ORIGINAL

LATHAM & WATKINS LLP
Robert Steinberg (Bar No. 126407)
Ryan E. Hatch (Bar No. 235577)
bob.steinberg@lw.com
ryan.hatch@lw.com
355 South Grand Avenue
Los Angeles, California 90071-1560
Telephone: (213) 485-1234
Facsimile: (213) 891-8763

Attorneys for Plaintiff
m-QUBE, INC.

FILED
CLERK, U.S. DISTRICT COURT
MAY 15 2012
CENTRAL DISTRICT OF CALIFORNIA
BY DEPUTY

UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

CV12 04227 JAK AJWx

m-QUBE, Inc., a Delaware Corporation,

Plaintiff,

v.

Delta Airlines, Inc., a Delaware Corporation,

Defendant.

CASE NO.

COMPLAINT FOR PATENT INFRINGEMENT

DEMAND FOR JURY TRIAL

Plaintiff, m-Qube, Inc., ("Plaintiff" or "m-Qube"), by and through its undersigned counsel, files this Complaint against Delta Airlines, Inc. ("Delta" or "Defendant") for infringement of United States Patent Nos. 7,403,788 ("the '788 Patent"), 7,792,518 ("the '518 Patent"), and 8,131,262 ("the '262 Patent") (collectively, the "patents-in-suit") pursuant to 35 U.S.C. § 100 *et seq.* as follows:

IS 21

T

THE PARTIES

1. Plaintiff m-Qube, Inc. is a corporation organized under the laws of the State of Delaware, having a principal place of business at 6601 Center Drive West, Suite 700, Los Angeles, CA.

2. On information and belief, Defendant Delta Airlines, Inc. is a Delaware

corporation, having a principal place of business at 1030 Delta Boulevard, Atlanta, Georgia 30320. Delta may be served with process via its registered agent, the Corporation Services Company, 2711 Centerville Road, Suite 400, Wilmington, Delaware 19808.

JURISDICTION AND VENUE

3. This is a civil action for patent infringement arising under the United States patent statutes, 35 U.S.C. § 100 *et seq.* This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a). Venue is proper in this judicial district under 28 U.S.C. §§ 1391 and 1400(b).

4. Delta is subject to this Court's personal jurisdiction because it has conducted and does conduct business within the State of California and in this Judicial District. Delta, directly or through intermediaries (including partners, subsidiaries and others), makes, distributes, offers for sale, sells, advertises, or uses its products and services in the United States, including in the State of California and in this Judicial District. Delta (directly or through intermediaries) has purposefully and voluntarily placed one or more of its infringing products or services, as described below in Counts I, II and III, into the stream of commerce with the expectation that the infringing products and services will be used in the State of California and in this Judicial District. These infringing products and services have been and continue to be used in the State of California and in this Judicial District. Delta has committed patent infringement within the State of California and in this Judicial District. Delta maintains purposeful continuous and systematic contacts with this jurisdiction, including relationships with customers, and receives revenue from such customers. Delta has engaged in affirmative conduct that allows and promotes the transaction of business in the State of California and in this Judicial District. Delta has designated Corporation Service Company – Lawyers Incorporating Service, 2710 Gateway Oaks Dr., Ste. 150N, Sacramento, CA 95833 as its California Agent for Service of Process. Delta

operates an interactive commercial website and service that is accessible throughout the State of California and in this Judicial District.

BACKGROUND FACTS

5. Plaintiff m-Qube, Inc. is one of the nation's largest messaging and billing aggregators, serving all of the major wireless carriers. m-Qube is wholly-owned by Mobile Messenger (www.mobilemessenger.com), which is based in Los Angeles, California. With a staff of many professionals, augmented by even more staff at Mobile Messenger, m-Qube's primary business is offering consumer-facing merchants the ability to interact and conduct sales transactions, and conduct product and marketing communications with consenting customers through mobile communications. Using its patented technology, every year m-Qube processes billions of such business-to-consumer messages and administers hundreds of millions of dollars of transactions. In addition to Mobile Messenger, m-Qube's direct and indirect customers include some of the nation's largest media companies, websites, financial institutions, travel and transportation providers, charities and other merchants, including the application providers and agencies who serve them. Through its business-to-consumer messaging platform, m-Qube offers businesses many types of carrier network messages and interfaces, number lookup, Premium SMS and direct carrier billing for merchants' products and services, with commercial standard-rated SMS and MMS messages being among m-Qube's core offerings.

6. Defendant Delta Airlines, Inc. provides air transportation for passengers throughout the Unites States and around the world. To provide increased convenience to passengers, Delta offers an eBoarding Pass that replaces a traditional paper boarding pass when checking in online or from a mobile device. The eBoarding Pass is visible on the screen of the passenger's mobile device, and contains a barcode image that is presented when approaching the security checkpoint or boarding gate. To obtain an eBoarding Pass on a mobile device,

passengers first conveniently check-in to flights from home or elsewhere before arriving at the airport, by selecting the Mobile Check-in option on Delta's website (www.delta.com), or Mobile Check-in or App Check-in from Delta's iPhone or Android applications. With their boarding pass conveniently displayed to include a 2-D barcode or other image on their mobile handset, those passengers can proceed directly to security without the need to check in at an airport kiosk. Delta infringes the patents-in-suit by, for example, providing the eBoarding Pass and the Mobile Check-in or App Check-in options.

THE PATENTS-IN-SUIT

7. On July 22, 2008, the United States Patent and Trademark Office duly and legally issued United States Patent No. 7,403,788, entitled "System and Method to Initiate a Mobile Data Communication Utilizing a Trigger System," after a full and fair examination. A true and correct copy of the '788 Patent is attached hereto as Exhibit A. m-Qube is the assignee of all right, title, and interest in and to the '788 Patent and possesses all rights of recovery under the '788 Patent, including the exclusive right to recover for infringement. The '788 Patent is valid and enforceable.

8. On September 12, 2010, the United States Patent and Trademark Office duly and legally issued United States Patent No. 7,792,518, entitled "System and Method to Initiate a Mobile Data Communication Utilizing a Trigger System," after a full and fair examination. A true and correct copy of the '518 Patent is attached hereto as Exhibit B. m-Qube is the assignee of all right, title, and interest in and to the '518 Patent and possesses all rights of recovery under the '518 Patent, including the exclusive right to recover for infringement. The '518 Patent is valid and enforceable.

9. On March 6, 2012, the United States Patent and Trademark Office duly and legally issued United States Patent No. 8,131,262, entitled "System and method

to initiate a mobile data communication utilizing a trigger system," after a full and fair examination. A true and correct copy of the '262 Patent is attached hereto as Exhibit C. Plaintiff m-Qube is the assignee of all right, title, and interest in and to the '262 Patent and possesses all rights of recovery under the '262 Patent, including the exclusive right to recover for infringement. The '262 Patent is valid and enforceable.

10. Delta infringes the patents-in-suit by, for example, providing the eBoarding Pass and the Mobile Check-in or App Check-in options.

COUNT I

(DELTA'S INFRINGEMENT OF THE '788 PATENT)

11. Plaintiff realleges and reincorporates by reference herein the allegations contained in paragraphs 1 through 10.

12. Delta has infringed and continues to infringe directly, and indirectly by way of inducing infringement or contributing to the infringement of, one or more claims of the '788 Patent by making, using, licensing, offering to sell, selling (directly or through intermediaries), importing, or supplying, in this district and elsewhere in the United States, products or services, including but not limited to the eBoarding Pass, Mobile Check-in, and App Check-in products or services, which use the methods or systems claimed and described in the '788 Patent. Delta is thus liable for infringement of the '788 Patent pursuant to 35 U.S.C. § 271(a), (b) and (c).

COUNT II

(DELTA'S INFRINGEMENT OF THE '518 PATENT)

13. Plaintiff realleges and reincorporates by reference herein the allegations contained in paragraphs 1 through 12.

14. Delta has infringed and continues to infringe directly, and indirectly by way of inducing infringement or contributing to the infringement of, one or more

claims of the '518 Patent by making, using, licensing, offering to sell, selling (directly or through intermediaries), importing, or supplying, in this district and elsewhere in the United States, products or services, including but not limited to the eBoarding Pass, Mobile Check-in, and App Check-in products or services, which use the methods or systems claimed and described in the '518 Patent. Delta is thus liable for infringement of the '518 Patent pursuant to 35 U.S.C. § 271(a), (b) and (c).

COUNT III

(DELTA'S INFRINGEMENT OF THE '262 PATENT)

15. Plaintiff realleges and reincorporates by reference herein the allegations contained in paragraphs 1 through 14.

16. Delta has infringed and continues to infringe directly, and indirectly by way of inducing infringement or contributing to the infringement of, one or more claims of the '262 Patent by making, using, licensing, offering to sell, selling (directly or through intermediaries), importing, or supplying, in this district and elsewhere in the United States, products or services, including but not limited to the eBoarding Pass, Mobile Check-in, and App Check-in products or services, which use the methods or systems claimed and described in the '262 Patent. Delta is thus liable for infringement of the '262 Patent pursuant to 35 U.S.C. § 271(a), (b) and (c).

JURY DEMAND

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Plaintiff hereby demands a trial by jury of this action.

REQUEST FOR RELIEF

WHEREFORE, Plaintiff respectfully requests the following relief:

1. A judgment that Delta has infringed directly, or by way of inducing infringement by others, or contributing to the infringement by others of the patents-in-suit;
2. A judgment and order awarding m-Qube damages, in an amount no less than a reasonable royalty, and costs, expenses, and prejudgment and post-judgment interest, for Delta's infringement of the patents-in-suit as provided under 35 U.S.C. § 284;
3. A judgment and order finding Delta's infringement of the patents-in-suit to be willful and deliberate, and a trebling of damages pursuant to 35 U.S.C. § 284;
4. An order for a permanent injunction against Delta, its respective officers, agents, servants, employees, attorneys, parent and subsidiary corporations, assigns and successors in interest, and those persons in active concert or participation with them, enjoining them from continued acts of infringement of the patents-in-suit;
5. An order directing Delta to file and serve upon Plaintiff's counsel within 30 days after entry of the Order of injunction a report setting forth the manner and form in which Delta has complied with the injunction;
6. A judgment holding this Action to be an exceptional case, and an award to Plaintiff m-Qube, Inc. for its attorneys' fees and costs pursuant to 35 U.S.C. § 285; and
7. Such other relief as the Court deems just and equitable.

Dated: May 15, 2011

Respectfully submitted,

LATHAM & WATKINS LLP
Robert Steinberg
Ryan E. Hatch

By
Robert Steinberg
Attorney for Plaintiff
m-QUBE, Inc.

EXHIBIT A



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

(10) **Patent No.: US 7,403,788 B2**
(45) **Date of Patent: Jul. 22, 2008**

(54) **SYSTEM AND METHOD TO INITIATE A MOBILE DATA COMMUNICATION UTILIZING A TRIGGER SYSTEM**

(75) Inventors: **Michael Trioano**, Shrewsbury, MA (US); **Mark Grindeland**, Framington, MA (US); **Gerald Hewes**, Lexington, MA (US); **Eswar Priyadarshan**, West Roxbury, MA (US); **Randall Snyder**, Campbell, CA (US)

(73) Assignee: **M-Qube, Inc.**, Watertown, MA (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.

(21) Appl. No.: **10/521,521**

(22) PCT Filed: **Jul. 18, 2003**

(86) PCT No.: **PCT/US03/22661**

§ 371 (c)(1),
(2), (4) Date: **Jan. 18, 2005**

(87) PCT Pub. No.: **WO2004/010257**

PCT Pub. Date: **Jan. 29, 2004**

(65) **Prior Publication Data**

US 2006/0136546 A1 Jun. 22, 2006

Related U.S. Application Data

(60) Provisional application No. 60/397,435, filed on Jul. 19, 2002.

(51) **Int. Cl.**
H04Q 7/20 (2006.01)

(52) **U.S. Cl.** **455/466**; 455/412.1; 455/414.1; 455/432.3; 455/41.2

(58) **Field of Classification Search** 455/412.1, 455/412.2, 414.1, 432.3, 41.2; 205/25; 209/23; 213/85; 240/5.82; 379/142
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,560,651	B2 *	5/2003	Mott et al.	709/229
7,139,565	B2	11/2006	Fiatal et al.	
2002/0160776	A1 *	10/2002	Torabi	455/435
2003/0005066	A1	1/2003	Lazaridis et al.	
2003/0074328	A1 *	4/2003	Schiff et al.	705/75
2003/0100315	A1	5/2003	Rankin	
2003/0187938	A1	10/2003	Mousseau et al.	

OTHER PUBLICATIONS

PCT International Search Report, PCT/US03/22661, 4 pages.

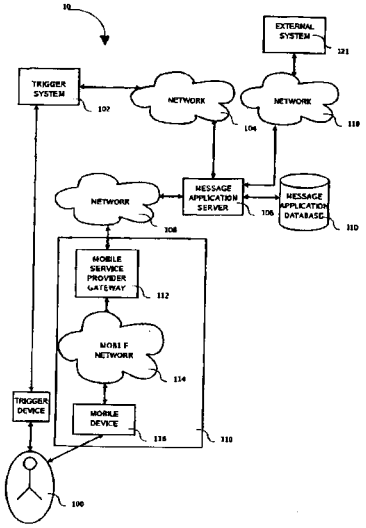
* cited by examiner

Primary Examiner—David Q. Nguyen
(74) *Attorney, Agent, or Firm*—Blakely, Sokoloff, Taylor & Zafman, LLP; Judith A. Szepesi

(57) **ABSTRACT**

A system and method to enable a user to initiate a communication with an organization using a mobile communication device by means of a trigger system. A system and method to enable an organization to acquire a user mobile device address by means of a trigger system. A system and method to enable an organization to respond to a user by means of a trigger system and a message application server. A system and method to enable organizations to deliver mobile messages, coupons, offers and promotions to users mobile device by means of a combination of a trigger system, a message application server and an offer application.

34 Claims, 10 Drawing Sheets



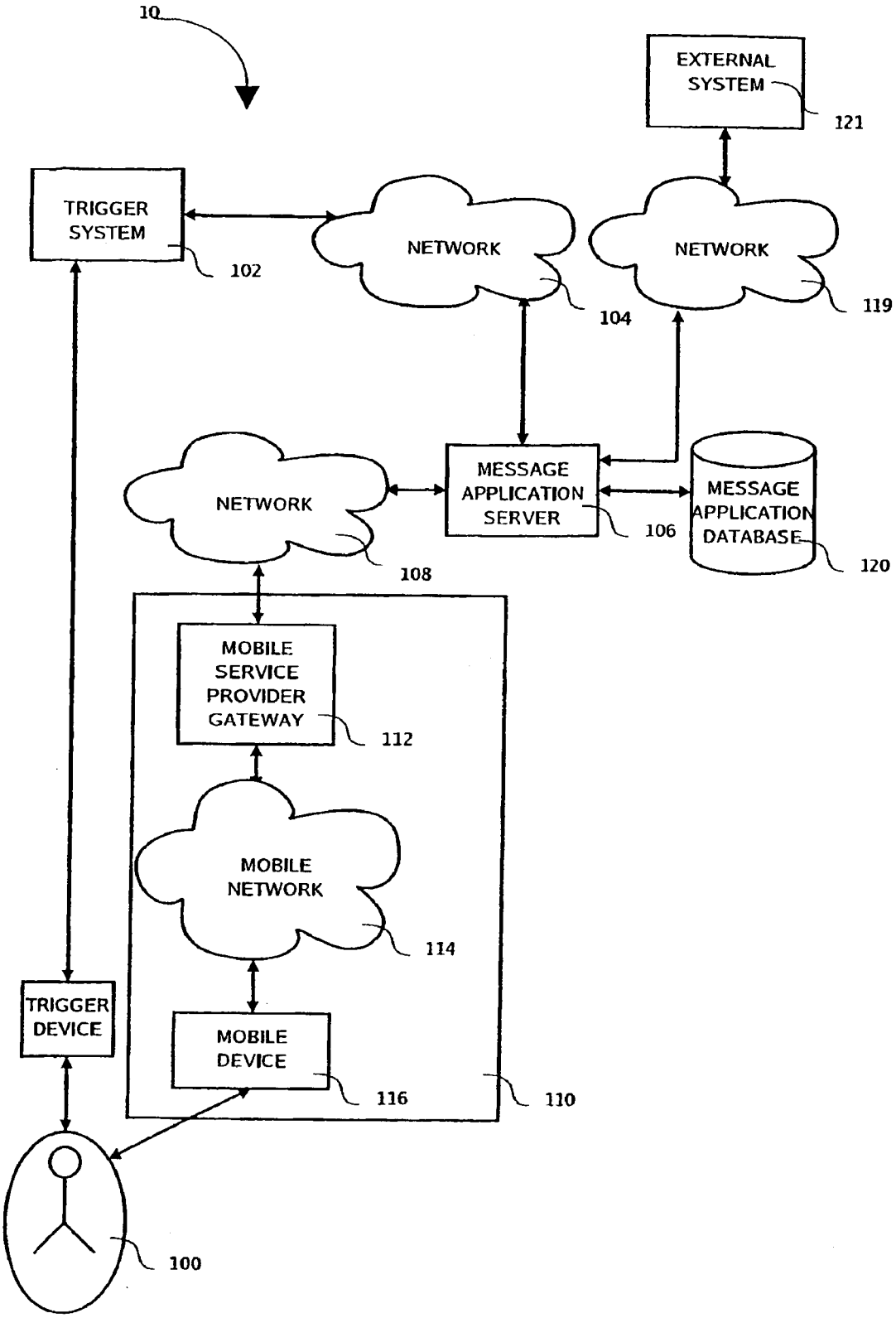

10
EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
MOBILE NETWORK
114
TRIGGER DEVICE
MOBILE DEVICE
116
110
100

FIG. 1

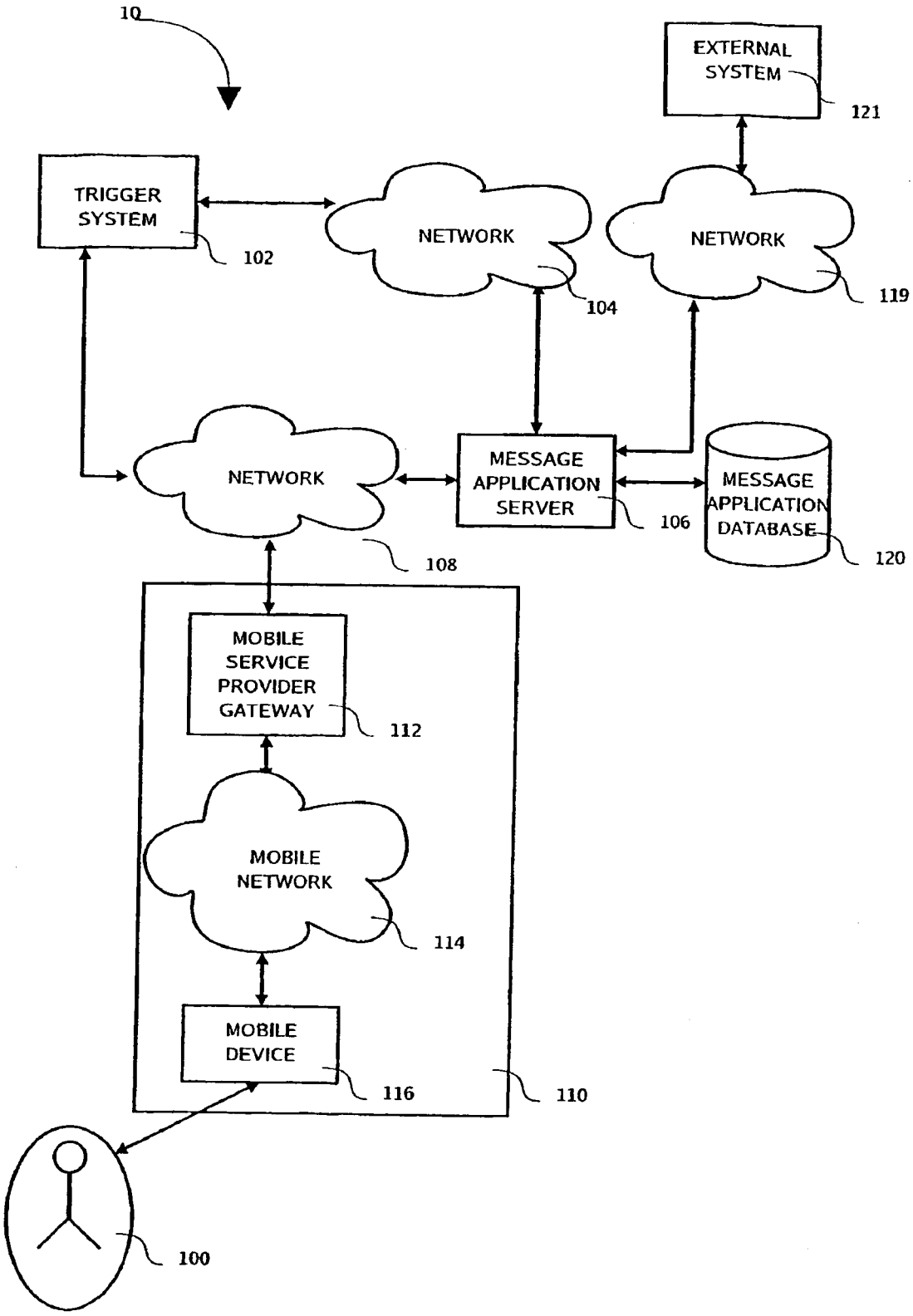

10
EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
MOBILE NETWORK
114
MOBILE DEVICE
116
110
100

FIG. 1B

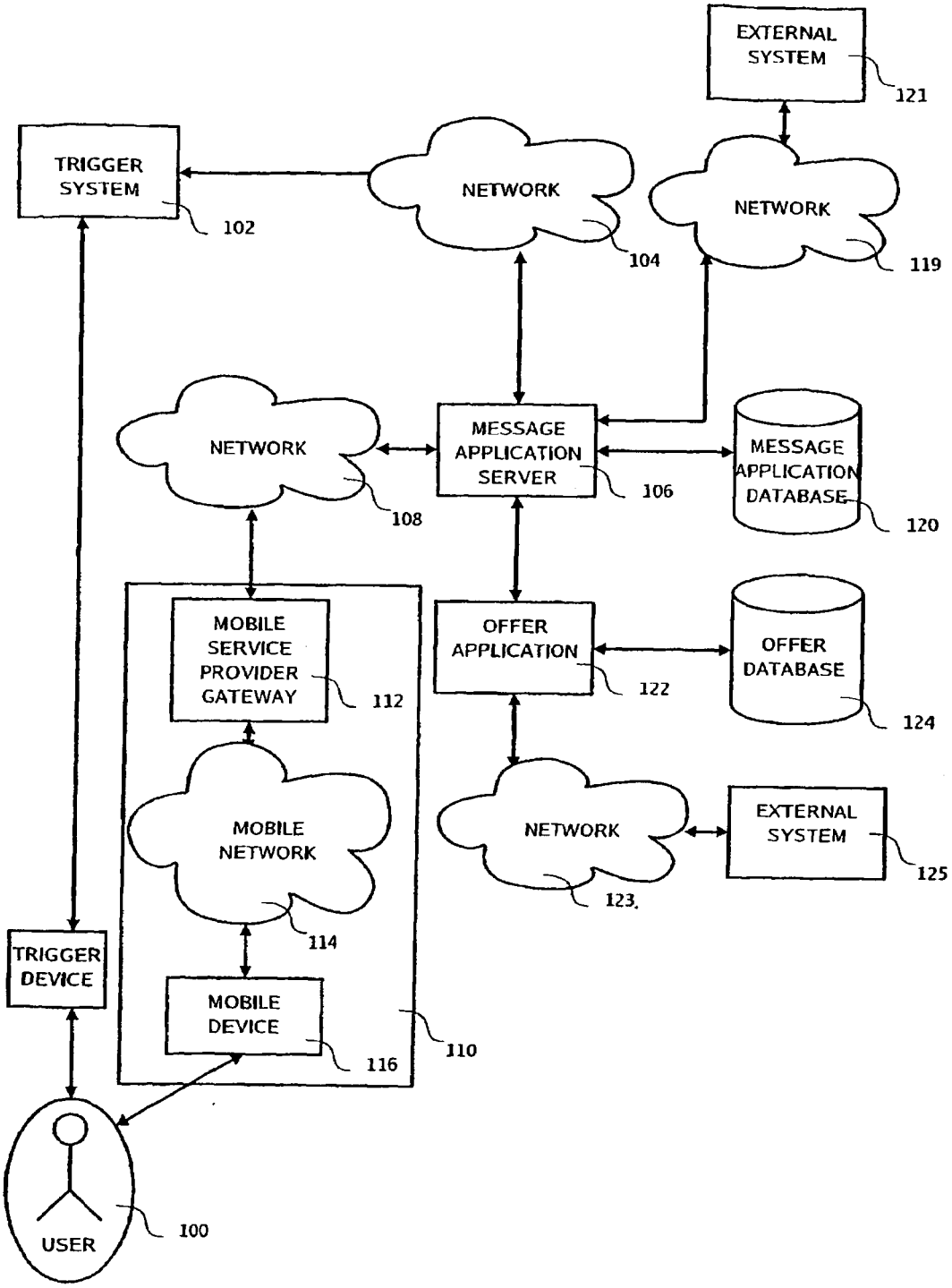

EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
OFFER APPLICATION
122
OFFER DATABASE
124
MOBILE NETWORK
114
NETWORK
123
EXTERNAL SYSTEM
125
TRIGGER DEVICE
MOBILE DEVICE
116
110
USER
100

FIG. 2

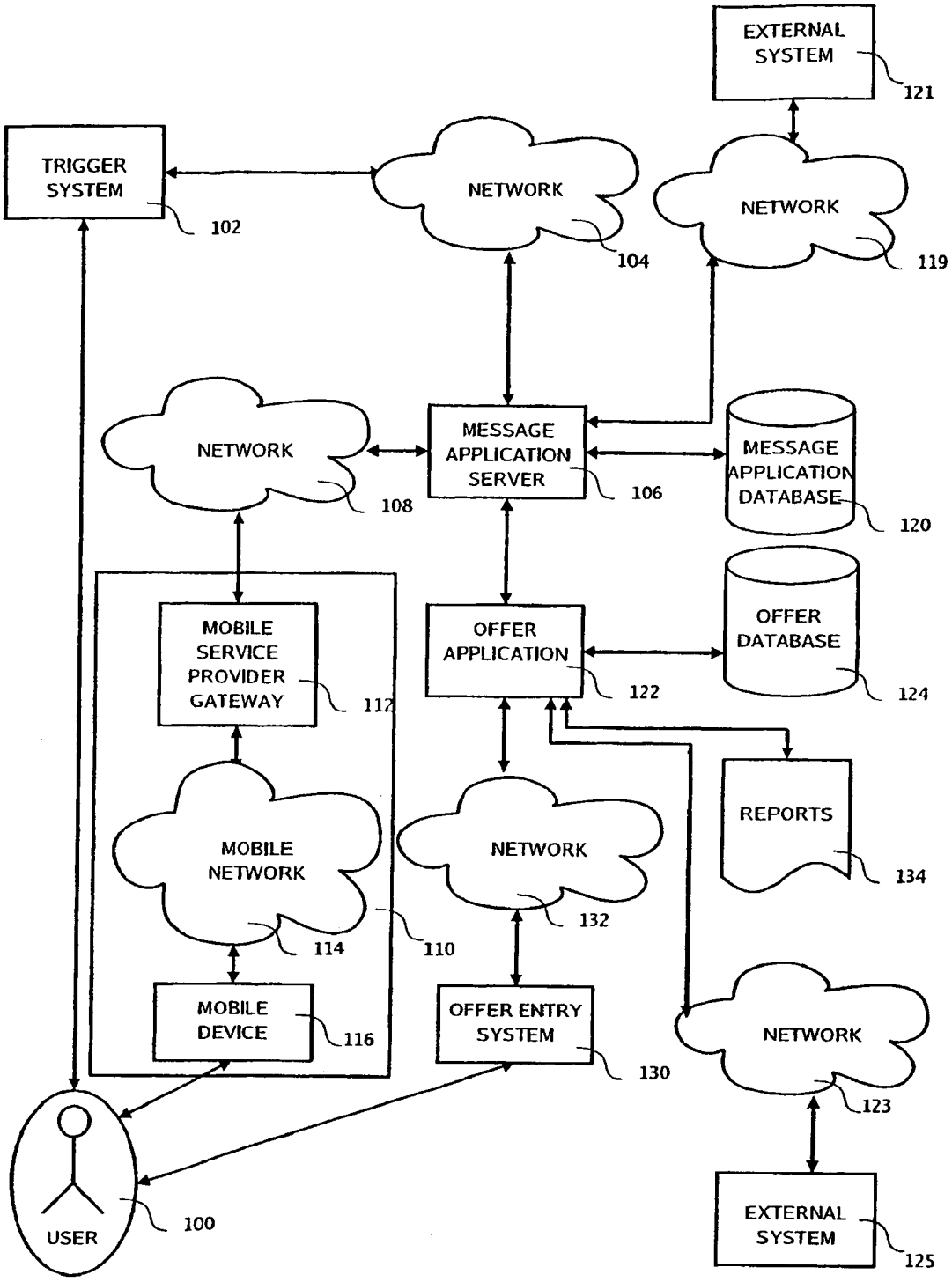

EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
OFFER APPLICATION
122
OFFER DATABASE
124
MOBILE NETWORK
114
110
NETWORK
132
REPORTS
134
MOBILE DEVICE
116
OFFER ENTRY SYSTEM
130
NETWORK
123
USER
100
EXTERNAL SYSTEM
125

