and through their respective undersigned attorneys, and hereby jointly stipulate and agree that j2 be permitted to file its First Amended Complaint, a true and correct copy of which is attached hereto as Exhibit 1, and that there is no opposition to its doing so.

It is further stipulated that Savetz will file its pleading in response to the First Amended Complaint within twenty days of the filing by j2 of its First Amended Complaint. However, the parties agree that the date set for mediation shall remain March 27, 2009.

Further, since the First Amended Complaint is asserting a second patent, in order to make the application of, and the due dates under, the Patent Local Rules the same for both patents,

1 thereby conserving judicial resources for claim construction and making the application of the
2 Patent Local Rules more efficient, the parties stipulate and agree that j2's disclosure of Asserted
3 Claims and Infringement Contentions pursuant to Patent L.R. 3-1 and 3-2 are due 60 days after the
4 date of filing of the First Amended Complaint, and Savetz's Invalidity Contentions pursuant to
5 Patent L.R. 3-3 and 3-4 for both patents at issue are due 105 days after the date of filing of the First
6 Amended Complaint. The remainder of the due dates in the Patent Local Rules will be determined
7 based upon the date of service of Savetz's Invalidity Contentions. Therefore, pursuant to Patent
8 Local Rule 1-3, the parties request the Court to modify the deadlines under the Patent Local Rules
9 in accordance with the parties' stipulation above.

10
11 Dated: February 3, 2009

REDENBACHER & BROWN, LLP

John C. Brown

12
13 By: _____

JOHN C. BROWN

Attorneys for Plaintiff/Counterclaim-
Defendant

j2 GLOBAL COMMUNICATIONS, INC.

14
15
16
17 Dated: February 3, 2009

OWENS TARABICHI LLP

\s

18
19 By: _____

DAVID OWENS

Attorneys for Defendant/Counterclaimant
SAVETZ PUBLISHING, INC.

20
21
22 IT IS SO ORDERED.

23 Dated: February 4, 2009

Honorable _____

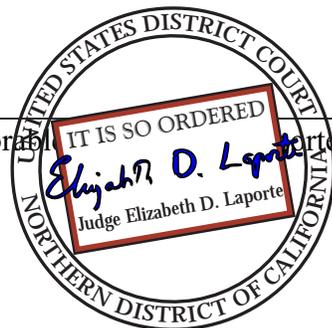


EXHIBIT 1

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3 580 California Street, Suite 1600
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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

11 j2 GLOBAL COMMUNICATIONS, INC.,
12 Plaintiff,
13 vs.
14 SAVETZ PUBLISHING, INC.,
15 Defendant.

Civil Action No.: C 08-04469 EDL
**FIRST AMENDED COMPLAINT FOR
INFRINGEMENT OF PATENTS
(DEMAND FOR JURY TRIAL)**

18 Plaintiff j2 GLOBAL COMMUNICATIONS, INC. alleges:

19 PARTIES

20 1. Plaintiff j2 GLOBAL COMMUNICATIONS, INC. (“j2”) is a Delaware for-profit
21 corporation with its principal place of business in Los Angeles, California. j2 is the owner, by
22 assignment, of all right, title, and interest in and to the following United States Patents, including
23 the right to bring suit for patent infringement: United States Patent No. 6,564,193 (“the ‘193
24 patent”) and United States Patent No. 7,020,132 (“the ‘132 patent”).

25
26 2. Defendant SAVETZ PUBLISHING, INC. (“Savetz”) is a California corporation.
27 Upon information and belief, Savetz’s principal place of business is in Blue Lake, California.
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JURISDICTION

3. This is an action for patent infringement arising under the patent laws of the United States, Title 35, United States Code. This Court has subject matter jurisdiction over all causes of action set forth herein pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.*

VENUE

4. Venue is proper in this judicial district and division pursuant to 28 U.S.C. §§1391(b) and (c) and 1400(b) in that Savetz has done business in this district, it has its principal place of business in this district upon information and belief, it has committed acts of infringement in this district, and it continues to commit acts of infringement in this district, entitling j2 to relief.

COUNT ONE:

INFRINGEMENT OF U.S. PATENT NO. 6,564,193

5. j2 realleges and incorporates herein the allegations of paragraphs 1 through 4 of this Complaint as if fully set forth herein.

6. j2 holds and at all times relevant hereto has held all rights and interest in the ‘193 patent for “System for and Method of, Using the Internet System to Provide for the Transmission of a Facsimile Message.” A true and correct copy of the ‘193 patent is attached as Exhibit A.

7. Upon information and belief, Savetz has directly and/or indirectly infringed and continues to directly and/or indirectly infringe the ‘193 patent. The infringing acts include, but are not limited to, the manufacture, use, sale, importation, and/or offer for sale of Savetz’s FaxZero.com Internet Fax Service.

8. Each of Savetz’s acts of infringement has been willful, in that j2 has given Savetz written and oral notice of its infringement, but Savetz has continued the infringement. Savetz has had actual knowledge of its infringement, and it received written notification of information

1 sufficient to persuade a reasonable person that it was infringing on j2's patent.

2 9. The acts of infringement of the '193 patent by Savetz have caused damage to j2 and
3 j2 is entitled to recover from Savetz the damages sustained by j2 as a result of Savetz's wrongful
4 acts in an amount subject to proof at trial.

5 10. Savetz will continue to infringe the '193 patent unless enjoined by this Court. The
6 infringement of j2's exclusive rights under the '193 patent by Savetz will continue to damage j2,
7 causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this
8 Court.
9

10 COUNT TWO:

11 INFRINGEMENT OF U.S. PATENT NO. 7,020,132

12 11. j2 realleges and incorporates herein the allegations of paragraphs 1 through 4 of this
13 Complaint as if fully set forth herein.

14 12. j2 holds and at all times relevant hereto has held all rights and interest in the '132
15 patent for "Scalable Architecture for Transmission of Messages Over a Network." A true and
16 correct copy of the '132 patent is attached hereto as Exhibit B.
17

18 13. Upon information and belief, Savetz has indirectly infringed and continues to
19 indirectly infringe the '132 patent. The infringing acts include, but are not limited to, the
20 manufacture, use, sale, importation, and/or offer for sale of Savetz's FaxZero.com Internet Fax
21 Service and inducement of infringement by offering access to a network over which one can
22 transmit emails that are received as facsimiles.
23

24 14. Each of Savetz's acts of infringement has been willful, in that, upon information
25 and belief, Savetz has had notice and/or actual knowledge of its infringement, but Savetz has
26 continued the infringement.

27 15. The acts of infringement of the '132 patent by Savetz have caused damage to j2 and
28 j2 is entitled to recover from Savetz the damages sustained by j2 as a result of Savetz's

1 wrongful acts in an amount subject to proof at trial.

2 16. Savetz will continue to infringe the ‘132 patent unless enjoined by this Court. The
3 infringement of j2’s exclusive rights under the ‘132 patent by Savetz will continue to damage j2,
4 causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this
5 Court.

6 PRAYER

7 WHEREFORE, plaintiff j2 GLOBAL COMMUNICATIONS, INC. prays for judgment
8 against defendant SAVETZ PUBLISHING, INC. as follows:
9

10 1. That SAVETZ PUBLISHING, INC. has infringed both the ‘193 Patent and the ‘132
11 Patent under 35 U.S.C. § 271 and that the Court enter judgment of infringement against it;

12 2. That, pursuant to 35 U.S.C. § 283, injunctions, preliminary and permanent, be
13 issued by this Court restraining SAVETZ PUBLISHING, INC., its respective officers, agents,
14 servants, directors, and employees, and all persons in active concert or participation with it, from
15 directly or indirectly infringing, or inducing or contributing to the infringement by others, of the
16 ‘193 Patent and of the ‘132 patent;
17

18 3. That SAVETZ PUBLISHING, INC. be required to provide j2 an accounting of all
19 gains, profits and advantages derived by its infringement of the ‘193 Patent and of the ‘132 Patent,
20 and that j2 be awarded damages adequate to compensate j2 for the wrongful infringing acts by
21 SAVETZ PUBLISHING, INC., in accordance with 35 U.S.C. § 284, along with treble damages;
22

23 4. That j2 be awarded pre-judgment and post-judgment interest;

24 5. That the Court find that this case is exceptional and award j2 its reasonable
25 attorneys’ fees pursuant to 35 U.S.C. § 285;

26 6. That j2 be awarded costs of suit incurred in this action; and,

27 7. That j2 be awarded such other relief as the court deems just, equitable, and proper.
28

1 Date: January 21, 2009

REDENBACHER & BROWN, LLP

2 By *John C. Brown*
3 JOHN C. BROWN
4 Attorneys for Plaintiff
5 j2 GLOBAL COMMUNICATIONS, INC.
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DEMAND FOR JURY TRIAL

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Plaintiff hereby demands a jury trial as provided by Rule 38 of the Federal Rules of Civil Procedure.

Date: January 21, 2009

REDENBACHER & BROWN, LLP

John C. Brown

By: _____
JOHN C. BROWN
Attorneys for Plaintiff
j2 GLOBAL COMMUNICATIONS, INC.

EXHIBIT A



US006564193B1

(12) **United States Patent**
Shore et al.

(10) **Patent No.:** **US 6,564,193 B1**
(45) **Date of Patent:** **May 13, 2003**

(54) **SYSTEM FOR, AND METHOD OF, USING THE INTERNET SYSTEM TO PROVIDE FOR THE TRANSMISSION OF A FACSIMILE MESSAGE**

Sloboda: "What's free on the Internet: An update for user's"; Management Quarterly, Summaer 2001, vol. 42, No. 2, pp. 25-43.*

(75) Inventors: **Barry F. Shore**, Marina Del Rey, CA (US); **Mark R. Schwartz**, Calabassas, CA (US)

* cited by examiner

(73) Assignee: **fax4free.com, Inc.**, Marina de Rey, CA (US)

Primary Examiner—Edward R. Cosimano
(74) *Attorney, Agent, or Firm*—Fulwider, Patton et al.; Ellsworth R. Roston

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(57) **ABSTRACT**

(21) Appl. No.: **09/231,465**

A document is processed by a web server at a web site to determine from a customer whether the customer wishes to facsimile the document to a recipient for free or for a fee. If the customer indicates the customer's desire to facsimile the document for free, a message, preferably an advertisement, is added by the web server to the facsimile document before the document is facsimiled to the recipient. Preferably the advertisement is disposed by the web server in the vertical blank spaces at the opposite sides of the document. Before the document is sent, the web server determines from the customer through the Internet system whether the customer is a first time user at the web site and, if so, the web server obtains background information through the Internet system concerning the customer. If the customer is sending the facsimile document for a fee, the web server makes certain at the web site that the customer has sufficient money in the customer's account to pay for the cost of sending the facsimile to the recipient. The customer may communicate with the web server at the web site through the Internet system either from a web browser hooked into the Internet system or from a desk top individual to the customer and pre-connected by printer driver software to the web site of the service provider. A facsimile server is provided at the web site to send the facsimile message through telephone lines to the recipient.

(22) Filed: **Jan. 14, 1999**

(51) **Int. Cl.**⁷ **G06F 17/60**

(52) **U.S. Cl.** **705/400**; 379/100.01; 379/100.03; 379/100.04; 705/418

(58) **Field of Search** 379/100.01, 100.03, 379/100.04; 705/1, 400, 418

(56) **References Cited**

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5,937,037 A * 8/1999 Kamel et al. 379/88.18
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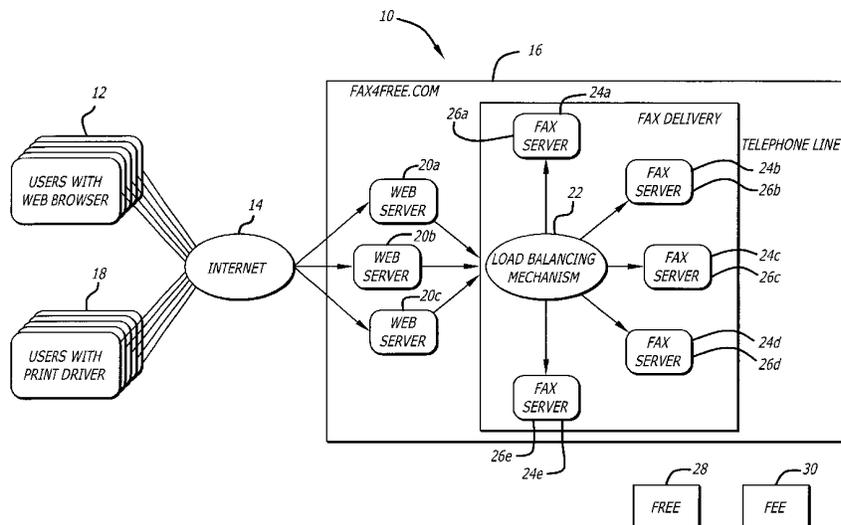
FOREIGN PATENT DOCUMENTS

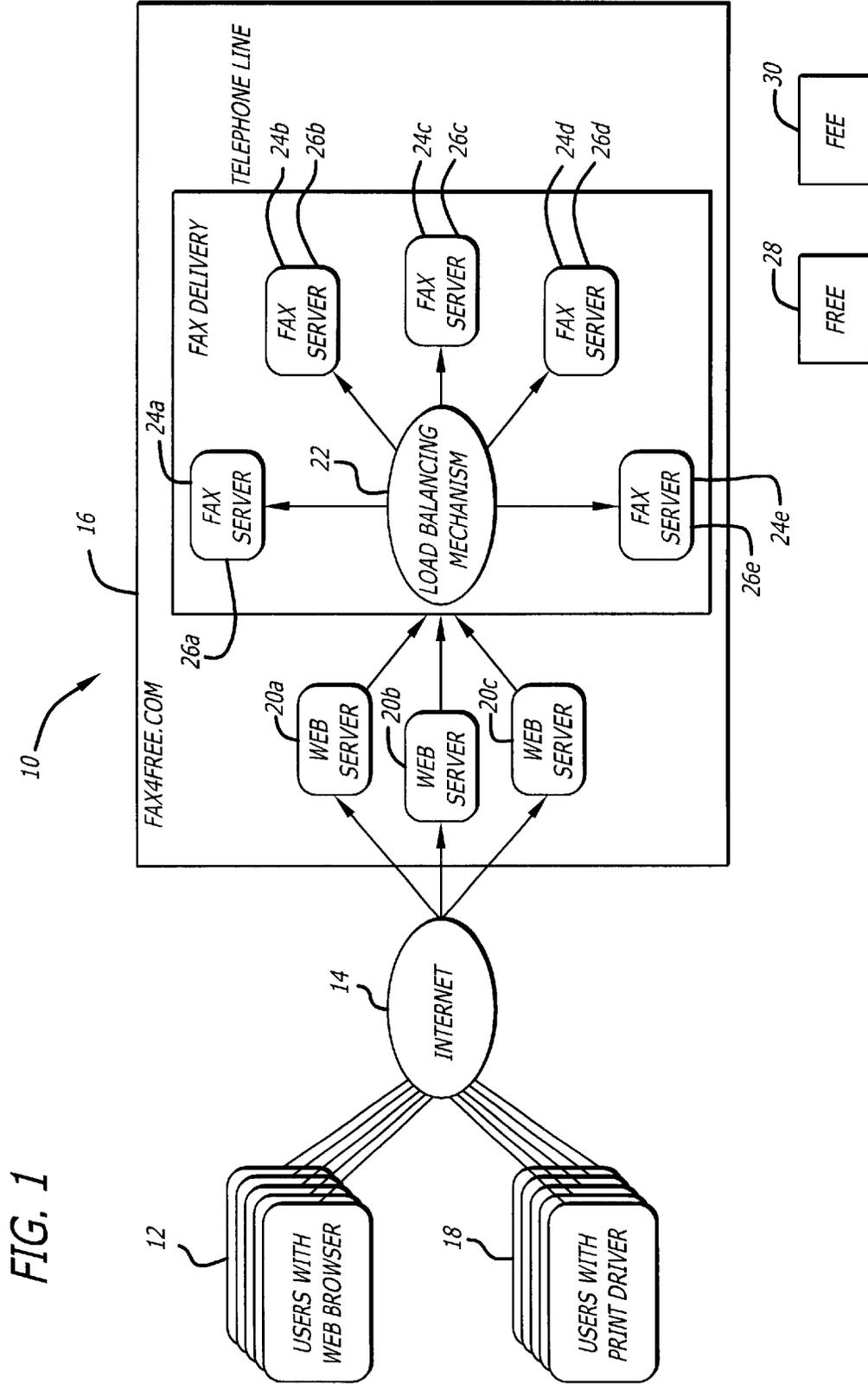
EP 0833490 A2 * 4/1998

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Wilder: "Free E-Mail—For A Price"; Information Week, Nov. 27, 1995, No. 555, p. 84.*

