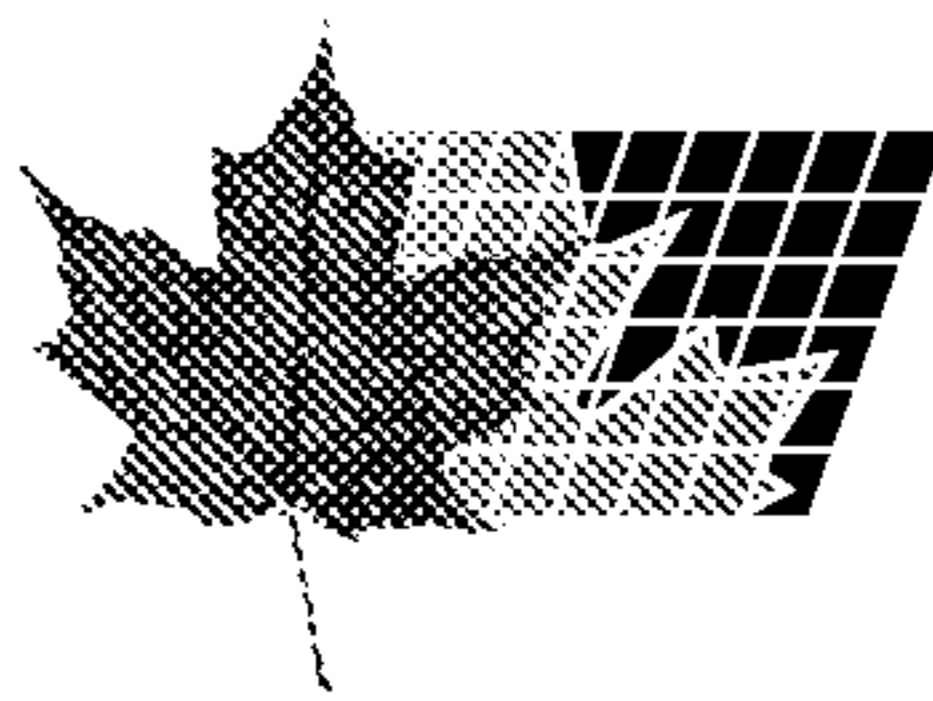




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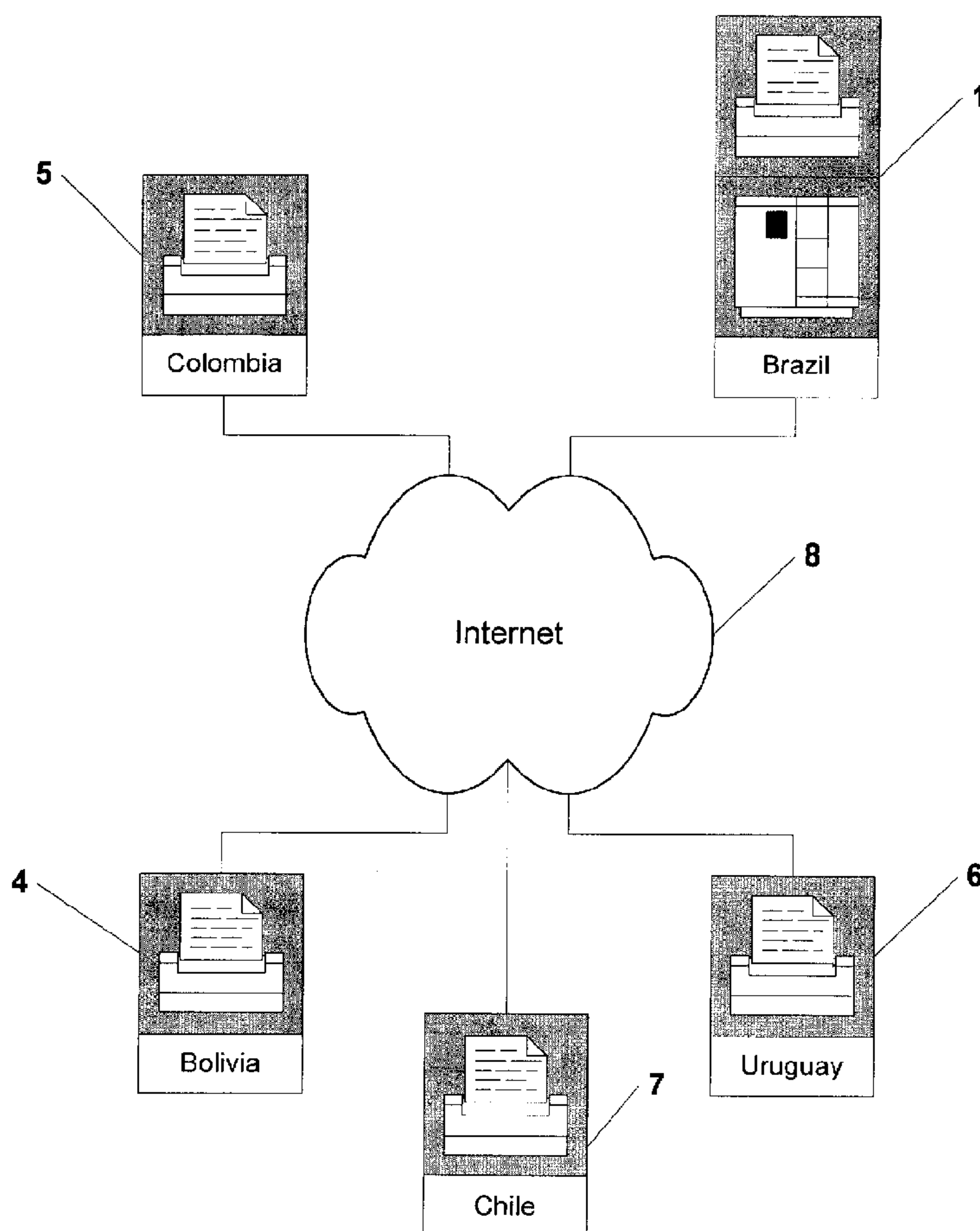
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(54) **SYSTEME ET METHODE DE CONVERSION MULTISITE DU
COURRIER ELECTRONIQUE EN COURRIER POSTAL**

(54) **SYSTEM AND METHOD FOR A MULTIPLE-SITE E-MAIL TO
LETTER MAIL SYSTEM**



(57) In a service that accepts electronic mail messages and converts them to postal messages, a system and method for selecting the postal mail conversion sites that result in the least expensive and most rapid delivery of the message, and provides the user with the option to select the conversion site that best meets the user's needs. This system and method is also applicable to targeted mailings such as those used in advertising.



Abstract

In a service that accepts electronic mail messages and converts them to postal messages, a system and method for selecting the postal mail conversion sites that result in the least expensive and most rapid delivery of the message, and provides the user with the option to select the conversion site that best meets the user's needs. This system and method is also applicable to targeted mailings such as those used in advertising.

System and Method for a Multiple-Site E-mail to Letter Mail System

Field of Invention

The present invention relates to a system and method for generating postal mail or letter mail from electronic mail.

Background of the Invention

The present invention relates to a system and method for generating postal mail or letter mail from electronic mail. The computer industry has experienced unparalleled growth due to the widespread utilization of wide area networks, including the Internet. This has created a telecommunications revolution and radically changed the methods in which people communicate. With the worldwide reach of the Internet, electronic mail messages can now be exchanged within seconds or minutes between senders and receivers situated thousands of miles apart. Electronic mail message volume is now ten times that of traditional postal mail.

However, just as telephone access is not yet universally available in all parts of the world, neither is Internet access. It is often necessary for a person with Internet access to communicate with a person without Internet access. Additionally, as e-mail has become ubiquitous, the printed letter retains a presence and impact, for both personal and business communications, unmatched by electronic mail messages, which can seem temporary and irrelevant by comparison.

But conventional postal mail is more expensive and slow. Although the delay can be acceptable for persons located within a relatively limited geographical region, the cost and time required for postal delivery is increased even more when a letter must travel long distances and across international borders. Courier services can reduce the time required for delivery but at a cost many times that of conventional mail.