FIG. 3

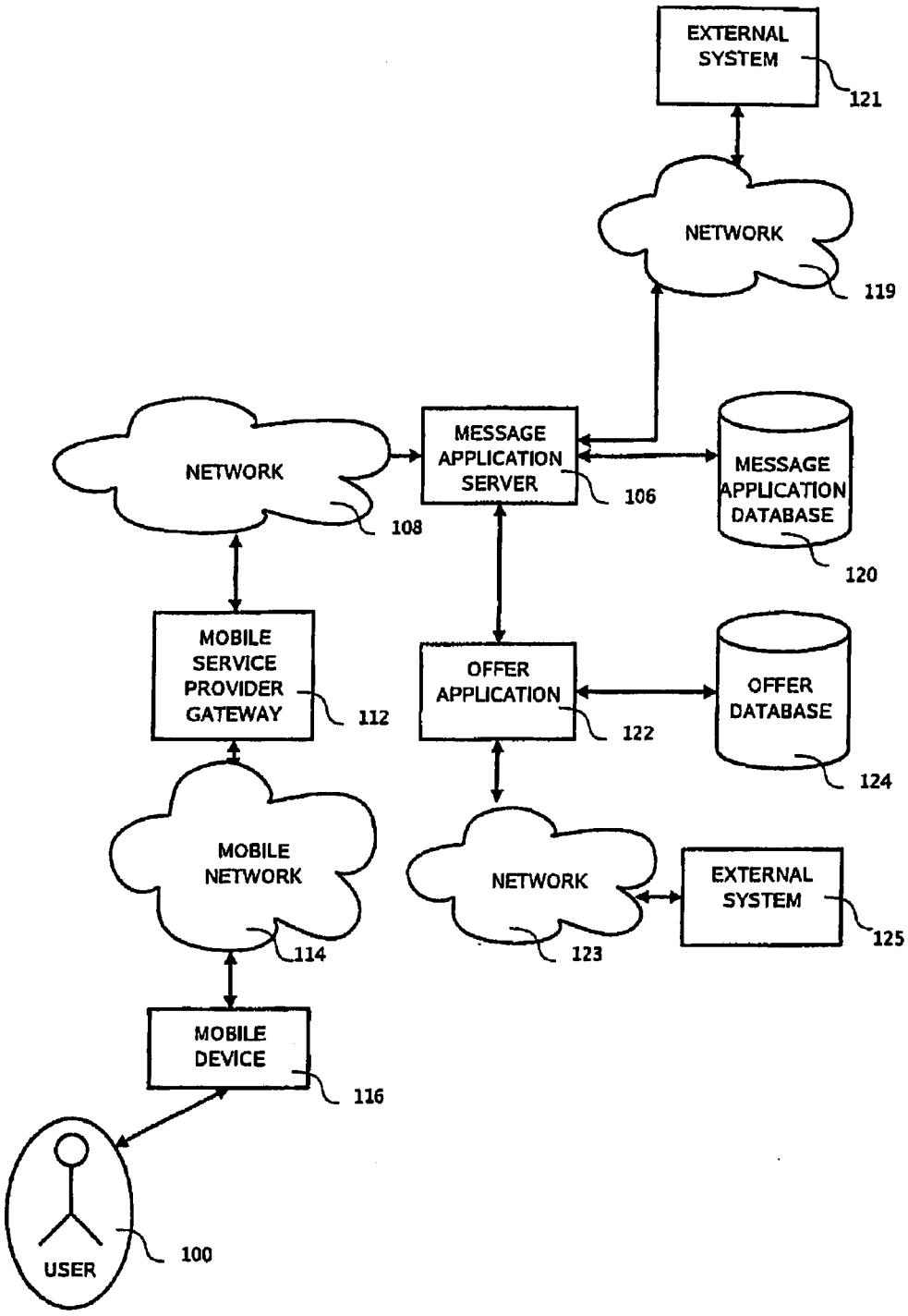

EXTERNAL SYSTEM
121
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
OFFER APPLICATION
122
OFFER DATABASE
124
MOBILE NETWORK
114
NETWORK
123
EXTERNAL SYSTEM
125
MOBILE DEVICE
116
USER
100

FIG. 4

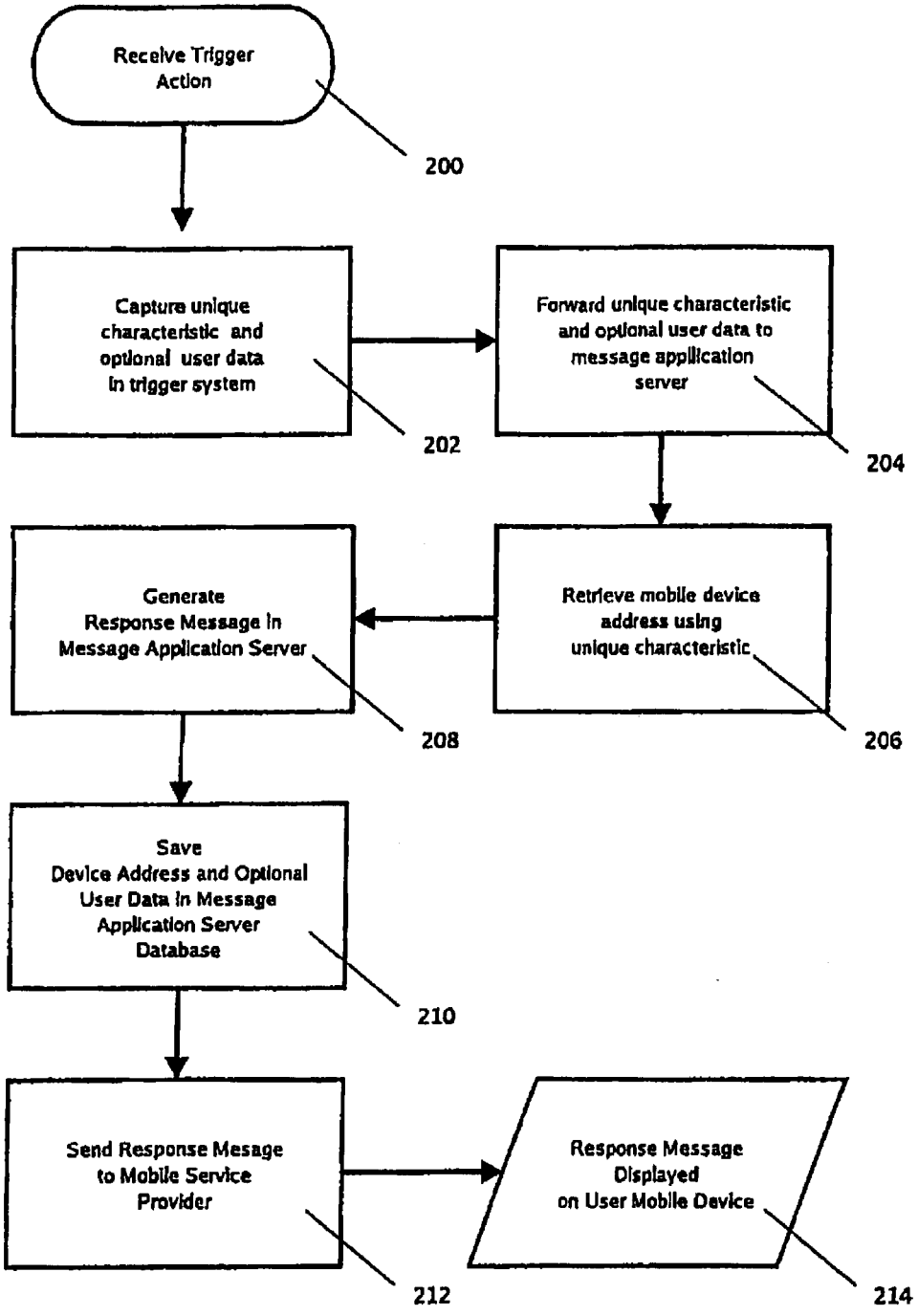

Receive Trigger Action
200
Capture unique characteristic and optional user data in trigger system
202
Forward unique characteristic and optional user data to message application server
204
Retrieve mobile device address using unique characteristic
206
Generate Response Message in Message Application Server
208
Save Device Address and Optional User Data in Message Application Server Database
210
Send Response Mesage to Mobile Service Provider
212
Response Message Displayed on User Mobile Device
214

FIG. 5

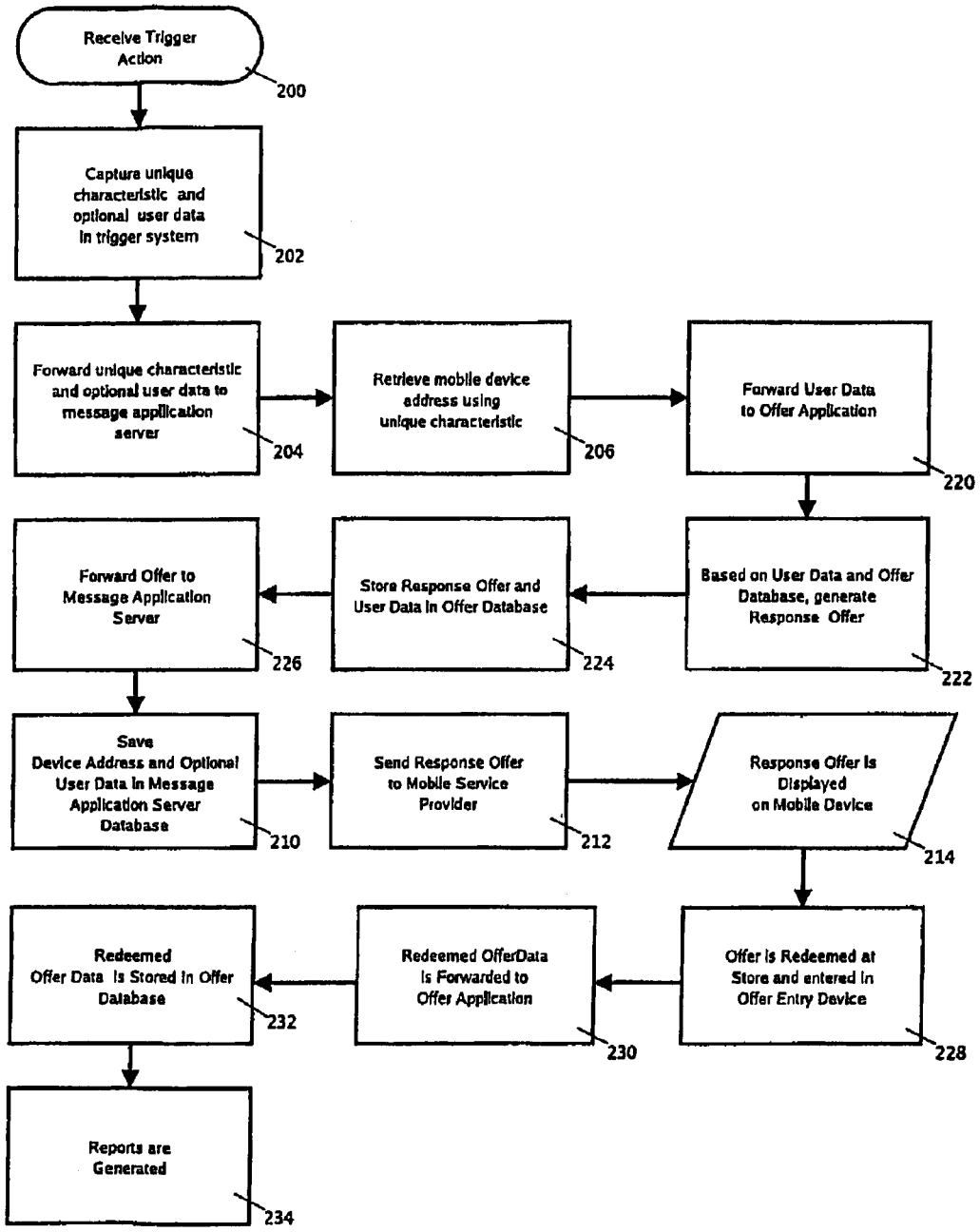

Receive Trigger Action
200
Capture unique characteristic and optional user data in trigger system
202
Forward unique characteristic and optional user data to message application server
204
Retrieve mobile device address using unique characteristic
206
Forward User Data to Offer Application
220
Based on User Data and Offer Database, generate Response Offer
222
Store Response Offer and User Data in Offer Database
224
Forward Offer to Message Application Server
226
Save Device Address and Optional User Data in Message Application Server Database
210
Send Response Offer to Mobile Service Provider
212
Response Offer is Displayed on Mobile Device
214
Offer is Redeemed at Store and entered in Offer Entry Device
228
Redeemed OfferData is Forwarded to Offer Application
230
Redeemed Offer Data is Stored in Offer Database
232
Reports are Generated
234

FIG. 6

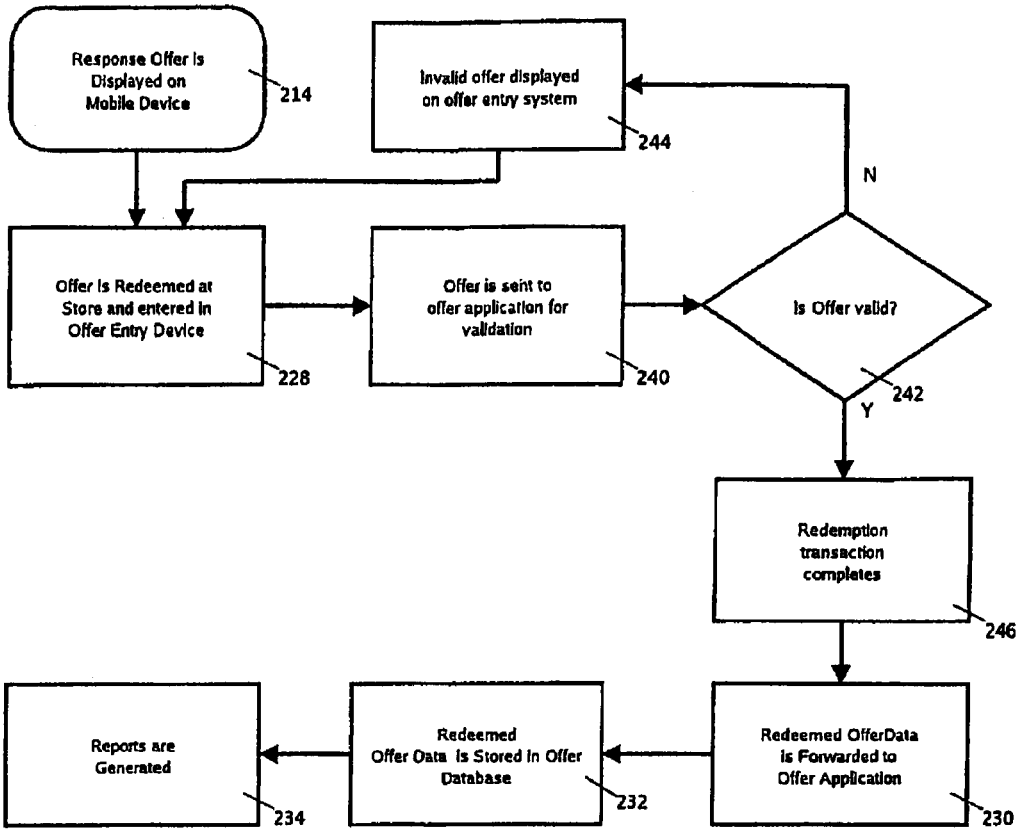

Response Offer is Displayed on Mobile Device
214
Invalid offer displayed on offer entry system
244
N
Offer is Redeemed at Store and entered in Offer Entry Device
228
Offer is sent to offer application for validation
240
Is Offer valid?
242
Y
Redemption transaction completes
246
Reports are Generated
234
Redeemed Offer Data is Stored in Offer Database
232
Redeemed OfferData is Forwarded to Offer Application
230

FIG. 7

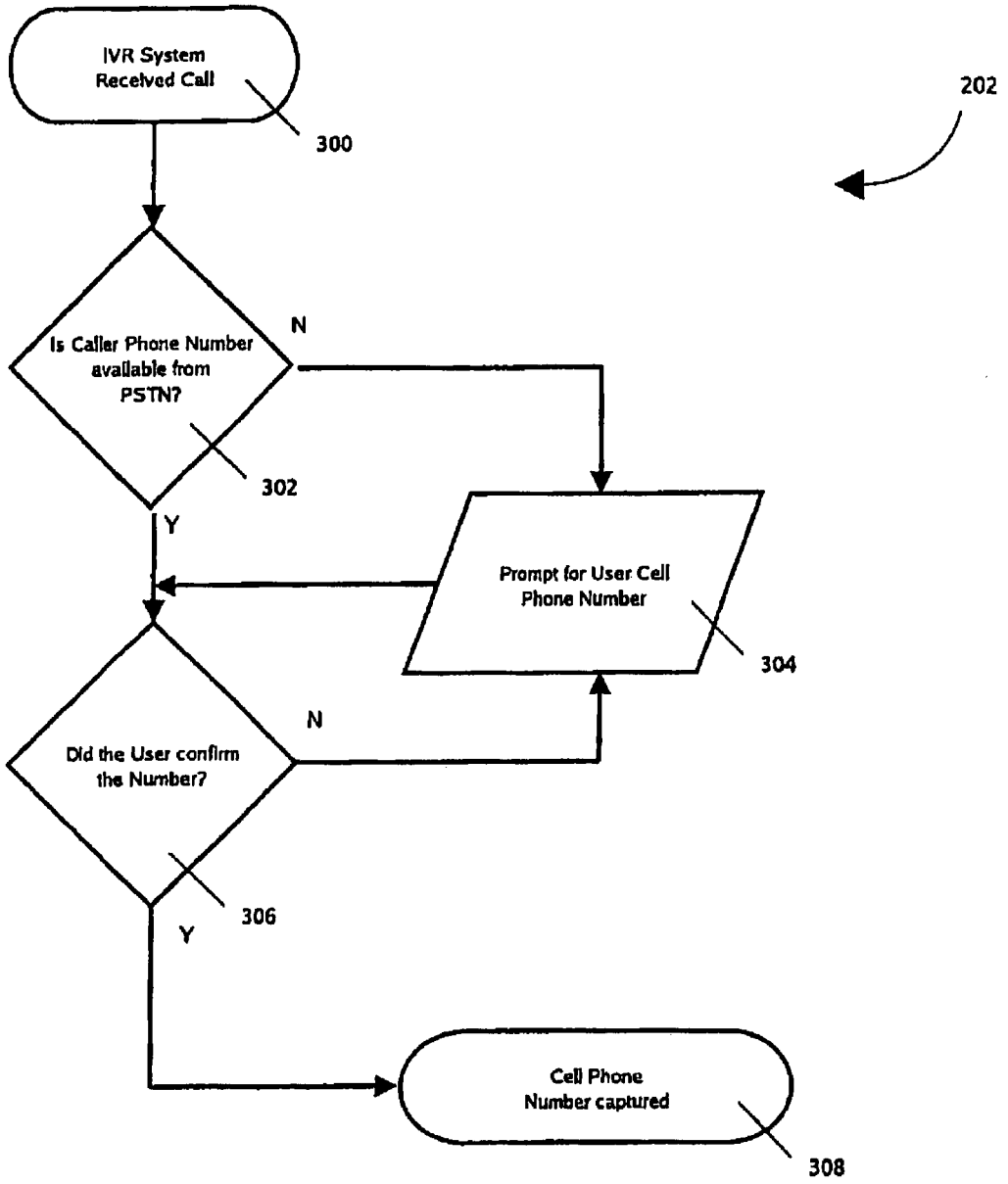

IVR System Received Call
300
202
Is Caller Phone Number available from PSTN?
N
302
Y
Prompt for User Cell Phone Number
304
Did the User confirm the Number?
N
306
Y
Cell Phone Number captured
308

FIG. 8

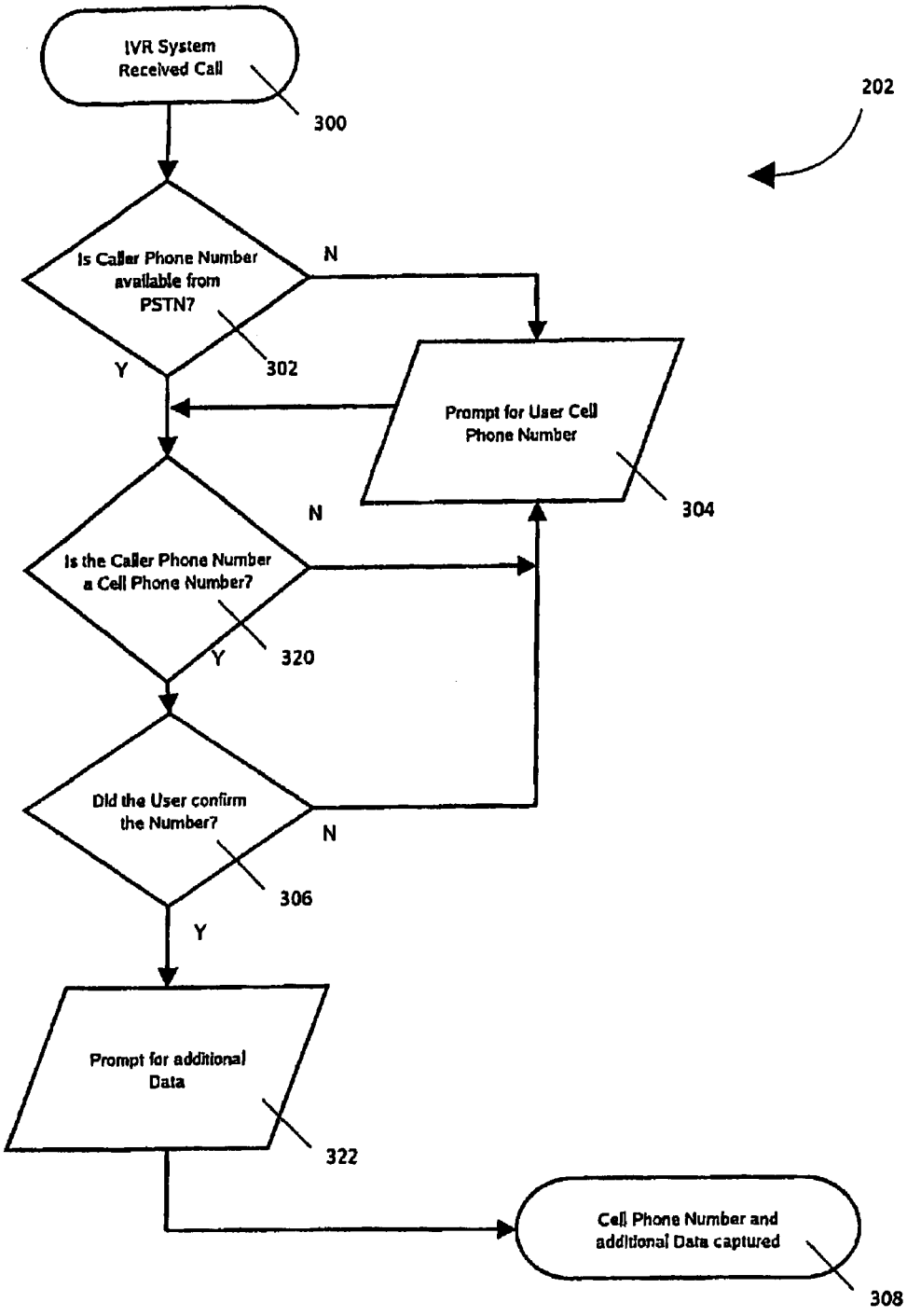

IVR System Received Call
300
202
Is Caller Phone Number available from PSTN?
N
Y
302
Prompt for User Cell Phone Number
304
Is the Caller Phone Number a Cell Phone Number?
N
Y
320
Did the User confirm the Number?
N
306
Y
Prompt for additional Data
322
Cell Phone Number and additional Data captured
308

FIG. 9

SYSTEM AND METHOD TO INITIATE A MOBILE DATA COMMUNICATION UTILIZING A TRIGGER SYSTEM

PRIORITY CLAIM

This application claims the benefit of priority of U.S. Application No. 60/397,435, filed Jul. 19, 2002, the entire contents of which are incorporated by reference as if set forth at length herein.

FIELD OF THE INVENTION

This invention relates to enabling communications between users and organizations by means of data enabled mobile communication devices. More particularly this inventions relates to a system, method and machine to enable organizations to execute direct marketing techniques and promotions via mobile communication devices.

BACKGROUND OF THE INVENTION

Global brands spend hundreds of billion of dollars annually in the United States on brand marketing and communications. Over the last decade, an increasing percentage of brand marketing budgets have been spent in direct marketing channels (e.g., direct mail, telemarketing, email, etc.). In fact, total brand spending on direct mail now exceeds that of broadcast television. Given direct marketing's unique capabilities, such as precise targeting, the ability to drive specific behaviors, and highly measurable results, marketers are expected to continue spending heavily in direct channels.

One of the most significant new direct marketing opportunities is the emergence of the wireless channel. The wireless channel provides marketers the unmatched ability to reach the individual (not just the household), in a time- and event-sensitive way, with attractive and measurable marketing return on investment ("ROI"). In Europe, hundreds of brands are beginning to utilize the wireless data channels and are committing a sizeable portion of their communications budgets over the next year to wireless.

An organization wanting to use data messaging for communication with its user base needs to make it easy for them to participate. The organization needs to have a means to obtain a user's mobile device address to be able to communicate with him using his mobile device data capabilities. The organization needs to obtain the user permission to be able in the future to send new messages, coupons, offers or promotions, to the user's mobile devices.

There are multiple ways to for a user to initiate a communication with an organization and for an organization to obtain a user's mobile device address, but in this invention we are primarily focused on methods to initiate a communication when said user is in a mobile setting, such as a public environment as opposed to a home or office environment. In a mobile setting, there needs to be an easy and quick way for said user to specify his interest in starting a communication and for the organization to obtain said user's mobile device address whereby the communication can occur.

Once the communication is initiated, a message oriented application can capture the user's mobile device address in a database, and respond back with a message, a coupon, an offer or a promotion.

It is important that said user only receive future organization originated ("push") communications only if he has elected to do so. A system and method to perform communication between users and organizations needs to support an easy way to either opt-in or opt-out from receiving future communications.

An example of a situation where a user may be interested in initiating a communication with an organization is the case of the organization being a brand sponsoring some event; for example a contest, building brand and product awareness where the user may win some prizes. Other examples include receiving offers, coupons, promotions or discounts on their mobile device.

The communication, its goals, its benefits and how a user can initiate it is typically displayed using a traditional channel such as print media, product packaging, bar coaster, bill-board, sign, posters, TV or radio advertisements, candy wraps, etc. . . . This process is called the "call to action" message. It is easy to see that if participating is easy to accomplish, such communications can have a wide impact for both users and organizations.

One very common application of this invention is to deliver coupons, offers and promotions to users that have requested them. There is a cost for an organization to provide, promote and deploy systems to execute such mobile coupon, offer and promotion programs. Hence it is an important requirement that a system be able to measure redemption rates to compute the effectiveness of the program. In addition, much better coupons, offers and promotions can be given to individual users if their past individual receptiveness is known—which makes uniquely identifying the coupon, offer and promotion important.

There is much economical value in being able to deploy a system where users can receive messages, coupons, offers and promotions at the time of their choosing as well as occasionally receiving push specials thereby allowing the organization running the program to develop a comprehensive loyalty program bringing value to both the user and the organization. To support such a program, a system needs to exist to enable users to enroll, participate and receive occasional "push" messages, coupons, offers and promotions that leverages the capabilities of mobile data communication devices and Customer Relationship Management and Loyalty systems.

In addition, some of the offers, coupons and promotions can be valuable enough that the organization giving them out wants to make sure they are used only once. Examples of such compelling offers are very deep discount to join the offer program—think about book clubs that sell you your first three books for $1 to join the club. In this case, the offer needs to be verified that it has not already been redeemed. Such a step is critical with the technologies described in this invention where it is often easy to forward or forge a message on a mobile device.

The primary limitations with existing methods to initiate a communication between an organization and a user using a mobile device have to do with: the time, effort and lack of convenience of triggering the communication using current systems; the lack of common service addresses for users to initiate the communication with an organization in some common existing messaging technologies; and the lack of familiarity on the part of users on how to initiate a communication using their mobile device.

BACKGROUND OF THE INVENTION-PRIOR ART

Obtaining the user's mobile device address in a mobile setting to allow for communication is not always straightforward for some classes of mobile devices, in particular

digital cell phones. Almost all digital cell phones sold today have one or more data messaging capabilities. These may include, but is not limited to, Short Message Service ("SMS"), Enhanced Messaging System ("EMS"), Multimedia Messaging Service ("MMS"). Wireless Application Protocol ("WAP") and mobile e-mail. The large number of digital cell phones in the U.S. makes solving the problem of obtaining cell phones data address a critical problem to be solved.

One solution that is used by some wireless carriers to allow a user to initiate a communication using a cell phone with an organization, is to use a Mobile Originated ("MO") message sent to a service access code. In the case of a cell phone, a service access code can either be a short code (a number with less than the regular 10 digits defined by the North American Numbering Plan ("NANP")—for example "2327") or a regular NANP 10 digit number. A user that wants to respond to a "call to action" message sends an MO message to the organization service access code setup by his cell phone carrier.

While the above technique using MO messages works can work in geographies that support standardized service access codes across wireless carriers, it is much less effective in countries that don't. In countries with no standardized service access codes, like the U.S., it is awkward for an organization to publish different service access code addresses for each wireless carrier. In addition the MO technique is not effective in geographies where cell phone users are not familiar on how to send MO messages. The situation is compounded by the fact that some wireless carriers currently do not offer third parties the ability to receive MO messages sent to them.

It is possible to solve the problem of lack of standardized service access codes by using an e-mail address instead of the typical telephone digit numbers used for SMS, EMS and MMS. Using e-mail is possible because most wireless carriers offer the ability for users to send and receive e-mails from their cell phone, either directly using Simple Mail Transfer Protocol ("SMTP") or indirectly via SMS, EMS, MMS, WAP, or hyper text markup language ("HTML") by means of an SMTP gateway provided by the wireless carriers. A service using e-mail as its service address requires that users enter the service e-mail address when composing their initial MO message. Unfortunately, it is often extremely cumbersome for users to enter an e-mail address composed of alphabetical letters and symbols using a cell phone numeric keypad. For example, on a Sony-Ericsson T68i phone it takes 34 key presses (assuming no mistakes) to enter "fun@m-qube.com". Hence user response rates will be extremely low with this approach.

Another alternative that can be used to solve the problem of lack of standardized service access codes is to deploy modem banks of Personal Computer ("PC") based wireless data cards. Said wireless data card is like a miniature cell phone with its own phone number. With the peer-to-peer SMS interoperability available in many countries, any MO message sent to said wireless data card phone number would be delivered to it, and by extension to the message application server connected to said PC. While this approach effectively works around the problem of lack of standardized service access codes, it suffers from severe scalability problems (a card typically cannot handle more that 2-3 messages per second, and most cards are not designed to be operated 24×7×365.)

Another alternative is to use a range of numbers for the service access codes normally allocated to a wireless carrier for use by its subscribers, and reconfigure the carrier data network elements to forward any MO messages sent to said range, not to a physical cell phone, but instead to the organization's message application server using a data network such as the Internet. This solution builds upon SMS interoperability and is scalable. But it requires that the organization have a relationship with the wireless carrier offering said range, that said wireless carrier have the capability to offer this service to organizations, and that other wireless carrier allow this to happen.

An equally critical consideration is the expertise required from users to send an MO message using the native mobile device data messaging interface. In particular, not all cell phone users know how to originate a MO message using their cell phone. Another method is required to allow them to participate before they become more familiar with their cell phone messaging capabilities. Once a cell phone user receives a message, it is much easier to reply to it since most cell phone handsets provide some guidance on how to do so.

Or, the user may be familiar with messaging, but the time involved may be a limiting factor. For example, many users may not be willing because of the inconvenience to text-in a message when entering in a supermarket to receive tailored coupons, but may be more willing to use other methods described in this invention to trigger the offers. This problem is especially acute for mobile messaging technologies that don't rely on number for addresses, but on long strings like e-mail or instant messaging screen names. While presumably it is possible to enter a long string using these mobile devices, this is usually a somewhat slow process. A faster trigger mechanism is required.

Hence existing methods using the native messaging capabilities of a user's mobile device to support mobile originated messages to allow said user to start a communication with an organization service are not effective in many situations or geographies. The limitations of the existing methods makes using the mobile channel as a direct marketing channel not a cost effective channel; as user response rates would be too low to cover the campaign costs.

BACKGROUND OF THE INVENTION-OBJECTS AND ADVANTAGES

The specific object and advantages for this present invention are:

a) Provides for an alternative to using the mobile device native data communication interface in cases where there are no unique service address (common service access codes), no publicly supported service side infrastructure, or the user is unfamiliar with his device data messaging capabilities.

b) Provides for faster and easier methods to trigger a communication between an organization and a user than by using the device native mobile originated messaging capabilities.

c) Some of the embodiments described in the invention, like using an interactive voice response ("IVR") system as the trigger system, make it much easier to collect additional information such as opt-in permission for future communication or offers, or more information, such as offers of interest to the user.

d) Enables simple, fast, practical and economical means to instantly deliver offers, coupons and promotions to users in public places.