53 Claims, 9 Drawing Sheets





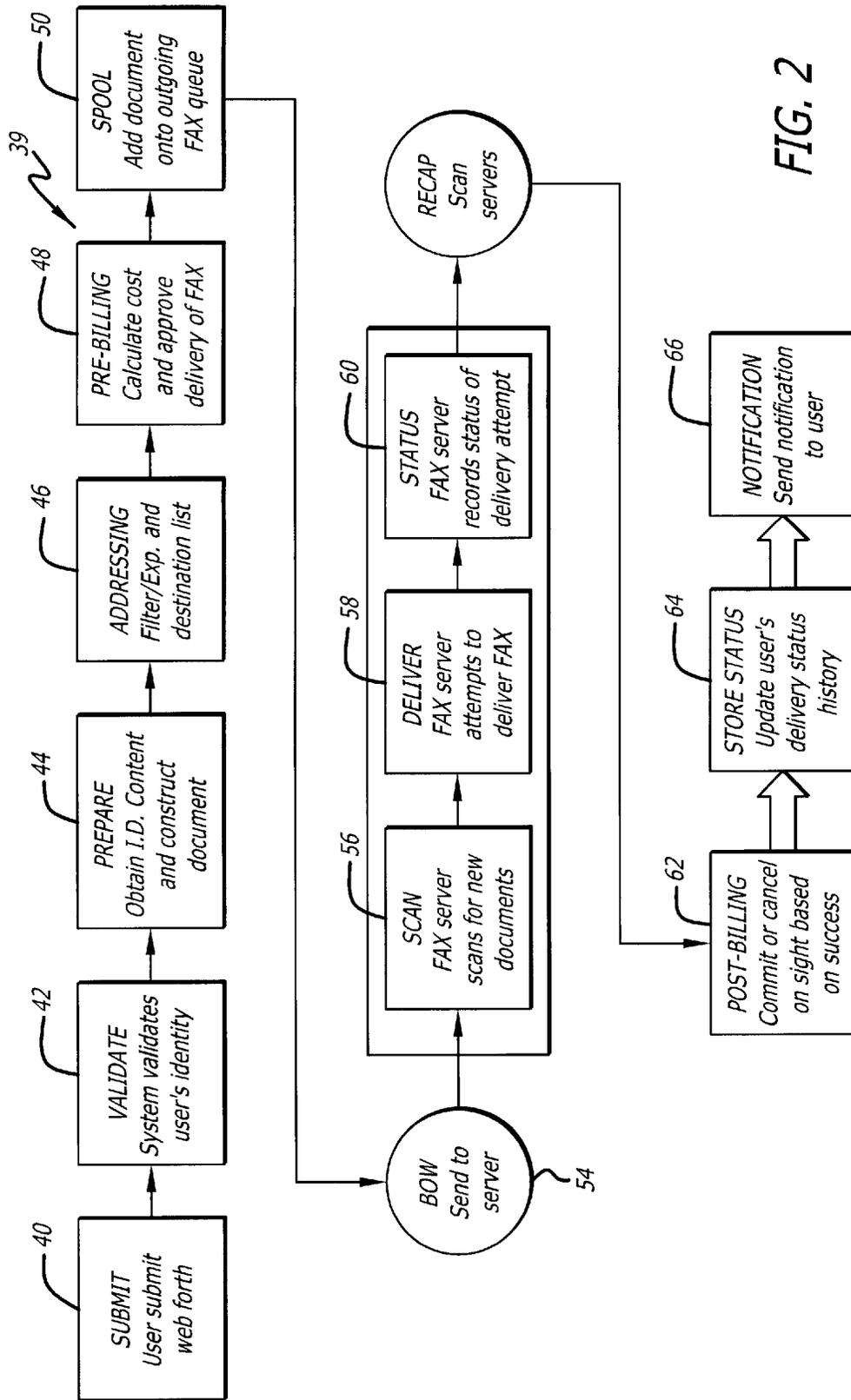


FIG. 2

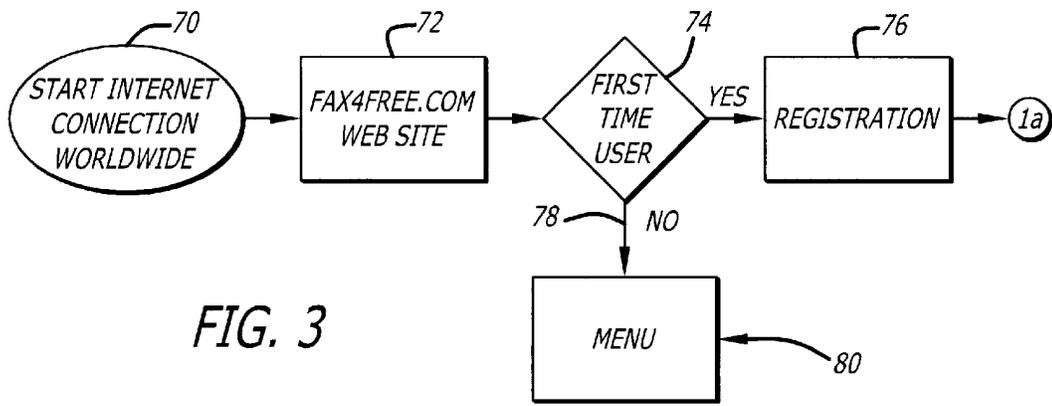


FIG. 3

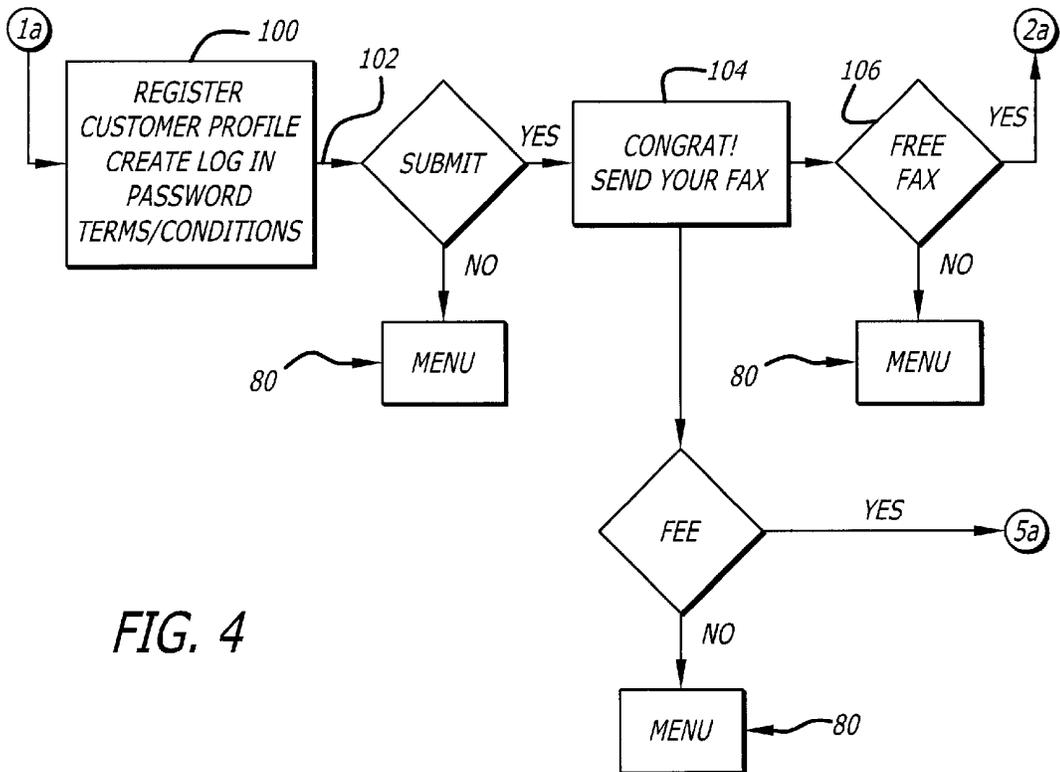


FIG. 4

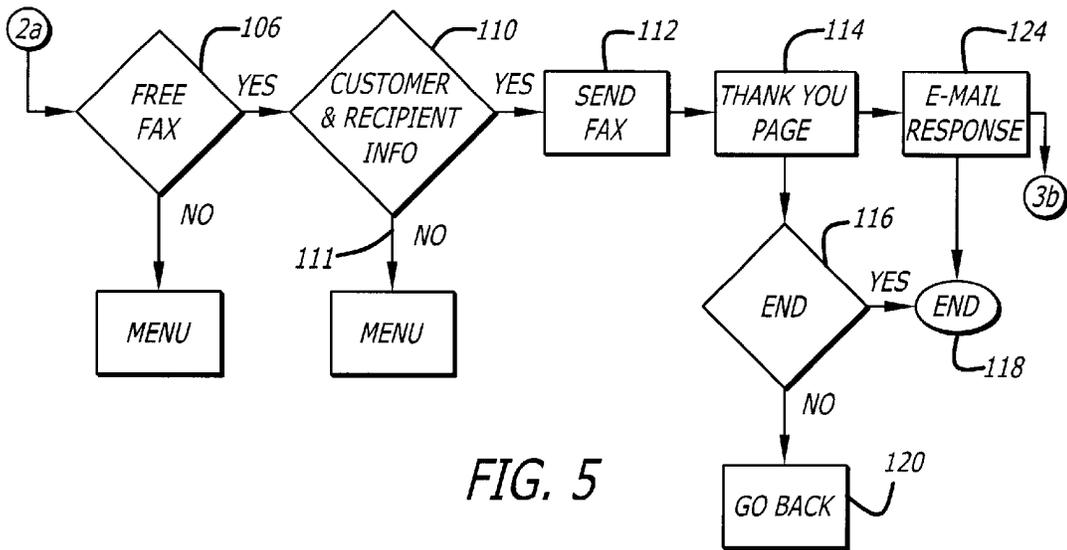


FIG. 5

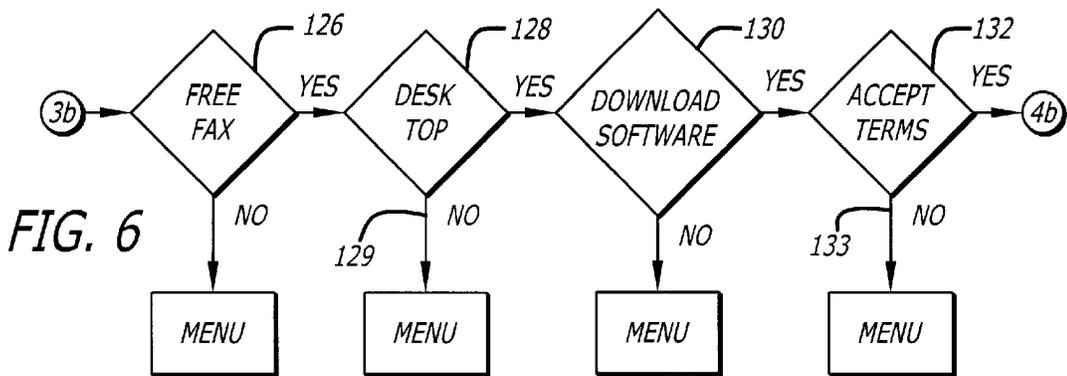


FIG. 6

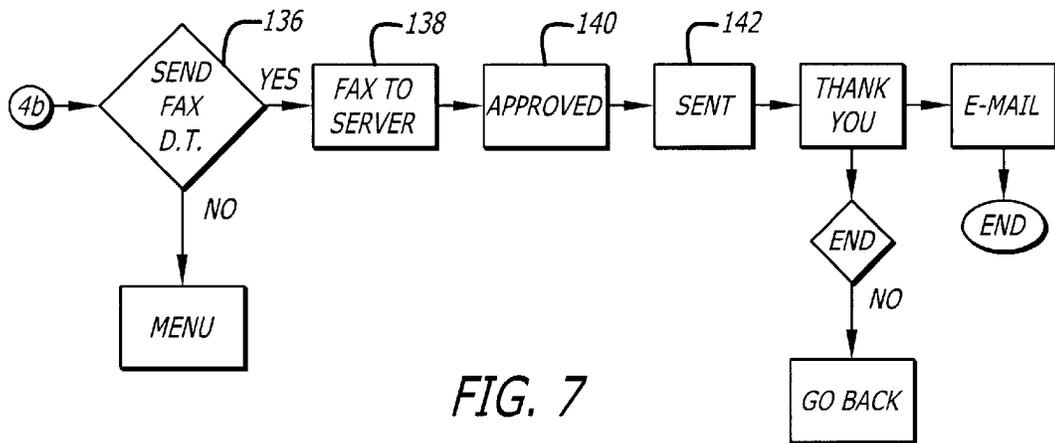


FIG. 7

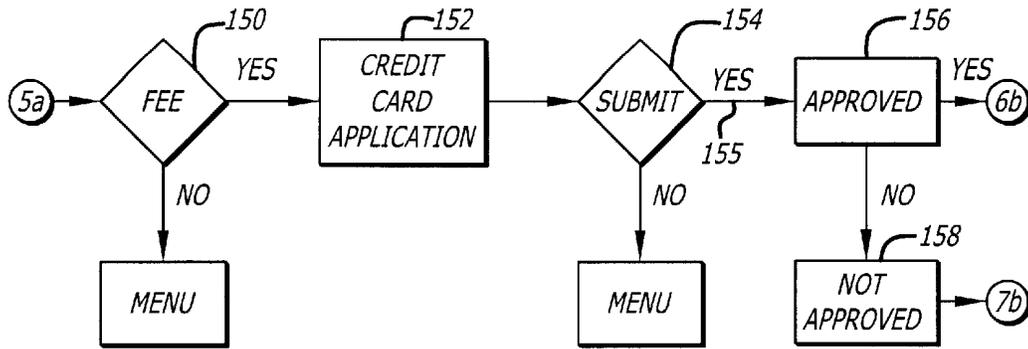


FIG. 8

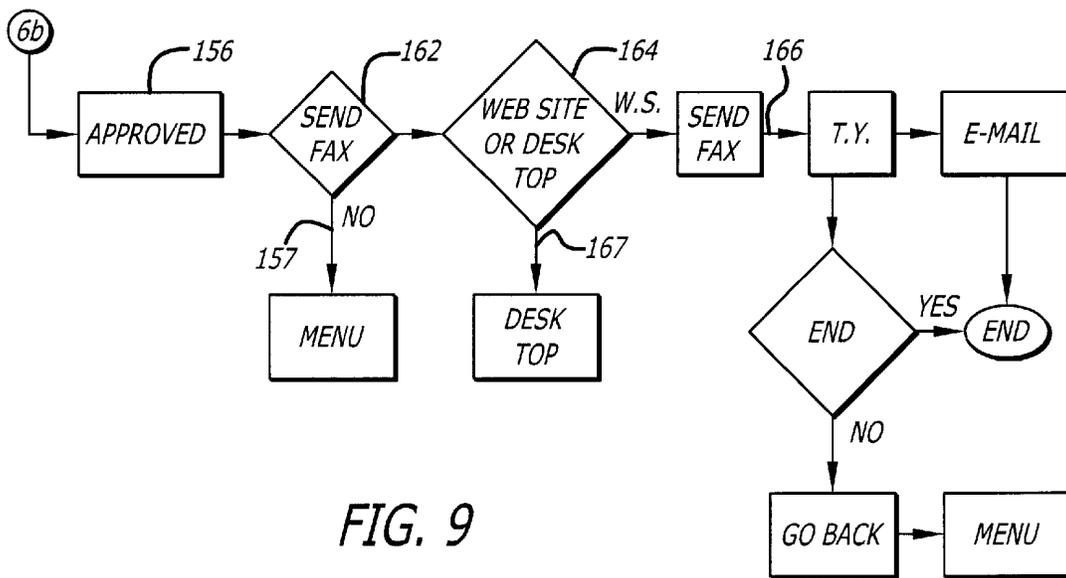


FIG. 9

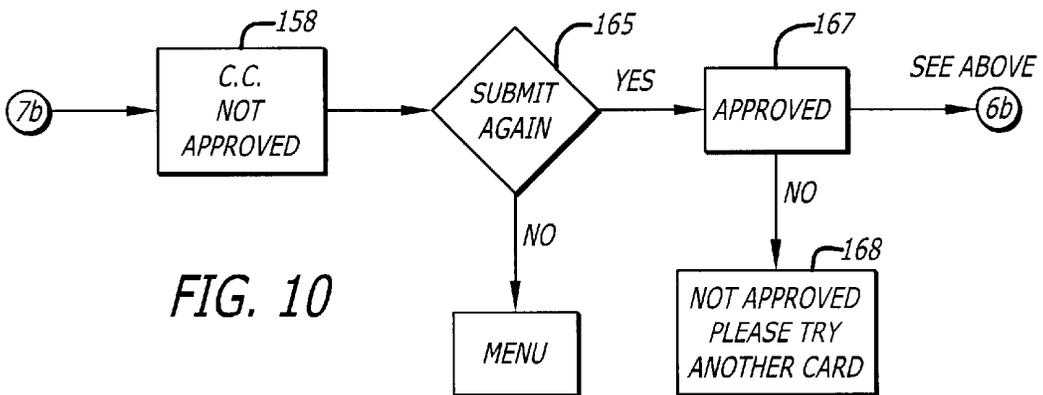


FIG. 10

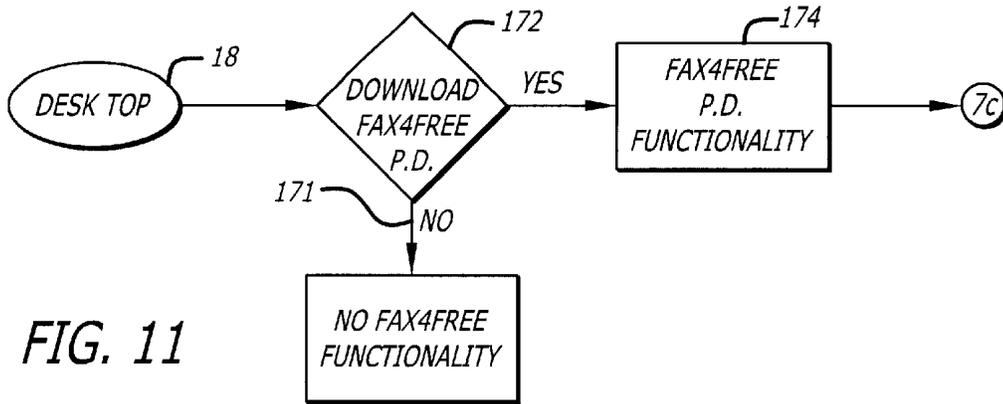


FIG. 11

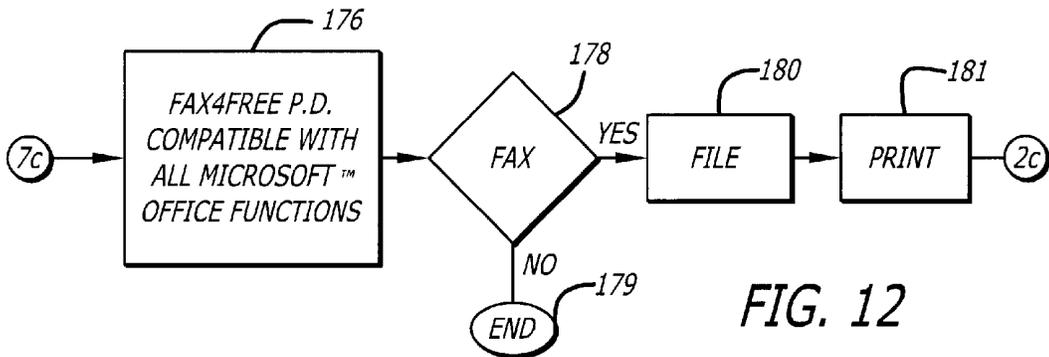


FIG. 12

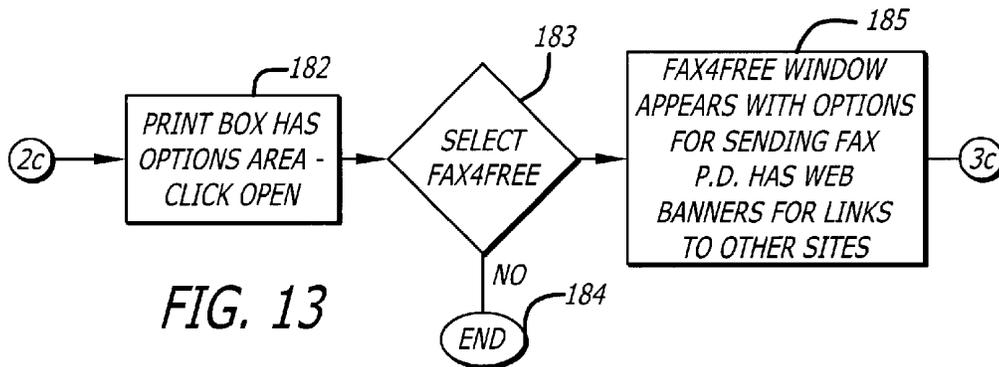


FIG. 13

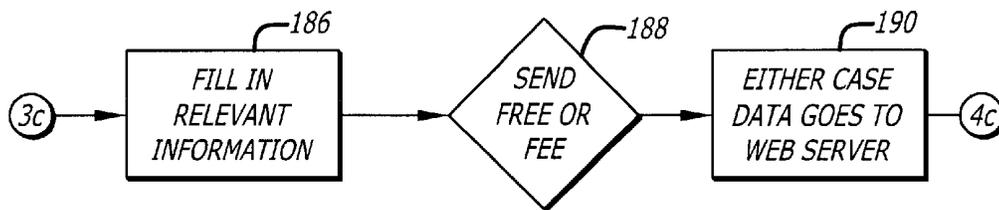
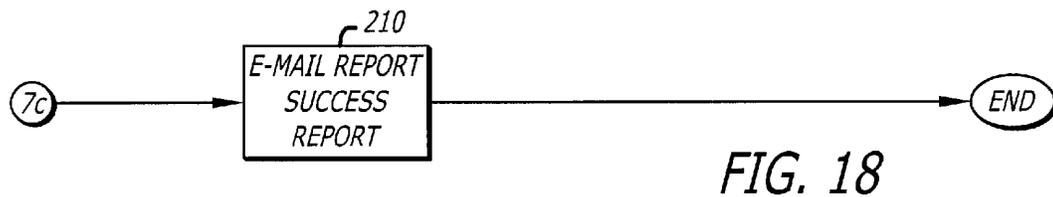
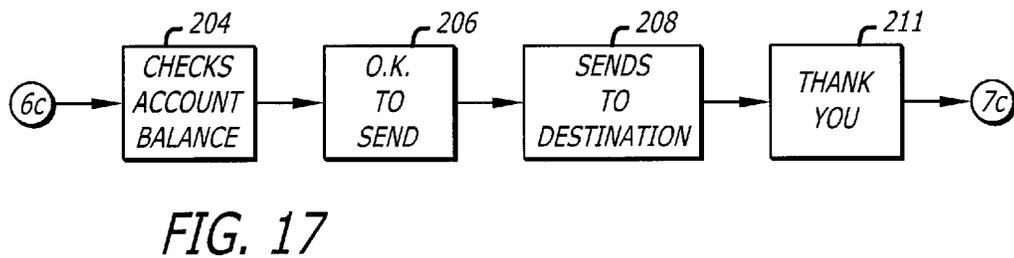
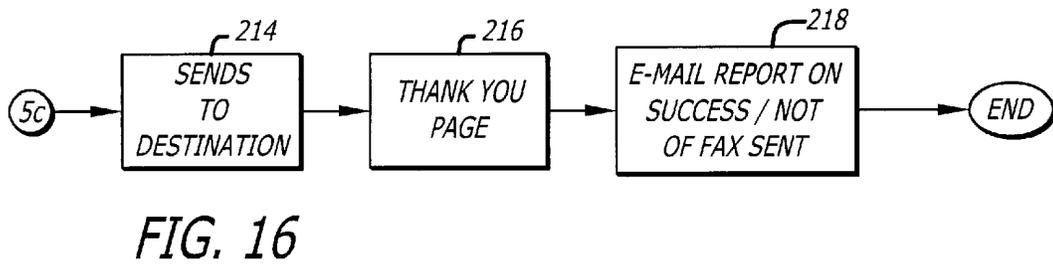
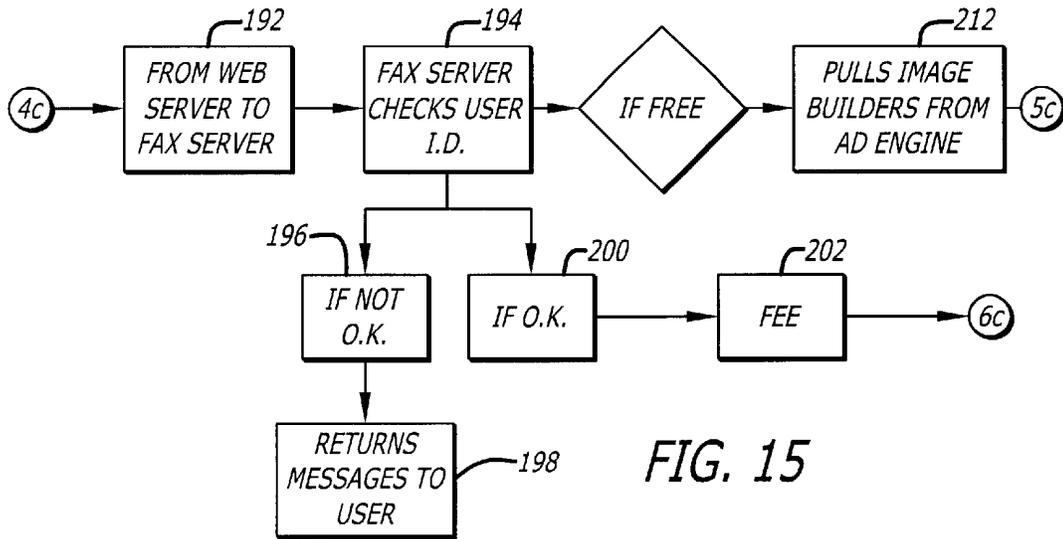


FIG. 14



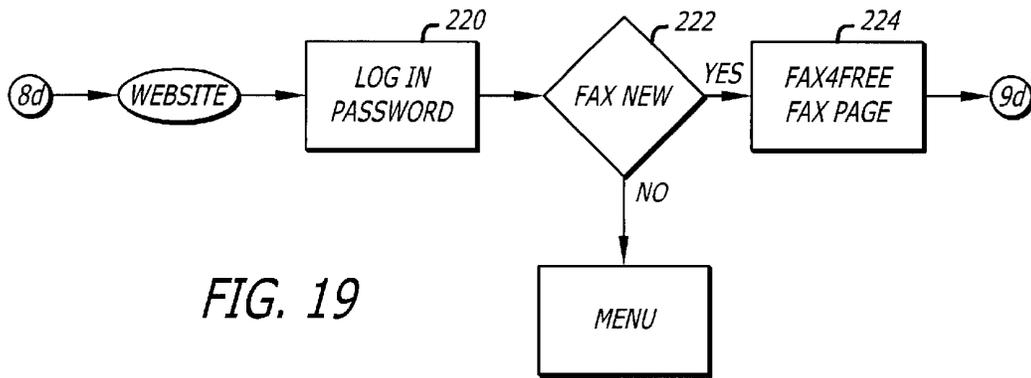


FIG. 19

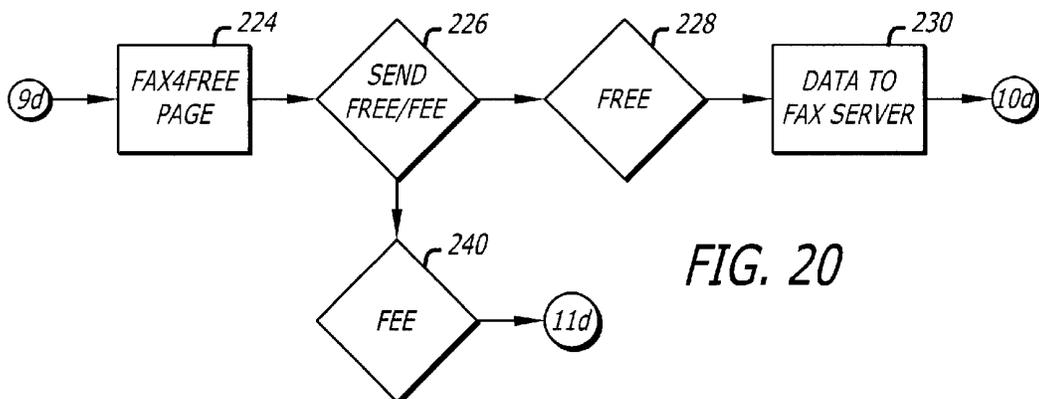


FIG. 20

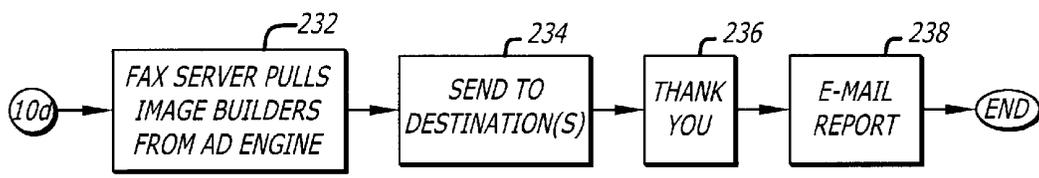


FIG. 21

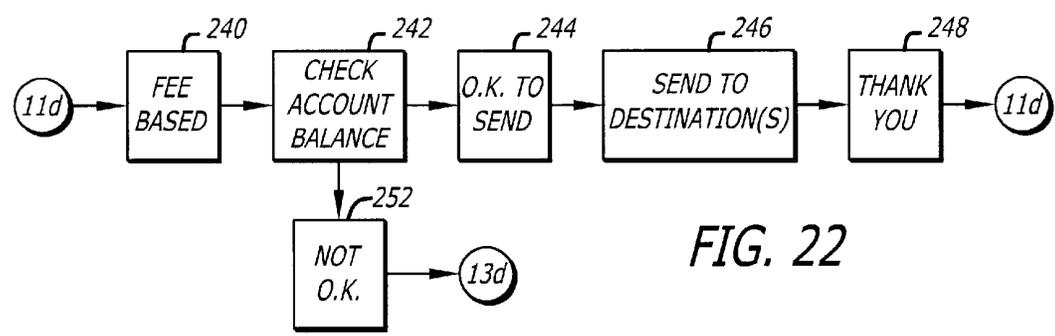
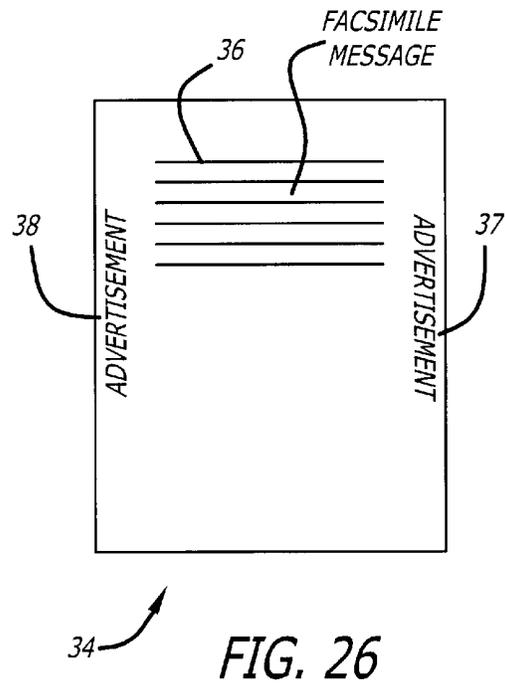
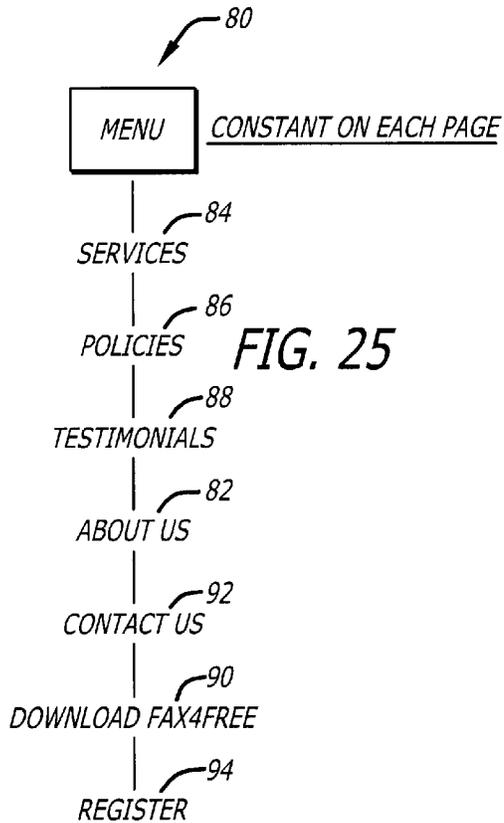
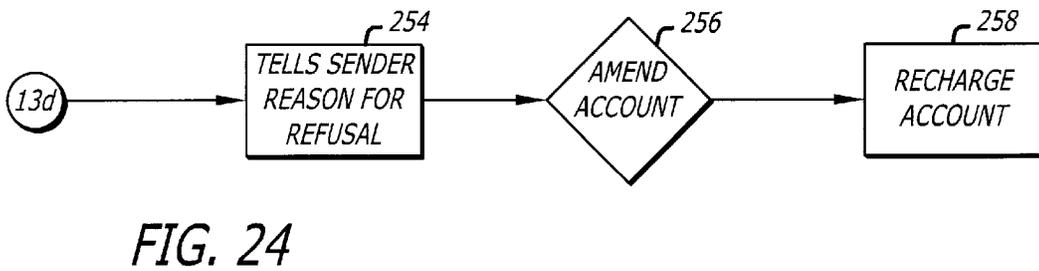
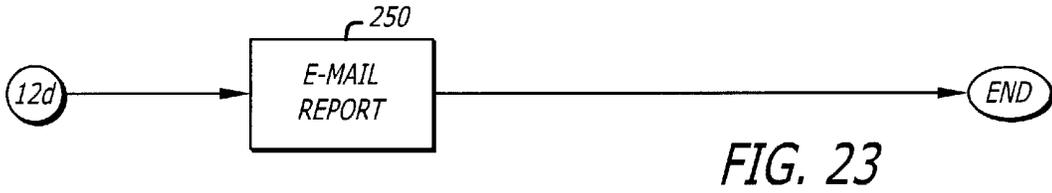


FIG. 22



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SYSTEM FOR, AND METHOD OF, USING THE INTERNET SYSTEM TO PROVIDE FOR THE TRANSMISSION OF A FACSIMILE MESSAGE

This invention relates to a system for, and method of, sending facsimile documents either on a free basis or a fee basis at the choice of a customer who is sending the document. The invention also relates to a system for, and a method, of using the Internet system to send the document by facsimile either on the free basis or the fee basis.

BACKGROUND OF THE INVENTION

Commercial organizations send facsimiles in great volume to recipients daily. For example, a worldwide organization such as Hilton Hotels may send hundreds of thousands of facsimiles every month either on its own behalf or on behalf of its room occupants. A worldwide organization such as Hilton Hotels then has to absorb the cost of sending such facsimiles on its own behalf or has to charge its room occupants for the costs of sending the facsimiles requested by its room occupants.

An organization such as Hilton Hotels would like to be relieved of the financial burden of sending facsimiles on its own behalf and on behalf of its room occupants. Organizations such as Hilton Hotels have wrestled with the problem of obtaining relief from such financial burdens but have been unable to provide a system or adopt a method for accomplishing this. It will be appreciated that Hilton Hotels is used only as an example to indicate the problems involved and that there are a large number of organizations which would like to eliminate similar financial burdens.

BRIEF DESCRIPTION OF THE INVENTION

This invention involves a system for, and method of, eliminating the financial burden to organizations such as Hilton Hotels in sending facsimiles to recipients on its own behalf and on behalf of its room occupants. In one embodiment of the invention, a document to be sent by facsimile by a customer (e.g. Hilton Hotels) to a recipient is processed by a web server at a web site to determine from the customer whether the customer wishes to send the document for free or for a fee.

If the customer indicates the customer's desire to facsimile the document for free, a message, preferably an advertisement, is added by the web server at the web site to the facsimile document before the document is facsimiled to the recipient. Preferably the advertisement is disposed by the web server at the web site in the vertical blank spaces at the opposite sides of the document. Before the document is facsimiled, the web server determines from the customer through the Internet system whether the customer is a first time user at the web site and, if so, the web server obtains background information through the Internet system concerning the customer. If the customer is sending the facsimile document for a fee, the web server makes certain that the customer has sufficient money in the customer's account to pay for the cost of sending the document to the recipient.

The customer may communicate with the web server through the Internet system either from a web browser hooked into the Internet system or from a desk top individual to the customer and pre-connected by software known as a printer driver to the web site of the service provider. A facsimile server is provided at the web site to send the facsimile message through telephone lines to the recipient.

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BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a schematic block diagram of a system for using the Internet system to provide for a sending of a document by facsimile either on a free basis or a fee basis from a web site to a recipient in accordance with instructions from a customer or user;

FIG. 2 is a schematic block diagram showing on an overview basis the steps used by the system shown in FIG. 1 in sending the document by facsimile from the web site to the recipient either on the free basis or the fee basis in accordance with instructions from the customer or user;

FIGS. 3 and 4 are flow charts showing steps involved in determining whether facsimile documents should be sent on a free basis or a fee basis to the recipient from the web site in accordance with the instructions of the customer;