Solutions have been developed and implemented that accept electronic mail messages from users and convert them to printed postal mail messages for conventional mail delivery to the recipient. MCI Mail has offered such a service to its subscribers for more than ten years. However, most systems use a central printing and mailing center for their services.

In July 1981, Canada Post Corporation and Telecom Canada developed an e-mail to postal mail system. Twenty-five printers located in twenty cities across Canada would print postal mail messages transmitted to the system electronically by users. The selection of a printer for a particular message was made on the basis of the postal code of the recipient of the message. See for example D.J. Rhynas et al., "EnvoyPost: A Hybrid Electronic Mail Service," Telecom Canada, Ottawa, Ontario, Canada, 1984, pp. 203-214. With this method, the time required for delivery of the printed letter was decreased to the twenty cities with printers. However, this arrangement operated only in Canada, and made the selection based solely upon geographic proximity between the printer and the intended recipient. The arrangement did not provide users the option to select printing locations based upon whether lowest cost or fastest delivery were desired.

Summary of the Invention

The present invention relates to a system and method for using a network of offices or stations dispersed throughout the world to provide a service that converts e-mail messages to postal or letter mail messages and places the resulting postal mail messages into a country's postal system for delivery to a recipient in that country or in another, nearby country.

In a preferred embodiment, the user enters his e-mail message either by using the service's World Wide Web site or by simply sending an e-mail with appropriate address information of the recipient to the electronic mail address of the service. The user does not know the best location to print out the message and place it into the postal mail stream, how much postage is required, or even what countries the e-mail-to-postal-mail stations are located in.

In a preferred embodiment, the service determines alternate locations for printing the postal mail message that provide the fastest delivery and the lowest cost by using a table pairing the country in which the recipient is located with countries containing a printing station that will provide the fastest or least cost delivery of the postal mail message. The service then presents the user with a menu of options to select whether lowest cost or expedited delivery is desired. When the user selects the desired delivery option, the service

routes the message to the printing location corresponding to the delivery option selected by the user.

The present invention thus provides a system for converting electronic mail to postal mail comprising at least one central station for receiving and processing requests from users and a plurality of printing stations, said central station further comprising a routing table comprising one or more countries of destination, each said country of destination returning the location of the printing station which provides the lowest postal cost to that destination and the location of the printing station which provides the most rapid average delivery time to that destination.

The present invention further provides a system for creating and sending mass mailings comprising at least one central station for receiving and processing requests from users and a plurality of printing stations, said central station further comprising a routing table comprising one or more countries of destination, each said country of destination returning the location of the printing station which provides the lowest postal cost to that destination and the location of the printing station which provides the most rapid average delivery time to that destination.

The present invention further provides a method of converting electronic mail to postal mail comprising the following steps: (a) accepting an electronic mail message and destination address at a central station from a user of the system via Internet or other electronic means; (b) determining from the destination address provided by the user if the printing station providing the least-cost means of delivery is different from the printing station providing the most rapid delivery; (c) providing the user with the option to select between printing stations if the printing station providing the least-cost means of delivery is different from the printing station providing the most rapid delivery; and (d) routing the message from the user to the printing station selected by the user.

The present invention further provides a method of creating and sending mass mailings comprising the following steps: (a) accepting an advertising message and destination address at a central station from a user of the system via Internet or other electronic means; (b) determining from the destination address provided by the user if the printing station

providing the least-cost means of delivery is different from the printing station providing the most rapid delivery; (c) providing the user with the option to select between printing stations if the printing station providing the least-cost means of delivery is different from the printing station providing the most rapid delivery; and (d) routing the message from the user to the printing station selected by the user.

The present invention further provides a system for converting electronic mail to letter mail for postal or courier delivery comprising at least one central station for receiving and processing requests from users and a plurality of printing stations, said central station further comprising a routing table comprising one or more countries of destination, each said country of destination returning the location of the printing station which provides the lowest postal cost to that destination and the location of the printing station which provides the most rapid average delivery time to that destination.