Further objects and advantages of this present invention will become apparent from a consideration of the drawings and ensuing description.

SUMMARY OF THE INVENTION

The present solution solves the aforementioned problem not by means of the user mobile device native data messaging services but by means of an external trigger system not based on the user mobile device data messaging capabilities.

Once the trigger system has captured a unique identifier capable of being mapped to the user mobile device address, a Mobile Terminated ("MT") message is sent to the user. From then on, the message application server is capable of future communications. The messages sent to the user can include menus and simple instructions removing the need for the user to ever originate a sophisticated MO message.

In one embodiment of the invention, said unique identifier is the mobile device address itself. In another embodiment of the invention, said unique identifier can be an identifier that is then used to retrieve the mobile device address. An exemplar embodiment uses an account number as the unique identifier, and then retrieving the mobile device address using the account number. The details on how the mobile device address is retrieved using the account number is well known to those skilled in the art. One possible implementation is to store the mobile device address in a database using the account number as the key to a data record holding the mobile device address. Other exemplary embodiments use a loyalty card number, a social security number, a membership number or employer number as the unique identifier.

This invention applies to any message oriented data communication system, including, but not limited to SMS, EMS, MMS, WAP, hypertext markup language ("HTML"), xHTML and other HTML derivatives, mobile e-mail, client side mobile device execution environments such as Java 2 Mobile Edition ("J2ME™"), Brew™, Linux™, or Symbian OS™.

A further aspect of the invention, a system and method is also provided to deliver follow-on messages from the organization once the user mobile device address is captured.

A further aspect of the invention, a system and method is also provided to deliver, an instant mobile coupon, offer, or promotion that can be redeemed providing for a complete system and method to deliver messages, coupons, offers and promotion to users.

In one embodiment, the present solution is a network based system and method, consisting of a trigger system, a message application server and a mobile device service provider system. It allows any user equipped with a mobile device capable of receiving messages to initiate a sequence whereby said user can receive one or more messages from said message application server. Furthermore, said message application server can store said user mobile device address in a database for later communications from said message application server to said user.

The organization service is presented in a traditional media format, including but not limited to, on a print advertisement, on a product packaging, on a bill-board, on a poster, on a flyer, on a coaster, on a candy wrap, on a store display, in a TV ad, in a radio ad, on an Internet site. The presentation includes instructions on how the user can interact with the trigger system. The presentation is called the "call to action" message.

In one embodiment, the trigger system confirms the user mobile device address, handles exceptions, and optionally obtains additional data from the user or opt-in permission if applicable. Once the session with said trigger system is completed, the trigger system informs the message application server which sends a message to the user mobile device.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other features of the present invention will be more readily apparent from the following detailed description and drawings of the illustrative embodiments of the invention in which:

FIGS. **1** and **1B** depicts aspects of an exemplary embodiment of the present invention in accordance with the teachings presented herein.

FIG. **2** depicts an alternative exemplary embodiment of the present invention in accordance with the teachings presented herein containing additional components to deliver messages, coupons, offers or promotions.

FIG. **3** depicts an alternative exemplary embodiment of the present invention in accordance with the teachings presented herein containing additional components to to track the redemption of coupons, offers or promotions.

FIG. **4** depicts an exemplary embodiment of delivering follow-on Mobile Terminated messages once the user mobile device address is known.

FIG. **5** is a functional block diagram of the method of capturing a user mobile device address and using it to send a message to the user.

FIG. **6** is a functional block diagram containing the additional steps to deliver messages, coupons, offers or promotions to a user.

FIG. **7** is a functional block diagram of an exemplary embodiment of coupons, offers or promotion redemption.

FIG. **8** is a functional block diagram to capture a user cell phone number in an embodiment of this invention where the trigger system is an IVR system.

FIG. **9** is a functional block diagram of an alternative exemplary embodiment using an IVR system as a trigger system containing the additional steps of verifying if the user calling number is a wireless phone number and capturing additional data.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Aspects, features and advantages of exemplary embodiments of the present invention will become better understood with regard to the following description in connection with the accompanying drawing(s). It should be apparent to those skilled in the art that the described embodiments of the present invention provided herein are illustrative only and not limiting, having been presented by way of example only. All features disclosed in this description may be replaced by alternative features serving the same or similar purpose, unless expressly stated otherwise. Therefore, numerous other embodiments of the modifications thereof are contemplated as falling within the scope of the present invention as defined herein and equivalents thereto. Hence, use of absolute terms, such as, for example, "will," "will not," "shall," "shall not," "must," and "must not," are not meant to limit the scope of the present invention as the embodiments disclosed herein are merely exemplary.

Turning to FIG. **1** there is shown the basic architecture of one embodiment of a system for capturing a user mobile device address by means of a trigger system. The system comprises a trigger system **102** which can be triggered by a user **100** using a trigger device. Said trigger system **102** is connected by means of a data network **104** to a message application server **106**. The message application server **106**

is further connected to a mobile service provider or carrier system **110** by means of a data network **108** and the mobile service provider gateway **112**. The mobile service provider gateway **112** acts as a gateway into the mobile service provider network **114**. The mobile service provider gateway **112** is further capable of sending messages to the user **100** mobile device **116** by means of the service provider mobile network **114**. Said user **100** can then read messages sent to his mobile device **116**.

The trigger system **102** is any system capable of capturing a unique identifier capable of being transformed into the user mobile device **116** messaging address, and optionally other data. The system described in this invention requires that the trigger system **102** or the message application server **106** be able to directly or indirectly retrieve the mobile device **116** address based on said unique identifier captured by the trigger system **102**, and be able to use the mobile device address to send messages to the mobile device **116**. Once the trigger system **102** is triggered by user **100**, it sends said mobile device messaging address or said user unique identifier along with any other captured data to the message application server **106** by means of data network **104**.

The trigger system **102** can be triggered by the user either by using his mobile device **116**, or by using any other system or method.

In one exemplary embodiment of this invention, the trigger system is a computing device equipped with a card reader where the magnetic stripe of the card contains said unique identifier.

In one exemplary embodiment of this invention, the trigger system is a computing device equipped with a bar code reader. The user swipes an object with a bar code containing said unique identifier, such as a key chain card.

In one exemplary embodiment of this invention, the trigger system consists of Radio Frequency Identification ("RFID") readers located in public areas, for example at the doors of stores. The user carries an object with an embedded Radio Frequency Identification RFID tag containing said unique identifier. The trigger system is simply triggered by the user when walking through or near the RFID readers.

In one exemplary embodiment of this invention, the trigger system is a client application running on the user mobile device combined with a server side system. The communication is triggered when the user activates the application and instructs it to trigger the interaction. The client application, by means of the data messaging capabilities of the mobile device notifies the service side system, which can be the message application server, to initiate the communication.

In one exemplary embodiment of this invention, the trigger is a client application running on the user mobile device combined with a local receiver system. The communication is triggered when the user activates the application and instructs it to trigger the interaction. The client then uses a local networking infrastructure such as infra red, Bluetooth®, WiFi or any other local wireless protocol to send the trigger to said receiver system which forwards it to the message application server.

In one exemplary embodiment of this invention the trigger system is any system capable of performing biometric or user identification of said user. Examples of such system include but is not limited to finger-print readers, eye readers, voice identification and video camera identification.

In one exemplary embodiment of this invention, the trigger system is a kiosk where the user enters the unique identifier in the kiosk—for example using a keyboard, a keypad or a touchscreen.

In one exemplary embodiment of this invention, the trigger system **102**, is an IVR system accepting phone calls which is programmed to capture said unique identifier. Various techniques known to those of skill in the art can be used to capture said unique identifier. This includes but is not limited to accepting Dual Tone Multi Frequency ("DTMF") or using voice recognition. The user triggers an interaction with the system by calling a phone number mapping to the IVR system and entering at the prompt said unique identifier and any additional data requested by the IVR. At the end of the call, all the captured information is forwarded to the message application server.

In one embodiment of this invention, the trigger system **102** is an IVR system and the mobile device **116** is a data enabled cell phone or any data device capable of receiving messages sent to a phone number address as described previously. In such embodiment, the IVR system can be further programmed to automatically capture the calling number. Capturing the calling number is very common in IVR systems using the Public Switch Telephone Network ("PSTN") Caller Id infrastructure. If the phone call is made using said cell phone, and the calling number is made available to the IVR, then the step of capturing the cell phone number can be further accelerated by spelling out the number and asking the user to validate the number. For example, the confirmation can be achieved using the following message: "You called from XXX-XXX-XXXX, if this is correct press 1, to enter a different phone number press 2". If the user confirms the number then the IVR can move on to capturing the optional data. If the user does not confirm the number, then the IVR can prompt the user for a new mobile device phone number. This last case is useful for example if the user called from a land based line and the IVR recognized the land line number. If the IVR does not receive the calling number from the PSTN, then the IVR system is programmed to directly prompt the user for his mobile device phone number.

In one exemplary embodiment, the trigger system **102** is wireless card attached to a computing device as described earlier. In the prior art section, we mentioned that wireless data cards suffer from scalability limitations. In this embodiment of the invention, the wireless data card is used only as a trigger system to receive the first MO message. All follow-on messages can then be sent to the user mobile device **116**, using the mobile device **116** mobile service provider specific short code for this program. This invention overcomes the lack of standardized short codes in certain geographies and the lack of scalability of PC based wireless cards by using the wireless card only as a trigger system and not for subsequent message delivery. For example, the user would send an initial MO message to the wireless data card number, say NNN-NNN-NNNN which would be routed to the wireless data card using the carrier peer-to-peer infrastructure. The response from the message application server **106**, would then use a separate service address for each carrier. Carrier A may use a five digit short code XXXXX, carrier B a six digit short code XXXXXX, and carrier C a normal ten digit number MMM-MMM-MMMM. When the user receives the message, he can easily reply back and the fact that each user may be using a different address because they have a different wireless carrier is not an issue.

In one exemplary embodiment, the trigger system **102** is a phone switch. The phone switch is connected to the PSTN SS7 network. Upon receiving a call establishment request, the phone switch would refuse such request, capture the user calling number and forward said caller number to the message application server **106**. The advantage of this

embodiment is that neither the user nor the organization is billed for the call, since it was not completed, and the organization does not incur an IVR cost. The downside is additional data cannot be captured on the user, and the end user experience is probably strange as the call is not accepted.

In another embodiment, the trigger system is a computing device where the user supplies her mobile device address connected to the message application server using a data network, including but not limited to the Internet. In another embodiment, the trigger system is a network accessible computing device that the user connects do using another device—for a example a web and WAP application accessed from a client computer using a browser—connected to the message application server using a data network.

The presented embodiments for the trigger system **102** are illustrative only and not limited to the ones presented. Numerous other embodiments of the trigger system **102** are contemplated as falling within the scope of this invention.

The data network **104** is any data network using any messaging protocol. In one exemplary embodiment, the network is based on TCP/IP and the trigger system **102** forwards the unique identifier and optional data using a Web Service call based on the Simple Object Access Protocol ("SOAP".)

The message application server **106** is any computing server designed to process messages. It is programmed to be able to execute instructions upon receiving incoming messages from mobile devices, such as mobile device **116**, and from any other external source. One of the instructions that the message application server is capable of executing is sending messages out to mobile devices. One of the event requests capable of triggering the message application server **106** to execute said instructions is the receipt of a notification that a user triggered the trigger device **102**.

In one exemplary embodiment, the message application server **106** is implemented as a cluster of Javc 2 Enterprise Edition ("J2EE™") components running on commonly available computer hardware running commonly available operating systems. In one exemplary embodiment, the message application server **106** is implemented using the Jboss™ Java application server and uses an Oracle® database to maintain persistent data. In one exemplary embodiment the dialog instructions to execute upon receiving an MO message or a trigger requests are implemented in one or more extensible markup language ("XML") document(s). Multiple other embodiments of the message application server are possible and known to those of skill in the art.

In one preferred embodiment, the message application server **106** is additionally connected to a message application database **120**. The database can be used as part of the implementation of the message application server. In one exemplary embodiment, the database stores data on the active communication programs, including but not limited to, program data; user data; user session data; system logs. The usage of a database to implement sophisticated server applications is well known to those of skill in the art and many possible usage of the database is possible and within the scope of this invention.

The message application server **106** is connected to one or more service provider gateway **112** using any suitable data network **108**. In an exemplary implementation, the data network is the Internet using a virtual private network ("VPN") using the short message peer-to-peer ("SMPP") protocol. Other exemplary implementations use the Internet without a VPN, use private TCP/IP based connections ("leased line"), or use a dedicated X.25 connection or any other available data network and protocol. The message application server **106** can simultaneously support multiple mobile service providers systems **110** and mobile device **116** technologies and hence can be connected to multiple service providers systems **110**. The message application server **106** can be similarly connected a plurality of trigger system **102**.

The message application server **106** can send, and optionally receive, messages to and from the mobile device **116**, by means of the mobile service provider system **110**. The actual details of the mobile service provider infrastructure are not relevant to this present invention and in practice take many forms.

In one exemplary embodiment, the mobile provider system **110** is broken down into a mobile service provider gateway **112** responsible for interfacing with the message application server **106** by means of data network **108**. Using methods known to those skilled in the art, messages can be exchanged between mobile devices, such as mobile device **116** and the mobile service provider gateway **112** by means of a mobile network **114**.

The mobile device **116** is any device a user can carry along with him that is capable of receiving data messages from at least the message application server **106** by means of the service provider system **110**. In general, the mobile device **116** is also capable of sending messages to the message application server **106** as well as being able to send and receive messages to other mobile devices and other service applications. More capable devices can also send messages, or send and receive more complex messages than text messages such as multi-media messages.

In one embodiment of the invention, the mobile device **116** is a data enabled cell phone, or any data device capable of receiving and sending messages sent to a phone number address. The later can include wireless enabled personal data assistants ("PDA") or any other computing device capable of receiving messages sent to a phone number.

In one exemplary embodiment of the invention, the mobile device **116** is a data capable device capable of receiving and sending messages using e-mail protocols, including but not limited to SMTP, Post Office Protocol ("POP") and Internet Message Access Protocol ("IMAP").

In one exemplary embodiment of this invention, the mobile device **116** is a data capable device capable of receiving and sending messages using a client application that uses a data network, including but not limited to the Internet protocol ("IP"). The mobile device can use any IP transport, including but not limited to 801.11, 801.11a, 801.11b, 801.11g and Wifi.

In one exemplary embodiment of the invention, the mobile device **116** is a data capable device capable of receiving and sending messages using an instant messaging protocol. Examples of instant messaging service provide include, but is not limited to, AOL Instant Messenger™, Yahoo!® Messenger, MSN® Messenger, Jabber® and other similar protocols.

Turning to FIG. **2** there is shown a block diagram of an embodiment of the invention further comprising components to deliver coupons, offers and promotions to the user. The message application server **106** is further connected to an offer application **122**. The offer application **122** is connected to an offer database **124**.

The offer application **122** is responsible for selecting and creating coupons, offers and promotions for said user **100**. The coupon, offer or promotion is part of the message that will be sent to the user device **16** as described above.

In one embodiment, the coupons, offers and promotions are implemented using an offer message. In a preferred

embodiment, the coupons, offers and promotions are implemented using an offer code and an offer message. In one exemplary embodiment, the coupon and promotion offers are represented by numerical codes. In one exemplary embodiment, the coupons and promotion offers are represented by alphanumerical codes. In one embodiment, the coupons, offers and promotions are implemented using data, including but not limited to text data, XML data and binary data, which is interpreted by an application running on said user mobile device **116**. In one exemplary embodiment, the coupons and promotion offers are represented by graphical images—including bar codes.

In one exemplary embodiment each user receives the same coupon, offer or promotion code. In another exemplary embodiment, each coupon, offer or promotion code is unique and encodes the coupon, offer or promotion and a user identification. In one exemplary embodiment, the user identification is a sequence number, a short 3-5 digit sequence, allowing the encoding of 1000-100,000 unique users. Each time a user triggers the system and a message, coupon, offer or promotion is generated, a new sequence number is generated and stored in the offer database with the generated offer. At redemption time, the sequence number is extracted from the offer code and the most recent offer with the same offer and sequence number is matched. The benefit of this exemplary embodiment is to keep the unique identifier short in the common case that the code is manually entered at redemption time. In most retail environments, the speed of customer checkout is critical and the more digits need to be entered, the longer it takes to capture the message, coupon, offer or promotion code and the more likely an input error will be made.

In one preferred embodiment, the message, coupon, offer or promotion code includes a checksum digit, using any of the well know checksum algorithms, including but not limited to the mod **10** algorithm used in credit card numbers, whereby invalid coupon, offer or promotion codes due to input errors can be determined.

These various embodiments of coupons and promotion offers are illustrative only and not limiting, therefore numerous other embodiments of coupons, offers and promotions on mobile devices fall within the scope of this invention

The offer database **124** is used by the offer application **122** to store available offers, to maintain user profile information concerning coupons, offers and promotions, to maintain logs of created offers. The usage of database to implement sophisticated server applications is well known to those of skill in the art and many possible usage of the database is possible and within the scope of this invention.

In one preferred embodiment, the offer application **122** is connected to an external system **125** comprising enterprise systems, customer relationship management ("CRM") systems or loyalty systems that are involved in the generation, redemption and analysis of the offers.

Internal details of the offer application and the coupon, offer and promotion codes is not discussed in further details as they are known to those skilled in the art. Coupling and all the issues around generating coupons, matching coupons to users based on multiple parameters including past interaction and demographic data is a well established industry. All these coupling techniques apply to the coupon generation and fall into the scope of this invention.

Turning to FIG. **3** there is shown a block diagram of an embodiment of the invention further comprising components to track the redemption of coupons, offers or promotions. The system further comprises above FIG. **2**, an offer entry system **130** used to validate and capture coupons, offers, and promotions redemption. The offer entry device **130** is connected to the offer application **122** by means of a data network **132**. Optionally, an external system **121** or **125** interfaces with either the message application server, the offer application or both.

In one embodiment, the offer entry system validates the coupon, offer or promotion code. In one embodiment, the offer entry system captures the coupon, offer or promotion redemption for storage in the offer database **124**. In one preferred embodiment, the offer entry system validates and captures the coupon, offer or promotion code for storage in the offer database **124**.

In one preferred embodiment, the offer entry system **130** is a computing device located where the coupon, offer or promotion is redeemed. The coupon, offer or promotion code is entered at redemption time. In this preferred embodiment the coupon, offer or promotion code is validated in real-time by checking the code on the offer entry system **130** (for example the offer code can contain a checksum that is verified), then by sending a request by means of data network **132** to the offer application **122**, that verifies the coupon, offer or promotion code. In this exemplary embodiment, redemption data can be analyzed by the offer server **122** and reports **134** created.

In one preferred embodiment, the offer entry system is a point of sale ("POS") terminal programmed to implement the logic described above. If the coupon, offer or promotion code is validated in real-time preventing fraud and providing for duplicate checking, it is possible to offer valuable coupons, offers and promotions that otherwise might not be economical to provide without such checks.

In an exemplary embodiment, the offer entry system **130** is a stand-alone computing device, for example a kiosk. The user enters the coupon, offer or promotion code in the offer entry system **130**, and the offer entry system prints out a paper coupon. The user can then redeem the paper coupon like regular paper coupons. In an exemplary embodiment, the offer entry system **130** locally stores each redemption, and the data can be uploaded on a regular basis, by means of a data network **132** to the offer application **122**. In an exemplary embodiment the offer entry device **130** is equipped with removable storage. On a regular basis the removable storage is replaced and the content is read on a compatible device and the data uploaded to the offer application **122**.

In one exemplary embodiment, the coupon, offer or promotion code has the same format as a payment number like a credit card number. The existing payment processing infrastructure is used to authorize and capture coupon redemption. The operator of the system described in this invention would request a unique bank id prefix to distinguish its offer numbers from credit or payment card numbers. In one exemplary embodiment, said payment processing infrastructure is configured to track coupon, offer and promotion redemption and credit the user for his coupon, offer and promotion.

The data network **132** is any data network or any means using any messaging protocol or data representation not necessarily always connected allowing for the transfer of data, in real-time or in batch mode, from the offer entry device **130** to the offer application **122**. In one preferred embodiment, the network is based on the Internet Protocol.

Turning to FIG. **4** there is shown a block diagram of an embodiment of the invention illustrating how follow-on messages can be sent at later dates to said user **100**. Messages, coupons, offers and promotions are delivered immediately upon the user activating the trigger system **102**.

But the organization, can also decide to send further messages, coupons, offers and promotions to users that have participated previously. Under this scenario, during the initial communication, the message application server **106**, or the offer server **122** stores the mobile device **116** address. At a later date, when the organization wants to push out new messages, coupons, offers or promotions, the list of users that have participated is looked up. If the message includes a coupon, offer or promotion, it may be looked up by the offer application **122** using a mechanism similar to the one described above. The push message is then delivered to the user using the same system and method described earlier.

FIG. **5** illustrates the basic steps of the invention. In a typical usage of the invention, the user **100** is encouraged to trigger the system by a "call to action" message presented in a traditional media format. The trigger system **102**, upon being triggered (step **200**) is designed to capture (step **202**) the unique identifier capable of identifying the user mobile device **116**, and optionally other data. The captured data is then forwarded (step **204**) to the message application server **106**. The message application server **106** then retrieves (step **206**) the mobile device address of the user based on the unique identifier. The message application server **106** then executes (step **208**) a programmed set of instructions whereby an appropriate response message is generated. Optionally, in step **210**, all the forwarded data, and any additional data generated by the execution of the instructions in step **208** are saved in the message application database **120**. The response message is then forwarded to the mobile service provider gateway **112** in step **212**, for delivery to the mobile device **116** by the mobile service provider. Said user can then read said response message on said mobile device **116** in step **214**.

In an alternative embodiment, step **206** is not performed in the message application server **106**, but instead in the trigger system **102**, and either the mobile address or both the mobile address and the unique identifier are forwarded to the message application server in step **204**.

FIG. **6** illustrates the basic steps of the invention described in FIG. **5** augmented by the delivery of a coupon, offer or promotion. The trigger steps **200**, **202**, **204** and **206** are the same as in FIG. **5**. Instead of directly generating the response message in the message application server **106**, all the user data available in the message application server including the unique identifier, the mobile device address, the optional user data is forwarded to the offer application **122** (step **220**). Based on all the available data, the offer server **122** generates an offer (step **222**). The generated offer and any other user data is stored in the offer database **124** (step **224**). The response message containing the coupon, offer or promotion is forwarded back to the message application server **106** for delivery to the mobile device **116** (step **226**). The message delivery steps **210**, **212** and **214** are the same as in FIG. **5**. Later on the user will redeem the coupon, offer or promotion message, for example in a store. The coupon, offer or promotion being redeemed is entered (step **228**) in the offer entry system **130**. Either in real-time or in batch the redemption data is forwarded to the offer application **122** (step **230**). The redemption data is then stored in (step **232**) in the offer database **124**. Based on the data stored in step **224** and step **232** in the offer database **124**, reports **134** can be generated that show redemption rates from which the effectiveness of the promotion can be measured.

FIG. **7** illustrates another preferred embodiment, where the coupon, offer or promotion is verified after step **228**, by interrogating the offer application **122**. Started from step **214** of FIG. **6**, the offer is entered in the offer entry system **130** in step **228**. The offer is then forwarded to the offer application **122** for verification by means of data network **132** (step **240**). The offer is verified by the offer application **122** (that is the offer application verifies it's a valid offer, and has not been already redeemed if duplicate checking is configured) (step **242**). If the offer is valid, then the redemption proceeds (**246**) and the following steps are the same as in FIG. **6**. If the offer is invalid, the status is made available to the offer entry device **130** (step **244**). In the case of an invalid offer, the offer may be re-entered since the offer may have been rejected due to an input error. If the offer has already been redeemed, there is no benefit in re-entering the offer.

FIG. **8** illustrates step **202** in an exemplary embodiment where the trigger system **102** is implemented using an IVR system. The user calls the IVR number. The PSTN delivers the call to the UVR system in Step **300**. The IVR system is then programmed to retrieve the user calling number, using the PSTN caller id support (step **302**). If the user calling number is available, the system spells out the number to the user and asks for a confirmation in step **306**. If the user confirms positively, the user calling number is then forwarded to the message application server **106** as described in step **204**. If the user confirms negatively (step **306**), or the IVR system does not detect the user calling number in step **302** (for example if the user is blocking caller id), then the IVR is programmed (step **304**) to ask the user to enter his cell phone number. The phone number can either be entered using the telephone key pad, and the IVR system will detect the Dual Tone Multiple Frequency ("DTMF") tones, or alternatively using a voice recognition system. The details on how to program an IVR system to perform the steps described above are well known to those skilled in the art.

FIG. **9** is an alternative embodiment of step **202** that builds upon FIG. **7**. In FIG. **8** the initial steps **300**, and **302** are the same as in FIG. **8**. The calling number supplied by the PSTN, or entered by the user is analyzed in step **320** to see if it corresponds to a cell phone number. There are multiple ways to perform this operation which are know to those skilled in the art. One possible implementation is to lookup the first six digits of the phone number in a database called the Local Exchange Routing Guide ("LERG") that contains information on all the PSTN switches. If the phone number corresponds to a cell phone number, the IVR is programmed to proceed to step **306**. If the number does not correspond to a cell phone number, then the IVR is programmed in step **304** to prompt for a cell phone number as described before. In this alternative embodiment, step **322** was also added prompting the user for additional data, for example for a choice of an offer of interest or from a store of interest. Once all the additional data is captured, the user cell phone and the additional data is forwarded to the message application server **106** as described in step **204**.

Having now described one or more exemplary embodiments of the invention, it should be apparent to those skilled in the art that the foregoing is illustrative only and not limiting, having been presented by way of example only. All the features disclosed in this specification (including any accompanying claims, abstract, and drawings) may be replaced by alternative features serving the same purpose, and equivalents or similar purpose, unless expressly stated otherwise. Therefore, numerous other embodiments of the modifications thereof are contemplated as falling within the scope of the present invention as defined by the appended claims and equivalents thereto.

For example, the techniques may be implemented in hardware or software, or a combination of the two. In one

embodiment, the techniques are implemented in computer programs executing on programmable computers that each include a processor, a storage medium readable by the processor (including volatile and non-volatile memory and/or storage elements), at least one input device and one or more output devices. Program code is applied to data entered using the input device to perform the functions described and to generate output information. The output information is applied to one or more output devices.

Each program may be implemented in a high level procedural or object oriented programming language to communicate with a computer system, however, the programs can be implemented in assembly or machine language, if desired. In any case, the language may be a compiled or interpreted language.

Each such computer program may be stored on a storage medium or device (e.g., CD-ROM, hard disk or magnetic diskette) that is readable by a general or special purpose programmable computer for configuring and operating the computer when the storage medium or device is read by the computer to perform the procedures described in this document. The system may also be considered to be implemented as a computer-readable storage medium, configured with a computer program, where the storage medium so configured causes a computer to operate in a specific and predefined manner.

In a most preferred embodiment, the various components, such as the trigger system, the message application server, the offer application, etc., are implemented on one or more computer systems. The multiplicity of the computer system allow for the distribution of the workload in accordance with, e.g., the number of computer systems available and enables the system to function even is a subset of the computer systems experience one or more faults. The computers should be connectable to each other, for example, by means of 100Base-T Ethernet interfaces and corresponding 100Base-T Ethernet switches. In the most preferred implementation, each computer contains dual UltraSPARC® III processors, 1024 MB RAM, two 9 GB disk drives, and operates using the Unix™ compatible Solaris™ operating system. As will be appreciated, the specific hardware utilized can be varied in accordance with need, required capacity, and the preferred programming and operating environment, as well as in response to other factors.

What is claimed is:

1. A system for enabling targeted content delivery to a mobile device, said mobile device having a device address, said device address having associated therewith at least one unique identifier, said system comprising:

a message application server; and

a trigger system in communication with said message application server, said trigger system comprising:

a trigger client component configured to generate a trigger signal comprising a trigger action, user content request data and said at least one unique identifier; and

a trigger server component in communication with said trigger client component, said trigger server component configured to:

receive said trigger signal, and

send to said message application server said trigger signal for processing by said message application server;

wherein said message application server is configured to:

receive from said trigger system said trigger signal, and in response thereto:

derive said mobile device address from said at least one unique identifier,

generate content based on said user request data, and

send said generated content to said device address of said mobile device;

an offer application component:

an offer entry system in communication with said offer application component, and an offer database in communication with said offer application component for storing said generated content and said user reguest data, wherein said offer entry system is configured to:

redeem said generated content,

generate content redemption information comprising said redeemed content, and send said content redemption information to said offer application component for storage in said offer database.

2. A system as in claim **1** wherein said message application server further includes a message application database for storing transaction information comprising said user request data and said device address.

3. A system as in claim **1** wherein said trigger client component is said mobile device.

4. A system as in claim **1** wherein said trigger system comprises:

a client application residing on said trigger client component for generating said trigger signal; and

a server application residing on said trigger server component in communication with said client application and said message application server, said server application for receiving and processing said trigger signal sent by said client application.

5. A system as in claim **4** wherein said client application is a WEB or WAP browser client component and said server application is a WEB or WAP server application component.

6. A system as in claim **1**, wherein said trigger client component further comprises at least one input device.

7. A system as in claim **6**, wherein said at least one input device is selected from the group consisting of a magnetic card reader, bar code reader, keyboard, keypad, touch pad, sensors, and any combination thereof.

8. A system as in claim **7**, wherein said sensors include a wireless sensor and a biometric sensor.

9. A system as in claim **1** wherein said trigger client component is an account card and a reader and wherein said trigger signal is generated by swiping said account card through said reader and having said trigger system identify said unique identifier based on account card information **10**. A system as in claim **1**, wherein said trigger system comprises an IVR system, said mobile device is a cellular phone, said device address is a cellular phone number and said trigger action is a voice call; said IVR system configured to process said trigger signal to acquire said cellular phone number of said cellular phone.

10. A system as in claim **1**, wherein said trigger system comprises an IVR system, said mobile device is a cellular phone, said device address is a cellular phone number and said trigger action is a voice call; said IVR system configured to process said trigger signal to acquire said cellular phone number of said cellular phone.

11. A system as in claim **1**, wherein said trigger system comprises a PSTN and a Phone Switch connected to said PSTN, said mobile device is a cellular phone, said mobile device address is a cellular phone number and said trigger action is a voice call; said trigger system configured to detect incoming call establishment requests from said PSTN and to process said trigger signal to acquire said cellular phone number of said cellular phone.

12. A system as in claim **1** wherein said mobile device is a network-enabled device.

13. A system as in claim 1 wherein said mobile device is a cellular phone having a cellular phone number as said device address.

14. A system as in claim 1 wherein said device address is a calling number, a cellular phone number, an instant messaging address, an e-mail address or other addressing type.

15. A system as in claim 1, wherein said offer application component is further configured to:

receive said content redemption information and

check for and process valid redeemed content using a validation code.

16. A system as in claim 15 wherein said offer entry system is further configured to generate a physical representation of said generated content.

17. A system as in claim 16 wherein said physical representation of said generated content includes paper, card-stock, plastic or any other tangible medium.

18. A system as in claim 17 wherein said offer entry system is a point of sale (POS) terminal for redeeming and providing a physical representation of said generated content.

19. A system as in claim 17 wherein said offer entry system is a kiosk for redeeming and providing a physical representation of said generated content.