FIGS. 5 through 10 are flow charts showing on a more detailed basis steps involved in having the facsimile sent on a free basis or a fee basis in accordance with the election of the customer;

FIGS. 11 through 18 are flow charts showing the steps involved in having the facsimile sent, either on a free basis or a fee basis, from a desk top individual to the customer and pre-connected to the web site;

FIGS. 19 through 24 are flow charts showing the steps involved, either on a free basis or a fee basis, of sending the facsimile of the document from the web site;

FIG. 25 is a menu providing information about various topics of possible interest to the customer including the identity and business of the organization controlling the web site and including additional information concerning the sending of the facsimile documents on a free basis or a fee basis;

FIG. 26 is a schematic view of a document sent to a recipient by facsimile on a free basis and shows the facsimile message in the central portion of the document and additional messages (e.g. advertisements) along either or both the right and left boundaries of the facsimile message in the document.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 shows in block form a system generally indicated at 10 and constituting one embodiment of the invention. The system 10 includes a web browser 12 which can be used by a customer to provide a document for transmission through an Internet system 14 to a web site 16 of a service provider. A desk top computer 18 individual to the customer can also be used to provide a document for transmission through the Internet system 14 to the web site 16 of the service provider. The desk top computer 18 is preferably pre-connected to the web site via free software known as a printer driver and downloaded from the web site.

The web site 16 includes a plurality of web servers 20a, 20b and 20c. Although three web servers are shown, it will be appreciated that any number of web servers can be used depending upon the volume of documents being, or to be facsimiled. The web servers 20a, 20b and 20c are coupled in the web site 16 through a load balancing mechanism 22 to a plurality of facsimile (fax) servers 24a-24e in the web site. Although five (5) facsimile servers are shown, it will be appreciated that any number of facsimile servers may be used depending upon the number of documents being facsimiled.

The load balancing mechanism 22 distributes the facsimile documents from the web servers 20a-20c to the

3

facsimile servers **24a–24e** so that each of the facsimile servers will have approximately an even distribution of facsimile documents in comparison to the number of the facsimile documents received by the other ones of the facsimile servers. The facsimile outputs from the facsimile servers **24a–24e** are respectively introduced to telephone lines **26a–26e** which transmit the facsimile signals to the recipient(s) of the messages in the facsimile documents.

Two boxes **28** and **30** are provided for the system of FIG. **1** to control whether the system provides a facsimile on a free basis or a fee basis. When checked, the first box **28** provides for a facsimile on a free basis. When checked, the second box **30** provides for a facsimile on a fee basis. When neither of the boxes **28** and **30** is checked, the system of FIG. **1** may provide for a facsimile on a free basis.

The customer may communicate with the web site **16** through the Internet system **14** in either of two (2) different modes. When the user communicates with the web site **16** through the web browser **12**, it provides this communication from a web browser such as that provided by Microsoft or Netscape. Alternatively, the customer may communicate with the web servers **20a–20c** in the web site **16** through the desk top computer **18** which includes a printer driver. In either mode, the web servers **20a–20c** communicate with the facsimile servers **24a–24e**, which then respectively provide the facsimile signals through the telephone lines **26a–26e**.

The system **10** in FIG. **1** is able to provide the facsimiles to the recipient on a free basis by incorporating an additional message or messages in the facsimile document. This is shown schematically in FIG. **26**. FIG. **26** shows a facsimile document, generally indicated at **34**, with a facsimile message **36** preferably in the central portion of the document and additional messages (e.g. advertisements **37** and **38**) in blank portions of the document respectively to the right and left of the central message **34**. The lettering in the facsimile message **36** may extend in substantially horizontal lines substantially vertically displaced from one another. The lettering in the advertisements **37** and **38** may extend in a direction substantially perpendicular to the horizontal direction of the lines in the message **36**. The advertiser of the advertisements **37** and **38** pays for the advertisements. For example, the advertisement may relate to a particular automobile model. This allows the service provider at the web site **16** to send the facsimile document **36** to the recipient without any charge to the customer and still make a profit.