The present invention further provides a method of converting electronic mail to letter mail for postal or courier delivery comprising the following steps (a) accepting an electronic mail message and destination address at a central station from a user of the system via Internet or other electronic means; (b) determining from the destination address provided by the user if the printing station providing the least-cost means of delivery is different from the printing station providing the most rapid delivery; (c) providing the user with the option to select between printing stations if the printing station providing the least-cost means of delivery is different from the printing station providing the most rapid delivery; and (d) routing the message from the user to the printing station selected by the user.

Brief Description of the Drawings

In drawings which illustrate a preferred embodiment of the invention by way of example only,

Figure 1 shows the system configuration of a preferred embodiment of the present invention deployed in South America;

Figure 2 shows the connections of the central and printing stations to the Internet;

Figure 3 is a diagram of a central station in Brazil consisting of an Internet server, a mail processor, and a printer;

Figure 4 shows a routing table located in the central station used to determine alternative printing options based on different routing methods in a preferred embodiment; and

Figure 5 shows an HTML menu presented to the user to select the routing method for a specific destination in the preferred embodiment.

Description of the Preferred Embodiment

In creating a worldwide system to convert electronic mail to postal mail, initially a single printing center location can be selected to provide coverage to an entire continent. In such a system, the printing center location that provides the fastest delivery and the printing location that provides the lowest delivery cost are one and the same. However, as subsequent printing center sites are established within a continent, their locations will be selected to decrease delivery time to the largest number of potential recipients. These locations also create alternative delivery choices.

For example, a printing center located in a country spanning a large geographic area will usually provide the lowest-cost delivery because the required postage will be a lower, domestic rate. However, a printing center in another country may provide a lower cost delivery because of differences in currency conversion rates. In addition, a printing center situated just across the border from the recipient in an adjacent country may provide a faster delivery time although at a higher international postage rate. It is the object of this invention to provide the user of an e-mail to postal mail conversion service the ability to select between alternative printing locations based on the user's needs for the message being sent. The user may select between the printing center location that provides the lowest cost delivery to the country of destination and the printing center location that will provide the fastest delivery to the country of destination.

Figure 1 depicts a preferred embodiment of the system deployed across the continent of South America. In a preferred embodiment of the invention, central station 1 in Brazil receives a request through the Internet from users located throughout the continent. Printing stations for the system are located in Bolivia 4, Brazil 1, Columbia 5, and Paraguay 6, as well as in Chile 7.

Figure 2 is a diagram of the South American mail network described in Fig. 1. The Internet 8 connects the central station 1 in Brazil and the printing stations in Bolivia 4, Columbia 5, Paraguay 6, and Chile 7. A system incorporating the claimed invention may duplicate this structure throughout the world, including the provision of multiple central stations, but for the sake of simplicity, only the South American mail network is depicted in Figure 2.

Figure 3 is a diagram of the central station 1 in Brazil. The central station provides a point of contact for users through the Internet as well as serving as a printing station. The central station contains an Internet server 9 for receiving and processing requests from users through the Internet. The Internet server accepts messages from users, as well as name and address information for the intended recipient. Once the Internet server has received a message transmitted by a user, the destination location is passed to routing table 10. The routing table may be located either within the Internet server or in a separate computer, and contains a complete list of countries serviced by the central station.

An example routing table is depicted in Figure 4. Each row in the routing table contains a country 11 serviced by the central station, the corresponding printing station location 12 that will provide the least-cost delivery, a value 13 indicating the number of days on average a letter sent from this printing station location 12 will take to reach the selected destination country 11, the correct postage amount 14 for postal delivery to that destination, the printing station location 15 corresponding to selected destination country 11 that will provide the fastest delivery time, a value 16 indicating the number of days on average a letter sent from this printing station location 15 will take to reach the selected destination country 11, and the correct postage amount 17 for postal delivery to that destination.

Postage amounts 14 and 17 will be the amounts in the currency of printing stations 12 and 15, respectively. The postage value corresponding to the printing station location selected by the user is transmitted to the selected printing station location along with the message to be printed and delivered. In some cases, the value in 14 will be higher than the value in 17 due to the differences in the currency values between the country that printing station 15 is located in and the country that printing station 12 is located in. However, after converting the values in 14 and 17 to a common currency, value 14 will always be lower. Differences in currencies are calculated whenever routing tables are created or updated to select the printing station for each country of destination that provides the lowest cost delivery. Routing tables are updated frequently (once a day or more) to reflect changes in currency exchange rates.