20. A system as in claim 1 further comprising at least one communications network wherein said trigger system communicates with said message application server via said at least one communications network and wherein said trigger client device system communicates with said trigger server device via said at least one communications network.

21. A system as in claim 1 wherein said generated content comprises a message, a coupon, an offer or a promotion.

22. A system as in claim 16 wherein said generated content is a tangible medium containing a bar code representation of said validation code.

23. A system as in claim 22 wherein said validation code representation comprises a bar code.

24. A system as in claim 15 wherein said validation code encodes information pertaining to said user, generated content, unique identifier or mobile device for the purpose of tracking redemption on a per user basis.

25. A system as in claim 15 wherein said validation code is a numerical or alphanumerical code.

26. A system as in claim 15 wherein said validation code is an image to be scanned.

27. A system as in claim 15 wherein said mobile device processes and stores said validation code.

28. A system as in claim 15 wherein said validation code contains one or more checksum digits whereby code input errors can be detected.

29. A system as in claim 15 further comprising at least one first external system coupled to said message application server; said at least one first external system for facilitating the generation, redemption, analysis, verification and/or delivery of said generated content.

30. A system as in claim 29 wherein said at least one first external systems includes enterprise application systems, back-end payment systems, CRM systems and loyalty systems.

31. A system as in claim 16 further comprising at least one second external system coupled to said offer application component, said at least one second external system facilitating the generation, redemption, analysis, verification and/or delivery of said generated content.

32. A system as in claim 31 wherein said at least one second external system includes enterprise application systems, back-end payment systems, CRM systems and loyalty systems.

33. A system as in claim 31 wherein said validation code is similar to a Credit Card or Payment Card number and wherein said at least one second external system is a backend payment system that processes said validation code.

34. A system as in claim 1 further comprising a mobile network in communication with said mobile device and wherein said message application server sends said generated content to said device address via said mobile network.

* * * * *

EXHIBIT B

US007792518B2

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

(10) **Patent No.: US 7,792,518 B2**
(45) **Date of Patent: Sep. 7, 2010**

(54) **SYSTEM AND METHOD TO INITIATE A MOBILE DATA COMMUNICATION UTILIZING A TRIGGER SYSTEM**

(75) Inventors: **Michael Trioano**, Waltham, MA (US); **Mark Grindeland**, Framington, MA (US); **Gerald Hewes**, Lexington, MA (US); **Eswar Priyadarshan**, West Roxbury, MA (US); **Randall Snyder**, Campbell, CA (US)

(73) Assignee: **M-Qube, Inc.**, Watertown, MA (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.

(21) Appl. No.: **12/177,093**

(22) Filed: **Jul. 21, 2008**

(65) **Prior Publication Data**

US 2008/0281910 A1 Nov. 13, 2008

Related U.S. Application Data

(63) Continuation of application No. 10/521,521, filed on Jan. 18, 2005, now Pat. No. 7,403,788.

(51) **Int. Cl.**
H04M 1/725 (2006.01)

(52) **U.S. Cl.** **455/412**; 455/466; 455/414.1; 455/432.3

(58) **Field of Classification Search** 705/14, 705/10; 709/203; 455/412, 466, 445
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,560,651	B2	5/2003	Katz et al.	
6,925,307	B1 *	8/2005	Mamdani et al.	455/466
7,139,565	B2	11/2006	Fiatal et al.	
2001/0039514	A1 *	11/2001	Barenbaum et al.	705/14
2002/0004746	A1 *	1/2002	Ferber et al.	705/14
2002/0160776	A1	10/2002	Torabi	
2003/0005066	A1	1/2003	Lazaridis et al.	
2003/0074328	A1	4/2003	Schiff et al.	
2003/0100315	A1	5/2003	Rankin	
2003/0174814	A1 *	9/2003	Diacakis	379/80
2003/0187938	A1	10/2003	Mousseau et al.	

FOREIGN PATENT DOCUMENTS

KR 2001076121 A * 8/2001

OTHER PUBLICATIONS

PCT International Search Report, PCT/US03/22661, 4 pages.
Provisional U.S. Appl. No. 60/397,435, filed Jul. 19, 2002, 21 pages.

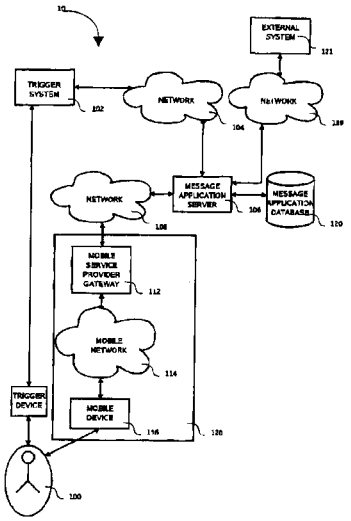
* cited by examiner

Primary Examiner—David Q Nguyen
(74) *Attorney, Agent, or Firm*— Arent Fox LLP

(57) **ABSTRACT**

A system and method to enable a user to initiate a communication with an organization using a mobile communication device by means of a trigger system. A system and method to enable an organization to acquire a user mobile device address by means of a trigger system. A system and method to enable an organization to respond to a user by means of a trigger system and a message application server. A system and method to enable organizations to deliver mobile messages, coupons, offers and promotions to users mobile device by means of a combination of a trigger system, a message application server and an offer application.

13 Claims, 10 Drawing Sheets



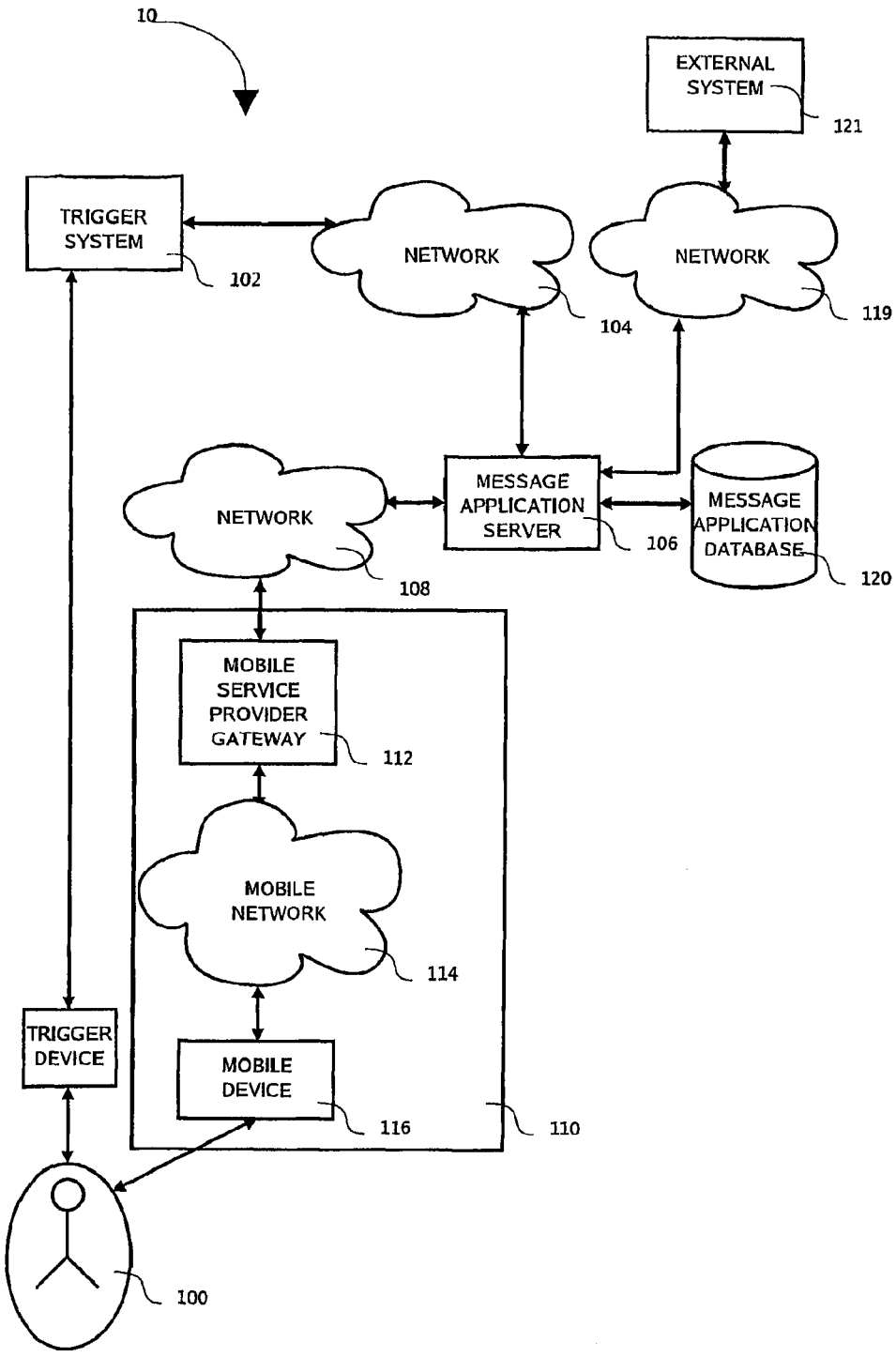

10
EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
MOBILE NETWORK
114
TRIGGER DEVICE
MOBILE DEVICE
116
110
100

FIG. 1

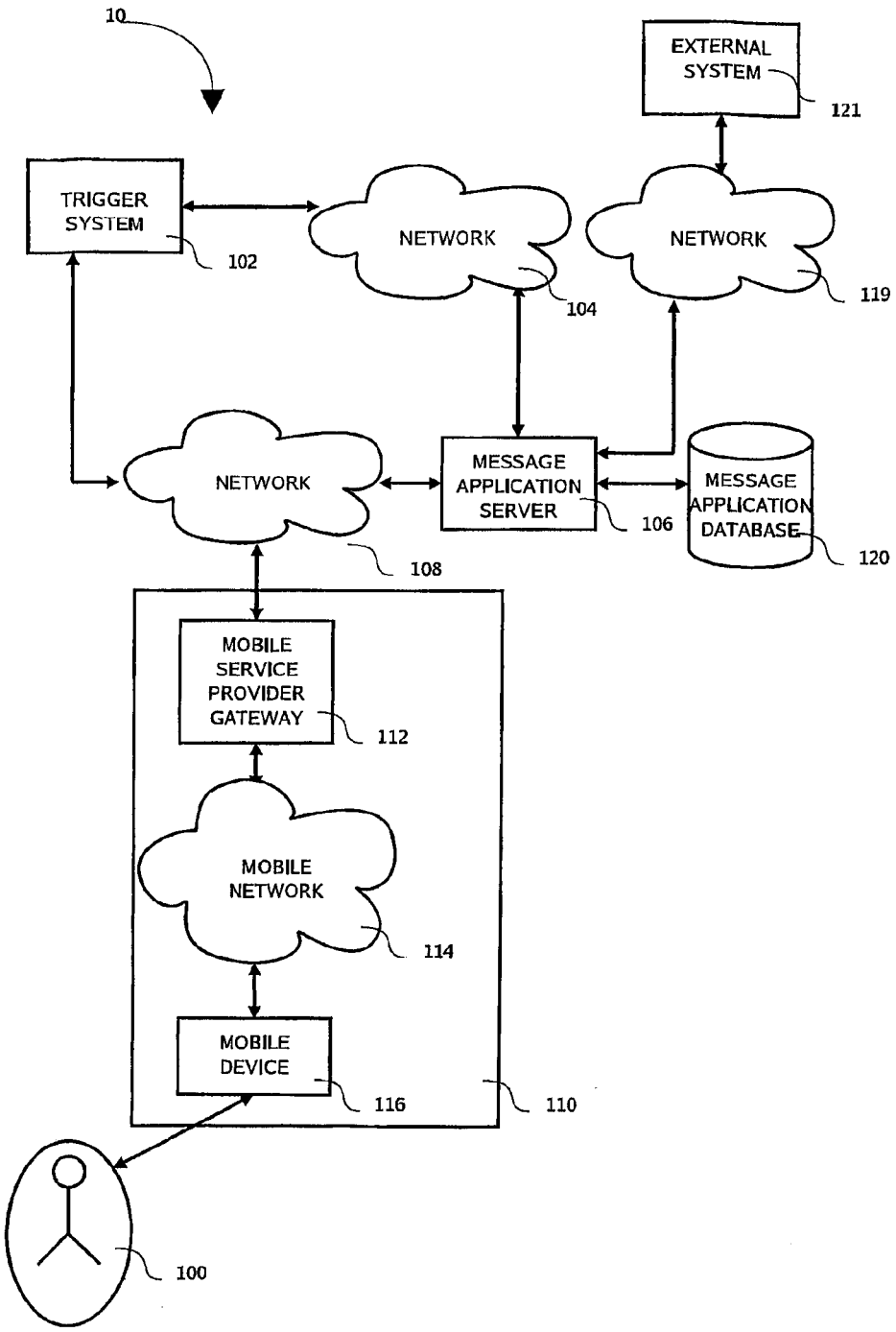

10
EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
MOBILE NETWORK
114
MOBILE DEVICE
116
110
100

FIG. 1B

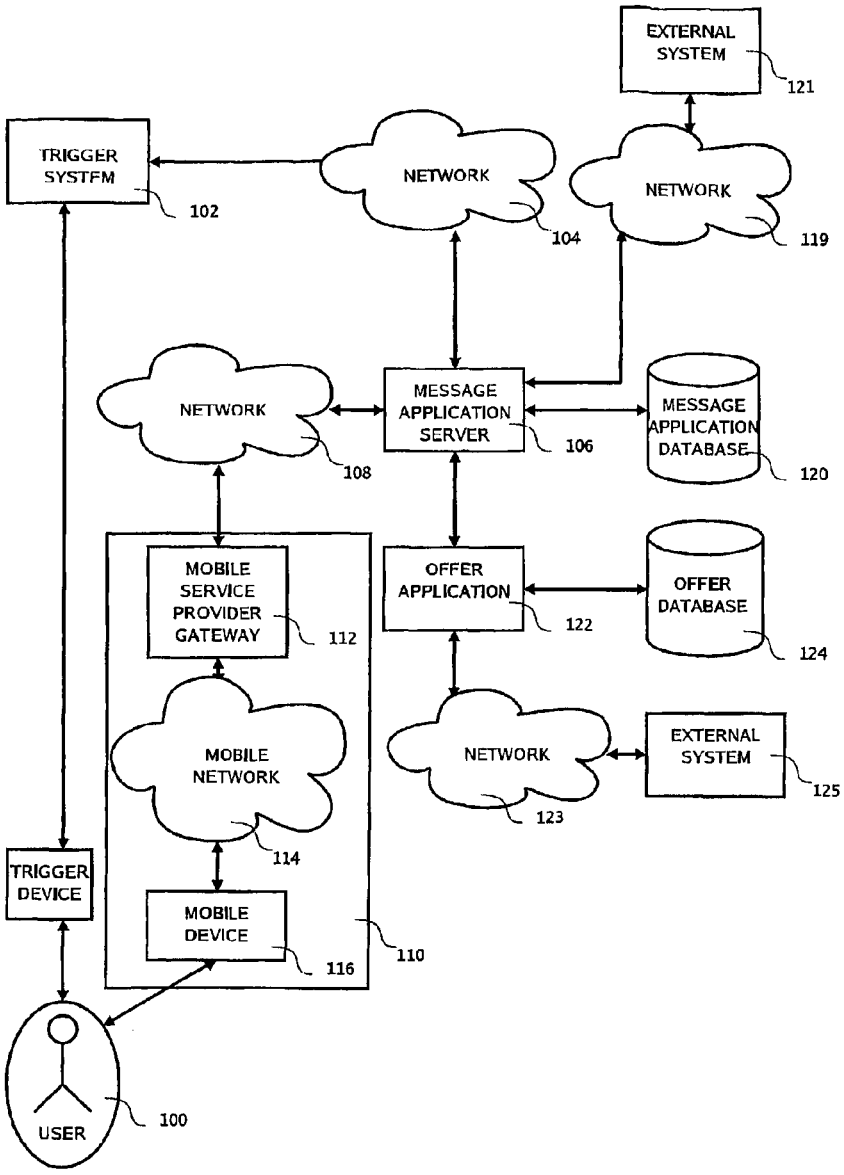

EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
OFFER APPLICATION
122
OFFER DATABASE
124
MOBILE NETWORK
114
NETWORK
123
EXTERNAL SYSTEM
125
TRIGGER DEVICE
MOBILE DEVICE
116
110
USER
100

FIG. 2

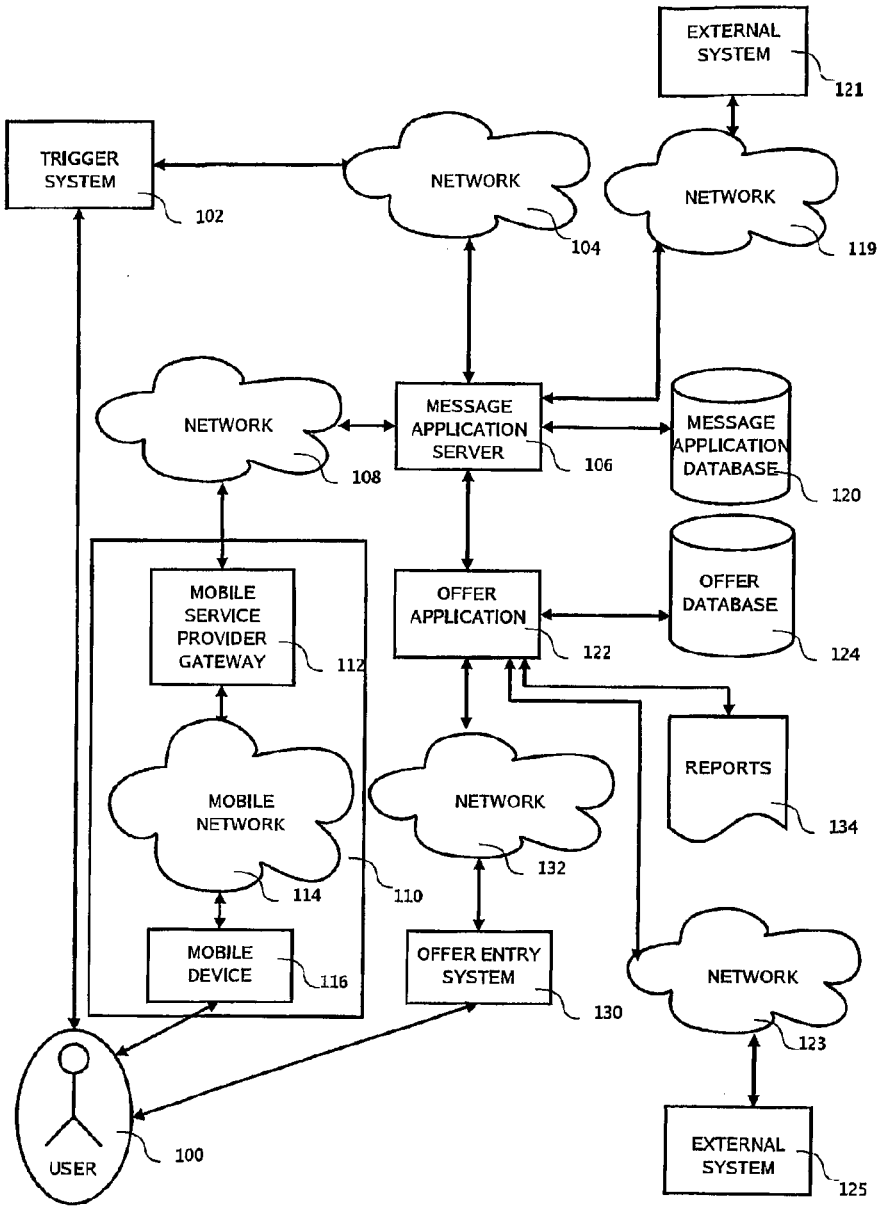

EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
OFFER APPLICATION
122
OFFER DATABASE
124
MOBILE NETWORK
114
110
NETWORK
132
REPORTS
134
MOBILE DEVICE
116
OFFER ENTRY SYSTEM
130
NETWORK
123
USER
100
EXTERNAL SYSTEM
125

FIG. 3

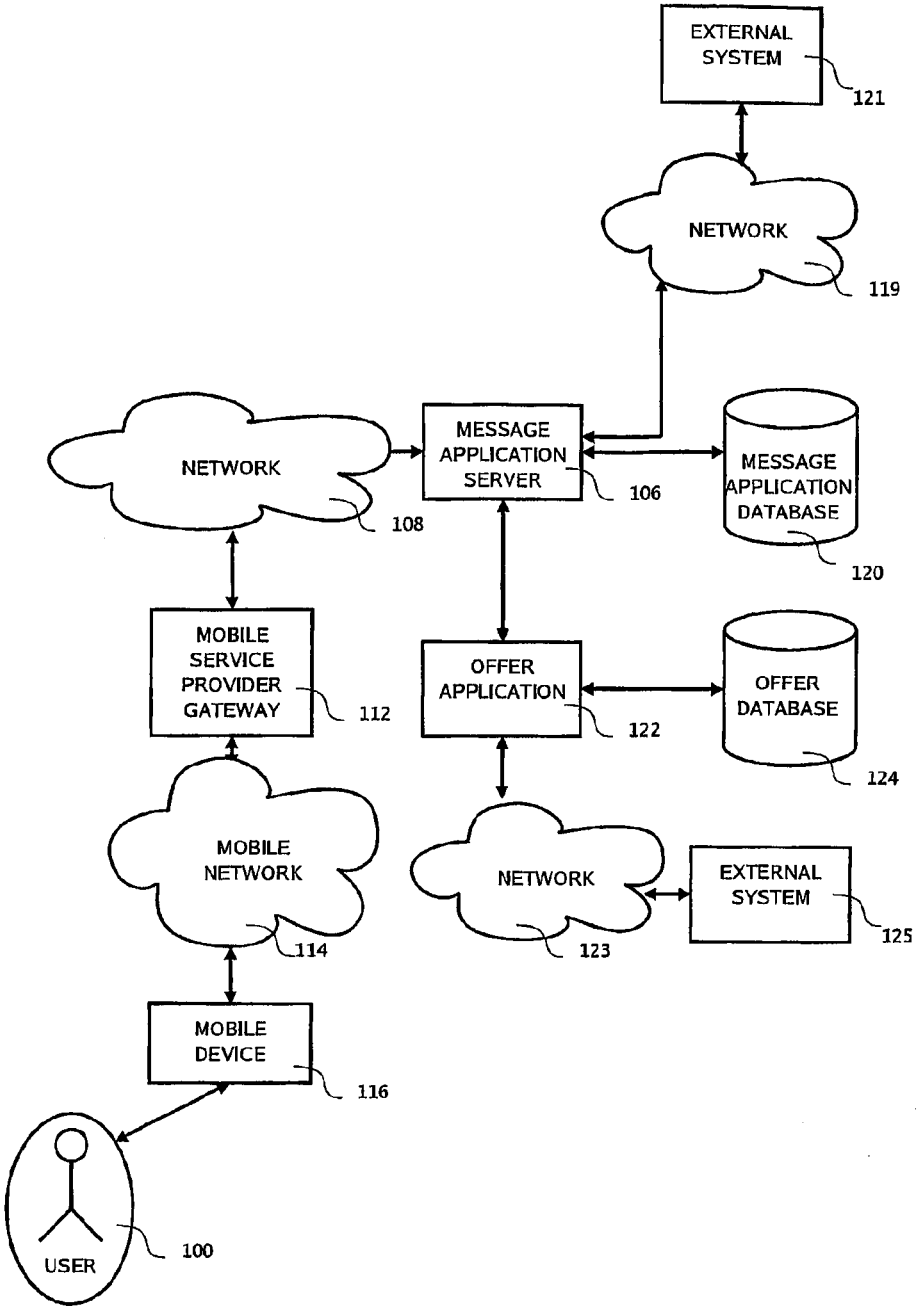

EXTERNAL SYSTEM
121
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
OFFER APPLICATION
122
OFFER DATABASE
124
MOBILE NETWORK
114
NETWORK
123
EXTERNAL SYSTEM
125
MOBILE DEVICE
116
USER
100

FIG. 4

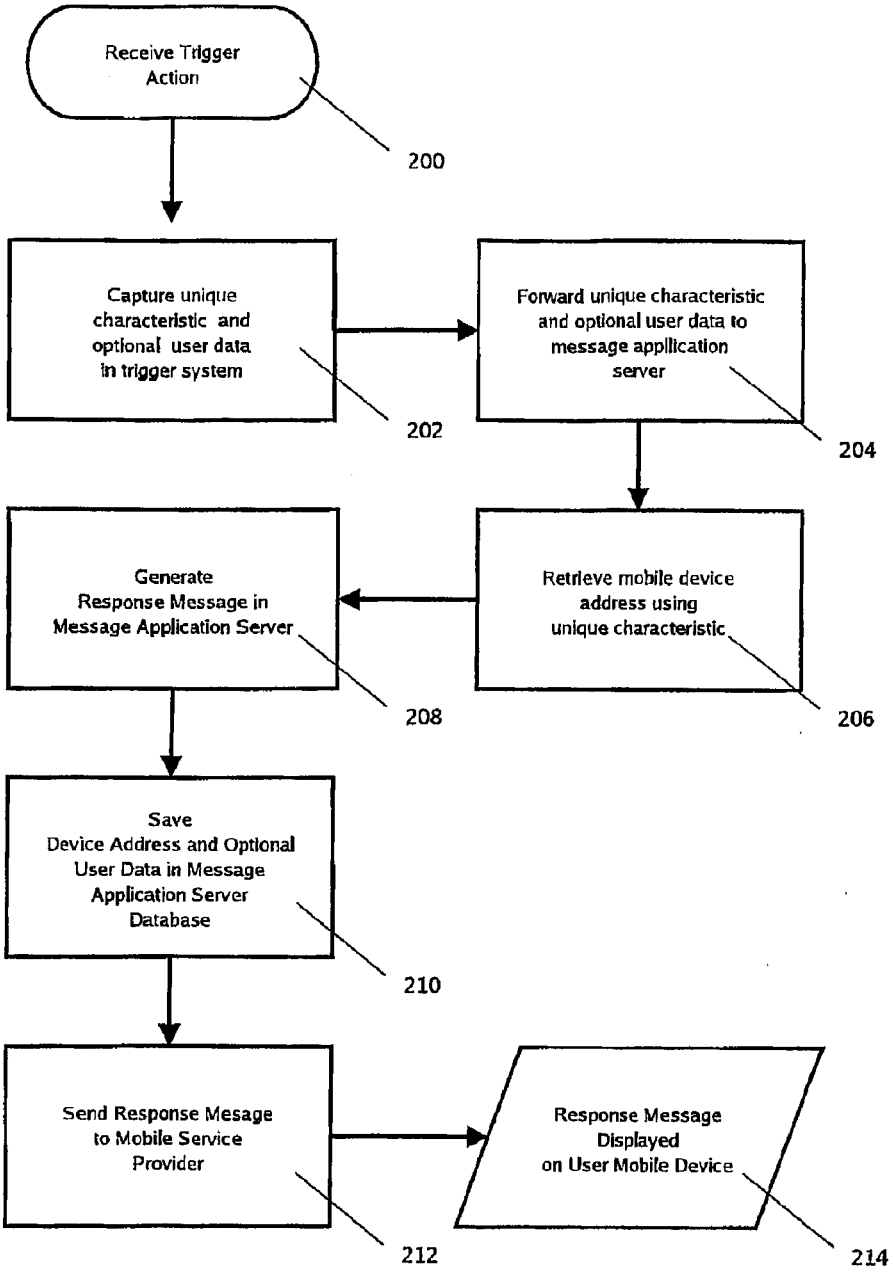

Receive Trigger Action
200
Capture unique characteristic and optional user data in trigger system
202
Forward unique characteristic and optional user data to message application server
204
Retrieve mobile device address using unique characteristic
206
Generate Response Message in Message Application Server
208
Save Device Address and Optional User Data in Message Application Server Database
210
Send Response Mesage to Mobile Service Provider
212
Response Message Displayed on User Mobile Device
214

FIG. 5

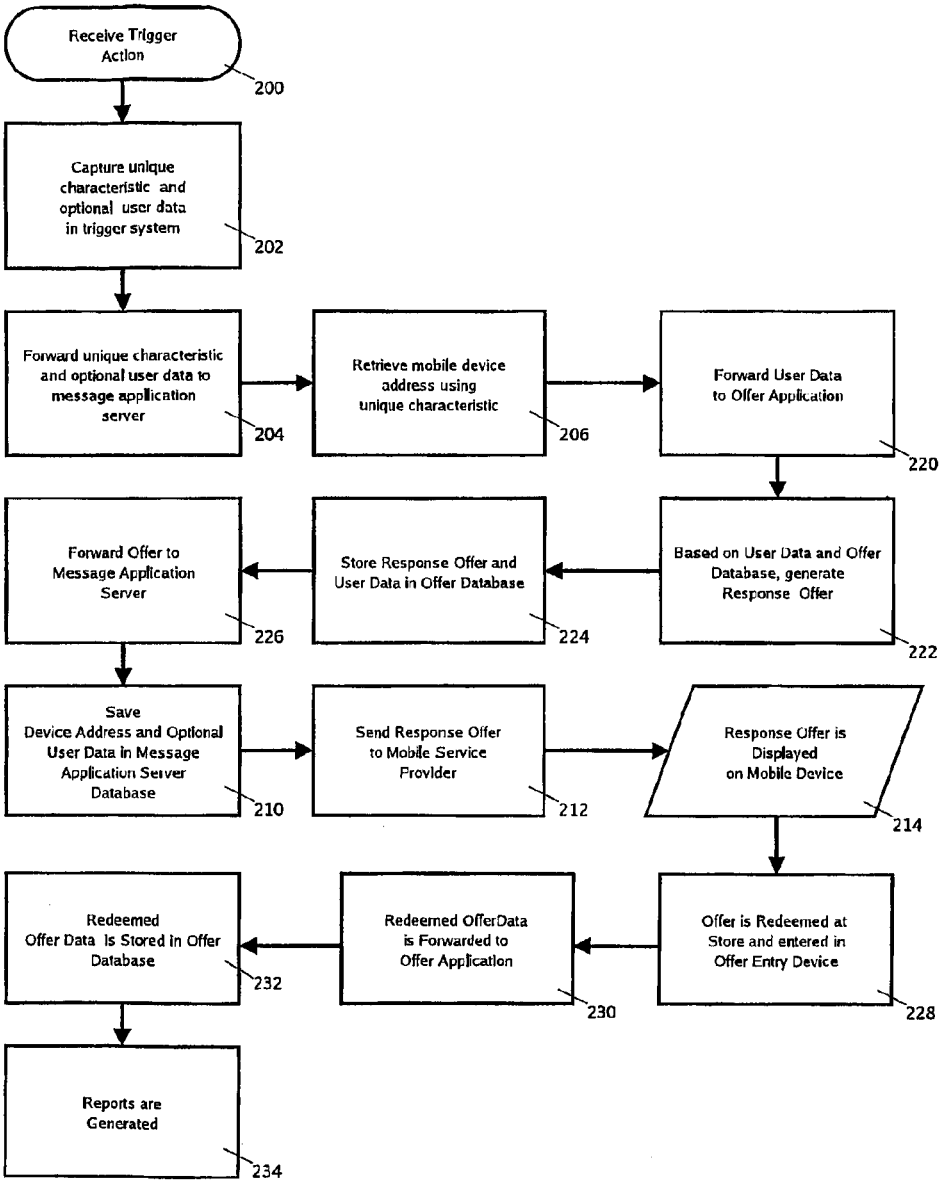

Receive Trigger Action
200
Capture unique characteristic and optional user data in trigger system
202
Forward unique characteristic and optional user data to message application server
204
Retrieve mobile device address using unique characteristic
206
Forward User Data to Offer Application
220
Based on User Data and Offer Database, generate Response Offer
222
Store Response Offer and User Data in Offer Database
224
Forward Offer to Message Application Server
226
Save Device Address and Optional User Data in Message Application Server Database
210
Send Response Offer to Mobile Service Provider
212
Response Offer is Displayed on Mobile Device
214
Offer is Redeemed at Store and entered in Offer Entry Device
228
Redeemed OfferData is Forwarded to Offer Application
230
Redeemed Offer Data Is Stored in Offer Database
232
Reports are Generated
234