It is advantageous for the advertisements **37** and **38** to be substantially perpendicular to the message **36** so that the advertisements will not be construed to be a part of the message **36**. If the customer and/or the recipient are commercial organizations, the advertisements **37** and **38** are preferably chosen so as not to be offensive or contradictory to their businesses. Although the advertisements preferably have the positions shown in FIG. **26**, it will be appreciated that the advertisements may have other positions on the facsimile document **34**. For example, the advertisements may appear at positions above and/or below the facsimile message **36** and may extend in successive horizontal lines.

FIG. **2** is a flow chart, generally indicated at **39**, showing the operation in successive steps of the system shown in FIG. **1** when the system is operating on a free basis or a fee basis. These successive steps are indicated in FIG. **2** at **40**, **42**, **44**, **46**, **48** and **50**. When the system operates on a free basis, the system preferably includes the steps **40**, **42**, **44**, **46** and **50** but does not include the step **48**. When the system operates on a fee basis, the system preferably includes the steps **40**, **42**, **46**, **48** and **50** but does not include the step **44**.

4

In the step **40**, the customer or user submits the document **34** (FIG. **26**) (without the advertisements **36** and **38**) to be facsimiled. In the step **42**, the system **10** validates the identity of the customer or user. In the step **44**, the system **10** adds the advertisements **36** and **38** to the document **34** when the document is to be facsimiled on a free basis. The system **10** then identifies the address of the recipient in the step **46**. The document to be facsimiled for free is then added as at **50** to the queue of documents which are waiting to be transmitted from the web site **16**. When the document **34** is to be facsimiled on a fee basis, the cost of providing a facsimile to the recipient is determined and this cost is approved at the web site **16**. This is shown at **48** in FIG. **2**. The document to be facsimiled for a fee is then added to the queue as at **50**.

After the addition of the document **34** to the outgoing facsimile queue, the document is sent to an individual one of the facsimile servers **20a–20c** as indicated at **54** in FIG. **2**. The fax server then scans for new or additional documents as indicated at **56** in FIG. **2**. The facsimile server attempts to deliver the facsimile to the recipient. This is indicated at **58** in FIG. **2**. As indicated at **60** in FIG. **2**, the facsimile server records the status of the delivery attempt. When the facsimile is being sent on a fee basis, the facsimile server commits or cancels the charge for the facsimile transmission depending upon whether or not the facsimile has been successfully transmitted to the recipient. This is indicated at **62** in FIG. **2**. The delivery status history of the customer or user is then updated as at **64** and the customer or user is notified of the status of the delivery as indicated at **66**.

FIGS. **3** and **4** are flow charts showing steps involved at the web site **16** in determining whether facsimile documents should be sent on a free basis or a fee basis to a designated recipient from the web site of the service provider in accordance with instructions from the customer or user. As a first step **70** in FIG. **3**, the customer or user communicates through the Internet system to the web site **16** the desire of the customer to send a facsimile to a recipient. This communication is received by the web site **16** as indicated at **72**. The web site may illustratively be identified as “Fax 4 free.com”. The web site determines at **74** from the customer or user whether the customer or user is a first time user. If the answer is “yes”, the web site undertakes to register the customer or user at **76** as a first time user. The initiation of the registration is indicated at **1A** in FIG. **3**.

If the customer or user is not a first time user, an indication to this effect is produced at **78** in FIG. **3** and the customer or user is introduced to a menu generally indicated at **80** in FIGS. **3** and **25**. The menu is intended to provide information about the service provider and about the different services (e.g. fax for free and fax for fee) offered by the service provider at the web site **16**. A typical menu is shown in FIG. **25**. However, it will be appreciated that other menus may be provided by the service provider at the web site **16** without departing from the scope of the invention.

The menu **80** shown in FIG. **25** may include a box **82** designated as “About Us”. When this box is pressed, background information concerning the service provider is provided. When a box designated as “Services” is pressed as at **84**, information concerning services (e.g. fax for free and fax for fee) offered by the service provider at the web site **16** is provided. A pressure against a box **86** designated as “Policies” provides an indication of the rules or policies adopted by the service provider in conducting its business of sending facsimiles to a designated recipient. Actuation of a button **88** designated as “Testimonials” causes testimonials to be provided from prior users who have been pleased with the

5

facsimile services provided by the service provider at the web site 16. Depression of a "download fax 4 free" button 90 may cause information concerning the transmission of a facsimile on a free basis to be provided. This allows for a free downloading of the printer driver software to run the desk top computer. A "CONTACT US" button 92 may be depressed to contact the service provider with questions. If the member has used the service provider's services within a particular period of time such as thirty (30) days, the depression of a button 94 designated as "Register" may cause the customer or user to be immediately registered.

The initiation 1A of the registration of a first time customer or user at the right end of FIG. 3 is also shown at the left end of FIG. 4. Since the customer is a first time user, the customer provides to the web site 16 as at 100 a customer profile and receives a password individual to the customer. The web site 16 also provides terms and conditions as at 100 for the future relationship between the customer and the web site. The customer profile and the customer password may then be submitted as at 102 to the web site 16. If the customer declines to submit this information, the customer is directed to the menu 80 to receive additional information as shown in FIG. 25.

When the web site 16 has approved the customer profile and the customer password and the terms and conditions of the relationship between the customer and the service provider, the web site indicates such approval to the customer as at 104. The customer then selects, as indicated previously, whether to send the facsimile for a fee or for free. When the customer elects to send a free facsimile as at 106, this is indicated as at 2A in FIG. 4. When the customer elects to send the facsimile for a fee, this is indicated as at 5A in FIG. 4. The customer is directed to the menu 80 when he declines a free facsimile or when he declines a fee facsimile.

FIGS. 5 through 10 are flow charts showing on a more detailed basis steps involved in having the facsimile sent to the recipient on a free basis or a fee basis in accordance with an election of the customer or user. A decision by the customer to send a free facsimile is indicated at 2A at the right end of FIG. 4 and at the left end of FIG. 5. This is also indicated at 106 in FIGS. 4 and 5. Information is then provided at the web site concerning the identity of the service provider and the identity of the recipient and the text of the facsimile to be sent. For example, the name and address of the customer and the name and facsimile address of the recipient may be provided at the web site. This information may be provided at 110 in FIG. 5.

If the information at 110 is not correct, the customer is directed to the menu as at 111 in FIG. 5. If the information at 110 is correct and complete and a decision is made by the customer to send the facsimile to the recipient, the facsimile is sent to the recipient as indicated at 112. The service provider then thanks the customer through the Internet system as at 114 and provides as at 124 information to the customer about what happened to the facsimile. The web site then determines as at 116 whether this is the end of the facsimile message or there are additional pages to the facsimile. If this is the last page of the facsimile message, the end of the message is indicated at 118. If there is at least another page to the facsimile message, an indication is provided at 120 to return to the block 110 so that at least an additional page of the facsimile message is sent. This continues until the last page of the facsimile message has been sent to the recipient. The E-mail response for the facsimile pages to be sent is indicated at 124 in FIG. 5. It constitutes information to the customer about what happened to the facsimile.

6

FIG. 6 shows in additional detail the interrelationship between the desk top 18 (FIG. 1) and the web site 16 in having a facsimile sent on a fee basis from the web site to the recipient. At 126 an indication is provided as to whether or not the facsimile to be sent by the web site 16 to the recipient is free or for a fee. If it is not for free, the customer is referred to the menu 80. If the facsimile is to be sent for free, a determination is made as at 128 as to whether the facsimile is to be provided from the customer's desk top. If the answer is "no", the customer is referred to the menu as indicated at 129 in FIG. 6. If the answer is "yes", the facsimile for free software is downloaded as at 130 from the menu at the web site 16. If this does not occur, the customer is referred to the menu 80 for further information.

When the fax 4 free software is downloaded at the web site 16, it includes terms and conditions for the relationship between the service provider at the web site and the customer. These terms and conditions are submitted to the customer at the desk top 18 as indicated at 132 in FIG. 6. One of these terms and conditions may indicate that the facsimile may include advertising in empty spaces in the facsimile document. For example, the facsimile document may include advertisements at the left and right boundaries of the facsimile document. Preferably the advertisement may extend in a direction between the bottom and top of the document to distinguish the facsimile message which extends from the left to right in the document. This is indicated at 36 and 38 in FIG. 26. If the customer does not accept such terms and conditions, the customer is referred to the menu 80 for further information. This is indicated at 133 in FIG. 6. If the customer accepts such terms and conditions, this is indicated at 4B at the right end of FIG. 6 and the left end of FIG. 7.

When the customer accepts the terms and conditions and the customer is operating from a desk top, the customer sends the facsimile message through the Internet system 14 (see 136 in FIG. 7) to an individual one of the web servers 20a-20c. As indicated at 138, the web server receives the facsimile. The individual one of the web servers 20a-20c then determines as at 140 if such information as the login and password from the desk top are valid. If they are valid, the web server sends the facsimile message to the recipient as indicated at 142 in FIG. 7. If the message constitutes more than one (1) page, the sending continues through the successive pages in a manner corresponding to that indicated at 114, 116, 118, 120 and 124 in FIG. 5.

FIG. 4 indicates at 5A an election by the customer to send a facsimile on a fee basis. This is also shown at the left end in FIG. 8. This is confirmed at 150 in FIG. 8. The customer may decide to pay the fee by a credit card. If so, the customer provides an indication of his credit card number and an indication of the amount of credit that he would like to be provided. This is indicated at 152 in FIG. 8. The customer then decides whether or not to submit this information to the web site 16. This is indicated at 154 in FIG. 8. If the customer does not submit this information, he is referred to the menu 80. If the customer submits this information to the web site as indicated at 155, the credit card application may be approved (see 156) or not approved (see 158).

The approval of the credit card information is indicated at 6B at the right end of FIG. 8 and the left end of FIG. 9. If the credit card information is not approved, the customer is directed to the menu as indicated at 157. The approval as at 156 for sending the facsimile for a fee in FIG. 8 is duplicated in FIG. 9. The customer then re-affirms as at 162 that he wishes to send the facsimile to the recipient and indicates at 164 whether he wishes to have the facsimile sent from the

7

desk top **18** or from the web site **16**. In accordance with the election of the customer, the facsimile may be sent from the web site **16**. The document may constitute one (1) or several pages. In either case, all of the pages are sent as indicated generally at **166**. The general indication **166** corresponds to the blocks **114**, **116**, **118**, **120** and **124** in FIG. **5**. Also in accordance with the election of the customer, the facsimile may be sent from the desk top **18**. This is indicated at **167** in FIG. **9**.

The disapproval of the credit card application is indicated at **158** and terminal **7B** at the right end of FIG. **8** and the left end of FIG. **10**. The desk top **18** may then submit the application again (see **165** in FIG. **10**). This time the application may be approved as at **167** and the steps shown in FIG. **9** and discussed in the previous paragraphs are implemented. If the credit card application is again disapproved as indicated at **168**, the web site **16** may suggest to the desk top **18** that the customer submit information from another credit card.

FIGS. **11–17** are flow charts showing further details in sending a facsimile document or facsimile documents from the desk top **18** in FIG. **1**. FIG. **11** includes the desk top **18**. As indicated at **171** in FIG. **11**, no fax 4 free printer-driver functionality is downloaded when the printer-driver in the desk top does not download the fax 4 free protocol from the web site **16**. As indicated at **172**, the printer-driver in the desk top downloads the fax 4 free protocol from the web site **16**. The desk top then provides a fax for free printer driver functionality. This is indicated at **174** in FIG. **11**. This functionality may include such information as a cover sheet, the letterhead format of the customer, the name(s) and address(es) of the customer and recipient(s) and the subject matter of the facsimile. All of this functional information is provided at a terminal **7C** at the right end of FIG. **11**.

The terminal **7C** is also shown at the left end of FIG. **12**. A block **176** (not actually forming a part of the flow chart) is shown in FIG. **12** to indicate that the system constituting this invention is compatible with spreadsheets, graphics, text and drawings such as those provided by Microsoft. From the standpoint of the flow charts, the block **176** can be considered to be included in the block **174** in FIG. **11**. A decision is then made as at **178** at the desk top **18** as to whether or not to send the facsimile. If the decision is “no”, this constitutes the end of the flow chart (see **179**). If the decision is made to send the facsimile, the “file” indication at the top of the screen in the desk top is clicked by the mouse in the desk top. This is indicated at **180** in FIG. **12**. The “print” indication in the resultant list on the screen of the desk top is then clicked by the mouse as indicated at **181** in FIG. **12**.

A terminal **2C** is provided at the right end of FIG. **12** and at the left end of FIG. **13**. A print box **182** is shown in FIG. **13** as extending from the terminal **2C**. The print box **182** includes a drop down bar. When the drop down bar is clicked on, a number of different options are provided. One of these is fax for free as indicated at **183** in FIG. **12**. If fax for free is not selected, this constitutes the end of the flow chart. See **184** in FIG. **12**. If fax for free is selected, a fax for free window appears with different options for sending the fax for free facsimile. This is indicated at **185** in FIG. **13**. These different options include a choice by the service provider of an advertisement from among a plurality of different advertisements or banners. A terminal **3C** is shown as extending from the window **145**.

The terminal **3C** is also shown at the left end of FIG. **14**. A block **186** extends from the terminal **3C**. This provides for the insertion by the desk top computer **18** of relevant

8

information such as the information specified at **174** in FIG. **11**. The desk top computer **18** is then instructed again to make a choice, as indicated at **188**, as to whether to send the facsimile on a free basis or a fee basis. In either case, the facsimile data from the desk top advances to an individual one of the web servers **20a–20c** for transmission to the recipient. This is indicated at **190** in FIG. **14**. The facsimile message is then shown as being introduced to a terminal **4C**.

The terminal **4C** is also shown in FIG. **15**. As indicated at **192** in FIG. **15**, the facsimile message is passed from the individual one of the web servers **20a–20c** to an individual one of the fax servers **24a–24e**. The fax server checks the identification of the user or customer as indicated at **194** in FIG. **15**. If the identification is not O.K. (see **196**), the facsimile message is returned to the customer or user at the desk top **18** with an indication of what is wrong. This is indicated at **198**.

If the identification is O.K. (see **200**), a fee may be indicated at **202**. The message is then shown as being passed to a terminal **6C** at the right end of FIG. **15** and the left end of FIG. **17**. The account balance of the customer or user is then checked as at **204** to verify that the customer has a sufficient balance to pay for the cost of sending the facsimile message. When the account balance is sufficient, an indication is provided as at **206** that it is O.K. to send the facsimile message. The message is then sent by the individual one of the fax servers **24a–24e** as indicated at **208**. This is reported by E-mail to the customer or user as indicated at **210** in FIG. **18**. A note of thanks for the customer’s business is also provided at **211** in FIG. **17**.

When the facsimile is to be sent for free, the individual one of the web servers **20a 20c** pulls an image of an advertisement from an ad engine in the web server **16**. The ad engine stores a plurality of the advertisements. The pulling of the advertisement from the ad engine is indicated at **212** in FIG. **15**. This image is added to the facsimile message to form a composite message and the composite message is sent to the recipient. This is indicated at **214** in FIG. **16**. A thank you page is provided as at **216** and an E-mail report is provided as at **218** to the customer or user concerning the successful transmission of the facsimile message to the recipient.

FIGS. **19** through **24** are flow charts showing what happens at the web site **16** in FIGS. **1** and **19**. As a first step as indicated at **220** in FIG. **19**, the customer or user registers his/her login and password. The customer then makes a decision as at **222** as to whether or not to send the facsimile. If the decision is “no”, the customer is referred to the menu **80** (FIG. **25**). If the decision is “yes”, the customer provides information on a fax for free page as indicated at **224**. This information may include the (a) name, address and telephone number of the customer or user, (b) the name, address and telephone number of the recipient and (c) information identifying the facsimile being sent by the customer or user.

FIG. **19** is shown as providing a terminal **9D** at the right end of the Figure and FIG. **20** is shown as providing the terminal **9D** at the left end of the Figure. As shown in FIG. **20**, the customer or user then determines as at **226** whether to send the facsimile message on a free or a fee basis. If the customer decides to send the facsimile message on a free basis as indicated at **228**, the facsimile message is sent to an individual one of the fax servers **24a–24e**. This is indicated at **230** in FIG. **20**.

As indicated at **232** in FIG. **21**, the individual one of the fax servers **24a–24e** pulls an appropriate one of the image builders (the advertisement) from the ad engine which stores

the advertisements available for use. The fax server then sends the facsimile message and the advertisement (appropriately placed on the document providing the facsimile message) to the recipient(s). This is indicated at **234** in FIG. **21**. The fax server then provides a thank you message (see **236**) and an E-mail report (see **238**) to the customer or user.

When the customer or user decides to send the facsimile message to the recipient(s) on a fee basis as indicated at **240** in FIG. **20**, the individual one of the web servers **20a–20c** checks the account balance of the customer. This is indicated at **242** in FIG. **22**. If the account balance of the customer is sufficient to pay for the sending of the facsimile message, the web server at the web site **16** indicates as at **244** that it is O.K. to send the facsimile message. The web server then causes the individual one of the fax servers **24a–24e** to send the facsimile message (see **246** in FIG. **22**). The web server then provides a thank you indication **248** and a confirmation (**250** in FIG. **23**) to the customer or user.

The web server at the web site **16** in FIG. **1** may indicate as at **252** in FIG. **22** that the customer or user does not have a sufficient balance to pay for the cost of sending the facsimile message on a fee basis to the recipient(s). This indication is shown as being provided at a terminal **13D** in FIG. **22** and at the terminal **13D** in FIG. **24**. The web server then indicates to the customer or user the inability of the web server to send the message and the reason because of such money insufficiency. This is indicated at **254** in FIG. **24**.

The customer or user may then provide for the insertion of a sufficient sum of money into the customer's account, as indicated at **256**, to pay for the cost of sending the facsimile message to the recipient on a fee basis. The account balance of the customer is then adjusted as at **258** and the facsimile message is sent by the individual one of the fax servers **24a–24e** to the recipients. A thank you indication as at **248** (see FIG. **23**) and a confirmation as at **250** (see FIG. **24**) of the sending of the message are then provided by the web site **16** to the customer or user.

Although this invention has been disclosed and illustrated with reference to particular embodiments, the principles involved are susceptible for use in numerous other embodiments which will be apparent to persons of ordinary skill in the art. The invention is, therefore, to be limited only as indicated by the scope of the appended claims.

What is claimed is:

1. A method of sending a facsimile of a message in a document from a user to a recipient, including the steps of: providing in an Internet system for the submission to a web site by the user of the document to be sent by facsimile, confirming the identity of the user at the web site, determining at the web site from the user whether the user wishes to send the facsimile free or at a fee, when the user elects to send a facsimile of the message in the document for free to the recipient, adding a message to the message in the document at the web site to compensate for the free sending of the document, providing an account of the user at the web site, and deducting from the account of the user at the web site the cost of sending the facsimile to the recipient when the user elects to send the facsimile of the document at a fee.
2. A method as set forth in claim 1 wherein the facsimile is sent to the recipient from the web site through telephone lines whether the sending is on a fee basis or on a free basis.