When a user enters a name, address and destination country of a recipient on an HTML (Hypertext Markup Language) form presented by the Internet server on the user's computer, the Internet server checks it against the list of countries serviced by the central station. If the user has mistyped the name of the country the recipient is located in, the Internet server can suggest a country located on the list of countries serviced by the central station that most closely matches the country typed by the user and ask the user for confirmation.

After the country of the recipient is correctly identified, the Internet server determines the printing station location that provides the lowest cost delivery and the estimated average time for delivery to that recipient from that location by referring to the routing table entry for the country of the recipient. Next, the Internet server determines the printing station location that provides the fastest delivery time as well as the estimated average time for delivery to that recipient from that location.

If the location in the routing table for both the least-cost and the fastest delivery routing method is the same, the Internet server sends a confirmation message to the user indicating the cost and delivery time for the message. However, if two different locations are identified by the two different delivery methods, the different costs and delivery times are presented to the user as shown in Figure 5, and the user is directed to select which method is

preferred. Optionally, as shown in Figure 5, an expedited routing location using a local courier service or premium postal service may be contained in the routing table.

When the user confirms the routing information, or selects the delivery option if multiple options are available, then the system may prompt the user for billing account information. If the user does not already have a billing account, the Internet server may ask the user for a credit card number or other form of payment information.

Once payment processing has been completed, the message is then transmitted securely over the Internet to the selected printing station. The printing station receiving the message then prints the message, places it in an envelope addressed to the recipient, affixes sufficient postage for the delivery, and causes the envelope containing the printed message to be placed in the local mail stream. If an expedited delivery option has been selected, either additional postage for a premium postal delivery service is added, or the envelope is prepared for courier delivery instead of being placed in the local mail stream.

In an example use of the preferred embodiment of the invention shown in Figure 1, central station 1 in Brazil receives a request through the Internet from a user located in Venezuela 2 to transmit an e-mail message to a recipient 3 located in Chile. Printing stations for the system are located in Bolivia 4, Brazil 1, Columbia 5, and Paraguay 6, as well as in Chile 7, where the recipient is based.

A system based upon the prior art would route the e-mail message for printing in Chile without regard to the time required for delivery. However, a system incorporating the described invention will use the routing table to determine that a faster alternative exists for a destination in Northern Chile (determined by either reference to a postal code or the destination city) and present the user with the choice of printing in Chile or printing in Bolivia.

A further advantage of the described preferred embodiment of the invention is that the routing tables can be changed quickly and easily. This allows new tables to be loaded that contain new routing information in response to increases in postage rates, slowdowns or strikes by postal workers in a country, or failures of printing stations.

The system and method herein described are also adaptable for application in a system to provide mass mailings of a targeted nature. In such a system, a user transmits a multiplicity of advertising messages to a large number of users. It is sometimes the case that not all messages are intended to be transmitted to all users, but instead are targeted based upon marketing information to provide advertising messages tailored to the preferences and buying patterns of each intended recipient.

The system handles such a targeted mailing message in the same way. All advertising messages intended for the same recipient are gathered together and printed serially so that they can be placed in a single envelope for further cost savings. Each recipient's destination country is passed through the routing table 9 to determine the proper country of printing. Then, the proper amount of postage determined by the routing table is affixed to the envelope, and the envelope is placed in the local postal mail stream.

What has been described are the presently preferred embodiments of a system and method for a multiple-site e-mail to postal mail system that efficiently routes mail to be printed in a way that minimizes the cost and/or time required for delivery through conventional postal methods. It should be apparent that many modifications to the system and method are possible without departing from the true spirit and scope of the invention.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A system for converting electronic mail to postal mail comprising at least one central station for receiving and processing requests from users and a plurality of printing stations, said central station further comprising a routing table comprising one or more countries of destination, each said country of destination returning the location of the printing station which provides the lowest postal cost to that destination and the location of the printing station which provides the most rapid average delivery time to that destination.
2. The system according to claim 1, wherein one printing station is co-located with the central station.
3. The system according to claim 1, wherein the routing table further comprises one or more postage rates for delivery of postal mail from the country of the printing station to the country of destination.
4. The system according to claim 1, 2, or 3 wherein the user is provided with the option to select between the printing station providing the lowest cost delivery and the printing station providing the fastest delivery.
5. The system according to claim 4 wherein the selection of the printing location providing the lowest cost delivery in the routing table considers the differences in currency conversion rates as well as the postal cost between the countries in which the printing stations are located in.
6. The system according to claim 1, 2 or 3, wherein the routing table further returns a printing station offering an expedited form of delivery.
7. A system for creating and sending mass mailings comprising at least one central station for receiving and processing requests from users and a plurality of printing stations, said central station further comprising a routing table comprising one or more countries of destination, each said country of destination returning the location of the printing station