FIG. 6

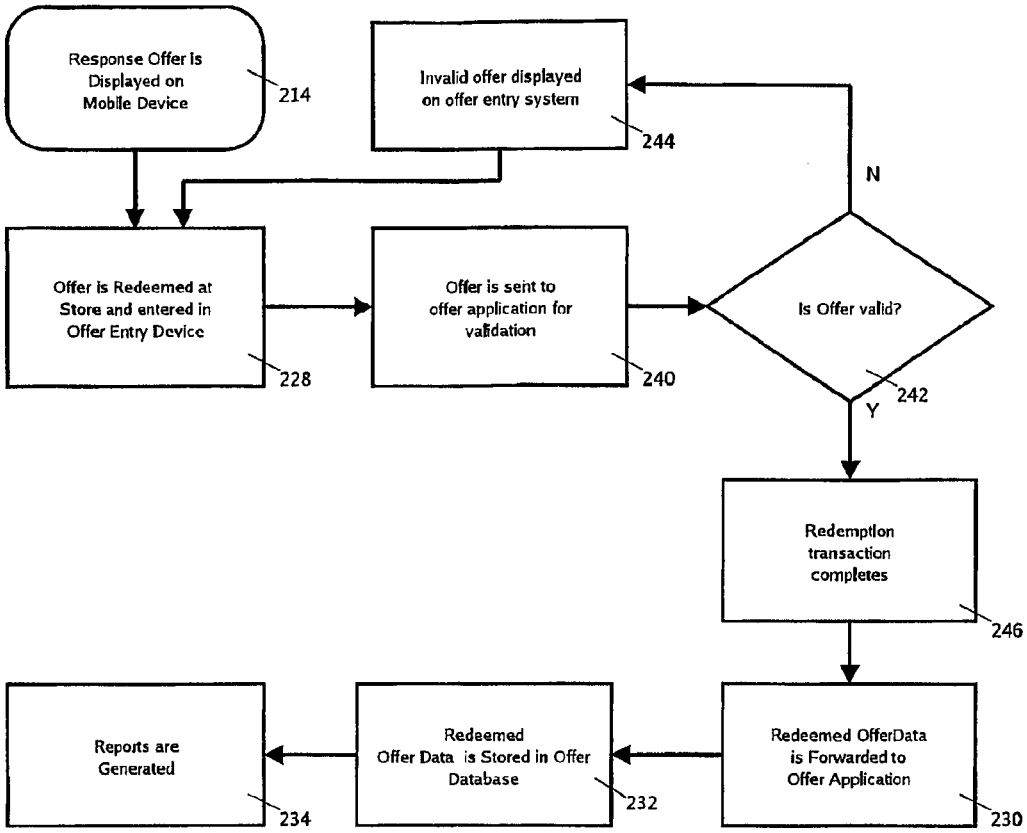

Response Offer Is Displayed on Mobile Device
214
Invalid offer displayed on offer entry system
244
N
Offer is Redeemed at Store and entered in Offer Entry Device
228
Offer is sent to offer application for validation
240
Is Offer valid?
242
Y
Redemption transaction completes
246
Reports are Generated
234
Redeemed Offer Data is Stored in Offer Database
232
Redeemed OfferData is Forwarded to Offer Application
230

FIG. 7

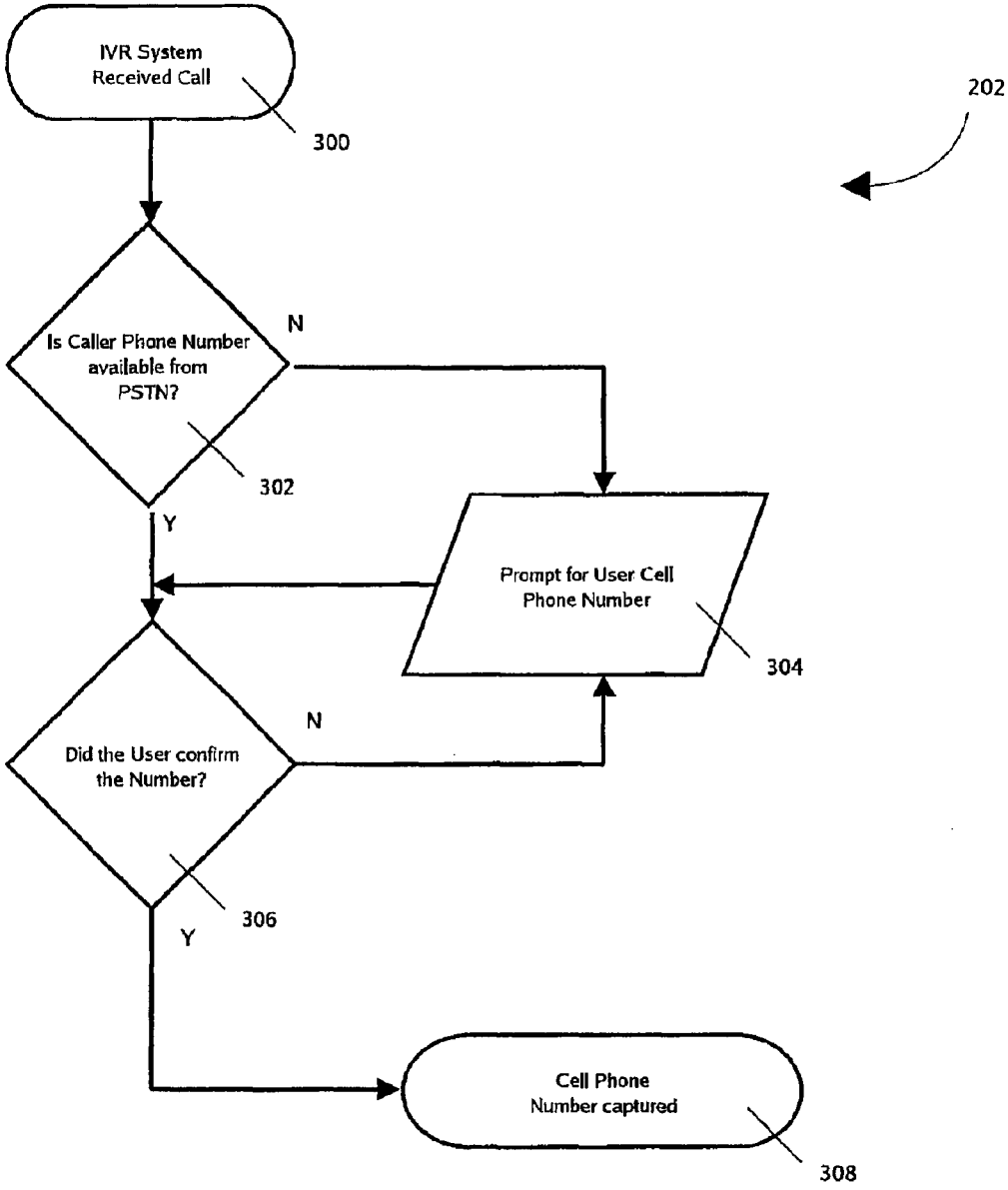

IVR System Received Call
300
202
Is Caller Phone Number available from PSTN?
302
N
Y
Prompt for User Cell Phone Number
304
Did the User confirm the Number?
306
N
Y
Cell Phone Number captured
308

FIG. 8

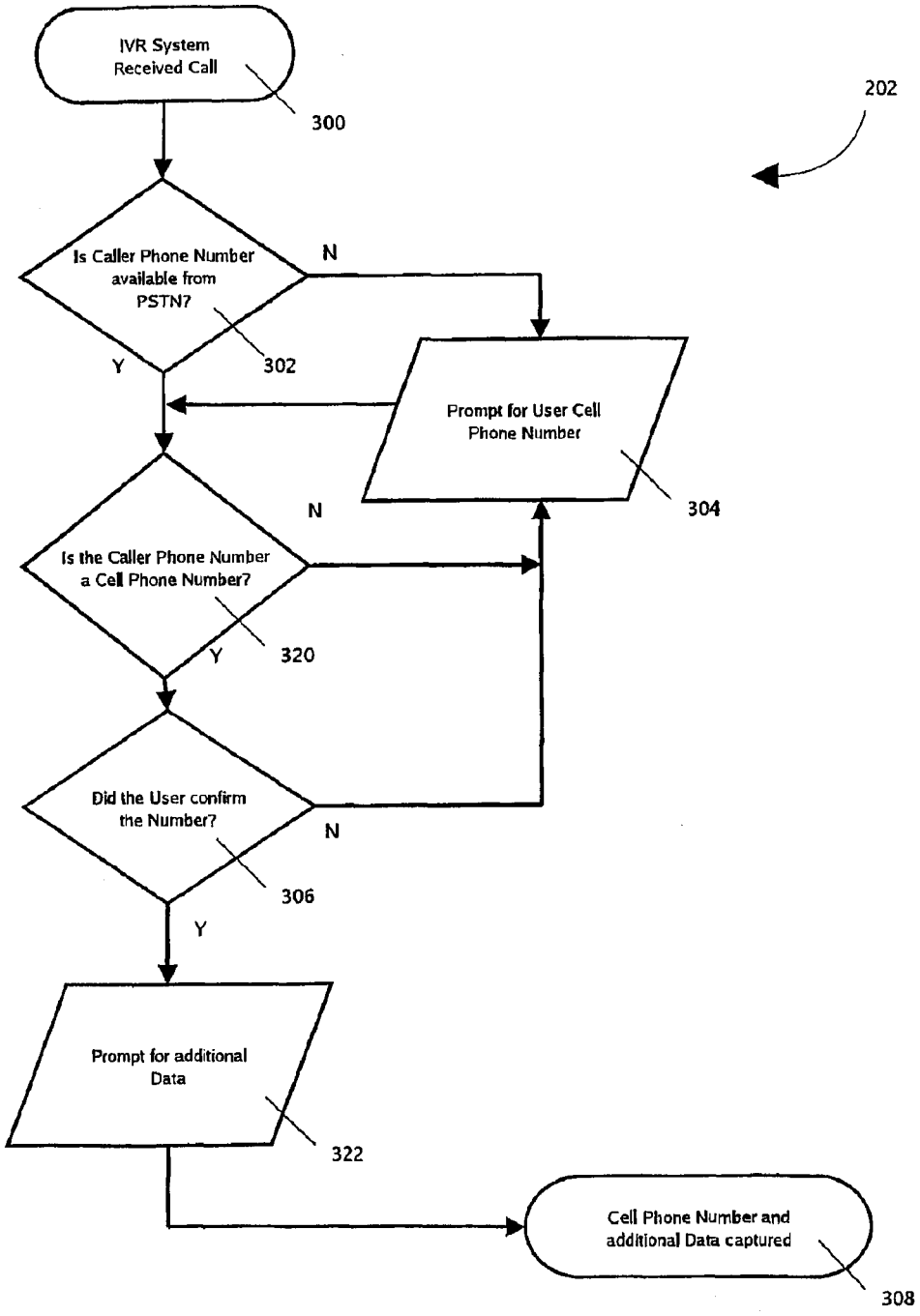

IVR System Received Call
300
202
Is Caller Phone Number available from PSTN?
302
N
Y
Prompt for User Cell Phone Number
304
Is the Caller Phone Number a Cell Phone Number?
320
N
Y
Did the User confirm the Number?
306
N
Y
Prompt for additional Data
322
Cell Phone Number and additional Data captured
308

FIG. 9

SYSTEM AND METHOD TO INITIATE A MOBILE DATA COMMUNICATION UTILIZING A TRIGGER SYSTEM

PRIORITY CLAIM

The present patent application is a Continuation of U.S. application Ser. No. 10/521,521, filed on Jan. 18, 2005 now U.S. Pat. No. 7,403,788.

This application claims the benefit of priority of U.S. Application No. 60/397,435, filed Jul. 19, 2002, the entire contents of which are incorporated by reference as if set forth at length herein.

FIELD OF THE INVENTION

This invention relates to enabling communications between users and organizations by means of data enabled mobile communication devices. More particularly this inventions relates to a system, method and machine to enable organizations to execute direct marketing techniques and promotions via mobile communication devices.

BACKGROUND OF THE INVENTION

Global brands spend hundreds of billion of dollars annually in the United States on brand marketing and communications. Over the last decade, an increasing percentage of brand marketing budgets have been spent in direct marketing channels (e.g., direct mail, telemarketing, email, etc.). In fact, total brand spending on direct mail now exceeds that of broadcast television. Given direct marketing's unique capabilities, such as precise targeting, the ability to drive specific behaviors, and highly measurable results, marketers are expected to continue spending heavily in direct channels.

One of the most significant new direct marketing opportunities is the emergence of the wireless channel. The wireless channel provides marketers the unmatched ability to reach the individual (not just the household), in a time- and event-sensitive way, with attractive and measurable marketing return on investment ("ROI"). In Europe, hundreds of brands are beginning to utilize the wireless data channels and are committing a sizeable portion of their communications budgets over the next year to wireless.

An organization wanting to use data messaging for communication with its user base needs to make it easy for them to participate. The organization needs to have a means to obtain a user's mobile device address to be able to communicate with him using his mobile device data capabilities. The organization needs to obtain the user permission to be able in the future to send new messages, coupons, offers or promotions, to the user's mobile devices.

There are multiple ways to for a user to initiate a communication with an organization and for an organization to obtain a user's mobile device address, but in this invention we are primarily focused on methods to initiate a communication when said user is in a mobile setting, such as a public environment as opposed to a home or office environment. In a mobile setting, there needs to be an easy and quick way for said user to specify his interest in starting a communication and for the organization to obtain said user's mobile device address whereby the communication can occur.

Once the communication is initiated, a message oriented application can capture the user's mobile device address in a database, and respond back with a message, a coupon, an offer or a promotion.

It is important that said user only receive future organization originated ("push") communications only if he has elected to do so. A system and method to perform communication between users and organizations needs to support an easy way to either opt-in or opt-out from receiving future communications.

An example of a situation where a user may be interested in initiating a communication with an organization is the case of the organization being a brand sponsoring some event; for example a contest, building brand and product awareness where the user may win some prizes. Other examples include receiving offers, coupons, promotions or discounts on their mobile device.

The communication, its goals, its benefits and how a user can initiate it is typically displayed using a traditional channel such as print media, product packaging, bar coaster, billboard, sign, posters, TV or radio advertisements, candy wraps, etc. . . . This process is called the "call to action" message. It is easy to see that if participating is easy to accomplish, such communications can have a wide impact for both users and organizations.

One very common application of this invention is to deliver coupons, offers and promotions to users that have requested them. There is a cost for an organization to provide, promote and deploy systems to execute such mobile coupon, offer and promotion programs. Hence it is an important requirement that a system be able to measure redemption rates to compute the effectiveness of the program. In addition, much better coupons, offers and promotions can be given to individual users if their past individual receptiveness is known—which makes uniquely identifying the coupon, offer and promotion important.

There is much economical value in being able to deploy a system where users can receive messages, coupons, offers and promotions at the time of their choosing as well as occasionally receiving push specials thereby allowing the organization running the program to develop a comprehensive loyalty program bringing value to both the user and the organization. To support such a program, a system needs to exist to enable users to enroll, participate and receive occasional "push" messages, coupons, offers and promotions that leverages the capabilities of mobile data communication devices and Customer Relationship Management and Loyalty systems.

In addition, some of the offers, coupons and promotions can be valuable enough that the organization giving them out wants to make sure they are used only once. Examples of such compelling offers are very deep discount to join the offer program—think about book clubs that sell you your first three books for $1 to join the club. In this case, the offer needs to be verified that it has not already been redeemed. Such a step is critical with the technologies described in this invention where it is often easy to forward or forge a message on a mobile device.

The primary limitations with existing methods to initiate a communication between an organization and a user using a mobile device have to do with: the time, effort and lack of convenience of triggering the communication using current systems; the lack of common service addresses for users to initiate the communication with an organization in some common existing messaging technologies; and the lack of

familiarity on the part of users on how to initiate a communication using their mobile device.

PRIOR ART

Obtaining the user's mobile device address in a mobile setting to allow for communication is not always straightforward for some classes of mobile devices, in particular digital cell phones. Almost all digital cell phones sold today have one or more data messaging capabilities. These may include, but is not limited to, Short Message Service ("SMS"), Enhanced Messaging System ("EMS"), Multimedia Messaging Service ("MMS"), Wireless Application Protocol ("WAP") and mobile e-mail. The large number of digital cell phones in the U.S. makes solving the problem of obtaining cell phones data address a critical problem to be solved.

One solution that is used by some wireless carriers to allow a user to initiate a communication using a cell phone with an organization, is to use a Mobile Originated ("MO") message sent to a service access code. In the case of a cell phone, a service access code can either be a short code (a number with less than the regular **10** digits defined by the North American Numbering Plan ("NANP")—for example "2327") or a regular NANP 10 digit number. A user that wants to respond to a "call to action" message sends an MO message to the organization service access code setup by his cell phone carrier.

While the above technique using MO messages works can work in geographies that support standardized service access codes across wireless carriers, it is much less effective in countries that don't. In countries with no standardized service access codes, like the U.S., it is awkward for an organization to publish different service access code addresses for each wireless carrier. In addition the MO technique is not effective in geographies where cell phone users are not familiar on how to send MO messages. The situation is compounded by the fact that some wireless carriers currently do not offer third parties the ability to receive MO messages sent to them.

It is possible to solve the problem of lack of standardized service access codes by using an e-mail address instead of the typical telephone digit numbers used for SMS, EMS and MMS. Using e-mail is possible because most wireless carriers offer the ability for users to send and receive e-mails from their cell phone, either directly using Simple Mail Transfer Protocol ("SMTP") or indirectly via SMS, EMS, MMS, WAP, or hyper text markup language ("HTML") by means of an SMTP gateway provided by the wireless carriers. A service using e-mail as its service address requires that users enter the service e-mail address when composing their initial MO message. Unfortunately, it is often extremely cumbersome for users to enter an e-mail address composed of alphabetical letters and symbols using a cell phone numeric keypad. For example, on a Sony-Ericsson T68i phone it takes 34 key presses (assuming no mistakes) to enter "fun@m-qube.com". Hence user response rates will be extremely low with this approach.

Another alternative that can be used to solve the problem of lack of standardized service access codes is to deploy modem banks of Personal Computer ("PC") based wireless data cards. Said wireless data card is like a miniature cell phone with its own phone number. With the peer-to-peer SMS interoperability available in many countries, any MO message sent to said wireless data card phone number would be delivered to it, and by extension to the message application server connected to said PC. While this approach effectively works around the problem of lack of standardized service access codes, it suffers from severe scalability problems (a

card typically cannot handle more that 2-3 messages per second, and most cards are not designed to be operated 24×7×365.)

Another alternative is to use a range of numbers for the service access codes normally allocated to a wireless carrier for use by its subscribers, and reconfigure the carrier data network elements to forward any MO messages sent to said range, not to a physical cell phone, but instead to the organization's message application server using a data network such as the Internet. This solution builds upon SMS interoperability and is scalable. But it requires that the organization have a relationship with the wireless carrier offering said range, that said wireless carrier have the capability to offer this service to organizations, and that other wireless carrier allow this to happen.

An equally critical consideration is the expertise required from users to send an MO message using the native mobile device data messaging interface. In particular, not all cell phone users know how to originate a MO message using their cell phone. Another method is required to allow them to participate before they become more familiar with their cell phone messaging capabilities. Once a cell phone user receives a message, it is much easier to reply to it since most cell phone handsets provide some guidance on how to do so.

Or, the user may be familiar with messaging, but the time involved may be a limiting factor. For example, many users may not be willing because of the inconvenience to text-in a message when entering in a supermarket to receive tailored coupons, but may be more willing to use other methods described in this invention to trigger the offers. This problem is especially acute for mobile messaging technologies that don't rely on number for addresses, but on long strings like e-mail or instant messaging screen names. While presumably it is possible to enter a long string using these mobile devices, this is usually a somewhat slow process. A faster trigger mechanism is required.

Hence existing methods using the native messaging capabilities of a user's mobile device to support mobile originated messages to allow said user to start a communication with an organization service are not effective in many situations or geographies. The limitations of the existing methods makes using the mobile channel as a direct marketing channel not a cost effective channel; as user response rates would be too low to cover the campaign costs.

OBJECTS AND ADVANTAGES

The specific object and advantages for this present invention are:

a) Provides for an alternative to using the mobile device native data communication interface in cases where there are no unique service address (common service access codes), no publicly supported service side infrastructure, or the user is unfamiliar with his device data messaging capabilities.

b) Provides for faster and easier methods to trigger a communication between an organization and a user than by using the device native mobile originated messaging capabilities.

e) Some of the embodiments described in the invention, like using an interactive voice response ("IVR") system as the trigger system, make it much easier to collect additional information such as opt-in permission for future communication or offers, or more information, such as offers of interest to the user.

d) Enables simple, fast, practical and economical means to instantly deliver offers, coupons and promotions to users in public places.

Further objects and advantages of this present invention will become apparent from a consideration of the drawings and ensuing description.

SUMMARY OF THE INVENTION

The present solution solves the aforementioned problem not by means of the user mobile device native data messaging services but by means of an external trigger system not based on the user mobile device data messaging capabilities.

Once the trigger system has captured a unique identifier capable of being mapped to the user mobile device address, a Mobile Terminated ("MT") message is sent to the user. From then on, the message application server is capable of future communications. The messages sent to the user can include menus and simple instructions removing the need for the user to ever originate a sophisticated MO message.

In one embodiment of the invention, said unique identifier is the mobile device address itself. In another embodiment of the invention, said unique identifier can be an identifier that is then used to retrieve the mobile device address. An exemplar embodiment uses an account number as the unique identifier, and then retrieving the mobile device address using the account number. The details on how the mobile device address is retrieved using the account number is well known to those skilled in the art. One possible implementation is to store the mobile device address in a database using the account number as the key to a data record holding the mobile device address. Other exemplary embodiments use a loyalty card number, a social security number, a membership number or employer number as the unique identifier.

This invention applies to any message oriented data communication system, including, but not limited to SMS, EMS, MMS, WAP, hypertext markup language ("HTML"), xHTML and other HTML derivatives, mobile e-mail, client side mobile device execution environments such as Java 2 Mobile Edition ("J2ME™"), Brew™, Linux™, or Symbian OS™.

A further aspect of the invention, a system and method is also provided to deliver follow-on messages from the organization once the user mobile device address is captured.

A further aspect of the invention, a system and method is also provided to deliver, an instant mobile coupon, offer, or promotion that can be redeemed providing for a complete system and method to deliver messages, coupons, offers and promotion to users.

In one embodiment, the present solution is a network based system and method, consisting of a trigger system, a message application server and a mobile device service provider system. It allows any user equipped with a mobile device capable of receiving messages to initiate a sequence whereby said user can receive one or more messages from said message application server. Furthermore, said message application server can store said user mobile device address in a database for later communications from said message application server to said user.

The organization service is presented in a traditional media format, including but not limited to, on a print advertisement, on a product packaging, on a bill-board, on a poster, on a flyer, on a coaster, on a candy wrap, on a store display, in a TV ad, in a radio ad, on an Internet site. The presentation includes instructions on how the user can interact with the trigger system. The presentation is called the "call to action" message.

In one embodiment, the trigger system confirms the user mobile device address, handles exceptions, and optionally obtains additional data from the user or opt-in permission if applicable. Once the session with said trigger system is completed, the trigger system informs the message application server which sends a message to the user mobile device.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other features of the present invention will be more readily apparent from the following detailed description and drawings of the illustrative embodiments of the invention in which:

FIGS. **1** and **1**B depicts aspects of an exemplary embodiment of the present invention in accordance with the teachings presented herein.

FIG. **2** depicts an alternative exemplary embodiment of the present invention in accordance with the teachings presented herein containing additional components to deliver messages, coupons, offers or promotions.

FIG. **3** depicts an alternative exemplary embodiment of the present invention in accordance with the teachings presented herein containing additional components to track the redemption of coupons, offers or promotions.

FIG. **4** depicts an exemplary embodiment of delivering follow-on Mobile Terminated messages once the user mobile device address is known.

FIG. **5** is a functional block diagram of the method of capturing a user mobile device address and using it to send a message to the user.

FIG. **6** is a functional block diagram containing the additional steps to deliver messages, coupons, offers or promotions to a user.

FIG. **7** is a functional block diagram of an exemplary embodiment of coupons, offers or promotion redemption.

FIG. **8** is a functional block diagram to capture a user cell phone number in an embodiment of this invention where the trigger system is an IVR system.

FIG. **9** is a functional block diagram of an alternative exemplary embodiment using an IVR system as a trigger system containing the additional steps of verifying if the user calling number is a wireless phone number and capturing additional data.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Aspects, features and advantages of exemplary embodiments of the present invention will become better understood with regard to the following description in connection with the accompanying drawing(s). It should be apparent to those skilled in the art that the described embodiments of the present invention provided herein are illustrative only and not limiting, having been presented by way of example only. All features disclosed in this description may be replaced by alternative features serving the same or similar purpose, unless expressly stated otherwise. Therefore, numerous other embodiments of the modifications thereof are contemplated as falling within the scope of the present invention as defined herein and equivalents thereto. Hence, use of absolute terms, such as, for example, "will," "will not," "shall," "shall not," "must," and "must not," are not meant to limit the scope of the present invention as the embodiments disclosed herein are merely exemplary.

Turning to FIG. **1** there is shown the basic architecture of one embodiment of a system **10** for capturing a user mobile device address by means of a trigger system. The system

comprises a trigger system **102** which can be triggered by a user **100** using a trigger device. Said trigger system **102** is connected by means of a data network **104** to a message application server **106**. The message application server **106** is further connected to a mobile service provider or carrier system **110** by means of a data network **108** and the mobile service provider gateway **112**. The mobile service provider gateway **112** acts as a gateway into the mobile service provider network **114**. The mobile service provider gateway **112** is further capable of sending messages to the user **100** mobile device **116** by means of the service provider mobile network **114**. Said user **100** can then read messages sent to his mobile device **116**.

The trigger system **102** is any system capable of capturing a unique identifier capable of being transformed into the user mobile device **116** messaging address, and optionally other data. The system described in this invention requires that the trigger system **102** or the message application server **106** be able to directly or indirectly retrieve the mobile device **116** address based on said unique identifier captured by the trigger system **102**, and be able to use the mobile device address to send messages to the mobile device **116**. Once the trigger system **102** is triggered by user **100**, it sends said mobile device messaging address or said user unique identifier along with any other captured data to the message application server **106** by means of data network **104**.

The trigger system **102** can be triggered by the user either by using his mobile device **116**, or by using any other system or method.

In one exemplary embodiment of this invention, the trigger system is a computing device equipped with a card reader where the magnetic stripe of the card contains said unique identifier.

In one exemplary embodiment of this invention, the trigger system is a computing device equipped with a bar code reader. The user swipes an object with a bar code containing said unique identifier, such as a key chain card.

In one exemplary embodiment of this invention, the trigger system consists of Radio Frequency Identification ("RFID") readers located in public areas, for example at the doors of stores. The user carries an object with an embedded Radio Frequency Identification RFID tag containing said unique identifier. The trigger system is simply triggered by the user when walking through or near the RFID readers.

In one exemplary embodiment of this invention, the trigger system is a client application running on the user mobile device combined with a server side system. The communication is triggered when the user activates the application and instructs it to trigger the interaction. The client application, by means of the data messaging capabilities of the mobile device notifies the service side system, which can be the message application server, to initiate the communication.

In one exemplary embodiment of this invention, the trigger is a client application running on the user mobile device combined with a local receiver system. The communication is triggered when the user activates the application and instructs it to trigger the interaction. The client then uses a local networking infrastructure such as infra red, Bluetooth®, WiFi or any other local wireless protocol to send the trigger to said receiver system which forwards it to the message application server.

In one exemplary embodiment of this invention the trigger system is any system capable of performing biometric or user identification of said user. Examples of such system include but is not limited to finger-print readers, eye readers, voice identification and video camera identification.

In one exemplary embodiment of this invention, the trigger system is a kiosk where the user enters the unique identifier in the kiosk—for example using a keyboard, a keypad or a touchscreen.

In one exemplary embodiment of this invention, the trigger system **102**, is an IVR system accepting phone calls which is programmed to capture said unique identifier. Various techniques known to those of skill in the art can be used to capture said unique identifier. This includes but is not limited to accepting Dual Tone Multi Frequency ("DTMF") or using voice recognition. The user triggers an interaction with the system by calling a phone number mapping to the IVR system and entering at the prompt said unique identifier and any additional data requested by the IVR. At the end of the call, all the captured information is forwarded to the message application server.

In one embodiment of this invention, the trigger system **102** is an IVR system and the mobile device **116** is a data enabled cell phone or any data device capable of receiving messages sent to a phone number address as described previously. In such embodiment, the IVR system can be further programmed to automatically capture the calling number. Capturing the calling number is very common in IVR systems using the Public Switch Telephone Network ("PSTN") Caller Id infrastructure. If the phone call is made using said cell phone, and the calling number is made available to the IVR, then the step of capturing the cell phone number can be further accelerated by spelling out the number and asking the user to validate the number. For example, the confirmation can be achieved using the following message: "You called from XXX-XXX-XXXX, if this is correct press 1, to enter a different phone number press 2". If the user confirms the number then the IVR can move on to capturing the optional data. If the user does not confirm the number, then the IVR can prompt the user for a new mobile device phone number. This last case is useful for example if the user called from a land based line and the IVR recognized the land line number. If the IVR does not receive the calling number from the PSTN, then the IVR system is programmed to directly prompt the user for his mobile device phone number.

In one exemplary embodiment, the trigger system **102** is wireless card attached to a computing device as described earlier. In the prior art section, we mentioned that wireless data cards suffer from scalability limitations. In this embodiment of the invention, the wireless data card is used only as a trigger system to receive the first MO message. All follow-on messages can then be sent to the user mobile device **116**, using the mobile device **116** mobile service provider specific short code for this program. This invention overcomes the lack of standardized short codes in certain geographies and the lack of scalability of PC based wireless cards by using the wireless card only as a trigger system and not for subsequent message delivery. For example, the user would send an initial MO message to the wireless data card number, say NNN-NNN-NNNN which would be routed to the wireless data card using the carrier peer-to-peer infrastructure. The response from the message application server **106**, would then use a separate service address for each carrier. Carrier A may use a five digit short code XXXXX, carrier B a six digit short code XXXXXX, and carrier C a normal ten digit number MMM-MMM-MMMM. When the user receives the message, he can easily reply back and the fact that each user may be using a different address because they have a different wireless carrier is not an issue.