3. A method as set forth in claim 2 wherein a confirmation is provided from the web site through the Internet system to the user that the facsimile has been sent to the recipient either on the fee basis or the free basis elected by the user.
4. A method as set forth in claim 1 wherein the added message is disposed at the web site in an empty space not occupied by the message in the facsimile.
5. A method as set forth in claim 4 wherein the added message is disposed at the web site in a direction transverse to the message in the facsimile.
6. A method as set forth in claim 1 wherein a determination is made at the web site whether the account of the user has a sufficient balance to pay for the cost of sending the facsimile when the user elects to send the document at a fee.
7. A method as set forth in claim 6 wherein the facsimile is sent to the recipient from the web site through telephone lines whether the sending is on a fee basis or on a free basis, a confirmation is provided from the web site through the Internet system to the user that the facsimile has been sent to the recipient either on the fee basis or the free basis elected by the user, the added message is disposed at the web site in an empty space not occupied by the message in the facsimile.
8. A method as set forth in claim 7 wherein the added message is disposed in a direction transverse to the message in the facsimile.
9. A method of sending a facsimile of a message in a document from a user to a recipient, including the steps of: providing a web server, providing for the passage of a copy of the document to the web server, providing at the web server for the user to elect whether to send, the facsimile of the message in the document to the recipient on a free basis or on a fee basis, providing at the web server for the insertion of an additional message for inclusion with the facsimile of the message in the document when the user elects to send the facsimile of the message in the document to the recipient on a free basis, and providing an account for the user at the web server, and deducting at the web server from the account of the user at the web server when the user elects to send the message in the document on a fee basis to the recipient.
10. A method as set forth in claim 9 including the steps of: determining at the web server whether the user is a first time user and, if so, obtaining information at the web server concerning the user to establish an account of the user at the web site, and when the user elects to send the facsimile of the message in the document on a fee basis and the web server determines that the user has an account at the web server, determining at the web server whether the account has a sufficient balance to pay for the cost of sending the facsimile of the message on a fee basis.
11. A method as set forth in claim 9, including the steps of: providing at the web server for the furnishing by the user to the web server of information, including the identity and address of the user and the identity and address of the recipient, for the sending of the facsimile to the recipient.

11

12. A method as set forth in claim 11, including the steps of:

providing at the web server for the furnishing by the user to the web server of information, including the identity and address of the user and the identity and address of the recipient, for the sending of the facsimile to the recipient,

determining at the web server whether the user is a first time user and, if so, obtaining information at the web server concerning the user to establish an account of the user at the web site, and

when the user elects to send the facsimile of the message in the document on a fee basis and the web server determines that the user has an account at the web server, determining whether the account has a sufficient balance to pay for the cost of sending the facsimile of the message on a fee basis,

the additional message being an advertisement and the additional message being disposed in the facsimile in a space not occupied by the message in the facsimile.

13. A method as set forth in claim 11 wherein the additional message is disposed in a direction transverse to a direction of the message in the facsimile.

14. A method as set forth in claim 9 wherein the additional message is an advertisement and wherein the additional message is disposed in the facsimile in a direction transverse to a direction of the message in the facsimile and wherein the additional message is disposed in the facsimile in a space not occupied by the message in the facsimile.

15. A method as set forth in claim 14 wherein a plurality of additional messages are stored at the web site and wherein the additional message is selected at the web site from the plurality of the stored messages at the web site and wherein, information is provided by the user at the web site concerning the identity of the user and the identity of the recipient before the facsimile of the document, with the inclusion of the additional message, is sent to the recipient.

16. A method as set forth in claim 15 wherein the message and the advertisement in the document include wording and the wording in the additional message in the document is disposed in a direction transverse to the wording of the message in the document.

17. A method of sending a facsimile of a message in a document from a user to a recipient, including the steps of:

providing a web site,

providing for a passage of a copy of the message in the document to the web site,

providing at the web site for a determination by the user as to whether the user wishes to have the facsimile of the message in the document sent to the recipient on a free basis or on a fee basis,

providing at the web site, in response to the election by the user to have a facsimile of the message in the document sent to the recipient on a free basis, for the insertion of an additional message for inclusion with the facsimile at a strategic position not occupied by the message in the document, and

providing for a transmission of the facsimile of the message in the document, with the insertion of a facsimile of the additional message, to the recipient.

12

18. A method as set forth in claim 11 wherein the additional message constitutes an advertisement.

19. A method as set forth in claim 17 wherein a plurality of additional messages are stored at the web site and wherein the additional message is selected at the web site from the plurality of the stored messages at the web site.

20. A method as set forth in claim 17 wherein information is provided by the user at the web site concerning the identity of the user and the identity of the recipient before the facsimile of the document, with the inclusion of the additional message, is sent to the recipient.

21. A method of sending a facsimile of a message in a document from a user to a recipient, including the steps of:

providing a web server and a facsimile server at a web site,

determining in the web server from the user whether the user elects to send the facsimile to the recipient on a free basis or a fee basis,

inserting, at the web server for inclusion with the facsimile of the message in the document, an additional message when the user elects to send the facsimile of the document on a free basis to the recipient,

providing an account of the user at the web site, deducting from the account of the user at the web site the cost of sending the facsimile to the recipient when the user elects to send the facsimile on a fee basis, and

providing for the transfer of the facsimile of the document to the facsimile server without the inclusion of the additional message on a fee basis and with the insertion of the additional message on a free basis.

22. A method as set forth in claim 21 wherein the user elects from a selected one of a web browser and a desk top computer to send the facsimile of the document on a free basis or a fee basis and wherein the web server and the selected one of the web browser and the desk top communicate with each other through the Internet system.

23. A method as set forth in claim 21 wherein the web server provides for the transmission of the facsimile to the recipient on a free basis unless the user elects to send the facsimile on a fee basis.

24. A method as set forth in claim 21 wherein the facsimile server introduces to telephone lines the facsimile provided by the web server to the facsimile to provide for the transmission of the facsimile through the telephone lines to the recipient.

25. A method as set forth in claim 24 wherein the user elects from a selected one of a web browser and a desk top to send the facsimile of the document on a free basis or a fee basis and wherein the web server and the selected one of the web browser and the desk top communicate with each other through the Internet system and wherein, the web server provides for the transmission of the facsimile to the recipient on a free basis unless the user elects to send the facsimile on a fee basis.

26. A method of providing for a sending of a facsimile by a customer to a recipient in an Internet system, including the steps of:

providing for an indication through the Internet system from the customer of the customer's desire to provide for the transmission of the facsimile to the recipient,

providing for the customer to indicate through the Internet system whether the customer wishes to send the facsimile free of charge or for a fee,

13

when the customer elects through the Internet system that the customer elects to send the facsimile to the recipient free of charge, providing for the inclusion with the facsimile of printed material which provides for a recovery of the cost to the customer of sending the facsimile to the recipient,

thereafter sending the facsimile free of charge through telephone lines to the recipient in accordance with the election by the customer, and

when the customer elects through the Internet system to pay for the cost of sending the facsimile through the telephone lines to the recipient, providing for the sending of the facsimile through the telephone lines at a cost to the subscriber.

27. A method as set forth in claim **26**, including the steps of:

providing an account for the customer, and

when the facsimile is sent through the telephone lines to the subscriber at a cost to the customer, providing in the account of the subscriber, for a debiting of the cost of sending the facsimile.

28. A method as set forth in claim **26** wherein the customer communicates through the Internet system with a web site and wherein the web site sends the facsimile through the telephone lines to the recipient either on the free basis or the fee basis in accordance with the election of the customer.

29. A method as set forth in claim **28** wherein the customer communicates through the Internet system with the web site through a selected one of a web browser and a desk top computer.

30. A method as set forth in claim **29** wherein the customer provides to the web site information concerning the customer and the recipient before the web site sends the facsimile through the telephone lines to the recipient either on the free basis or the fee basis in accordance with the election of the customer.

31. A method as set forth in claim **29**, including the steps of:

providing an account for the customer, and

when the facsimile is sent through the telephone lines to the subscriber at a cost to the customer, providing in the account of the subscriber for a debiting of the cost of sending the facsimile.

32. A method of providing for a sending of a facsimile by a customer to a recipient from a web site, including the steps of:

providing for an election by the customer as to whether the customer wishes to communicate with the web site from a web browser or a desk top computer,

providing for an indication by the customer from the elected one of the web browser and the desk top through the Internet system to the web site whether the customer wishes to send the facsimile free of charge to the recipient or on a fee basis,

providing for the passage of the facsimile through the Internet system to the web site from the elected one of the web browser and the desk top,

providing at the web site for the addition of a message for inclusion with the facsimile to defray the cost of sending the facsimile on a free basis, and sending the facsimile with the added message from the web site to the recipient.

33. A method as set forth in claim **32** wherein the web site sends the facsimile with the added message through telephone lines to the recipient.

14

34. A method as set forth in claim **32** wherein the elected one of the web browser and the desk top computer communicates with a web server at the web site and a facsimile server communicates the facsimile with the added message to the recipient.

35. A method as set forth in claim **34** wherein the facsimile server at the web site sends the facsimile with the added message through telephone lines to the recipient.

36. A method as set forth in claim **32**, including the steps of:

providing for an election by the customer as to whether the customer wishes to send the facsimile to the recipient on a free basis or a fee basis, and

sending the facsimile from the web site to the recipient without any added message when the customer elects to send the message to the recipient on a fee basis.

37. A method as set forth in claim **36** including the steps of:

providing an account for the customer at the web site, and deducting from the account of the customer the cost of sending the facsimile from the web site to the recipient when the customer elects to send the facsimile to the recipient on a fee basis.

38. A method of using the Internet system to provide for a sending of a facsimile by a customer to a recipient, including the steps of:

providing a web site in the Internet system, receiving at the web site in the Internet system an indication from a customer that the customer wishes to send a facsimile to a recipient,

requesting at the web site the customer to indicate whether the customer wishes to send the facsimile to the recipient on a free basis or a fee basis,

receiving at the web site from the customer an indication that the customer wishes to have the facsimile sent to the recipient with a charge to the customer,

determining at the web site whether the customer has an account at the web site and, if so, whether the account has a sufficient balance to pay for the cost of sending the facsimile to the recipient,

thereafter sending the facsimile at the web site to the recipient and deducting the cost of the facsimile from the account balance of the customer.

39. A method as set forth in claim **38** wherein a web server is provided at the web site to communicate with the customer through the Internet system concerning the facsimile to be sent by the web site to the recipient on behalf of the customer.

40. A method as set forth in claim **38** wherein a facsimile server is provided at the web site to transmit the facsimile through telephone lines to the recipient.

41. A method as set forth in claim **38** wherein the web site adds a message for inclusion with the facsimile when the customer elects to send the facsimile to the recipient on a free basis and before the web site sends the facsimile to the recipient.

42. A method as set forth in claim **41** wherein a web server is provided at the web site to communicate with the customer through the Internet system concerning the facsimile to be sent by the web site to the recipient on behalf of the customer and wherein a facsimile server is provided at the web site to transmit the facsimile, with or without the inclusion of the added message, through telephone lines to the recipient.

43. A method of providing for a sending of a facsimile by a customer to a recipient in an Internet system, including the steps of:

- providing a web site in the Internet system,
- providing a desk top computer for the customer in the Internet system,
- providing a web browser in the Internet system,
- providing for the receipt at the web site of a request by the customer from an elected one of the web browser or the desk top computer to send a facsimile to the recipient,
- providing for a communication between the web site and the elected one of the web browser and the desk top computer as to whether the customer wishes to send the facsimile on a fee basis or a free basis to the recipient, and
- providing for the transmission of the facsimile from the web site to the recipient on a fee basis or a free basis in accordance with the request of the customer.

44. A method as set forth in claim 43 wherein a message is added at the web site for inclusion with the facsimile sent from the web site to the recipient to defray the cost of sending the facsimile when the customer elects to send the message on a free basis.

45. A method as set forth in claim 43 wherein the web site communicates through the Internet system with the elected one of the web browser and the desk top concerning the fee to be paid by the customer and the payment of the fee when the customer elects to send the facsimile to the recipient on a fee basis.

46. A method as set forth in claim 43 wherein the web site communicates with the individual one of the web browser and the desk top computer from a web server at the web site and wherein the web site transmits the facsimile to the recipient through telephone lines from a facsimile server at the web site.

47. A method as set forth in claim 46 wherein a message is added at the web site for inclusion with the facsimile sent from the web site to the recipient to defray the cost of sending the facsimile when the customer elects to send the facsimile on a free basis and wherein the web site communicates through the Internet system with the elected one of the web browser and the desk top computer concerning the fee to be paid by the customer and the payment of the fee when the customer elects to send the facsimile to the recipient on a fee basis.

48. In combination for sending a facsimile to a recipient on behalf of a customer,

- a web site,
- a web server at the web site for determining from the customer whether the customer wishes to send the facsimile on a free basis or a fee basis and for adding a message for inclusion with the facsimile to defray the cost of the facsimile upon the election of the customer to send the facsimile on a free basis and for providing

- for a charging of the customer upon an election of the customer to send the facsimile on a fee basis, and a facsimile server at the web site for sending the facsimile, with the inclusion of the added message or without the inclusion of the added message dependent upon the election of the customer to send the message, for free or for a fee, through telephone lines to the recipient.

49. In a combination as set forth in claim 48 wherein the added message is an advertisement and wherein the advertisement is selected by the web server at the web site from a plurality of advertisements at the web site.

50. In a combination as set forth in claim 48 wherein the facsimile is disposed in successive horizontal lines vertically disposed relative to one another and has blank spaces at the opposite ends and wherein the added message is disposed by the web server at the web site vertically in at least one of the blank spaces.

51. In combination for sending a facsimile to a recipient on behalf of a customer,

- an individual one of a web browser and a desk top computer,
- a web site displaced from the individual one of the web browser and the desk top computer,
- the web site and the individual one of the web browser and the desk top computer being constructed to communicate with each other through the Internet system,
- the web site including a web server for receiving from the individual one of the web browser and the desk top computer an election as to whether to transmit the facsimile to the recipient on a free basis or a fee basis and for adding a message for inclusion with the facsimile upon an election by the customer to transmit the message on a free basis,
- the web server providing an account of the customer and providing for a deduction from the account of the cost of sending the facsimile to the recipient upon the election of the customer to send the facsimile on a fee basis,
- the web site including a facsimile server for sending the facsimile, with the inclusion of the added message upon the election of the customer to send the facsimile on a free basis and without the inclusion of the added message upon the election of the customer to send the facsimile on a fee basis, through telephone lines to the recipient.

52. In a combination as set forth in claim 51 wherein the added message is an advertisement and wherein the advertisement is selected by the web server at the web site from a plurality of advertisements at the web site.

53. In a combination as set forth in claim 51 wherein the facsimile is disposed in successive horizontal lines vertically disposed relative to one another and has blank spaces at the opposite ends and wherein the added message is disposed by the web server at the web site vertically in at least one of the blank spaces.

* * * * *

EXHIBIT B



US007020132B1

(12) **United States Patent**
Narasimhan et al.

(10) **Patent No.:** **US 7,020,132 B1**
(45) **Date of Patent:** **Mar. 28, 2006**

- (54) **SCALABLE ARCHITECTURE FOR TRANSMISSION OF MESSAGES OVER A NETWORK**
- (75) Inventors: **Anand Narasimhan**, Beverly Hills, CA (US); **Yaacov Shemesh**, Los Angeles, CA (US); **Amit Kumar**, Los Angeles, CA (US)
- (73) Assignee: **j2 Global Communications, Inc.**, Hollywood, CA (US)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(21) Appl. No.: **10/393,227**

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(22) Filed: **Mar. 20, 2003**

(Continued)

Related U.S. Application Data

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(63) Continuation of application No. 09/097,307, filed on Jun. 12, 1998, now Pat. No. 6,597,688.

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(51) **Int. Cl.**
H04L 12/66 (2006.01)

(Continued)

(52) **U.S. Cl.** **370/355; 370/357**
(58) **Field of Classification Search** **370/237, 370/242, 252, 352-353, 360, 389, 401, 465; 379/112-114, 200, 220; 709/206, 228**
See application file for complete search history.

Primary Examiner—Chi Pham
Assistant Examiner—Thai Hoang
(74) *Attorney, Agent, or Firm*—Blakely, Sokoloff, Taylor & Zafman LLP

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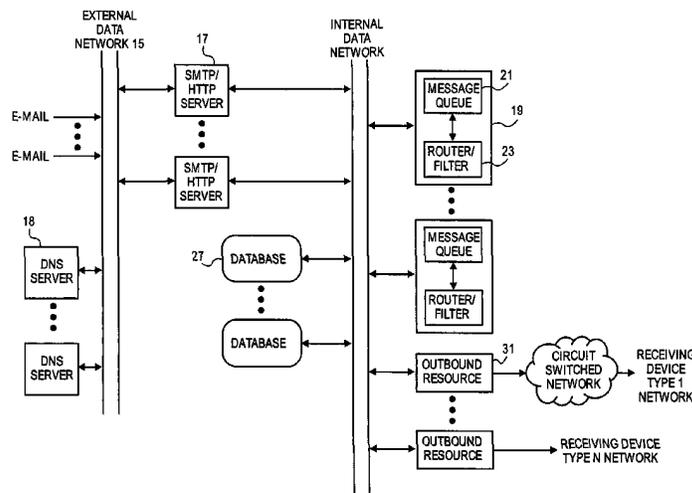
(57) **ABSTRACT**

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A method and apparatus is disclosed for delivering messages that utilizes a message queue and a router/filter within a private data network. The private network is connected to an external data network such as the Internet, and has separate outbound resource servers to provide a high degree of scalability for handling a variety of message types.