which provides the lowest postal cost to that destination and the location of the printing station which provides the most rapid average delivery time to that destination.

8. The system according to claim 7, wherein one printing station is co-located with the central station.

9. The system according to claim 7, wherein the routing table further comprises one or more postage rates for delivery of postal mail from the country of the printing station to the country of destination.

10. The system according to claim 7, 8, or 9 wherein the user is provided with the option to select between the printing location providing the lowest cost delivery and the printing location providing the fastest delivery.

11. The system according to claim 10 wherein the selection of the printing location providing the lowest cost delivery in the routing table considers the differences in currency conversion rates as well as the postal cost between the countries in which the printing stations are located in.

12. The system according to claim 7, 8 or 9 wherein the routing table further returns a printing station offering an expedited form of delivery.

13. A method of converting electronic mail to postal mail comprising the following steps:

- (a) accepting an electronic mail message and destination address at a central station from a user of the system via Internet or other electronic means;
- (b) determining from the destination address provided by the user if the printing station providing the least-cost means of delivery is different from the printing station providing the most rapid delivery;
- (c) providing the user with the option to select between printing stations if the printing station providing the least-cost means of delivery is different from the printing station providing the most rapid delivery; and
- (d) routing the message from the user to the printing station selected by the user.

14. A method of creating and sending mass mailings comprising the following steps:

- (a) accepting an advertising message and destination address at a central station from a user of the system via Internet or other electronic means;
- (b) determining from the destination address provided by the user if the printing station providing the least-cost means of delivery is different from the printing station providing the most rapid delivery;
- (c) providing the user with the option to select between printing stations if the printing station providing the least-cost means of delivery is different from the printing station providing the most rapid delivery; and
- (d) routing the message from the user to the printing station selected by the user.

15. A system for converting electronic mail to letter mail for postal or courier delivery comprising at least one central station for receiving and processing requests from users and a plurality of printing stations, said central station further comprising a routing table comprising one or more countries of destination, each said country of destination returning the location of the printing station which provides the lowest postal cost to that destination and the location of the printing station which provides the most rapid average delivery time to that destination.

16. The system according to claim 15, wherein one printing station is co-located with the central station.

17. The system according to claim 15, wherein the routing table further comprises one or more postage rates for delivery of postal mail from the country of the printing station to the country of destination.