In one exemplary embodiment, the trigger system **102** is a phone switch. The phone switch is connected to the PSTN SS7 network. Upon receiving a call establishment request, the

phone switch would refuse such request, capture the user calling number and forward said caller number to the message application server **106**. The advantage of this embodiment is that neither the user nor the organization is billed for the call, since it was not completed, and the organization does not incur an IVR cost. The downside is additional data cannot be captured on the user, and the end user experience is probably strange as the call is not accepted.

In another embodiment, the trigger system is a computing device where the user supplies her mobile device address connected to the message application server using a data network, including but not limited to the Internet. In another embodiment, the trigger system is a network accessible computing device that the user connects do using another device—for a example a web and WAP application accessed from a client computer using a browser—connected to the message application server using a data network.

The presented embodiments for the trigger system **102** are illustrative only and not limited to the ones presented. Numerous other embodiments of the trigger system **102** are contemplated as falling within the scope of this invention.

The data network **104** is any data network using any messaging protocol. In one exemplary embodiment, the network is based on TCP/IP and the trigger system **102** forwards the unique identifier and optional data using a Web Service call based on the Simple Object Access Protocol ("SOAP".)

The message application server **106** is any computing server designed to process messages. It is programmed to be able to execute instructions upon receiving incoming messages from mobile devices, such as mobile device **116**, and from any other external source. One of the instructions that the message application server is capable of executing is sending messages out to mobile devices. One of the event requests capable of triggering the message application server **106** to execute said instructions is the receipt of a notification that a user triggered the trigger device **102**.

In one exemplary embodiment, the message application server **106** is implemented as a cluster of Java 2 Enterprise Edition ("J2EE™") components running on commonly available computer hardware running commonly available operating systems. In one exemplary embodiment, the message application server **106** is implemented using the Jboss™ Java application server and uses an Oracle® database to maintain persistent data. In one exemplary embodiment the dialog instructions to execute upon receiving an MO message or a trigger requests are implemented in one or more extensible markup language ("XML") document(s). Multiple other embodiments of the message application server are possible and known to those of skill in the art.

In one preferred embodiment, the message application server **106** is additionally connected to a message application database **120**. The database can be used as part of the implementation of the message application server. In one exemplary embodiment, the database stores data on the active communication programs, including but not limited to, program data; user data; user session data; system logs. The usage of a database to implement sophisticated server applications is well known to those of skill in the art and many possible usage of the database is possible and within the scope of this invention.

The message application server **106** is connected to one or more service provider gateway **112** using any suitable data network **108**. In an exemplary implementation, the data network is the Internet using a virtual private network ("VPN") using the short message peer-to-peer ("SMPP") protocol. Other exemplary implementations use the Internet without a VPN, use private TCP/IP based connections ("leased line"), or use a dedicated X.25 connection or any other available data network and protocol. The message application server **106** can simultaneously support multiple mobile service providers systems **110** and mobile device **116** technologies and hence can be connected to multiple service providers systems **110**. The message application server **106** can be similarly connected a plurality of trigger system **102**.

The message application server **106** can send, and optionally receive, messages to and from the mobile device **116**, by means of the mobile service provider system **110**. The actual details of the mobile service provider infrastructure are not relevant to this present invention and in practice take many forms.

In one exemplary embodiment, the mobile provider system **110** is broken down into a mobile service provider gateway **112** responsible for interfacing with the message application server **106** by means of data network **108**. Using methods known to those skilled in the art, messages can be exchanged between mobile devices, such as mobile device **116** and the mobile service provider gateway **112** by means of a mobile network **114**.

The mobile device **116** is any device a user can carry along with him that is capable of receiving data messages from at least the message application server **106** by means of the service provider system **110**. In general, the mobile device **116** is also capable of sending messages to the message application server **106** as well as being able to send and receive messages to other mobile devices and other service applications. More capable devices can also send messages, or send and receive more complex messages than text messages such as multi-media messages.

In one embodiment of the invention, the mobile device **116** is a data enabled cell phone, or any data device capable of receiving and sending messages sent to a phone number address. The later can include wireless enabled personal data assistants ("PDA") or any other computing device capable of receiving messages sent to a phone number.

In one exemplary embodiment of the invention, the mobile device **116** is a data capable device capable of receiving and sending messages using e-mail protocols, including but not limited to SMTP, Post Office Protocol ("POP") and Internet Message Access Protocol ("IMAP").

In one exemplary embodiment of this invention, the mobile device **116** is a data capable device capable of receiving and sending messages using a client application that uses a data network, including but not limited to the internet protocol ("IP"). The mobile device can use any IP transport, including but not limited to 801.11, 801.11a, 801.11b, 801.11g and Wifi.

In one exemplary embodiment of the invention, the mobile device **116** is a data capable device capable of receiving and sending messages using an instant messaging protocol. Examples of instant messaging service provide include, but is not limited to, AOL Instant Messenger™, Yahoo!® Messenger, MSN® Messenger, Jabber® and other similar protocols.

Turning to FIG. **2** there is shown a block diagram of an embodiment of the invention further comprising components to deliver coupons, offers and promotions to the user. The message application server **106** is further connected to an offer application **122**. The offer application **122** is connected to an offer database **124**.

The offer application **122** is responsible for selecting and creating coupons, offers and promotions for said user **100**. The coupon, offer or promotion is part of the message that will be sent to the user device **116** as described above.

In one embodiment, the coupons, offers and promotions are implemented using an offer message. In a preferred

embodiment, the coupons, offers and promotions are implemented using an offer code and an offer message. In one exemplary embodiment, the coupon and promotion offers are represented by numerical codes. In one exemplary embodiment, the coupons and promotion offers are represented by alphanumerical codes. In one embodiment, the coupons, offers and promotions are implemented using data, including but not limited to text data, XML data and binary data, which is interpreted by an application running on said user mobile device **116**. In one exemplary embodiment, the coupons and promotion offers are represented by graphical images—including bar codes.

In one exemplary embodiment each user receives the same coupon, offer or promotion code. In another exemplary embodiment, each coupon, offer or promotion code is unique and encodes the coupon, offer or promotion and a user identification. In one exemplary embodiment, the user identification is a sequence number, a short 3-5 digit sequence, allowing the encoding of 1000-100,000 unique users. Each time a user triggers the system and a message, coupon, offer or promotion is generated, a new sequence number is generated and stored in the offer database with the generated offer. At redemption time, the sequence number is extracted from the offer code and the most recent offer with the same offer and sequence number is matched. The benefit of this exemplary embodiment is to keep the unique identifier short in the common case that the code is manually entered at redemption time. In most retail environments, the speed of customer checkout is critical and the more digits need to be entered, the longer it takes to capture the message, coupon, offer or promotion code and the more likely an input error will be made.

In one preferred embodiment, the message, coupon, offer or promotion code includes a checksum digit, using any of the well know checksum algorithms, including but not limited to the mod 10 algorithm used in credit card numbers, whereby invalid coupon, offer or promotion codes due to input errors can be determined.

These various embodiments of coupons and promotion offers are illustrative only and not limiting, therefore numerous other embodiments of coupons, offers and promotions on mobile devices fall within the scope of this invention

The offer database **124** is used by the offer application **122** to store available offers, to maintain user profile information concerning coupons, offers and promotions, to maintain logs of created offers. The usage of database to implement sophisticated server applications is well known to those of skill in the art and many possible usage of the database is possible and within the scope of this invention.

In one preferred embodiment, the offer application **122** is connected to an external system **125** comprising enterprise systems, customer relationship management ("CRM") systems or loyalty systems that are involved in the generation, redemption and analysis of the offers.

Internal details of the offer application and the coupon, offer and promotion codes is not discussed in further details as they are known to those skilled in the art. Couponing and all the issues around generating coupons, matching coupons to users based on multiple parameters including past interaction and demographic data is a well established industry. All these couponing techniques apply to the coupon generation and fall into the scope of this invention.

Turning to FIG. **3** there is shown a block diagram of an embodiment of the invention further comprising components to track the redemption of coupons, offers or promotions. The system further comprises above FIG. **2**, an offer entry system **130** used to validate and capture coupons, offers, and promotions redemption. The offer entry device **130** is connected to the offer application **122** by means of a data network **132**. Optionally, an external system **121** or **125** interfaces with either the message application server, the offer application or both.

In one embodiment, the offer entry system validates the coupon, offer or promotion code. In one embodiment, the offer entry system captures the coupon, offer or promotion redemption for storage in the offer database **124**. In one preferred embodiment, the offer entry system validates and captures the coupon, offer or promotion code for storage in the offer database **124**.

In one preferred embodiment, the offer entry system **130** is a computing device located where the coupon, offer or promotion is redeemed. The coupon, offer or promotion code is entered at redemption time. In this preferred embodiment the coupon, offer or promotion code is validated in real-time by checking the code on the offer entry system **130** (for example the offer code can contain a checksum that is verified), then by sending a request by means of data network **132** to the offer application **122**, that verifies the coupon, offer or promotion code. In this exemplary embodiment, redemption data can be analyzed by the offer server **122** and reports **134** created.

In one preferred embodiment, the offer entry system is a point of sale ("POS") terminal programmed to implement the logic described above. If the coupon, offer or promotion code is validated in real-time preventing fraud and providing for duplicate checking, it is possible to offer valuable coupons, offers and promotions that otherwise might not be economical to provide without such checks.

In an exemplary embodiment, the offer entry system **130** is a stand-alone computing device, for example a kiosk. The user enters the coupon, offer or promotion code in the offer entry system **130**, and the offer entry system prints out a paper coupon. The user can then redeem the paper coupon like regular paper coupons. In an exemplary embodiment, the offer entry system **130** locally stores each redemption, and the data can be uploaded on a regular basis, by means of a data network **132** to the offer application **122**. In an exemplary embodiment the offer entry device **130** is equipped with removable storage. On a regular basis the removable storage is replaced and the content is read on a compatible device and the data uploaded to the offer application **122**.

In one exemplary embodiment, the coupon, offer or promotion code has the same format as a payment number like a credit card number. The existing payment processing infrastructure is used to authorize and capture coupon redemption. The operator of the system described in this invention would request a unique bank id prefix to distinguish its offer numbers from credit or payment card numbers. In one exemplary embodiment, said payment processing infrastructure is configured to track coupon, offer and promotion redemption and credit the user for his coupon, offer and promotion.

The data network **132** is any data network or any means using any messaging protocol or data representation not necessarily always connected allowing for the transfer of data, in real-time or in batch mode, from the offer entry device **130** to the offer application **122**. In one preferred embodiment, the network is based on the Internet Protocol.

Turning to FIG. **4** there is shown a block diagram of an embodiment of the invention illustrating how follow-on messages can be sent at later dates to said user **100**. Messages, coupons, offers and promotions are delivered immediately upon the user activating the trigger system **102**. But the organization, can also decide to send further messages, coupons, offers and promotions to users that have participated previously. Under this scenario, during the initial communication, the message application server **106**, or the offer server **122**

stores the mobile device **116** address. At a later date, when the organization wants to push out new messages, coupons, offers or promotions, the list of users that have participated is looked up. If the message includes a coupon, offer or promotion, it may be looked up by the offer application **122** using a mechanism similar to the one described above. The push message is then delivered to the user using the same system and method described earlier.

FIG. **5** illustrates the basic steps of the invention. In a typical usage of the invention, the user **100** is encouraged to trigger the system by a "call to action" message presented in a traditional media format. The trigger system **102**, upon being triggered (step **200**) is designed to capture (step **202**) the unique identifier capable of identifying the user mobile device **116**, and optionally other data. The captured data is then forwarded (step **204**) to the message application server **106**. The message application server **106** then retrieves (step **206**) the mobile device address of the user based on the unique identifier. The message application server **106** then executes (step **208**) a programmed set of instructions whereby an appropriate response message is generated. Optionally, in step **210**, all the forwarded data, and any additional data generated by the execution of the instructions in step **208** are saved in the message application database **120**. The response message is then forwarded to the mobile service provider gateway **112** in step **212**, for delivery to the mobile device **116** by the mobile service provider. Said user can then read said response message on said mobile device **116** in step **214**.

In an alternative embodiment, step **206** is not performed in the message application server **106**, but instead in the trigger system **102**, and either the mobile address or both the mobile address and the unique identifier are forwarded to the message application server in step **204**.

FIG. **6** illustrates the basic steps of the invention described in FIG. **5** augmented by the delivery of a coupon, offer or promotion. The trigger steps **200**, **202**, **204** and **206** are the same as in FIG. **5**. Instead of directly generating the response message in the message application server **106**, all the user data available in the message application server including the unique identifier, the mobile device address, the optional user data is forwarded to the offer application **122** (step **220**). Based on all the available data, the offer server **122** generates an offer (step **222**). The generated offer and any other user data is stored in the offer database **124** (step **224**). The response message containing the coupon, offer or promotion is forwarded back to the message application server **106** for delivery to the mobile device **116** (step **226**). The message delivery steps **210**, **212** and **214** are the same as in FIG. **5**. Later on the user will redeem the coupon, offer or promotion message, for example in a store. The coupon, offer or promotion being redeemed is entered (step **228**) in the offer entry system **130**. Either in real-time or in batch the redemption data is forwarded to the offer application **122** (step **230**). The redemption data is then stored in (step **232**) in the offer database **124**. Based on the data stored in step **224** and step **232** in the offer database **124**, reports **134** can be generated that show redemption rates from which the effectiveness of the promotion can be measured.

FIG. **7** illustrates another preferred embodiment, where the coupon, offer or promotion is verified after step **228**, by interrogating the offer application **122**. Started from step **214** of FIG. **6**, the offer is entered in the offer entry system **130** in step **228**. The offer is then forwarded to the offer application **122** for verification by means of data network **132** (step **240**). The offer is verified by the offer application **122** (that is the offer application verifies it's a valid offer, and has not been already redeemed if duplicate checking is configured) (step **242**). If the offer is valid, then the redemption proceeds (**246**) and the following steps are the same as in FIG. **6**. If the offer is invalid, the status is made available to the offer entry device **130** (step **244**). In the case of an invalid offer, the offer may be re-entered since the offer may have been rejected due to an input error. If the offer has already been redeemed, there is no benefit in re-entering the offer.

FIG. **8** illustrates step **202** in an exemplary embodiment where the trigger system **102** is implemented using an IVR system. The user calls the IVR number. The PSTN delivers the call to the IVR system in Step **300**. The IVR system is then programmed to retrieve the user calling number, using the PSTN caller id support (step **302**). If the user calling number is available, the system spells out the number to the user and asks for a confirmation in step **306**. If the user confirms positively, the user calling number is then forwarded to the message application server **106** as described in step **204**. If the user confirms negatively (step **306**), or the IVR system does not detect the user calling number in step **302** (for example if the user is blocking caller id), then the IVR is programmed (step **304**) to ask the user to enter his cell phone number. The phone number can either be entered using the telephone key pad, and the IVR system will detect the Dual Tone Multiple Frequency ("DTMF") tones, or alternatively using a voice recognition system. The details on how to program an IVR system to perform the steps described above are well known to those skilled in the art.

FIG. **9** is an alternative embodiment of step **202** that builds upon FIG. **7**. In FIG. **8** the initial steps **300**, and **302** are the same as in FIG. **8**. The calling number supplied by the PSTN, or entered by the user is analyzed in step **320** to see if it corresponds to a cell phone number. There are multiple ways to perform this operation which are know to those skilled in the art. One possible implementation is to lookup the first six digits of the phone number in a database called the Local Exchange Routing Guide ("LERG") that contains information on all the PSTN switches. If the phone number corresponds to a cell phone number, the IVR is programmed to proceed to step **306**. If the number does not correspond to a cell phone number, then the IVR is programmed in step **304** to prompt for a cell phone number as described before. In this alternative embodiment, step **322** was also added prompting the user for additional data, for example for a choice of an offer of interest or from a store of interest. Once all the additional data is captured, the user cell phone and the additional data is forwarded to the message application server **106** as described in step **204**.

Having now described one or more exemplary embodiments of the invention, it should be apparent to those skilled in the art that the foregoing is illustrative only and not limiting, having been presented by way of example only. All the features disclosed in this specification (including any accompanying claims, abstract, and drawings) may be replaced by alternative features serving the same purpose, and equivalents or similar purpose, unless expressly stated otherwise. Therefore, numerous other embodiments of the modifications thereof are contemplated as falling within the scope of the present invention as defined by the appended claims and equivalents thereto.

For example, the techniques may be implemented in hardware or software, or a combination of the two. In one embodiment, the techniques are implemented in computer programs executing on programmable computers that each include a processor, a storage medium readable by the processor (including volatile and non-volatile memory and/or storage elements), at least one input device and one or more output devices. Program code is applied to data entered using the

input device to perform the functions described and to generate output information. The output information is applied to one or more output devices.

Each program may be implemented in a high level procedural or object oriented programming language to communicate with a computer system, however, the programs can be implemented in assembly or machine language, if desired. In any case, the language may be a compiled or interpreted language.

Each such computer program may be stored on a storage medium or device (e.g., CD-ROM, hard disk or magnetic diskette) that is readable by a general or special purpose programmable computer for configuring and operating the computer when the storage medium or device is read by the computer to perform the procedures described in this document. The system may also be considered to be implemented as a computer-readable storage medium, configured with a computer program, where the storage medium so configured causes a computer to operate in a specific and predefined manner.

In a most preferred embodiment, the various components, such as the trigger system, the message application server, the offer application, etc., are implemented on one or more computer systems. The multiplicity of the computer system allow for the distribution of the workload in accordance with, e.g., the number of computer systems available and enables the system to function even is a subset of the computer systems experience one or more faults. The computers should be connectable to each other, for example, by means of 100 Base-T Ethernet interfaces and corresponding 100Base-T Ethernet switches. In the most preferred implementation, each computer contains dual UltraSPARC® III processors, 1024 MB RAM, two 9 GB disk drives, and operates using the Unix™ compatible Solaris™ operating system. As will be appreciated, the specific hardware utilized can be varied in accordance with need, required capacity, and the preferred programming and operating environment, as well as in response to other factors.

What is claimed is:

1. A system, comprising:

a trigger system configured to receive, via a trigger device, a unique identification identifier (ID) from a user of a mobile device, the unique ID being associated with the user and the mobile device, and to transmit the unique ID to an application server, wherein the unique ID is at least one of: a number, data encoded on a magnetic stripe of a card, a bar code, a Radio Frequency Identification (RFID) tag including data, a client application including unique data, and a biometric identifier unique across a plurality of users; and

an offer application system coupled with the application server to generate an offer based in part on the mobile device identification number, and provide the offer to the application server for indication in the message sent to the mobile device;

and an offer entry system coupled with the offer application system to receive and validate the offer when the offer is redeemed by a user;

wherein the application server is configured to retrieve a mobile device identification number associated with the unique ID, the mobile device identification number identifying the mobile device, and to cause a message to be sent to the user via the mobile device.

2. The system of claim **1**, wherein the trigger device is distinct from the mobile device.

3. The system of claim **2**, wherein the trigger device is one of a computing device equipped with a magnetic card reader, a radio frequency identification reader, a biometric identification device, a kiosk, an interactive voice response system, or a wireless card attached to a computing device.

4. The system of claim **1**, wherein the mobile device encompasses the trigger device, and wherein the unique ID is received from the mobile device in a first transmission and the message is pushed from the application server to the mobile device in a second transmission, wherein the first and second transmissions occur during separate transmission sessions.

5. The system of claim **1**, wherein the offer is represented by one of a numeric code, alphanumeric code, barcode, or image.

6. The system of claim **1**, wherein the offer further includes a user identification number generated by the application system to enable the offer entry system to validate the offer when redeemed by a user.

7. The system of claim **1**, wherein the application server is coupled with a service provider gateway to send messages to users of each of a plurality of mobile service provider systems.

8. A method, comprising:

receiving, via a trigger device, a unique identifier (ID) from a user of a mobile device, the unique identifier being associated with the user and the mobile device, wherein the unique ID is at least one of:

a number, data encoded on a magnetic stripe of a card, a bar code, a Radio Frequency Identification (RFID) tag including data, a client application including unique data, and a biometric identifier unique across the plurality of users;

determining a mobile device identification number associated with the unique identifier, the mobile identification number identifying the mobile device;

generating a response message;

forwarding the response message to a messaging gateway for delivery to the user via the mobile device identified by the mobile device identification number;

determining user data associated with a user of the mobile device in response to receiving the unique identifier;

generating an offer for inclusion in the response message based at least in part on the user data and the mobile device identification number, wherein the offer includes an offer code;

receiving the offer code when a user attempts to redeem the offer; extracting a validation code from the offer code; and

utilizing the extracted validation code to validate the offer and allow redemption of the offer.

9. The method of claim **8**, wherein the trigger device is a device other than the mobile device.

10. The method of claim **8**, further

comprising: receiving the unique identifier from the mobile device;

and

pushing the message to the mobile device.

11. The method of claim **8**, wherein said validation code contains one or more checksum digits to enable detection of offer code input errors.

12. A system, comprising:

an external source providing a unique identifier (ID) associated with a user of a mobile device, the unique ID being associated with the user and the mobile device, wherein the unique identifier (ID) is at least one of: a number, data encoded on a magnetic stripe of a card, a bar code, a Radio Frequency Identification (RFID) tag

including data, a client application including unique data, and a biometric identifier unique across a plurality of users;

a trigger system to receive the unique ID from the external source and transmit the unique ID to an application server; and

the application server to retrieve a mobile device identification number associated with the unique ID, the mobile device identification number identifying the mobile device, and to cause a message to be sent to the user via the mobile device identified by the mobile device identification number.

An offer application system coupled with the application server to generate an offer based in part on the mobile device identification number, and provide the offer to the application server for indication in the message sent to the mobile device;

And an offer entry system coupled with the offer application system to receive and validate the offer when the offer is redeemed by a user.

13. The system of claim **12**, wherein the external source includes biometrics, a smart card, a magnetic card, or a radio frequency identification tag.

* * * * *

EXHIBIT C

US008131262B2

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

(10) **Patent No.: US 8,131,262 B2**
(45) **Date of Patent: Mar. 6, 2012**

(54) **SYSTEM AND METHOD TO INITIATE A MOBILE DATA COMMUNICATION UTILIZING A TRIGGER SYSTEM**

(75) Inventors: **Michael Trioano**, Waltham, MA (US); **Mark Grindeland**, Framington, MA (US); **Gerald Hewes**, Lexington, MA (US); **Eswar Priyadarshan**, West Roxbury, MA (US); **Randall Snyder**, Campbell, CA (US)

(73) Assignee: **M-Qube, Inc.**, Watertown, MA (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.

(21) Appl. No.: **12/846,691**

(22) Filed: **Jul. 29, 2010**

(65) **Prior Publication Data**

US 2011/0086617 A1 Apr. 14, 2011

Related U.S. Application Data

(63) Continuation of application No. 12/177,093, filed on Jul. 21, 2008, now Pat. No. 7,792,518, which is a continuation of application No. 10/521,521, filed as application No. PCT/US03/22661 on Jul. 18, 2003, now Pat. No. 7,403,788.

(60) Provisional application No. 60/397,435, filed on Jul. 19, 2002.

(51) **Int. Cl.**
H04M 12/58 (2006.01)

(52) **U.S. Cl.** **455/412**; 455/466; 455/414.1; 455/432.2

(58) **Field of Classification Search** 455/412.1, 455/414.1, 466, 432.3, 41.2
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,668,876	A	9/1997	Falk et al.	
5,764,742	A	6/1998	Howard et al.	
6,560,651	B2	5/2003	Katz et al.	
6,609,150	B2 *	8/2003	Lee et al.	709/219
6,647,257	B2	11/2003	Owensby	
6,925,307	B1	8/2005	Mamdani et al.	
7,139,565	B2	11/2006	Fiatal et al.	
7,231,357	B1	6/2007	Shanman et al.	
7,343,317	B2	3/2008	Jokinen et al.	
2001/0039514	A1	11/2001	Barenbaum et al.	
2002/0004746	A1	1/2002	Ferber et al.	
2002/0049644	A1	4/2002	Kargman	

(Continued)

FOREIGN PATENT DOCUMENTS

KR 2001076121 8/2001

(Continued)

OTHER PUBLICATIONS

PCT International Search Report, PCT/US03/22661, 4 pages.

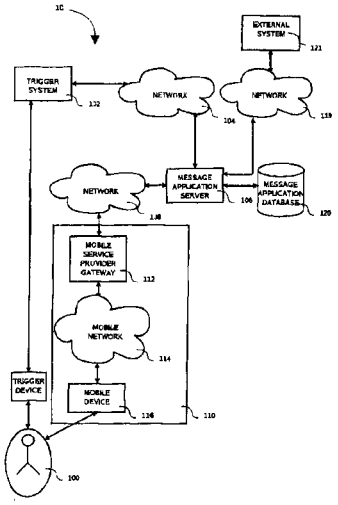
(Continued)

Primary Examiner David Q Nguyen
(74) *Attorney, Agent, or Firm* Arent Fox LLP

(57) **ABSTRACT**

A system and method to enable a user to initiate a communication with an organization using a mobile communication device by means of a trigger system. A system and method to enable an organization to acquire a user mobile device address by means of a trigger system. A system and method to enable an organization to respond to a user by means of a trigger system and a message application server. A system and method to enable organizations to deliver mobile messages, coupons, offers and promotions to users mobile device by means of a combination of a trigger system, a message application server and an offer application.

20 Claims, 10 Drawing Sheets



U.S. PATENT DOCUMENTS

2002/0085027	A1	7/2002	Kim	
2002/0160776	A1	10/2002	Torabi	
2003/0005066	A1	1/2003	Lazaridis et al.	
2003/0019935	A1	1/2003	Giannulli	
2003/0074328	A1 *	4/2003	Schiff et al.	705/75
2003/0100315	A1	5/2003	Rankin	
2003/0108163	A1	6/2003	Brown et al.	
2003/0174814	A1	9/2003	Diacakis	
2003/0187938	A1	10/2003	Mousseau et al.	

FOREIGN PATENT DOCUMENTS

WO	WO 01/61559	A1	8/2001
WO	WO 01/97037	A1	12/2001
WO	WO 02/103486	A2	12/2002

OTHER PUBLICATIONS

U.S. Appl. No. 60/397,435, filed Jul. 19, 2002, 21 pages.