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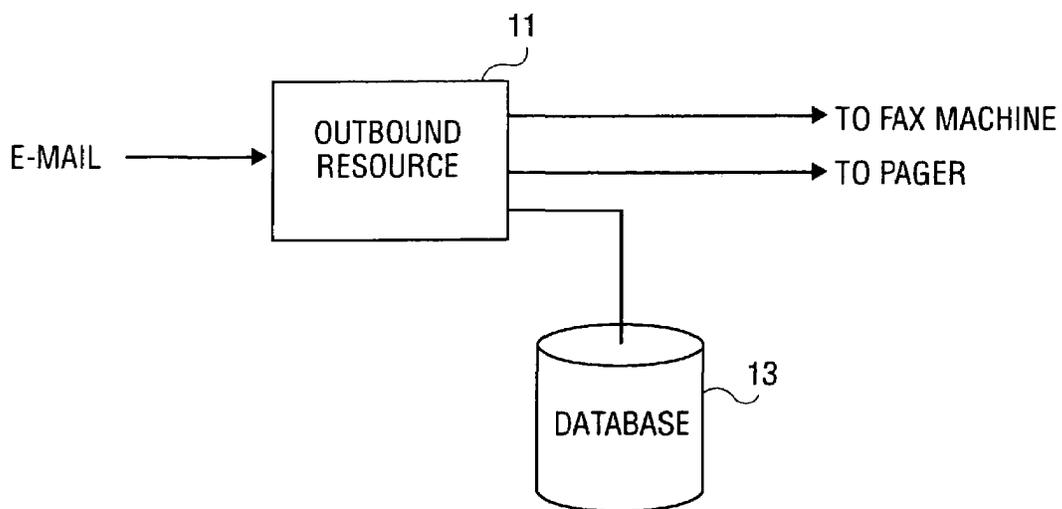


FIG. 1
(PRIOR ART)