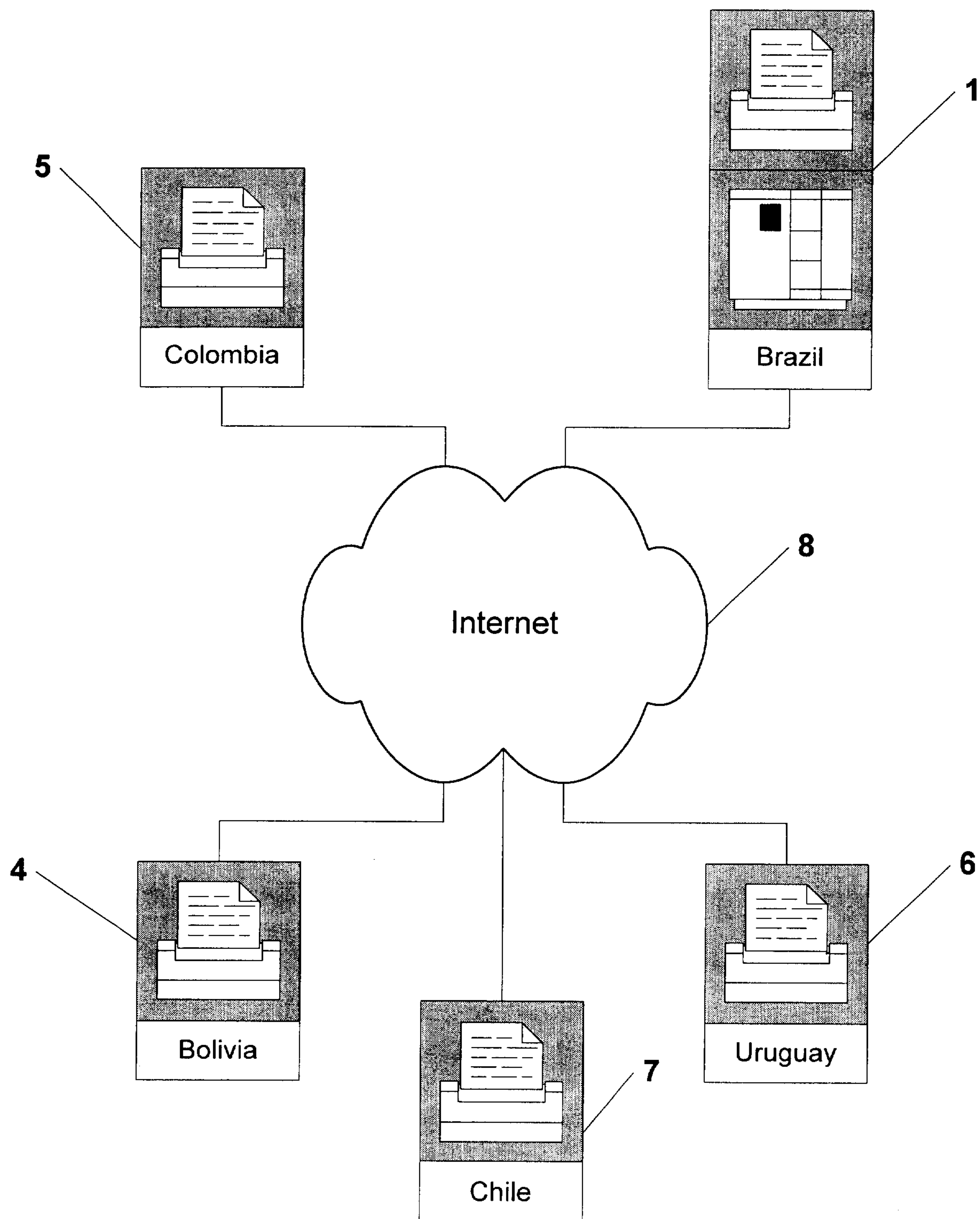
18. The system according to claim 15, 16, or 17 wherein the user is provided with the option to select between the printing station providing the lowest cost delivery and the printing station providing the fastest delivery.

19. The system according to claim 18 wherein the selection of the printing location providing the lowest cost delivery in the routing table considers the differences in currency conversion rates as well as the postal cost between the countries in which the printing stations are located in.
20. The system according to claim 15, 16, or 17 wherein the routing table further returns a printing station offering an expedited form of delivery.
21. A method of converting electronic mail to letter mail for postal or courier delivery comprising the following steps:
- (a) accepting an electronic mail message and destination address at a central station from a user of the system via Internet or other electronic means;
 - (b) determining from the destination address provided by the user if the printing station providing the least-cost means of delivery is different from the printing station providing the most rapid delivery;
 - (c) providing the user with the option to select between printing stations if the printing station providing the least-cost means of delivery is different from the printing station providing the most rapid delivery; and
 - (d) routing the message from the user to the printing station selected by the user.