* cited by examiner

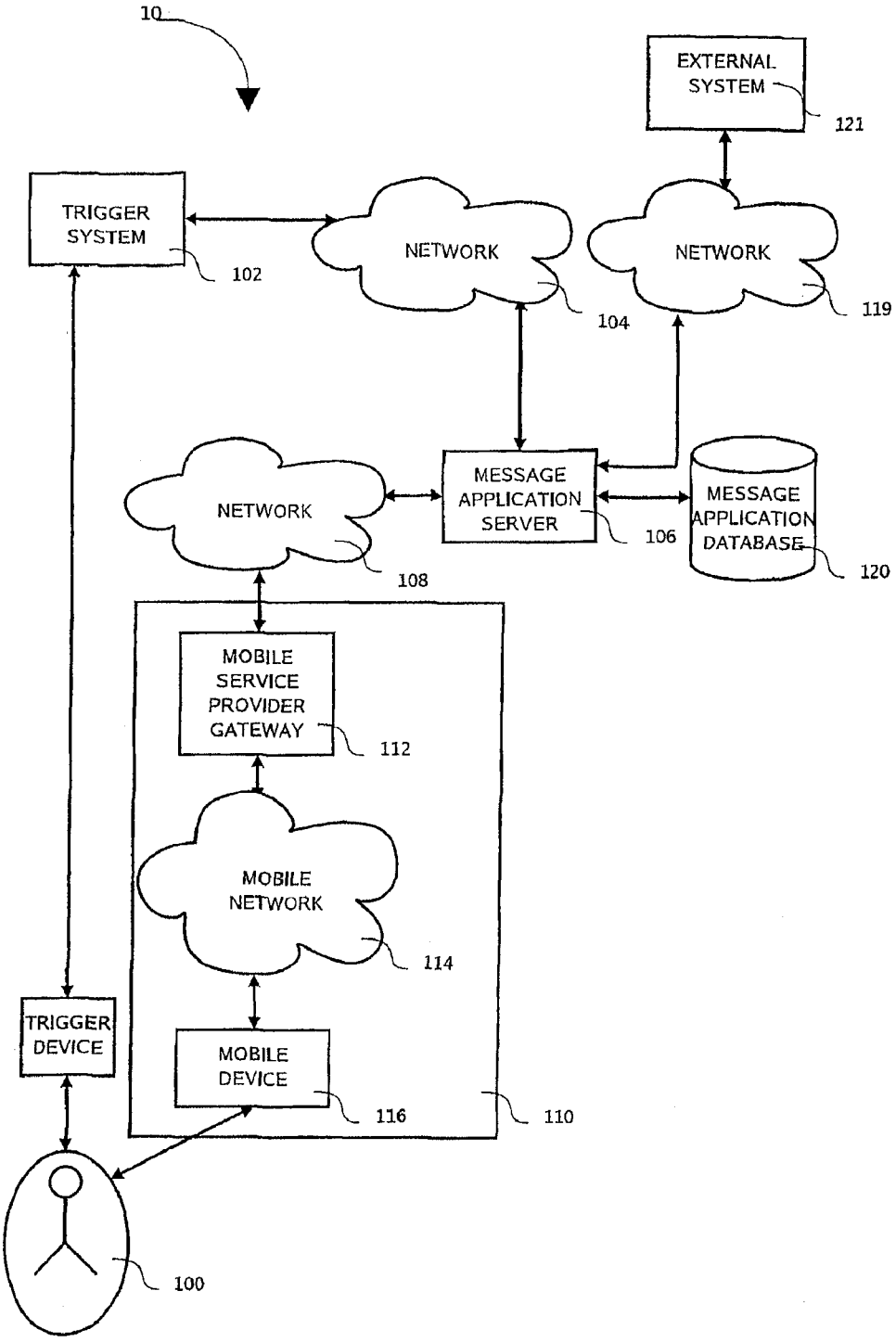

10
EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
MOBILE NETWORK
114
TRIGGER DEVICE
MOBILE DEVICE
116
110
100

FIG. 1

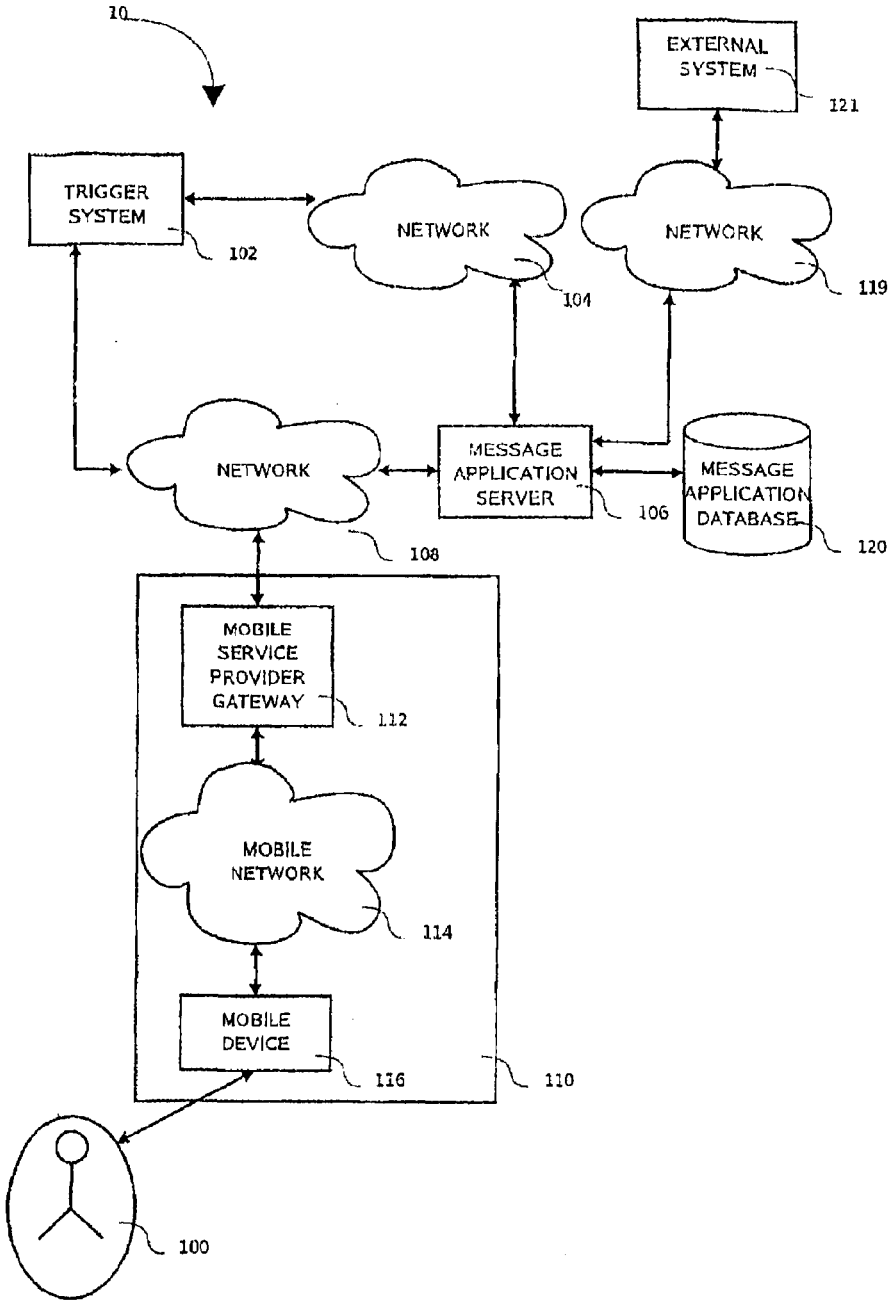

10
EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
MOBILE NETWORK
114
MOBILE DEVICE
116
110
100

FIG. 1A

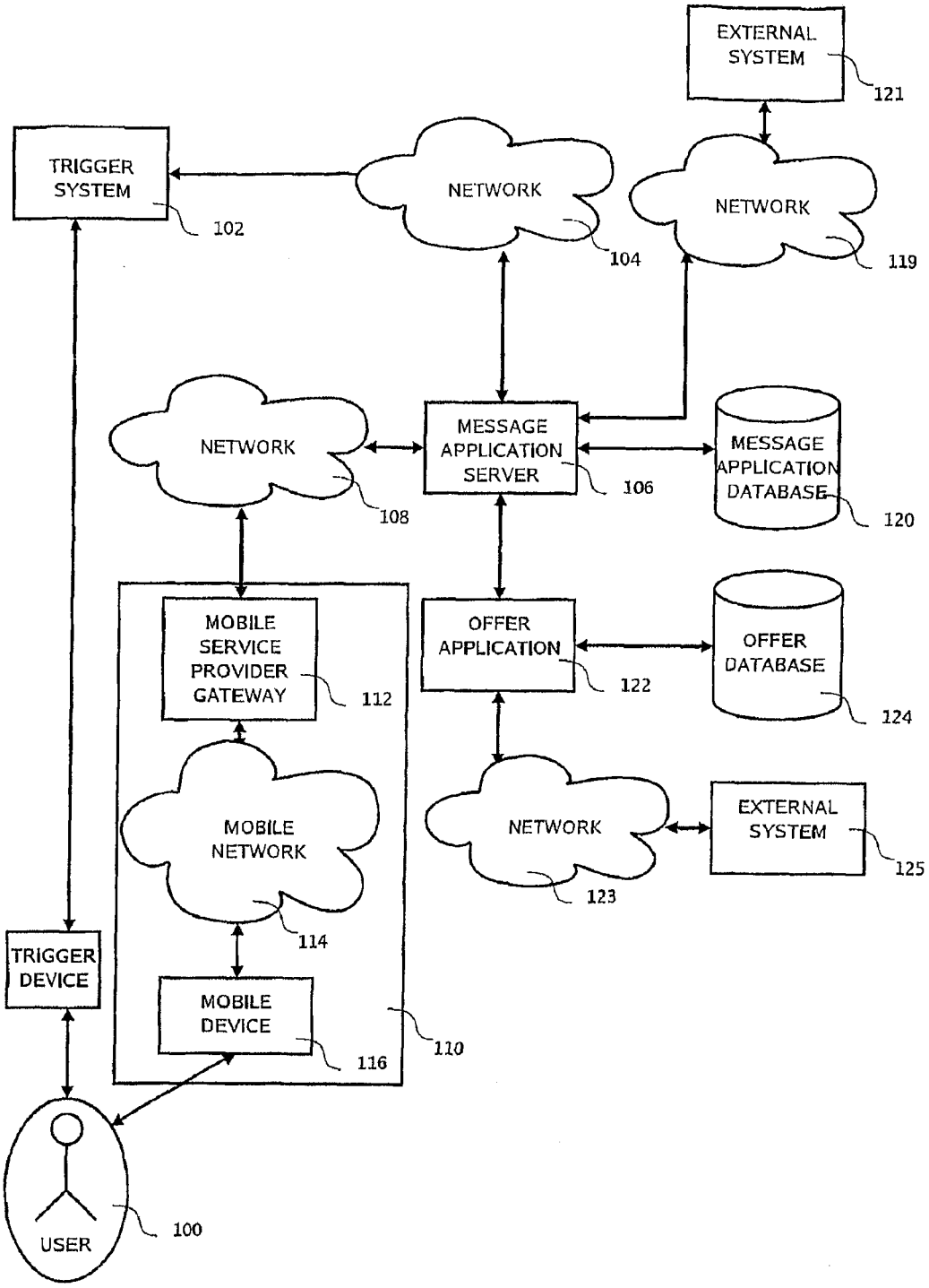

EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
OFFER APPLICATION
122
OFFER DATABASE
124
MOBILE NETWORK
114
NETWORK
123
EXTERNAL SYSTEM
125
TRIGGER DEVICE
MOBILE DEVICE
116
110
USER
100

FIG. 2

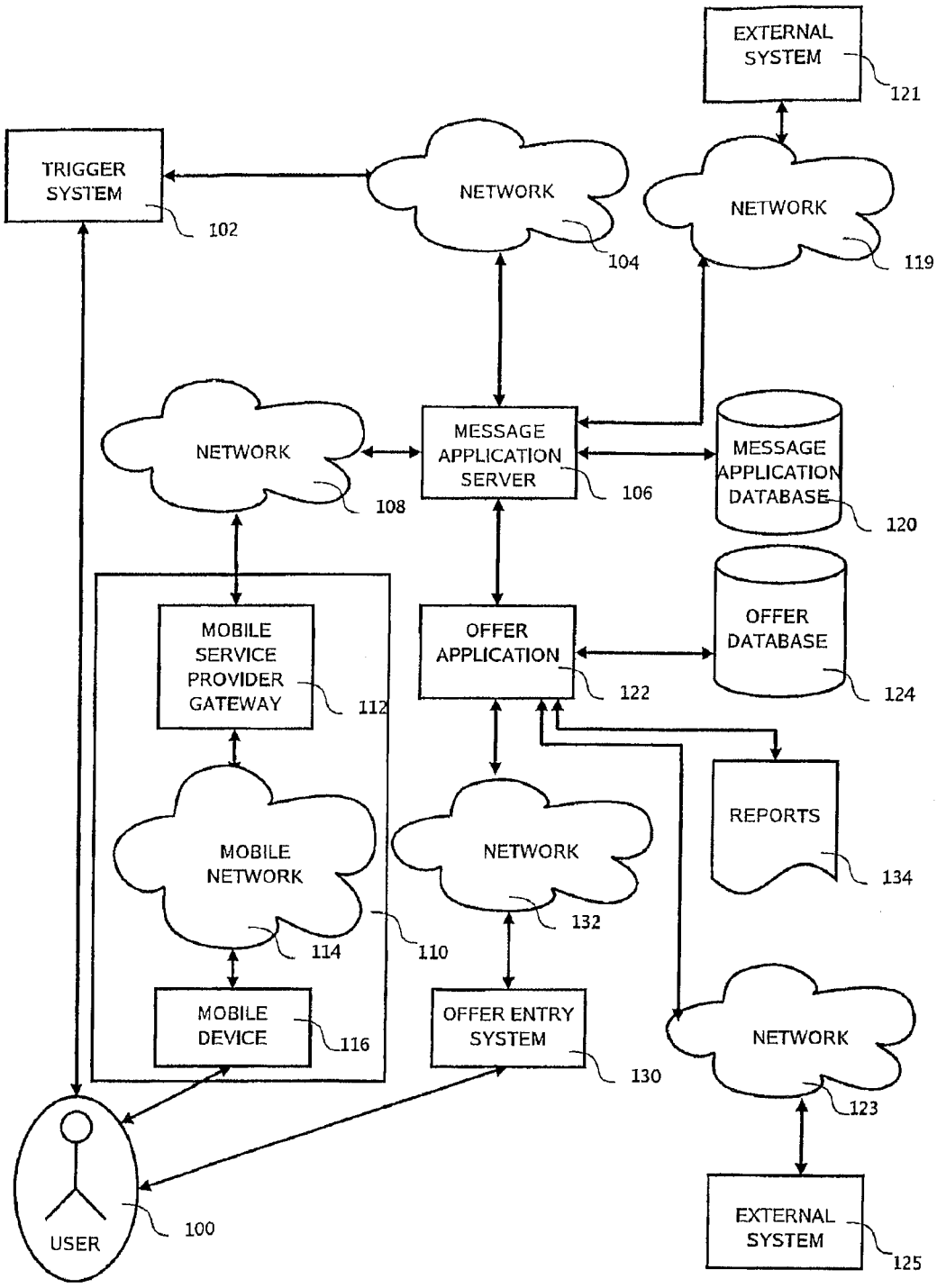

EXTERNAL SYSTEM
121
TRIGGER SYSTEM
102
NETWORK
104
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
OFFER APPLICATION
122
OFFER DATABASE
124
MOBILE NETWORK
114
110
NETWORK
132
REPORTS
134
MOBILE DEVICE
116
OFFER ENTRY SYSTEM
130
NETWORK
123
USER
100
EXTERNAL SYSTEM
125

FIG. 3

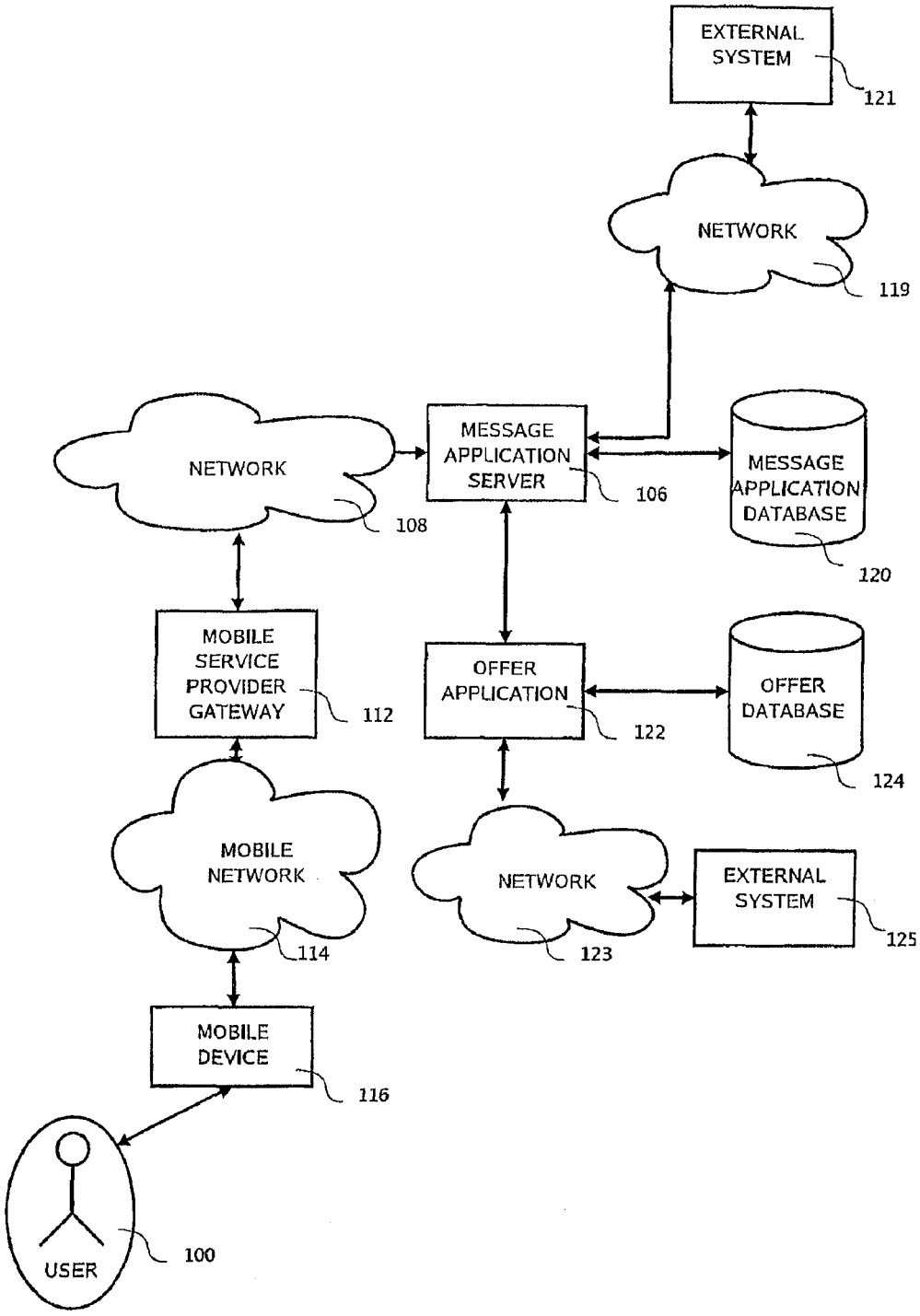

EXTERNAL SYSTEM
121
NETWORK
119
NETWORK
108
MESSAGE APPLICATION SERVER
106
MESSAGE APPLICATION DATABASE
120
MOBILE SERVICE PROVIDER GATEWAY
112
OFFER APPLICATION
122
OFFER DATABASE
124
MOBILE NETWORK
114
NETWORK
123
EXTERNAL SYSTEM
125
MOBILE DEVICE
116
USER
100

FIG. 4

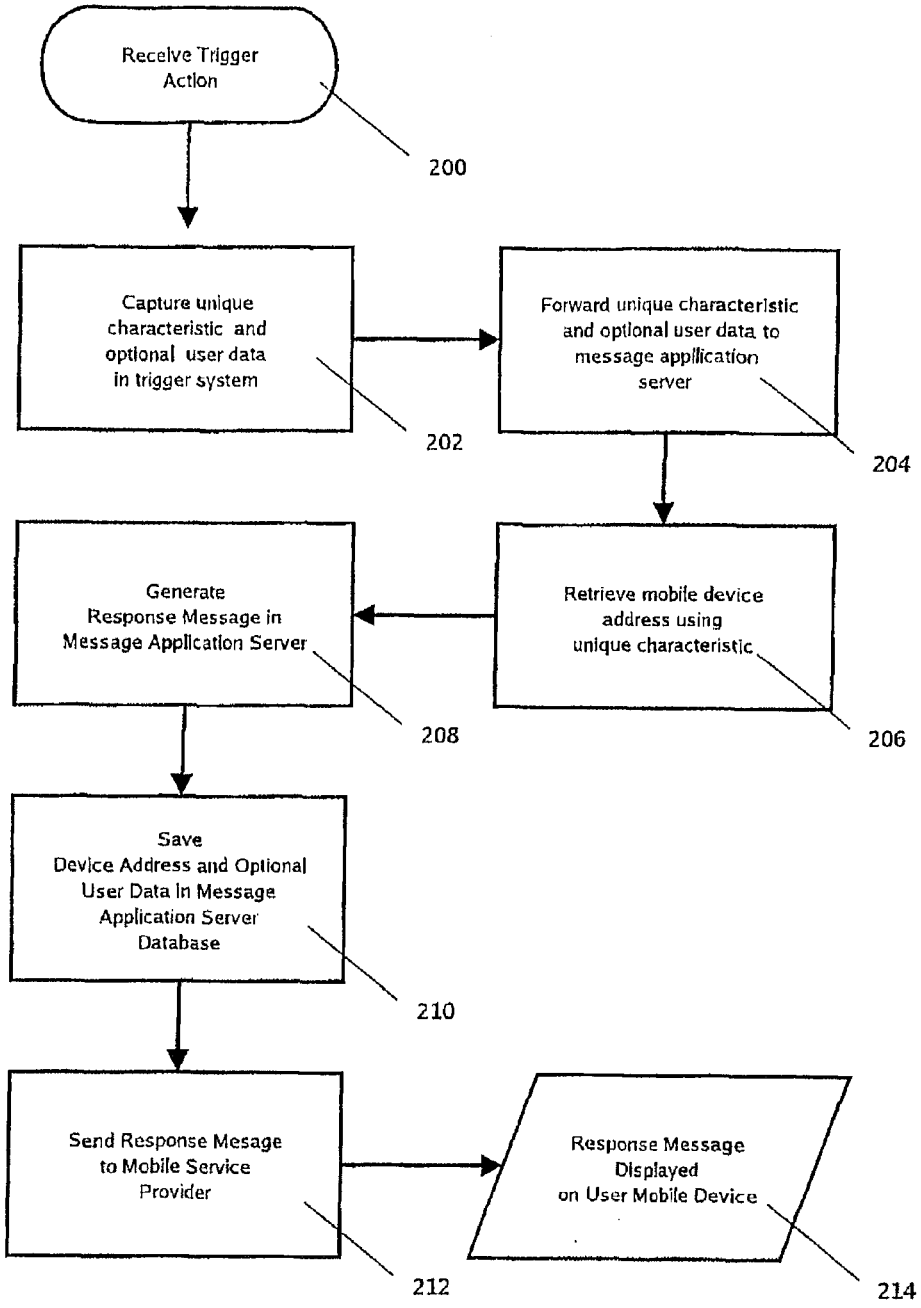

Receive Trigger Action
200
Capture unique characteristic and optional user data in trigger system
202
Forward unique characteristic and optional user data to message application server
204
Retrieve mobile device address using unique characteristic
206
Generate Response Message in Message Application Server
208
Save Device Address and Optional User Data In Message Application Server Database
210
Send Response Mesage to Mobile Service Provider
212
Response Message Displayed on User Mobile Device
214

FIG. 5

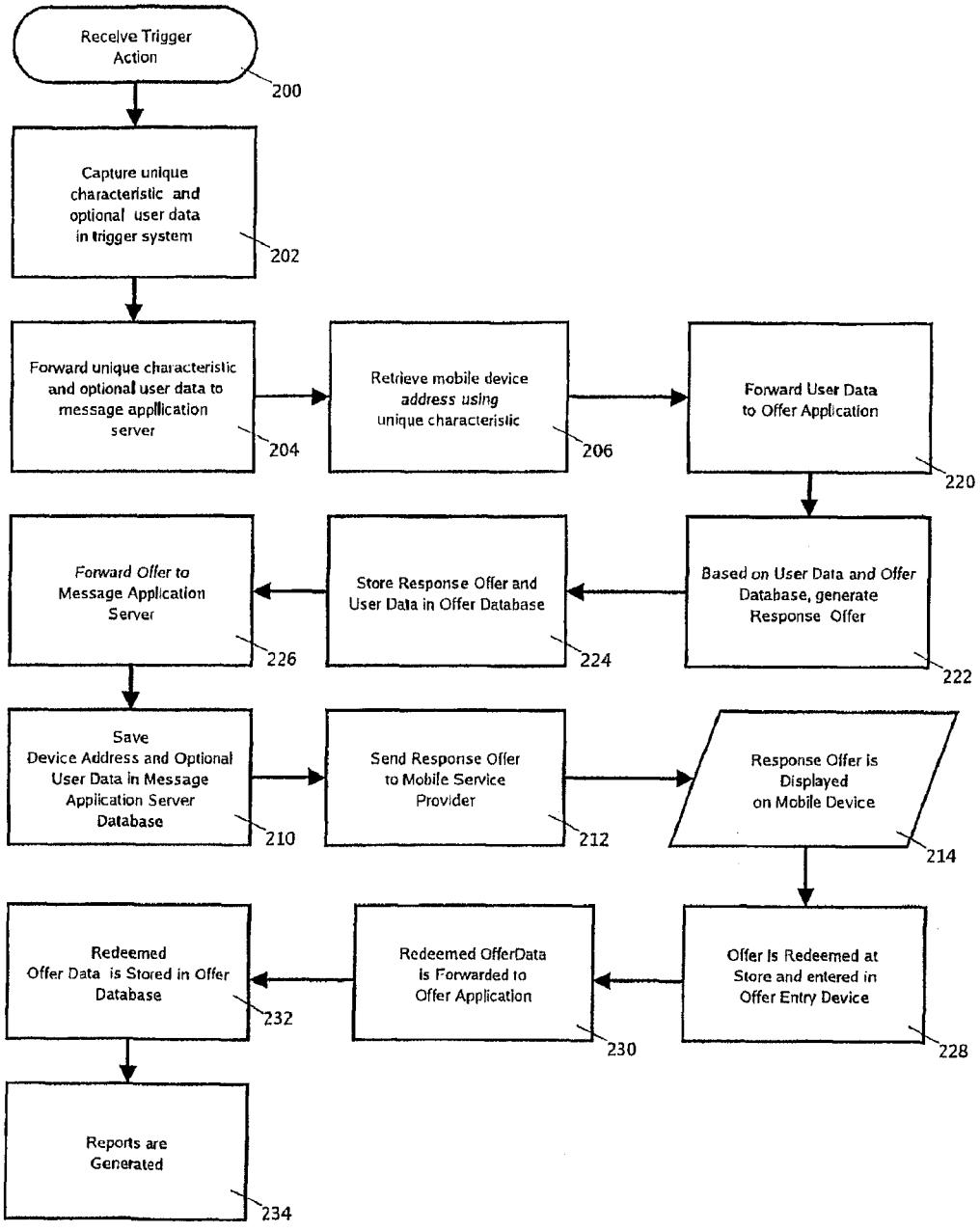

Receive Trigger Action
200
Capture unique characteristic and optional user data in trigger system
202
Forward unique characteristic and optional user data to message appllication server
204
Retrieve mobile device address using unique characteristic
206
Forward User Data to Offer Application
220
Based on User Data and Offer Database, generate Response Offer
222
Store Response Offer and User Data in Offer Database
224
Forward Offer to Message Application Server
226
Save Device Address and Optional User Data in Message Application Server Database
210
Send Response Offer to Mobile Service Provider
212
Response Offer is Displayed on Mobile Device
214
Offer Is Redeemed at Store and entered in Offer Entry Device
228
Redeemed OfferData is Forwarded to Offer Application
230
Redeemed Offer Data is Stored in Offer Database
232
Reports are Generated
234

FIG. 6

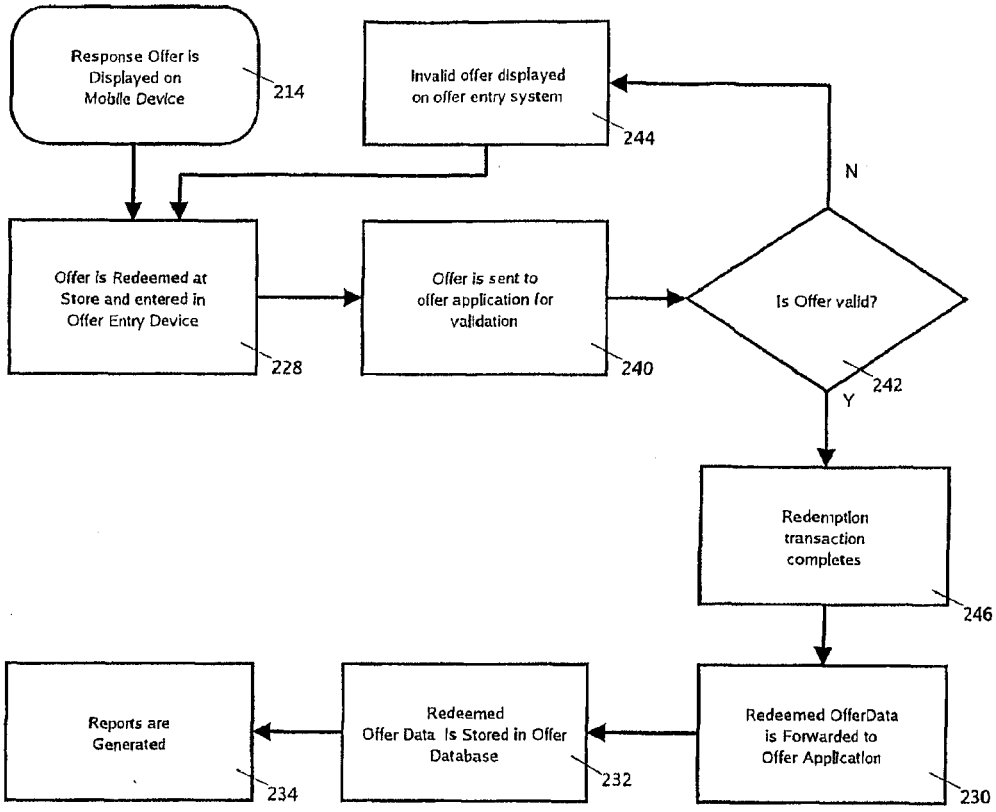

Response Offer is Displayed on Mobile Device
214
Invalid offer displayed on offer entry system
244
N
Offer is Redeemed at Store and entered in Offer Entry Device
228
Offer is sent to offer application for validation
240
Is Offer valid?
242
Y
Redemption transaction completes
246
Reports are Generated
234
Redeemed Offer Data Is Stored in Offer Database
232
Redeemed OfferData is Forwarded to Offer Application
230

FIG. 7

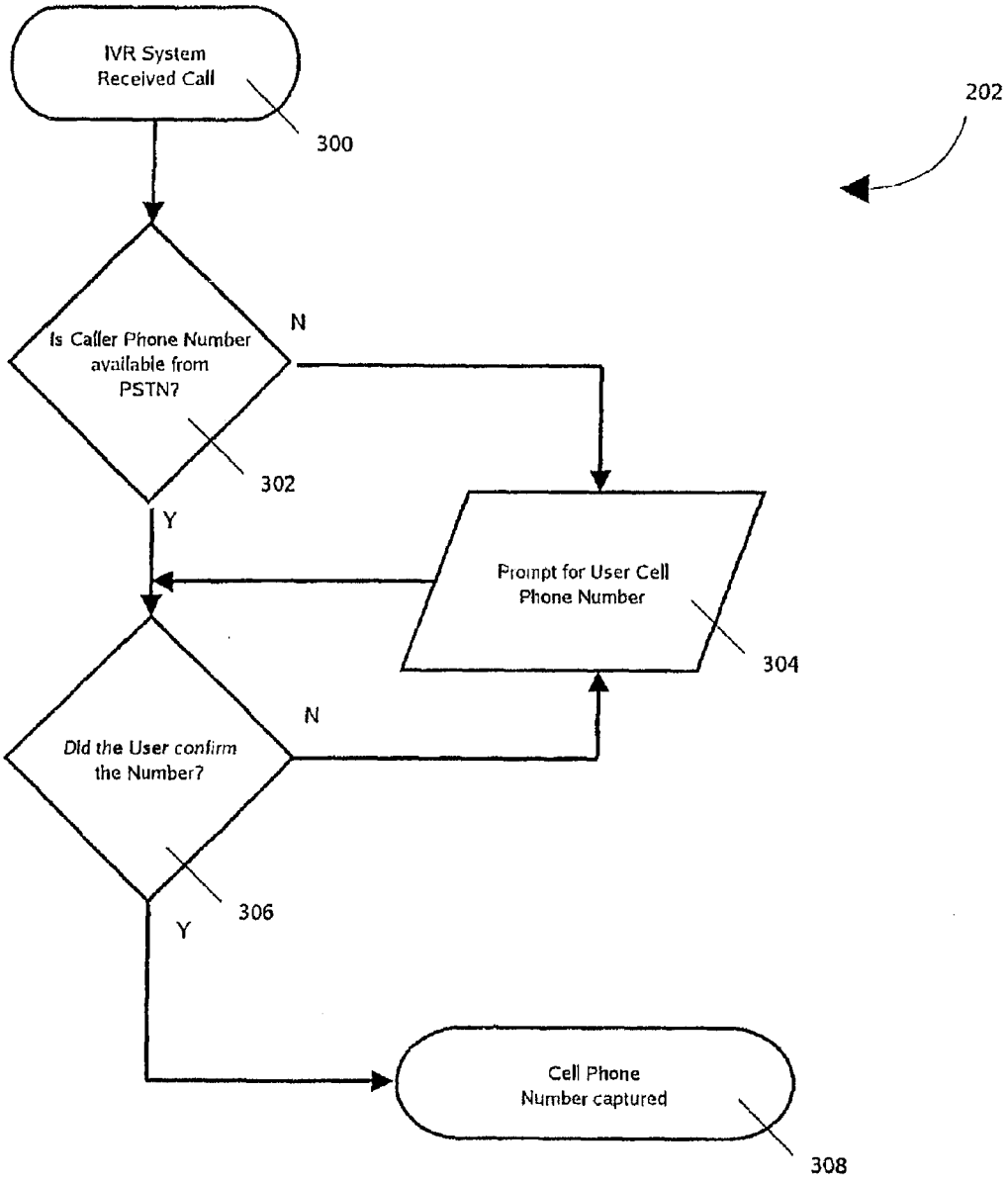

IVR System Received Call
300
202
Is Caller Phone Number available from PSTN?
N
302
Y
Prompt for User Cell Phone Number
304
Did the User confirm the Number?
N
306
Y
Cell Phone Number captured
308

FIG. 8

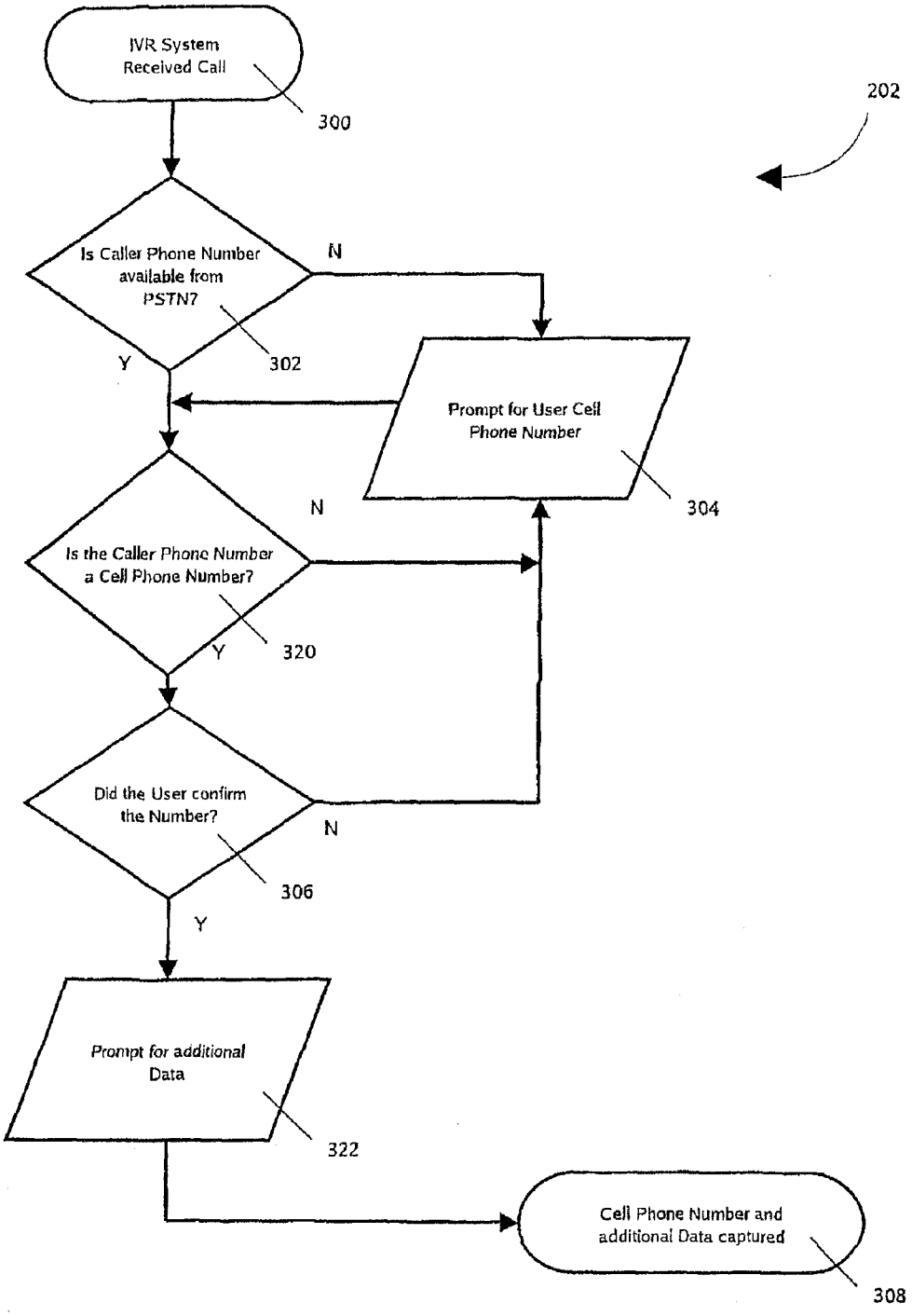

IVR System Received Call
300
202
Is Caller Phone Number available from PSTN?
302
N
Y
Prompt for User Cell Phone Number
304
Is the Caller Phone Number a Cell Phone Number?
320
N
Y
Did the User confirm the Number?
306
N
Y
Prompt for additional Data
322
Cell Phone Number and additional Data captured
308

FIG. 9

SYSTEM AND METHOD TO INITIATE A MOBILE DATA COMMUNICATION UTILIZING A TRIGGER SYSTEM

PRIORITY CLAIM

This application is a continuation of U.S. application Ser. No. 12/177,093, filed Jul. 21, 2008, which is a continuation of U.S. application Ser. No. 10/521,521 filed Jan. 18, 2005 now U.S. Pat. No. 7,403,788, which is a National Phase of International Application No. PCT/US03/22661 filed on Jul. 18, 2003, which claims priority to U.S. Provisional Application 60/397,435 filed Jul 19, 2002. The disclosures of the prior applications are hereby incorporated by reference in their entirety.