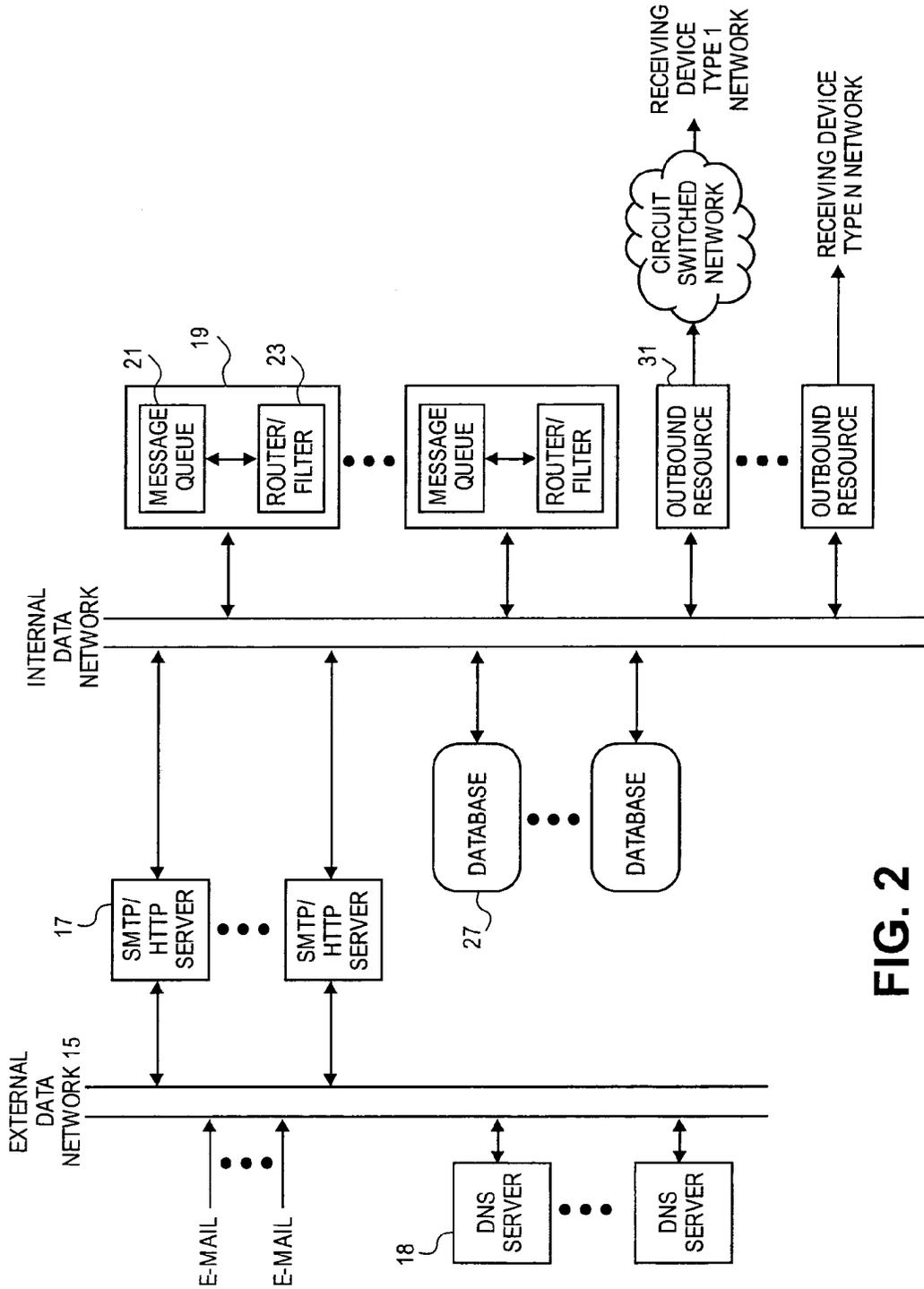


FIG. 2

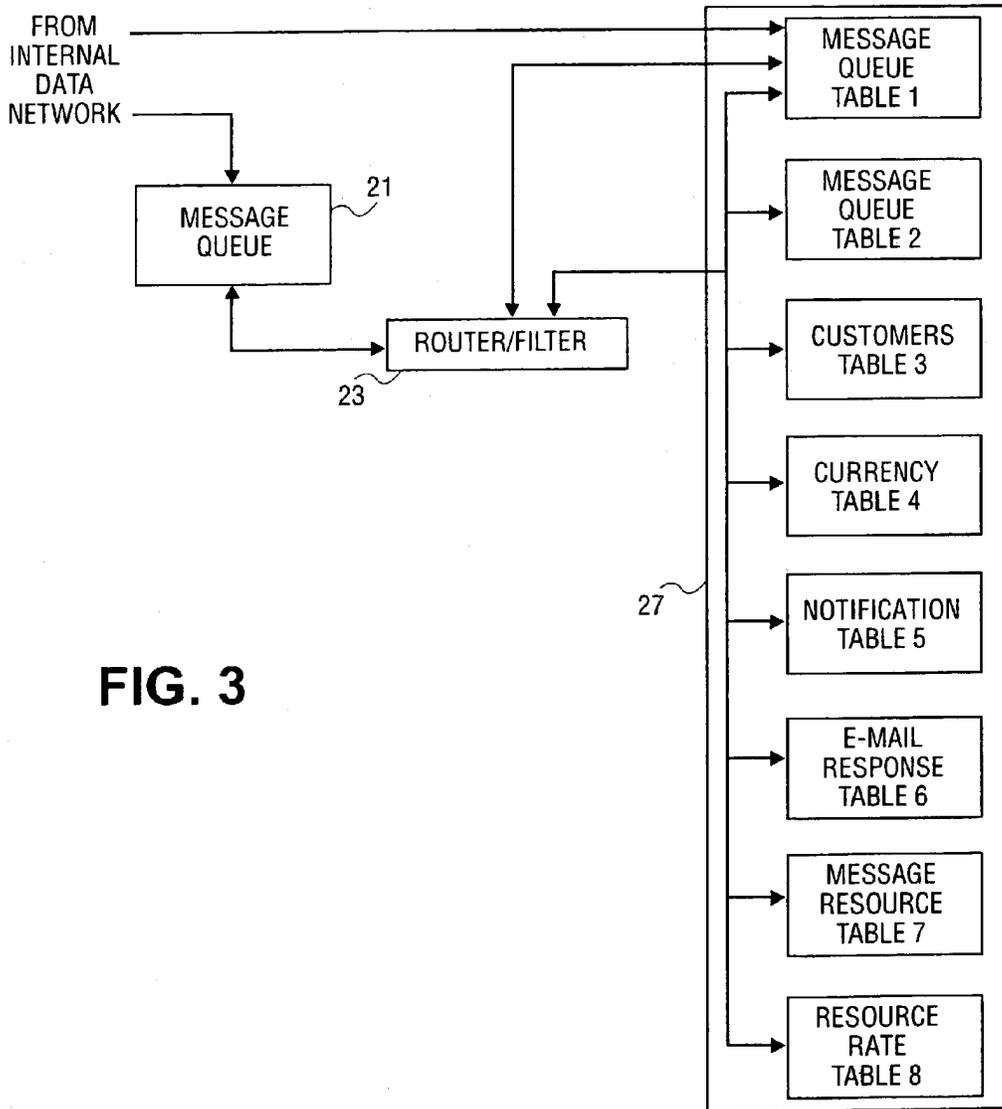


FIG. 3

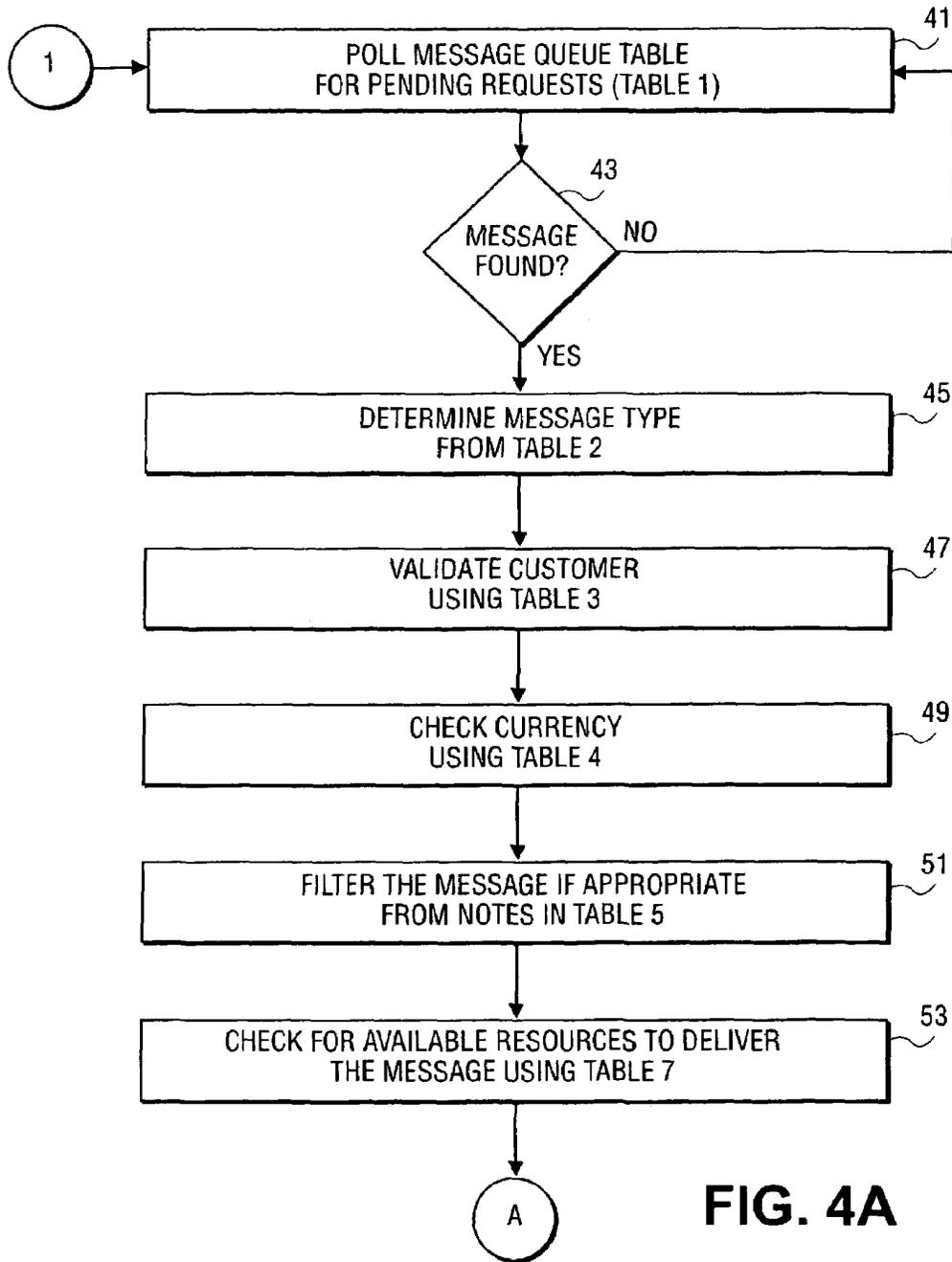


FIG. 4A

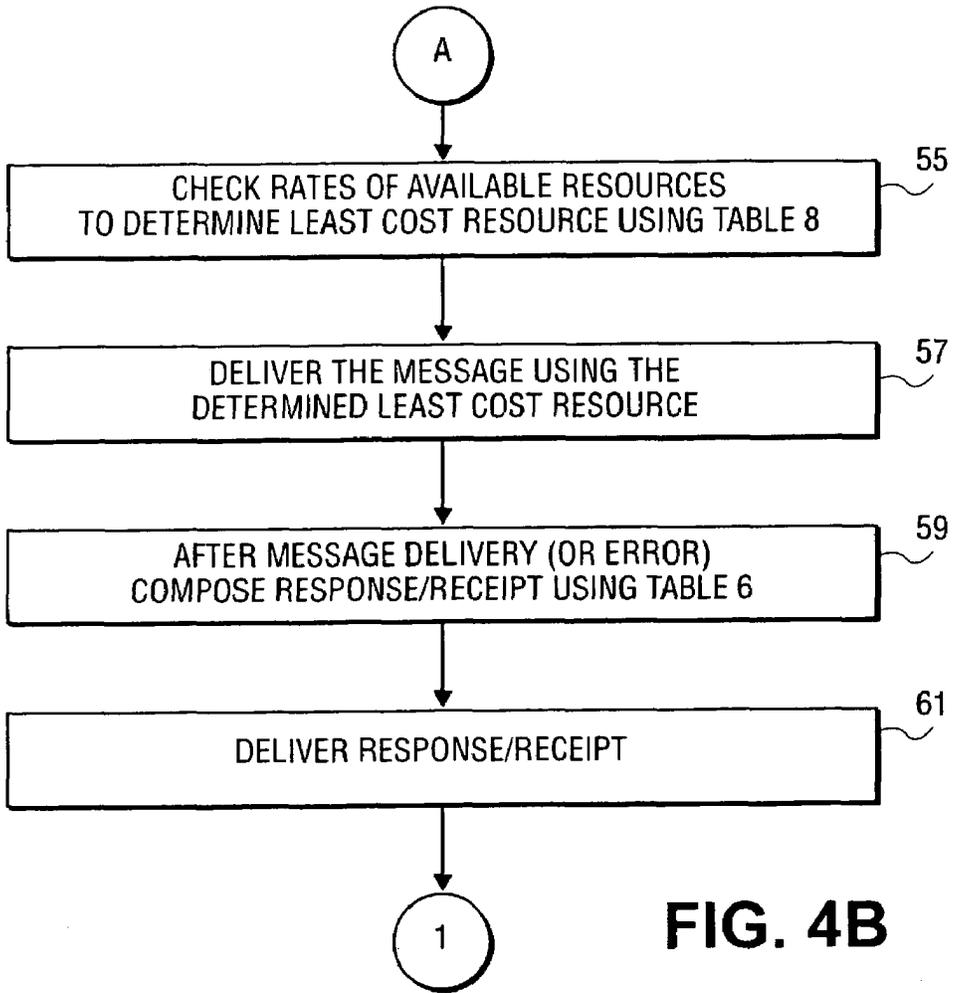


FIG. 4B

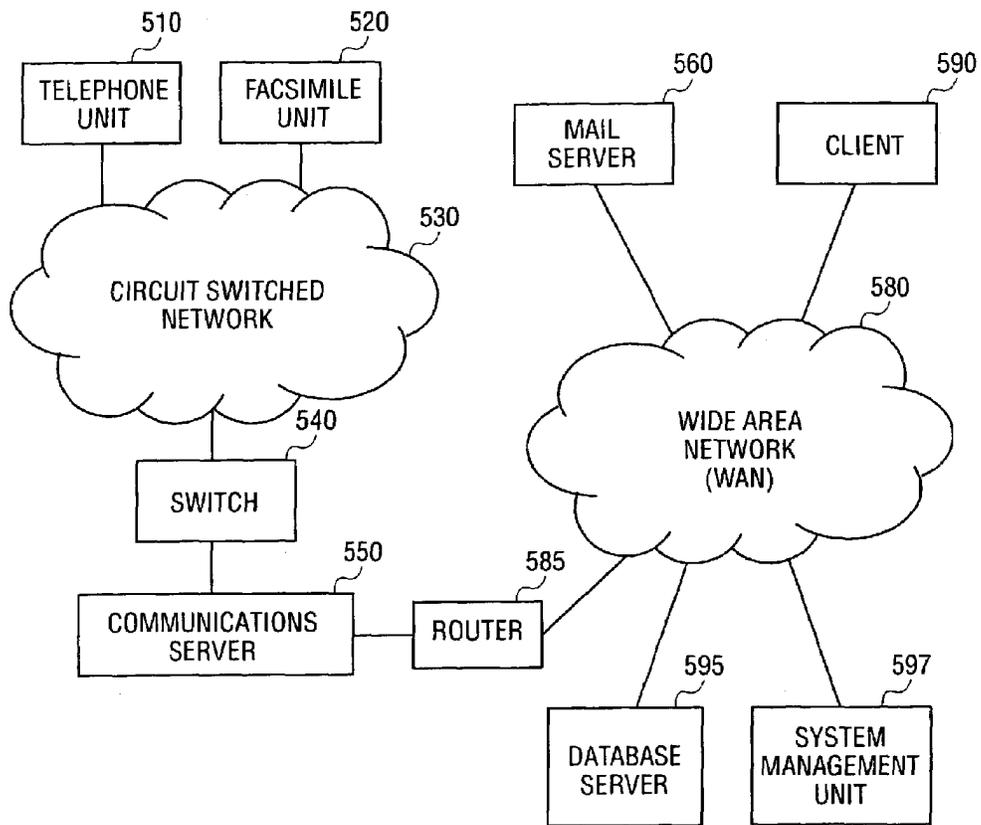


FIG. 5

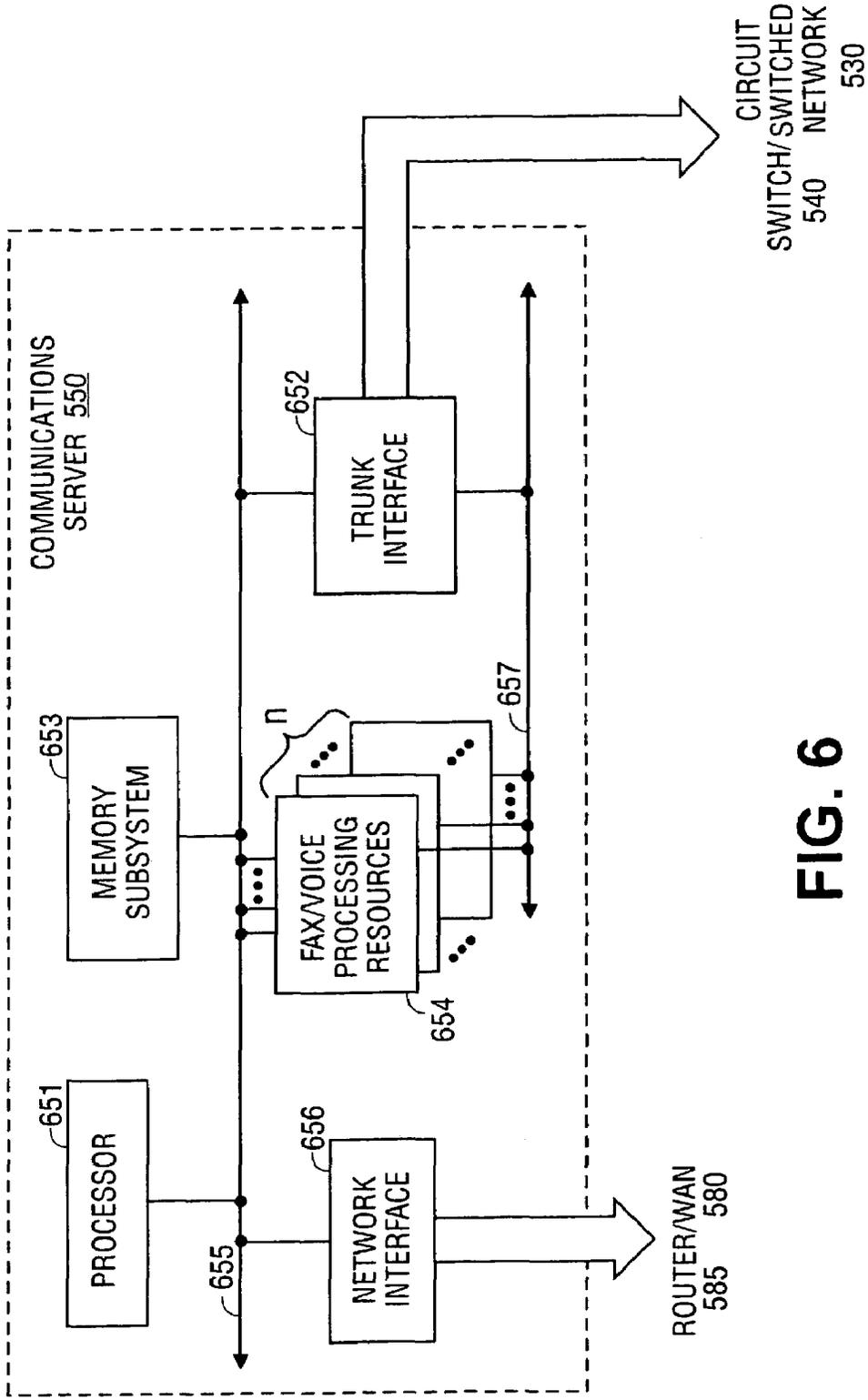


FIG. 6

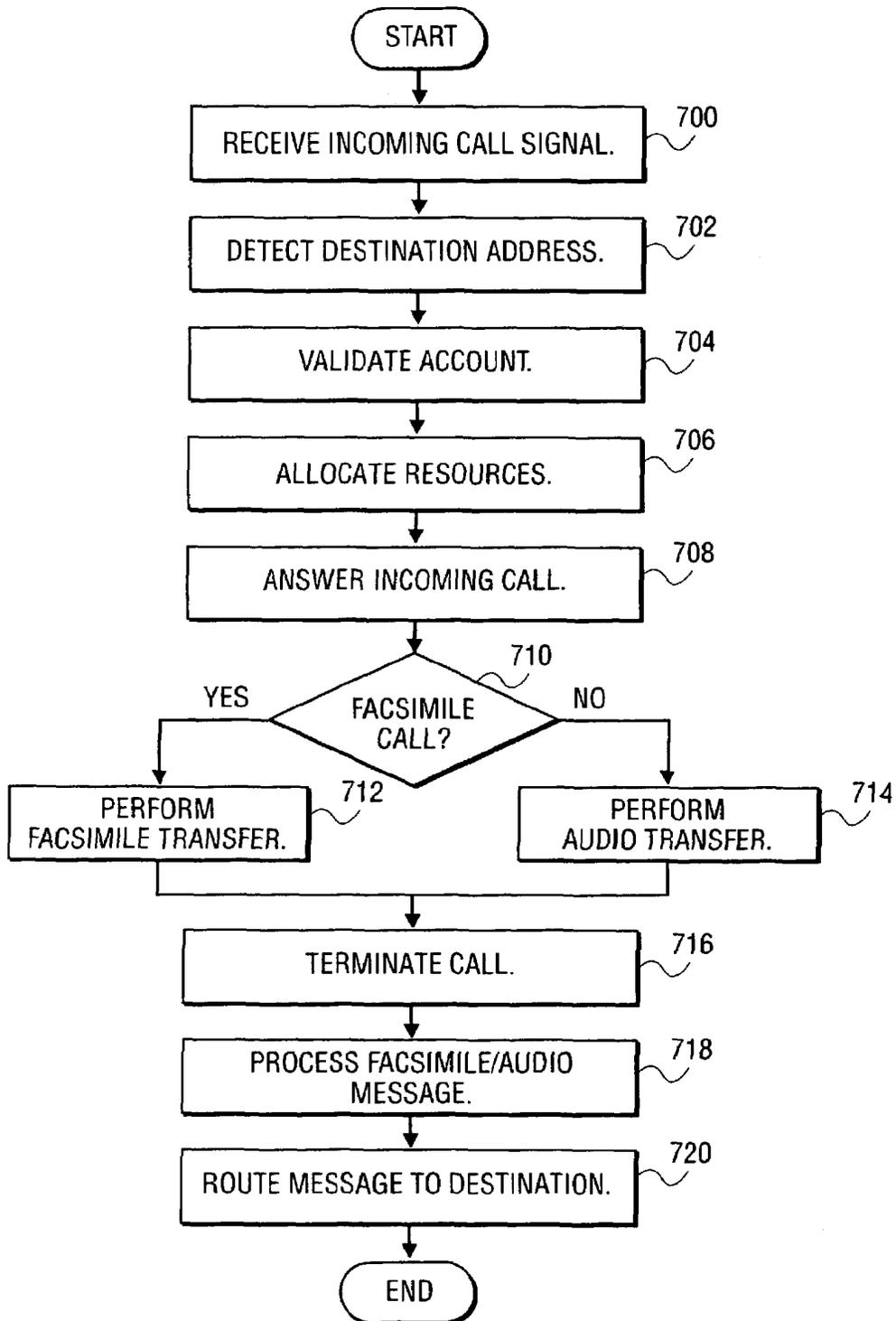


FIG. 7

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SCALABLE ARCHITECTURE FOR TRANSMISSION OF MESSAGES OVER A NETWORK

This is a continuation of Ser. No. 09/097,307, now U.S. Pat. No. 6,597,688 filed on Jun. 12, 1998.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to the field of message receipt/transmission and delivery using computer, phone, wireless and other communications networks. Specifically, the present invention relates to the transmission of e-mail messages which may be text only, text plus an audio file, text plus a video file, text plus a fax file or any combination thereof to a phone, pager or fax machine or other receiving device suitable for the message content, over appropriate communications networks using an architecture which enables easy expansion to handle additional message traffic as well as to connect to additional communications networks, including networks which do not presently exist which may become available in the future.

2. Description of Related Art

Voice and data communications systems such as the public switched telephone network (PSTN) are currently used to transfer image and text data transmitted by facsimile ("fax") machines in addition to the normally carried voice traffic. These faxed images are usually transmitted through the PSTN and received for printout or storage of the image on a destination fax machine or computer for the use by the recipient.

In U.S. Pat. No. 6,208,638 entitled Method and Apparatus for Transmission and Retrieval of Facsimile and Audio Messages Over a Circuit or Packet Switched Network, it is disclosed that to provide for the receipt and transmission of audio and fax information by a first user over a circuit switched network such as the public switched telephone network (PSTN) to a second user over a packet switched network such as the Internet, a communications server is connected both to the circuit switched network and a packet switched network.

The communications server contains resources to receive and process incoming audio and facsimile calls from the circuit switched network into a format suitable for transmission over the packet switched network to the second user's address. In addition, a link is first determined between the second user's address on the circuit switched network and the second user's address on the packet switched network, and then an appropriate route to the second user's address on the packet network is determined. With the system being maintained in a distributed and redundant fashion, reliable receipt and transfer of all messages is ensured. A copy of the specification and drawings of U.S. Pat. No. 6,208,638 is attached hereto.

However, the architecture utilized as described in U.S. Pat. No. 6,208,638 is not easily scalable to handle increasingly higher levels of message traffic or to easily connect to networks in addition to the PSTN and the Internet. FIG. 1 shows the essence of the architecture of U.S. Pat. No. 6,208,638. An e-mail message is passed to an outbound resource **11** (communications server **550** in U.S. Pat. No. 6,208,638) which converts the e-mail message to a fax format or to audio for transmission to a fax machine or telephone connected to the PSTN. A database **13** stores customer information necessary for processing of messages (an unnumbered part of communications server **550** in U.S.

2

Pat. No. 6,208,638 which is also contained in database server **595** in U.S. Pat. No. 6,208,638). After processing of an e-mail message by outbound resource **11**, a fax or voice mail message is sent over the PSTN or more generally, a generalized switched telephone network (GSTN) which includes cellular telephone networks as well as the PSTN. Optionally, a pager message may also be sent informing a user of the fax which has been sent or availability of a voice mail message as described in U.S. Pat. No. 6,073,165 entitled Processing and Forwarding Messages From a Computer Network to a Forwarding Service.

SUMMARY OF THE INVENTION

A method and apparatus is disclosed for delivering messages that utilizes a message queue and a router/filter within a private data network. The private network is connected to an external data network such as the Internet, and has separate outbound resource servers to provide a high degree of scalability for handling a variety of message types.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a prior art architecture which performs the functions, but not the scalability of the architecture of the present invention.

FIG. 2 is a block diagram illustrating the architecture of the present invention.

FIG. 3 is a block diagram showing the data/control flow through message queue **21**, router/filter **23** and database **27**.

FIG. 4 (*4a* and *4b*) is a flow diagram of the processing performed by router/filter **23**.

FIG. 5 is a system diagram of a network containing a message server.

FIG. 6 is a block diagram illustrating the message server.

FIG. 7 is a flow diagram illustrating some operations.

DETAILED DESCRIPTION OF THE INVENTION

The present invention provides a method and apparatus for allowing the receipt and transmission of audio, video and fax information between a circuit switched network and a packet switched network. For purposes of explanation, specific embodiments are set forth to provide a thorough understanding of the present invention. However, it will be understood by one skilled in the art, that the invention may be practiced without these details. Further, although the present invention is described through the use of circuit switched and packet switched networks, most, if not all, aspects of the invention apply to all networks in general. Moreover, well-known elements, devices, process steps and the like are not set forth in detail in order to avoid obscuring the present invention.

Referring now to FIG. 2, e-mail messages for a customer are sent to/through an external data network **15** (e.g., the Internet) and routed to an appropriate SMTP/HTTP (or SHTTP) server **17** as determined by a domain name server (DNS) **18** according to well known techniques. The e-mail message may be a text message or it may include a file, the content of which may be audio, video or bitmapped (e.g., a fax) or other data. Again, the techniques for creating and sending e-mail messages with these characteristics are well known.

A processing server **19**, which includes a message queue **21** and a router/filter **23** first verifies that the message is from or is to a customer using information in database **27**. After

3

successful verification, the message is broken into fragments (in the case of files with multiple attachments) and written to message queue 21. Router/filter 23 obtains messages from the message queue and handles least call routing/billing/prioritization/filtering of messages. Filtering is primarily for notification messages for pager delivery. After billing verification and determination of a least cost route, the message is assigned to one or more outbound resources 31 for delivery to the intended recipient by a method or methods selected by the customer as previously recorded in database 27.

In the case of faxes, the outbound resource is a server which dials the destination fax number and sends the fax.

In the case of voice messages, the outbound resource is a server which dials the destination telephone number and plays the voice message.

In the case of notification messages, the outbound resource is a server which dials out to the paging terminal or delivers the notification message through any appropriate paging gateway.

After the message (in whatever form) has been delivered, a receipt with details and an error log (if any) is sent back via a secure protocol to the message queue 21.

The receipt/error log messages are then processed by the router/filter which interfaces with a billing system (not shown) for customer account update.

FIG. 3 is a block diagram showing the data/control flow through message queue 21, router/filter 23 and database 27 using information contained in the following tables as explained with reference to FIGS. 4a and 4b.

TABLE 1

Message Queue Table	
MESSAGE_ID	This is a unique number assigned to each message that arrives in the system.
RESOURCE_ID	Unique number assigned to each Outbound Resource
RESOURCE_TYPE	Each Resource is identified by the type of messages it can deliver (e.g., FAX, VOICE, NOTIFY, etc.)
RESOURCE_ADDRESS	Location of the Resource (such as IP address)
MESSAGE_TO_EMAIL_ADDRESS	To: address of the message
MESSAGE_FROM_EMAIL_ADDRESS	From: address of the message
MESSAGE_LOCATION	Location of actual message on the Message Queue 21
MESSAGE_SIZE	Size of the message in bytes
MESSAGE_PRIORITY	Priority of the message (e.g., low, medium, high)
MESSAGE_CREATION_DATE	Timestamp identifying the date/time that the message was received by the system
MESSAGE_EXPIRY_DURATION	Amount of time after which the message becomes stale
MESSAGE_SCHEDULED_DATE	Scheduled delivery timestamp for the message
MESSAGE_STATUS	Current status of the message (Active, Pending, Sent, etc.)
MESSAGE_ESTIMATED_COST	Estimated cost for the delivery of the message
CUSTOMER_KEY	Unique number identifying the customer in the database
MESSAGE_PART_OF_BROADCAST	Flag identifying if the message is part of a larger broadcast list waiting to be delivered

4

TABLE 1-continued

Message Queue Table	
BROADCAST_ID	Unique number identifying a broadcast list
COVERPAGE_ID	Unique number identifying a coverpage (if any) for a fax
MESSAGE_SUBJECT	Subject line of the message to be delivered
MESSAGE_DURATION	Duration of the message (delivery time of fax, or delivery time for a voice message, etc.)
MESSAGE_RATE	Rate for message delivery (dollars per second, etc.)
MESSAGE_SEND_DATE	Actual timestamp identifying when the message was delivered
MESSAGE_REMOTE_CSID	Identifier of the fax machine to which a FAX message was delivered
MESSAGE_TYPE	Type of message (e.g., FAX, VOICE, NOTIFICATION, etc.)
RESOURCE_COMMUNICATION_TYPE	Protocol used to communicate with the resource (HTTP, SHTTP, etc.)
MESSAGE_LANGUAGE_CODE	Language used for delivery of a receipt or response, based on settings in the customer table
MESSAGE_PAGES	Number of pages of a message (used primarily for a fax)

TABLE 2

File Type Table	
FILETYPE_MESSAGE_TYPE	Identifier of a message type (FAX, VOICE, etc.)
FILETYPE_RESOURCE_TYPE	Identifier to determine a resource that can handle a particular file type
FILETYPE_EXTENSION	The filename extension that identifies a file type (e.g., WAV, TIF, JFX, AU, GSM, etc.)

TABLE 3

Customer Table	
CUSTOMER_KEY	Unique number identifying a customer in the database
FIRSTNAME	First name of customer
LASTNAME	Last name of customer
COMPANY	Company name of customer
ADDRESSLINE1	Company address
ADDRESSLINE2	Company address
CITY	Company city
MAILREGION	Company state or equivalent
MAILCODE	Zipcode or equivalent
COUNTRY	Company country
WORKNUMBER	Customer work phone number
HOMENUMBER	Customer home phone number
EMAILADDRESS	Email address of customer
COLLECTIONMETHOD	Collection method such as Credit card, Debit, etc.
BILLTYPE	e.g., Customer, Demo, free, corporate, etc.
STATUS	Status of customer, Active, Inactive, etc.
LANGUAGECODE	Language of customer, English, German, etc.
CURRENCYCODE	Currency for billing the customer, US Dollars, Pound Sterling, etc.

5

TABLE 4

Currency Table	
FORMAT	Currency label
CURRENCY_SYMBOL	Symbol for currency

TABLE 5

Notification Table	
CUSTOMERKEY	Unique number identifying a customer in the database
PAGERTYPECODE	Code to determine the kind of pager service
BBSNUMBER	Modem number for pager notification delivery, based on the pager type
PAGERNUMBER	Identifier number of the pager unit
PIN	PIN code for the pager unit
DISPLAYTYPE	Display type of the pager (numeric, alphanumeric, etc.)

TABLE 6

Response_email Table	
RESPONSE_ID	Unique ID for a response/receipt message to be sent to a customer
REPONSE_SUBJECT	Subject line of the response message
RESPONSE_FROM_EMAIL	From: line of the response message
RESPONSE_BODY	Actual text of the response message

TABLE 7

Resource Table	
RESOURCE_ID	Unique identifier for the resource
RESOURCE_TYPE	Type of resource (FAX, VOICE, etc.)
RESOURCE_STATUS	Status of resource (Active, Inactive, etc.)
RESOURCE_QUEUE_STATUS	Status of the Queue, number of messages in queue
RESOURCE_TIME_ZONE	Time zone for the resource
RESOURCE_QUEUE_MAX	Maximum size of the resource queue
RESOURCE_ADDRESS	Address of the resource (IP address, etc.)
RESOURCE_NAME	Name of the resource
RESOURCE_EXPIRY_DURATION	Expiry duration for any message sent to the specified resource
RESOURCE_QUEUE_IN_STATUS	Number of messages waiting to be delivered by the resource
RESOURCE_COMMUNICATION_TYPE	Method used to communicate with resource (HTTP, SHTTP, etc.)

TABLE 8

Resource Rates Table	
RESOURCE_ID	Unique identifier for the resource
RESOURCE_PREFIX	Any digits to be dialed before an actual number
RESOURCE_CITY_NAME	Name of destination city for the message to be delivered
RESOURCE_PROVIDER_RATE	Rate for a particular city (dollars per second, etc.)
RESOURCE_MAX_DIGITS	Max number of digits allowed to be dialed
RESOURCE_AREA_CODE	Area code for the particular city

6

FIGS. 4a and 4b are a flow diagram of the processing performed by router/filter 23 using Tables 1–8. When a message is received it is placed into message queue 21 which is simply a storage area, the specifics of which, including the mechanism for placing the message into the queue are well known. Certain details concerning the message are also stored in a message queue table (Table 1). In step 41, router/filter, which is a computer program running on processing server 19, polls the message queue table for pending requests as determined by the existence of an active message in the message status field. If no message is found, after a system defined delay, the message queue table is again polled (step 43). Once a message has been found in the table, processing continues with step 45 by determining the message type using the message_type field in Table 1 and the file type information in Table 2. The customer is then validated using information in Table 3 in step 47. In step 49, currency information for the customer is obtained from Table 4. The message is then filtered for possible pager notification using the information in Table 5 in step 51. In step 53, Table 7 is used to check for available resources to deliver the message. In step 55, the rates of available resources are checked to determine the least cost resource using Table 8. Then in step 59, the message is delivered using the determined least cost resource. After the message has been delivered, or after an error in the delivery has occurred, in step 59, a response/receipt is composed using Table 6. In step 61, the response or receipt is delivered to the sender. The system then begins the process over again at step 41.

As noted above outbound resource 31 is equivalent to communications server 550 as described in U.S. Pat. No. 6,208,638. The modifications made to outbound resource to enable it to operate in a system having an architecture as described herein are as follows.

These changes will be described with reference to the message structure of received messages.

Message Structure

Each field has a value following an '=' sign and is terminated by a newline character. The exception to this is the "Message" field where a newline immediately follows the "=" sign and the actual message follows on the next line.

The fields of a message are as follows:

- Password=
- MessageID=
- MessageStatus=
- MessageSentTimeStamp=
- Message Duration=
- MessageLength=
- Message RemoteCSID=
- MessageSourceCSID=
- MessageAttachStatus=
- MessageDestination=
- ResourceID=
- ResourceStatus=
- ResourceLastCommTimeStamp=
- ResourceExpiryDuration=
- ResourceQueueInStatus=
- ResourceQueueOutStatus=
- ResourceChannelMax=
- ResourceChannelStatus=
- MessageBoundary=
- Message=

In the following explanation of the above fields, the text in brackets at the end indicates the entity providing the value for the field in the forward/reverse direction (i.e., from

router/filter **23** (RF) to outbound resource **31** (RESOURCE), and from RESOURCE to RF, respectively). "NA" indicates that no value is applicable, and the text "NA" is used to populate the field. "Same" indicates that the same value is used in the reverse direction, i.e., the RESOURCE does not modify the value; it only echoes the value it receives in that field.

Password—There is a fixed password pair for each RESOURCE and RF combination. RESOURCE stores the RF password in a flat text password file in a directory (jfaxom), and RF stores the RESOURCE password in the database. (RF/RESOURCE).

MessageID—Unique ID, per message, generated by RESOURCE. (RESOURCE/Same).