Fig. 1

Fig. 2



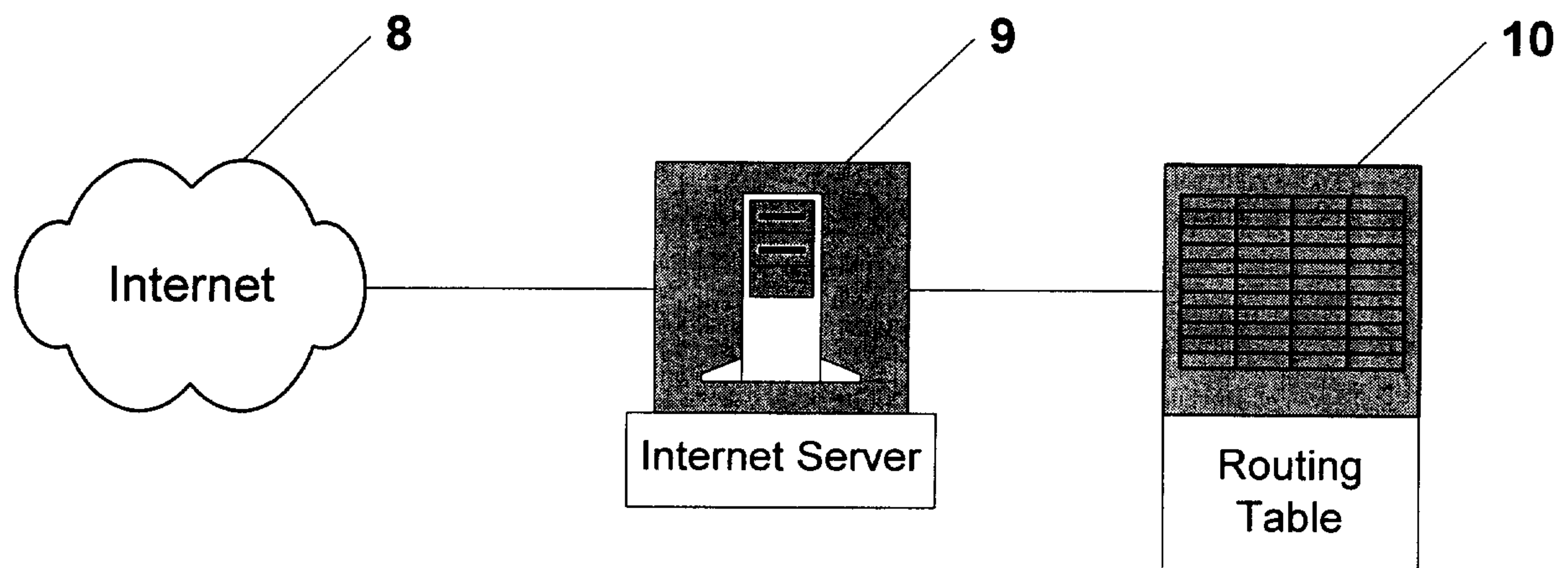


Fig. 3

Fig. 4

	11	12	13	14	15	16	17
Destination	Least Cost	Postage	Del. Time	Fastest	Postage	Del. Time	
Argentina	Argentina	0.69	2	Argentina	0.69	2	
Bolivia	Bolivia	0.42	2	Bolivia	0.42	2	
Brazil	Brazil	0.32	4	Brazil	0.32	4	
Chile (N)	Chile	0.73	4	Bolivia	1.29	2	
Chile (S)	Chile	0.73	3	Chile	0.73	3	
Columbia	Columbia	0.52	2	Columbia	0.52	2	
Ecuador	Ecuador	0.31	2	Ecuador	0.31	2	
Fr.Guiana	Brazil	0.54	5	Colombia	0.87	3	
Guyana	Brazil	0.54	5	Colombia	0.87	3	
Paraguay	Paraguay	0.31	2	Paraguay	0.31	2	
Peru	Bolivia	0.73	3	Colombia	0.87	2	
Suriname	Brazil	0.54	6	Colombia	0.87	4	
Uruguay	Uruguay	.32	2	Uruguay	0.32	2	
Venezuela	Chile	.54	4	Uruguay	0.98	2	

Fig. 5

Your message to:

Enrique Galvez
Av. Portidor, 94
Antofagosta, Chile

Can be delivered by either of the following methods:

Standard delivery in 4 days:	\$2.95	Choose this method
or		
Rapid delivery in 2 days:	\$3.95	Choose this method

Press the button corresponding to your desired delivery method.

Cancel and Return to the Main Menu