MessageStatus—Code indicating current status of the message. See Status codes below. (RF/RESOURCE)

MessageSentTimeStamp—Time stamp indicating date/time the message was delivered to the final destination by RESOURCE. (NA/RESOURCE)

MessageDuration—Time (in seconds) to transmit message from RESOURCE. (NA/RESOURCE)

MessageLength—Number of pages transmitted by RESOURCE. (NA/RESOURCE)

MessageRemoteCSID—called subscriber identification (CSID) of fax machine to which message was transmitted. (NA/RESOURCE)

MessageSourceCSID—Source CSID. This may be customized per customer. (RF/Same)

MessageAttachStatus—Value of "A" indicates a message is attached for delivery. (RF/RESOURCE)

MessageDestination—Destination phone number. (RF/Same)

ResourceID—Unique ID, per resource, stored in the database. (RF/Same)

ResourceStatus—Code indicating the current status of the resource, i.e., whether it is active or not. RF uses this to determine whether further messages should be sent to RESOURCE for delivery. See Status codes below. (NA/RESOURCE)

ResourceLastCommTimeStamp—Date/time of last communication between RF and RESOURCE. (RF/RESOURCE)

ResourceExpiryDuration—Life of message (in minutes) on RESOURCE. If a message has not been delivered to the final destination by RESOURCE within this amount of time, the message is considered "expired" and is discarded.

ResourceQueueInStatus—Number of messages waiting to be processed in an Inbox directory on RESOURCE. (NA/RESOURCE)

ResourceQueueOutStatus—Number of messages waiting to be processed in an Outbox directory on RESOURCE. (NA/RESOURCE)

ResourceChannelMax—Number of channels available for use on RESOURCE. (NA/RESOURCE)

ResourceChannelStatus—Channel activity status, e.g., 0000000111000001, where 0's indicate an idle channel and 1's indicate a busy channel. (NA/RESOURCE)

MessageBoundary—Text for MIME boundary. (RF/NA)

Message—Actual MIME message sent by RF. If MessageAttachStatus=NA, no message follows this tag. All fields are NA if not used.

Date fields are expressed in MMDDYYhhmmss format.

Resource Status Codes are:

A—Active

I—Inactive

Message Status Codes are:

P—Pending

H—On Hold

D—Deferred

5 R—Ready for sending to RESOURCE

X—Exchanged, i.e., sent to RESOURCE but not acknowledged by it.

A—Sent to RESOURCE and acknowledged by it.

10 S—Sent (i.e., receipt for final delivery received from RESOURCE)

Normal sequence for Message delivery by RESOURCE is:

RF receives a request in its queue (message queue **21**).

RF sends the message to RESOURCE.

15 RESOURCE gets message, authenticates password, and creates a new message in the Inbox directory.

RESOURCE acknowledges receipt of message.

RESOURCE processes the message in Inbox (MessageStatus=A, MessageAttachStatus=A).

20 RESOURCE moves message to a Process directory for further processing.

RESOURCE finishes processing message and delivers it to final destination.

RESOURCE removes the message from the Process directory.

RESOURCE creates a message in Outbox directory. (MessageStatus=S). If a "reply message" is to be delivered to the original sender, MessageAttachStatus=A, else MessageAttachStatus=NA. MessageID remains the same in either case.

30 RESOURCE delivers receipt (with "reply message," if applicable) to RF.

RF receives the message and puts it in the Queue for database processing.

Processing server **19** with the above described functionality may be implemented using readily available systems such as a Windows NT server or a UNIX server. Database **27** may be implemented as a database server using readily available systems such as a Windows NT server or a UNIX server running, for example a SQL database.

What follows is a detailed description of FIGS. **5-7** which set forth a method and apparatus for allowing the receipt and transmission of audio and fax information between a circuit switched network and a packet switched network, as described in U.S. Pat. No. 6,208,638. For purposes of explanation, specific embodiments are set forth to provide a thorough understanding of the present invention. However, it will be understood by one skilled in the art, from reading this disclosure, that the invention may be practiced without these details. Further, although the system is described through the use of circuit switched and packet switched networks, most, if not all, aspects apply to all networks in general.

FIG. **5** contains a block diagram illustrating an embodiment of a system containing a communications server **550** connected to a circuit switched network **530** and a wide area network (WAN) **580**. In an embodiment, the circuit switched network **530** is a circuit switched network such as the PSTN while WAN **580** is a packet switched network such as the Internet. It is to be noted that circuit switched network **530** can also be a network such as the generalized switched telephone network (GSTN), which encompasses PSTN networks, cellular telephone networks, and the other networks with which they are in communication.

65 Communications server **550** is connected to circuit switched network **530** via a switch **540** and to WAN **580** through the use of a router **585**. As described in further detail

below, in an embodiment, switch **540** and router **585** are interfaced to communications server **550** using two separate hardware interfaces. In an alternate embodiment, switch **540** and router **585** can be interfaced to communications server **550** through the use of one hardware unit.

Connected to circuit switched network **530** is both a telephone unit **510** and a facsimile unit **520**. Telephone unit **510** is a standard telephone capable of converting audio signals into electrical signals suitable for transmission over circuit switched network **530**. Similarly, facsimile unit **520** is a standard facsimile machine capable of transmitting and receiving facsimile messages over circuit switched network **530**. Each of these devices can be connected to circuit switched network **530** using either wired or wireless technology.

Connected to WAN **580** is a database server **595**, a system management unit **597**, a mail server **560**, and a client **590**. Each of these systems communicate with each other and with communications server **550** via WAN **580** using such protocols such as simple network management protocol (SNMP) and hyper-text transport protocol (HTTP)—packitized using a protocol such as the transmission control protocol/internet protocol (TCP/IP).

In an embodiment, each one of database server **595**, system management unit **597**, mail server **560**, and client **590**, are stand-alone computers or workstations containing the hardware and software resources to enable operation. In alternate embodiments, the functions provided by each one of database server **595**, system management unit **597**, mail server **560**, and client **590**, are provided by any number of computer systems.

In an embodiment, mail server **560** is a server providing e-mail receipt and transmission using a protocol such as the simple mail transfer protocol (SMTP) and post office protocol (POP). Moreover, client **590** is configured to be able to communicate over WAN **580** using SMTP or POP in order to retrieve e-mail from mail server **560** or another suitably configured server.

System management unit **597** communicates with communications server **550** to monitor: (1) the processes on communications server **550**; (2) the status of the trunk line connected to communications server **550**; and (3) the connection between the various servers connected to WAN **580**. As described below, if any processes on communications server **550** or connection to the circuit switched network **530** is interrupted, system management unit **597** can allocate resources, or cause the re-routing of a call or message via one or more redundant resources or connections, ensuring that the call or message is routed to the final destination.

Communications server **550** contains user data needed to receive and route incoming messages received from circuit switched network **530**. The same information is also stored on database server **595**. In an embodiment, communications server **550** stores an inbound address, a set of final destination addresses; and an account status for each user. The inbound address corresponds to the telephone number assigned to the user. As further discussed below, the inbound address is the number that a message sender dials on telephone unit **510** or facsimile unit **520** to leave a message for the user. The set of final destination address contain one or more e-mail addresses where the user account status information indicates whether the inbound address is either active and or inactive—i.e., whether the user is able to receive messages using the system.

Database server **595** stores a duplicate copy of the inbound address, the set of final destination addresses; and the account status for each user. Database server **595** also

stores additional information for each user such as mailing address and billing information which are not used in the operation of the present invention but are note herein for completeness only. Thus, the information that is stored on communications server **550** is a subset of the information that is stored on database server **595**, and if communications server **550** were to become inoperable or otherwise unable to handle incoming messages, database server **595** can configure another communications server to accept those calls.

In an embodiment, system management unit **597** is responsible for monitoring the status of communications server **550** and re-assigning the users being handled by communications server **550** if communications server mal-functions or becomes overloaded with incoming calls. In the former case, system management unit **597** would re-assign all users being handled by communications server **550** to another communications server. In the latter case, system management unit **597** would only off-load the only those incoming calls for which communications server **550** does not have the available resources to process.

FIG. **6** is a block diagram of communications server **550** configured in accordance with an embodiment containing a processor **651** coupled to a memory subsystem **653** through the use of a system bus **655**. Also coupled to system bus **655** is a network interface **656**; a trunk interface **652**; and a set of fax/voice processing resources **654**. Set of fax/voice processing resources **654** and trunk interface **652** are also coupled to a bus **657**.

Bus **657** is a bus that supports time division multiplex access (TDMA) protocols to optimize the flow of real time traffic between set of fax/voice processing resources **654** and trunk interface **652**.

Memory subsystem **653** is used to store information and programs needed by communications server **550**. The functioning of memory subsystems in computer design are well known to those of ordinary skill in the art and thus will not be further discussed herein.

In an embodiment, trunk interface **652** is a trunk line interface, such as a T-1 or E-1 line, to switch **540** and can handle up to 24 channels of communications. Trunk line signaling is well known to those of ordinary skill in the art of telecommunication and thus will not be further discussed herein except as necessary for describing the invention.

Set of fax/voice processing resources **654** are made up of multiple fax/voice processing cards. Each of these processing cards contain processing units which are capable of receiving and transmitting facsimiles according to established protocols, and which are capable of digitizing voice or other audio data, also according to established protocols. In an embodiment, there are three fax/voice processing cards in set of fax/voice processing resources **654**, each fax/voice processing card containing eight processing units capable of handling a channel from trunk interface **652**. Thus, communications server **550** can communicate on twenty-four channels concurrently.

The storage of destination addresses on both circuit switched network **530** and WAN **580** is controlled by a database located either on communications server **550** or on database server **595**. Keeping this information separate from communications server **550** allows communications server **550** to be a resource that can be allocated on demand. Hence, a number of communications servers could be used, along with one or more database servers, to allow a fully redundant and scalable system. In addition, system management unit **597** monitors the status and connection of all the communication and database servers.

FIG. 7 is a flow diagram illustrating the operations of an embodiment of the present invention when a call originating from a source on the circuit switched network 530. For example, either telephone unit 510 or facsimile unit 520 can initiate the call.

In block 700, an incoming call signal is received by communications server 550 from switch 540. The incoming call signal is initiated by telephone unit 510 or facsimile unit 520 over circuit switched network 530 and is routed to communications server 550 via switch 540. Communications server 550 detects the incoming call signal using trunk interface 652. Operation would continue with block 702.

Continuing with block 702, trunk line interface unit 652, in addition to receiving signals to indicate that there is an incoming call from switch 540, also receives signals indicating the circuit destination address of the incoming call. The destination address is captured by trunk interface 652 and is determined by trunk line signaling using mechanisms such as direct-inward-dial, or dual tone multifrequency (DTMF) tones.

Continuing with block 704, to determine whether or not to process the incoming call, processor 651 searches the list of inbound addresses contained in memory subsystem 653 for the destination address. If processor 651 finds the destination address in the inbound address list, processor 651 will then look up the account status for the user who owns the inbound address to determine if the account of that user is a valid user account. In an alternate embodiment, the validation is performed through the use of a database maintained by a separate entity such as database server 595. If the account is found to be inactive, communications server 651 will play a prepared message indicating that the number to which the incoming message was sent is an invalid account.

In block 706, once the validity of the user account has been established, processor 651 will attempt to allocate one fax/voice processing resource from set of fax/voice processing resources 654 and also determine the availability of other resources required for the receipt and processing of the incoming call. These other resources include the processing capacity of processor 651, the storage capacity of memory subsystem 653.

If it is determined that the appropriate resources are not available, then the call will be routed to a different communications server that is capable of allocating the necessary resources. The routing of calls is accomplished by trunk line signaling via switch 540 and is managed by system management unit 597.

Also, it should be noted that the call will only come from switch 540 to communications server 550 if there are no problems with the line. Otherwise the call will get routed to a different communications server. In an embodiment, fault detection and correction happens in one of two ways. First, on the telephone network side, switch 540 can be set up to independently route a call to another line if it is determined that one of the lines is bad. Second, if communications server 550 detects that the trunk line coming into trunk interface 652 is down, communications server 550 will notify system management unit 597 to reallocate the users for whom communications server 550 is responsible onto another communications server. Thus, system management unit 597 will transfer the duplicate user information contained in database server 595 into a different communications server.

In block 708, communications server 550 "answers" the incoming call by having trunk interface 652 go "off-hook" on the trunk line.

In block 710, if the fax/voice processing resource of set of fax/voice processing resources 654 which is processing the call determines that the incoming call is a fax transmission, then operation will continue with block 712. Otherwise, operation will continue with block 714. For example, if the call is a fax, a fax protocol is initiated, and the fax is received by one of the fax/voice processing resources of set of fax/voice processing resources 654. If the call is a voice call, the voice is recorded by one of the fax/voice processing resources of set of fax/voice processing resources 654.

In block 712, the fax/voice processing resource of set of fax/voice processing resources 654 responsible for processing the incoming call will perform the fax transfer and store the incoming message as a temporary file in memory subsystem 653. In an embodiment, the incoming fax is saved into a file which follows the group 3 facsimile file format. Operation will then continue with block 716.

In block 714, where it is determined that the incoming message is an audio message, the fax/voice processing resource of set of fax/voice processing resources 654 allocated to process the call will initiate an audio recording of the incoming voice message. In an embodiment, the audio message is digitized and stored in memory subsystem 653 as a temporary file in a pulse code modulated format. After the incoming call has been digitized and stored, operation will then continue with block 716.

In block 716, trunk interface 652 will terminate the call. Operation will then continue with block 718.

In block 718, the incoming message, which has been stored as a temporary file in memory subsystem 653, is processed by processor 651. In an embodiment, the temporary file is processed according to the type of the incoming call. If the incoming call was a fax transmission, then the temporary file, which has been stored as a group 3 facsimile file, will be converted into a file which follows the tagged image file format (TIFF), or a format that is suitable for transmission over WAN 580. Optionally, the temporary fax file can also be compressed at this stage. If the incoming call was an audio message, then the temporary file would be compressed using a compression scheme such as the scheme defined in the global system for mobile-communications (GSM) standard. In alternate operations, compressing and other processing of the incoming message is performed as the same time the incoming message is being received and being placed in memory subsystem 653.

In block 720, communications server 550 uses the inbound address to determine the set of final destination addresses, which are destinations on WAN 580 (i.e., the packet switched network), to send the processed incoming message. Communications server 550 then sends an electronic mail (e-mail) with the processed incoming message as an attachment to all the destinations in the set of final destination addresses.

For example, the e-mail containing the attachment is transferred to, and stored in, a server such as mail server 560. The e-mail is then retrieved by client 590 whenever the user wishes. In an alternate embodiment, client 590 can retrieve the e-mail directly from communications server 550, without the storing operation of mail server 560.

While the present invention has been particularly described with reference to the various figures, it should be understood that the figures are for illustration only and should not be taken as limiting the scope of the invention. Many changes and modifications may be made to the invention, by one having ordinary skill in the art, without departing from the spirit and scope of the invention.

13

What is claimed is:

1. A system for supporting a message delivery service, comprising:

a server coupled to communicate with a plurality of first
outbound resources and a database server, over an
internal packet-switched data network, the database
server containing account information on customers of
the message delivery service, the server implements a
router-filter and a message queue,

the message queue to store a request message received
from a customer of the message delivery service over
an external packet-switched data network,

the router-filter to obtain a request message from the
queue, validate said request message by accessing the
account information in the database server, and deter-
mine to which of the plurality of first outbound
resources to assign said request message,

each of the first resources being capable of converting an
input request message into a format capable of being
received by a fax machine over a circuit switched
network.

2. The system of claim 1 wherein the internal data
network is a private data network.

3. The system of claim 2 wherein the external data
network is the Internet.

4. The system of claim 3 wherein the request message is
received from the customer via one of a mail transport
protocol server and a hypertext transport protocol server on
the Internet.

5. The system of claim 1 wherein the router-filter is to
prioritize a plurality of request messages that have been
obtained from the queue and that are assigned to an out-
bound resource.

6. The system of claim 1 wherein the router-filter is to
determine which of the plurality of first outbound resources
to assign said request message to, based on which resource
offers the least cost of delivering said request message.

7. The system of claim 1 wherein the router-filter is to
generate an error message that indicates an error in deliv-
ering said request message as reported by the outbound
resource to which said request message was assigned.

8. The system of claim 1 further comprising:

a plurality of second outbound resources each being
capable of converting an input request message into a
format capable of being played back to a telephone
over a circuit switched network, wherein the router-
filter is to determine to which of the first and second
resources said request message is to be assigned, based
on a message type of said request matching a capability
of one of a first resource and a second resource.

9. The system of claim 1 further comprising:

a plurality of second outbound resources each being
capable of converting an input request message into a
format capable of being transmitted to a paging termi-
nal over one of (1) a circuit switched network and (2)
a paging gateway over an external packet-switched
network, wherein the route-filter is to determine to
which of the first and second resources said request
message is to be assigned, based on a message type of
said request matching a capability of one of a first
resource and second resource.

10. The system of claim 1 wherein a location of each
outbound resource is given by an Internet Protocol address.

11. The system of claim 1 wherein the message is received
from the customer via one of a mail transport protocol server
and a hypertext transport protocol server on the Internet.

14

12. The system of claim 1 wherein a protocol used by the
router-filter to communicate with the plurality of outbound
resources is one of HTTP and SHHTTP.

13. The system of claim 1 wherein the router-filter is to
send a MIME message.

14. An article of manufacture for supporting a message
delivery system, comprising:

a machine accessible medium containing data that, when
accessed by a machine, cause a server to communicate
with an outbound resource and a database all as part of
an internal packet-switched data network, the server to
store a request message received from a customer of the
message delivery service over an external packet
switched data network, verify that the request message
is from the customer using information in the database,
and assign said request message to the resource which
converts data associated with said request message into
a format capable of being received by a fax machine
over a circuit switched network.

15. The article of manufacture of claim 14 wherein the
medium includes further data which allows the request
message to be received from a customer over the Internet.

16. The article of manufacture of claim 14 wherein the
medium includes further data which, when executed by the
machine, cause the server to determine which of a plurality
of first outbound resources to assign said request message to,
based on which resource offers the least cost of delivering
said request message.

17. A method comprising:

receiving an email message from an external packet data
network;

performing a database lookup in an internal packet data
network to correlate the email message with a user
account;

verifying within the internal network the email message is
associated with a valid user account;

performing within the internal network one of a least cost
routing calculation, a billing calculation, a prioritiza-
tion calculation, and a message filtering operation;

converting within the internal network the email message
into a fax format for transmission to a machine; and
transmitting the converted email message into a public
switched telephone network to a destination telephone
number.

18. A method comprising:

receiving an email message from the Internet;

performing within an internal packet data network a
database lookup to correlate the email message with a
user account;

determining within the internal packet data network if the
email message passes a filter screening criterion;

converting the email message into a fax format for
transmission to a fax machine; and

transmitting the converted email message into a public
switched telephone network to a destination telephone
number.

19. A method comprising:

receiving an email message from the Internet;

performing a database lookup within an internal packet
data network to correlate the email message with a user
account;

queuing the email message within the internal packet data
network;

reading the queued message based on a prioritized order-
ing rule within the internal packet data network;

converting the read message into a fax format for trans-
mission; and

15

transmitting the converted message into a public switched telephone network to a destination telephone number associated with the user account.

20. A method comprising:

receiving in an internal packet data network an email message from the Internet;

correlating the email message with a user account in the internal packet data network;

16

queuing email the message in the internal packet data network;

performing a routing operation to determine a destination to forward the email message;

5 converting the routed message into a fax format; and transmitting the converted message into a public switched

telephone network to a destination telephone number associated with the user account and determined in said routing.

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