FIELD OF THE INVENTION

This invention relates to enabling communications between users and organizations by means of data enabled mobile communication devices. More particularly this inventions relates to a system, method and machine to enable organizations to execute direct marketing techniques and promotions via mobile communication devices.

BACKGROUND OF THE INVENTION

Global brands spend hundreds of billion of dollars annually in the United States on brand marketing and communications. Over the last decade, an increasing percentage of brand marketing budgets have been spent in direct marketing channels (e.g., direct mail, telemarketing, email, etc.). In fact, total brand spending on direct mail now exceeds that of broadcast television. Given direct marketing's unique capabilities, such as precise targeting, the ability to drive specific behaviors, and highly measurable results, marketers are expected to continue spending heavily in direct channels.

One of the most significant new direct marketing opportunities is the emergence of the wireless channel. The wireless channel provides marketers the unmatched ability to reach the individual (not just the household), in a time and event-sensitive way, with attractive and measurable marketing return on investment ("ROI"). In Europe, hundreds of brands are beginning to utilize the wireless data channels and are committing a sizeable portion of their communications budgets over the next year to wireless.

An organization wanting to use data messaging for communication with its user base needs to make it easy for them to participate. The organization needs to have a means to obtain a user's mobile device address to be able to communicate with him using his mobile device data capabilities. The organization needs to obtain the user permission to be able in the future to send new messages, coupons, offers or promotions, to the user's mobile devices.

There are multiple ways to for a user to initiate a communication with an organization and for an organization to obtain a user's mobile device address, but in this invention we are primarily focused on methods to initiate a communication when said user is in a mobile setting, such as a public environment as opposed to a home or office environment. In a mobile setting, there needs to be an easy and quick way for said user to specify his interest in starting a communication and for the organization to obtain said user's mobile device address whereby the communication can occur.

Once the communication is initiated, a message oriented application can capture the user's mobile device address in a database, and respond back with a message, a coupon, an offer or a promotion.

It is important that said user only receive future organization originated ("push") communications only if he has elected to do so. A system and method to perform communication between users and organizations needs to support an easy way to either opt-in or opt-out from receiving future communications.

An example of a situation where a user may be interested in initiating a communication with an organization is the case of the organization being a brand sponsoring some event; for example a contest, building brand and product awareness where the user may win some prizes. Other examples include receiving offers, coupons, promotions or discounts on their mobile device.

The communication, its goals, its benefits and how a user can initiate it is typically displayed using a traditional channel such as print media, product packaging, bar coaster, billboard, sign, posters, TV or radio advertisements, candy wraps, etc. . . This process is called the "call to action" message. It is easy to see that if participating is easy to accomplish, such communications can have a wide impact for both users and organizations.

One very common application of this invention is to deliver coupons, offers and promotions to users that have requested them. There is a cost for an organization to provide, promote and deploy systems to execute such mobile coupon, offer and promotion programs. Hence it is an important requirement that a system be able to measure redemption rates to compute the effectiveness of the program. In addition, much better coupons, offers and promotions can be given to individual users if their past individual receptiveness is known—which makes uniquely identifying the coupon, offer and promotion important.

There is much economical value in being able to deploy a system where users can receive messages, coupons, offers and promotions at the time of their choosing as well as occasionally receiving push specials thereby allowing the organization running the program to develop a comprehensive loyalty program bringing value to both the user and the organization. To support such a program, a system needs to exist to enable users to enroll, participate and receive occasional "push" messages, coupons, offers and promotions that leverages the capabilities of mobile data communication devices and Customer Relationship Management and Loyalty systems.

In addition, some of the offers, coupons and promotions can be valuable enough that the organization giving them out wants to make sure they are used only once. Examples of such compelling offers are very deep discount to join the offer program—think about book clubs that sell you your first three books for $1 to join the club. In this case, the offer needs to be verified that it has not already been redeemed. Such a step is critical with the technologies described in this invention where it is often easy to forward or forge a message on a mobile device.

The primary limitations with existing methods to initiate a communication between an organization and a user using a mobile device have to do with: the time, effort and lack of convenience of triggering the communication using current systems; the lack of common service addresses for users to initiate the communication with an organization in some common existing messaging technologies; and the lack of familiarity on the part of users on how to initiate a communication using their mobile device.

BACKGROUND OF THE INVENTION—PRIOR ART

Obtaining the user's mobile device address in a mobile setting to allow for communication is not always straightfor-

ward for some classes of mobile devices, in particular digital cell phones. Almost all digital cell phones sold today have one or more data messaging capabilities. These may include, but is not limited to, Short Message Service ("SMS"), Enhanced Messaging System ("EMS"), Multimedia Messaging Service ("MMS"), Wireless Application Protocol ("WAP") and mobile e-mail. The large number of digital cell phones in the U.S. makes solving the problem of obtaining cell phones data address a critical problem to be solved.

One solution that is used by some wireless carriers to allow a user to initiate a communication using a cell phone with an organization, is to use a Mobile Originated ("MO") message sent to a service access code. In the case of a cell phone, a service access code can either be a short code (a number with less than the regular 10 digits defined by the North American Numbering Plan ("NANP") for example "2327") or a regular NANP 10 digit number. A user that wants to respond to a "call to action" message sends an MO message to the organization service access code setup by his cell phone carrier.

While the above technique using MO messages works can work in geographies that support standardized service access codes across wireless carriers, it is much less effective in countries that don't. In countries with no standardized service access codes, like the U.S., it is awkward for an organization to publish different service access code addresses for each wireless carrier. In addition the MO technique is not effective in geographies where cell phone users are not familiar on how to send MO messages. The situation is compounded by the fact that some wireless carriers currently do not offer third parties the ability to receive MO messages sent to them.

It is possible to solve the problem of lack of standardized service access codes by using an e-mail address instead of the typical telephone digit numbers used for SMS, EMS and MMS. Using e-mail is possible because most wireless carriers offer the ability for users to send and receive e-mails from their cell phone, either directly using Simple Mail Transfer Protocol ("SMTP") or indirectly via SMS, EMS, MMS, WAP, or hyper text markup language ("HTML") by means of an SMTP gateway provided by the wireless carriers. A service using e-mail as its service address requires that users enter the service e-mail address when composing their initial MO message. Unfortunately, it is often extremely cumbersome for users to enter an e-mail address composed of alphabetical letters and symbols using a cell phone numeric keypad. For example, on a Sony-Ericsson T68i phone it takes 34 key presses (assuming no mistakes) to enter "fun@m-qube.com". Hence user response rates will be extremely low with this approach.

Another alternative that can be used to solve the problem of lack of standardized service access codes is to deploy modem banks of Personal Computer ("PC") based wireless data cards. Said wireless data card is like a miniature cell phone with its own phone number. With the peer-to-peer SMS interoperability available in many countries, any MO message sent to said wireless data card phone number would be delivered to it, and by extension to the message application server connected to said PC. While this approach effectively works around the problem of lack of standardized service access codes, it suffers from severe scalability problems (a card typically cannot handle more that 2-3 messages per second, and most cards are not designed to be operated 24×7×365.)

Another alternative is to use a range of numbers for the service access codes normally allocated to a wireless carrier for use by its subscribers, and reconfigure the carrier data network elements to forward any MO messages sent to said range, not to a physical cell phone, but instead to the organization's message application server using a data network such as the Internet. This solution builds upon SMS interoperability and is scalable. But it requires that the organization have a relationship with the wireless carrier offering said range, that said wireless carrier have the capability to offer this service to organizations, and that other wireless carrier allow this to happen.

An equally critical consideration is the expertise required from users to send an MO message using the native mobile device data messaging interface. In particular, not all cell phone users know how to originate a MO message using their cell phone. Another method is required to allow them to participate before they become more familiar with their cell phone messaging capabilities. Once a cell phone user receives a message, it is much easier to reply to it since most cell phone handsets provide some guidance on how to do so.

Or, the user may be familiar with messaging, but the time involved may be a limiting factor. For example, many users may not be willing because of the inconvenience to text-in a message when entering in a supermarket to receive tailored coupons, but may be more willing to use other methods described in this invention to trigger the offers. This problem is especially acute for mobile messaging technologies that don't rely on number for addresses, but on long strings like e-mail or instant messaging screen names. While presumably it is possible to enter a long string using these mobile devices, this is usually a somewhat slow process. A faster trigger mechanism is required.

Hence existing methods using the native messaging capabilities of a user's mobile device to support mobile originated messages to allow said user to start a communication with an organization service are not effective in many situations or geographies. The limitations of the existing methods makes using the mobile channel as a direct marketing channel not a cost effective channel; as user response rates would be too low to cover the campaign costs.

BACKGROUND OF THE INVENTION OBJECTS AND ADVANTAGES

The specific object and advantages for this present invention are:

a) Provides for an alternative to using the mobile device native data communication interface in cases where there are no unique service address (common service access codes), no publicly supported service side infrastructure, or the user is unfamiliar with his device data messaging capabilities.

b) Provides for faster and easier methods to trigger a communication between an organization and a user than by using the device native mobile originated messaging capabilities.

c) Some of the embodiments described in the invention, like using an interactive voice response ("IVR") system as the trigger system, make it much easier to collect additional information such as opt-in permission for future communication or offers, or more information, such as offers of interest to the user.

d) Enables simple, fast, practical and economical means to instantly deliver offers, coupons and promotions to users in public places.

Further objects and advantages of this present invention will become apparent from a consideration of the drawings and ensuing description.

SUMMARY OF THE INVENTION

The present solution solves the aforementioned problem not by means of the user mobile device native data messaging

services but by means of an external trigger system not based on the user mobile device data messaging capabilities.

Once the trigger system has captured a unique identifier capable of being mapped to the user mobile device address, a Mobile Terminated ("MT") message is sent to the user. From then on, the message application server is capable of future communications. The messages sent to the user can include menus and simple instructions removing the need for the user to ever originate a sophisticated MO message.

In one embodiment of the invention, said unique identifier is the mobile device address itself. In another embodiment of the invention, said unique identifier can be an identifier that is then used to retrieve the mobile device address. An exemplar embodiment uses an account number as the unique identifier, and then retrieving the mobile device address using the account number. The details on how the mobile device address is retrieved using the account number is well known to those skilled in the art. One possible implementation is to store the mobile device address in a database using the account number as the key to a data record holding the mobile device address. Other exemplary embodiments use a loyalty card number, a social security number, a membership number or employer number as the unique identifier.

This invention applies to any message oriented data communication system, including, but not limited to SMS, EMS, MMS, WAP, hypertext markup language ("HTML"), xHTML and other HTML derivatives, mobile e-mail, client side mobile device execution environments such as Java 2 Mobile Edition ("J2ME™"), Brew™, Linux™, or Symbian OS™.

A further aspect of the invention, a system and method is also provided to deliver follow-on messages from the organization once the user mobile device address is captured.

A further aspect of the invention, a system and method is also provided to deliver, an instant mobile coupon, offer, or promotion that can be redeemed providing for a complete system and method to deliver messages, coupons, offers and promotion to users.

In one embodiment, the present solution is a network based system and method, consisting of a trigger system, a message application server and a mobile device service provider system. It allows any user equipped with a mobile device capable of receiving messages to initiate a sequence whereby said user can receive one or more messages from said message application server. Furthermore, said message application server can store said user mobile device address in a database for later communications from said message application server to said user.

The organization service is presented in a traditional media format, including but not limited to, on a print advertisement, on a product packaging, on a bill-board, on a poster, on a flyer, on a coaster, on a candy wrap, on a store display, in a TV ad, in a radio ad, on an Internet site. The presentation includes instructions on how the user can interact with the trigger system. The presentation is called the "call to action" message.

In one embodiment, the trigger system confirms the user mobile device address, handles exceptions, and optionally obtains additional data from the user or opt-in permission if applicable. Once the session with said trigger system is completed, the trigger system informs the message application server which sends a message to the user mobile device.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other features of the present invention will be more readily apparent from the following detailed description and drawings of the illustrative embodiments of the invention in which:

FIGS. **1** and **1B** depicts aspects of an exemplary embodiment of the present invention in accordance with the teachings presented herein.

FIG. **2** depicts an alternative exemplary embodiment of the present invention in accordance with the teachings presented herein containing additional components to deliver messages, coupons, offers or promotions.

FIG. **3** depicts an alternative exemplary embodiment of the present invention in accordance with the teachings presented herein containing additional components to to track the redemption of coupons, offers or promotions.

FIG. **4** depicts an exemplary embodiment of delivering follow-on Mobile Terminated messages once the user mobile device address is known.

FIG. **5** is a functional block diagram of the method of capturing a user mobile device address and using it to send a message to the user.

FIG. **6** is a functional block diagram containing the additional steps to deliver messages, coupons, offers or promotions to a user.

FIG. **7** is a functional block diagram of an exemplary embodiment of coupons, offers or promotion redemption.

FIG. **8** is a functional block diagram to capture a user cell phone number in an embodiment of this invention where the trigger system is an IVR system.

FIG. **9** is a functional block diagram of an alternative exemplary embodiment using an IVR system as a trigger system containing the additional steps of verifying if the user calling number is a wireless phone number and capturing additional data.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Aspects, features and advantages of exemplary embodiments of the present invention will become better understood with regard to the following description in connection with the accompanying drawing(s). It should be apparent to those skilled in the art that the described embodiments of the present invention provided herein are illustrative only and not limiting, having been presented by way of example only. All features disclosed in this description may be replaced by alternative features serving the same or similar purpose, unless expressly stated otherwise. Therefore, numerous other embodiments of the modifications thereof are contemplated as falling within the scope of the present invention as defined herein and equivalents thereto. Hence, use of absolute terms, such as, for example, "will," "will not," "shall," "shall not," "must," and "must not," are not meant to limit the scope of the present invention as the embodiments disclosed herein are merely exemplary.

Turning to FIG. **1** there is shown the basic architecture of one embodiment of a system **10** for capturing a user mobile device address by means of a trigger system. The system comprises a trigger system **102** which can be triggered by a user **100** using a trigger device. Said trigger system **102** is connected by means of a data network **104** to a message application server **106**. The message application server **106** is further connected to a mobile service provider or carrier system **110** by means of a data network **108** and the mobile service provider gateway **112**. The mobile service provider gateway **112** acts as a gateway into the mobile service provider network **114**. The mobile service provider gateway **112** is further capable of sending messages to the user **100** mobile device **116** by means of the service provider mobile network **114**. Said user **100** can then read messages sent to his mobile device **116**.

The trigger system **102** is any system capable of capturing a unique identifier capable of being transformed into the user mobile device **116** messaging address, and optionally other data. The system described in this invention requires that the trigger system **102** or the message application server **106** be able to directly or indirectly retrieve the mobile device **116** address based on said unique identifier captured by the trigger system **102**, and be able to use the mobile device address to send messages to the mobile device **116**. Once the trigger system **102** is triggered by user **100**, it sends said mobile device messaging address or said user unique identifier along with any other captured data to the message application server **106** by means of data network **104**.

The trigger system **102** can be triggered by the user either by using his mobile device **116**, or by using any other system or method.

In one exemplary embodiment of this invention, the trigger system is a computing device equipped with a card reader where the magnetic stripe of the card contains said unique identifier.

In one exemplary embodiment of this invention, the trigger system is a computing device equipped with a bar code reader. The user swipes an object with a bar code containing said unique identifier, such as a key chain card.

In one exemplary embodiment of this invention, the trigger system consists of Radio Frequency Identification ("RFID") readers located in public areas, for example at the doors of stores. The user carries an object with an embedded Radio Frequency Identification RFID tag containing said unique identifier. The trigger system is simply triggered by the user when walking through or near the RFID readers.

In one exemplary embodiment of this invention, the trigger system is a client application running on the user mobile device combined with a server side system. The communication is triggered when the user activates the application and instructs it to trigger the interaction. The client application, by means of the data messaging capabilities of the mobile device notifies the service side system, which can be the message application server, to initiate the communication.

In one exemplary embodiment of this invention, the trigger is a client application running on the user mobile device combined with a local receiver system. The communication is triggered when the user activates the application and instructs it to trigger the interaction. The client then uses a local networking infrastructure such as infra red, Bluetooth®, WiFi or any other local wireless protocol to send the trigger to said receiver system which forwards it to the message application server.

In one exemplary embodiment of this invention the trigger system is any system capable of performing biometric or user identification of said user. Examples of such system include but is not limited to finger-print readers, eye readers, voice identification and video camera identification.

In one exemplary embodiment of this invention, the trigger system is a kiosk where the user enters the unique identifier in the kiosk—for example using a keyboard, a keypad or a touchscreen.

In one exemplary embodiment of this invention, the trigger system **102**, is an IVR system accepting phone calls which is programmed to capture said unique identifier. Various techniques known to those of skill in the art can be used to capture said unique identifier. This includes but is not limited to accepting Dual Tone Multi Frequency ("DTMF") or using voice recognition. The user triggers an interaction with the system by calling a phone number mapping to the IVR system and entering at the prompt said unique identifier and any additional data requested by the IVR. At the end of the call, all the captured information is forwarded to the message application server.

In one embodiment of this invention, the trigger system **102** is an IVR system and the mobile device **116** is a data enabled cell phone or any data device capable of receiving messages sent to a phone number address as described previously. In such embodiment, the IVR system can be further programmed to automatically capture the calling number. Capturing the calling number is very common in IVR systems using the Public Switch Telephone Network ("PSTN") Caller Id infrastructure. If the phone call is made using said cell phone, and the calling number is made available to the IVR, then the step of capturing the cell phone number can be further accelerated by spelling out the number and asking the user to validate the number. For example, the confirmation can be achieved using the following message: "You called from XXX-XXX-XXXX, if this is correct press 1, to enter a different phone number press 2". If the user confirms the number then the IVR can move on to capturing the optional data. If the user does not confirm the number, then the IVR can prompt the user for a new mobile device phone number. This last case is useful for example if the user called from a land based line and the IVR recognized the land line number. If the IVR does not receive the calling number from the PSTN, then the IVR system is programmed to directly prompt the user for his mobile device phone number.

In one exemplary embodiment, the trigger system **102** is wireless card attached to a computing device as described earlier. In the prior art section, we mentioned that wireless data cards suffer from scalability limitations. In this embodiment of the invention, the wireless data card is used only as a trigger system to receive the first MO message. All follow-on messages can then be sent to the user mobile device **116**, using the mobile device **116** mobile service provider specific short code for this program. This invention overcomes the lack of standardized short codes in certain geographies and the lack of scalability of PC based wireless cards by using the wireless card only as a trigger system and not for subsequent message delivery. For example, the user would send an initial MO message to the wireless data card number, say NNN-NNN-NNNN which would be routed to the wireless data card using the carrier peer-to-peer infrastructure. The response from the message application server **106**, would then use a separate service address for each carrier. Carrier A may use a five digit short code XXXXX, carrier B a six digit short code XXXXXX, and carrier C a normal ten digit number MMM-MMM-MMMM. When the user receives the message, he can easily reply back and the fact that each user may be using a different address because they have a different wireless carrier is not an issue.

In one exemplary embodiment, the trigger system **102** is a phone switch. The phone switch is connected to the PSTN SS7 network. Upon receiving a call establishment request, the phone switch would refuse such request, capture the user calling number and forward said caller number to the message application server **106**. The advantage of this embodiment is that neither the user nor the organization is billed for the call, since it was not completed, and the organization does not incur an IVR cost. The downside is additional data cannot be captured on the user, and the end user experience is probably strange as the call is not accepted.

In another embodiment, the trigger system is a computing device where the user supplies her mobile device address connected to the message application server using a data network, including but not limited to the Internet. In another embodiment, the trigger system is a network accessible com-

puting device that the user connects do using another device for a example a web and WAP application accessed from a client computer using a browser—connected to the message application server using a data network.

The presented embodiments for the trigger system **102** are illustrative only and not limited to the ones presented. Numerous other embodiments of the trigger system **102** are contemplated as falling within the scope of this invention.

The data network **104** is any data network using any messaging protocol. In one exemplary embodiment, the network is based on TCP/IP and the trigger system **102** forwards the unique identifier and optional data using a Web Service call based on the Simple Object Access Protocol ("SOAP".)

The message application server **106** is any computing server designed to process messages. It is programmed to be able to execute instructions upon receiving incoming messages from mobile devices, such as mobile device **116**, and from any other external source. One of the instructions that the message application server is capable of executing is sending messages out to mobile devices. One of the event requests capable of triggering the message application server **106** to execute said instructions is the receipt of a notification that a user triggered the trigger device **102**.

In one exemplary embodiment, the message application server **106** is implemented as a cluster of Jave 2 Enterprise Edition ("J2EE™") components running on commonly available computer hardware running commonly available operating systems. In one exemplary embodiment, the message application server **106** is implemented using the Jboss™ Java application server and uses an Oracle® database to maintain persistent data. In one exemplary embodiment the dialog instructions to execute upon receiving an MO message or a trigger requests are implemented in one or more extensible markup language ("XML") document(s). Multiple other embodiments of the message application server are possible and known to those of skill in the art.

In one preferred embodiment, the message application server **106** is additionally connected to a message application database **120**. The database can be used as part of the implementation of the message application server. In one exemplary embodiment, the database stores data on the active communication programs, including but not limited to, program data; user data; user session data; system logs. The usage of a database to implement sophisticated server applications is well known to those of skill in the art and many possible usage of the database is possible and within the scope of this invention.

The message application server **106** is connected to one or more service provider gateway **112** using any suitable data network **108**. In an exemplary implementation, the data network is the Internet using a virtual private network ("VPN") using the short message peer-to-peer ("SMPP") protocol. Other exemplary implementations use the Internet without a VPN, use private TCP/IP based connections ("leased line"), or use a dedicated X.25 connection or any other available data network and protocol. The message application server **106** can simultaneously support multiple mobile service providers systems **110** and mobile device **116** technologies and hence can be connected to multiple service providers systems **110**. The message application server **106** can be similarly connected a plurality of trigger system **102**.

The message application server **106** can send, and optionally receive, messages to and from the mobile device **116**, by means of the mobile service provider system **110**. The actual details of the mobile service provider infrastructure are not relevant to this present invention and in practice take many forms.

In one exemplary embodiment, the mobile provider system **110** is broken down into a mobile service provider gateway **112** responsible for interfacing with the message application server **106** by means of data network **108**. Using methods known to those skilled in the art, messages can be exchanged between mobile devices, such as mobile device **116** and the mobile service provider gateway **112** by means of a mobile network **114**.

The mobile device **116** is any device a user can carry along with him that is capable of receiving data messages from at least the message application server **106** by means of the service provider system **110**. In general, the mobile device **116** is also capable of sending messages to the message application server **106** as well as being able to send and receive messages to other mobile devices and other service applications. More capable devices can also send messages, or send and receive more complex messages than text messages such as multi-media messages.

In one embodiment of the invention, the mobile device **116** is a data enabled cell phone, or any data device capable of receiving and sending messages sent to a phone number address. The later can include wireless enabled personal data assistants ("PDA") or any other computing device capable of receiving messages sent to a phone number.

In one exemplary embodiment of the invention, the mobile device **116** is a data capable device capable of receiving and sending messages using e-mail protocols, including but not limited to SMTP, Post Office Protocol ("POP") and Internet Message Access Protocol ("IMAP").

In one exemplary embodiment of this invention, the mobile device **116** is a data capable device capable of receiving and sending messages using a client application that uses a data network, including but not limited to the Internet protocol ("IP"). The mobile device can use any IP transport, including but not limited to 801.11, 801.11a, 801.11b, 801.11g and Wifi.

In one exemplary embodiment of the invention, the mobile device **116** is a data capable device capable of receiving and sending messages using an instant messaging protocol. Examples of instant messaging service provide include, but is not limited to, AOL Instant Messenger™, Yahoo!® Messenger, MSN® Messenger, Jabber® and other similar protocols.

Turning to FIG. **2** there is shown a block diagram of an embodiment of the invention further comprising components to deliver coupons, offers and promotions to the user. The message application server **106** is further connected to an offer application **122**. The offer application **122** is connected to an offer database **124**.

The offer application **122** is responsible for selecting and creating coupons, offers and promotions for said user **100**. The coupon, offer or promotion is part of the message that will be sent to the user device **116** as described above.

In one embodiment, the coupons, offers and promotions are implemented using an offer message. In a preferred embodiment, the coupons, offers and promotions are implemented using an offer code and an offer message. In one exemplary embodiment, the coupon and promotion offers are represented by numerical codes. In one exemplary embodiment, the coupons and promotion offers are represented by alphanumerical codes. In one embodiment, the coupons, offers and promotions are implemented using data, including but not limited to text data, XML data and binary data, which is interpreted by an application running on said user mobile device **116**. In one exemplary embodiment, the coupons and promotion offers are represented by graphical images—including bar codes.

In one exemplary embodiment each user receives the same coupon, offer or promotion code. In another exemplary embodiment, each coupon, offer or promotion code is unique and encodes the coupon, offer or promotion and a user identification. In one exemplary embodiment, the user identification is a sequence number, a short 3-5 digit sequence, allowing the encoding of 1000-100.000 unique users. Each time a user triggers the system and a message, coupon, offer or promotion is generated, a new sequence number is generated and stored in the offer database with the generated offer. At redemption time, the sequence number is extracted from the offer code and the most recent offer with the same offer and sequence number is matched. The benefit of this exemplary embodiment is to keep the unique identifier short in the common case that the code is manually entered at redemption time. In most retail environments, the speed of customer checkout is critical and the more digits need to be entered, the longer it takes to capture the message, coupon, offer or promotion code and the more likely an input error will be made.

In one preferred embodiment, the message, coupon, offer or promotion code includes a checksum digit, using any of the well know checksum algorithms, including but not limited to the mod 10 algorithm used in credit card numbers, whereby invalid coupon, offer or promotion codes due to input errors can be determined.

These various embodiments of coupons and promotion offers are illustrative only and not limiting, therefore numerous other embodiments of coupons, offers and promotions on mobile devices fall within the scope of this invention

The offer database **124** is used by the offer application **122** to store available offers, to maintain user profile information concerning coupons, offers and promotions, to maintain logs of created offers. The usage of database to implement sophisticated server applications is well known to those of skill in the art and many possible usage of the database is possible and within the scope of this invention.

In one preferred embodiment, the offer application **122** is connected to an external system **125** comprising enterprise systems, customer relationship management ("CRM") systems or loyalty systems that are involved in the generation, redemption and analysis of the offers.

Internal details of the offer application and the coupon, offer and promotion codes is not discussed in further details as they are known to those skilled in the art. Couponing and all the issues around generating coupons, matching coupons to users based on multiple parameters including past interaction and demographic data is a well established industry. All these couponing techniques apply to the coupon generation and fall into the scope of this invention.

Turning to FIG. **3** there is shown a block diagram of an embodiment of the invention further comprising components to track the redemption of coupons, offers or promotions. The system further comprises above FIG. **2**, an offer entry system **130** used to validate and capture coupons, offers, and promotions redemption. The offer entry device **130** is connected to the offer application **122** by means of a data network **132**. Optionally, an external system **121** or **125** interfaces with either the message application server, the offer application or both.

In one embodiment, the offer entry system validates the coupon, offer or promotion code. In one embodiment, the offer entry system captures the coupon, offer or promotion redemption for storage in the offer database **124**. In one preferred embodiment, the offer entry system validates and captures the coupon, offer or promotion code for storage in the offer database **124**.

In one preferred embodiment, the offer entry system **130** is a computing device located where the coupon, offer or promotion is redeemed. The coupon, offer or promotion code is entered at redemption time. In this preferred embodiment the coupon, offer or promotion code is validated in real-time by checking the code on the offer entry system **130** (for example the offer code can contain a checksum that is verified), then by sending a request by means of data network **132** to the offer application **122**, that verifies the coupon, offer or promotion code. In this exemplary embodiment, redemption data can be analyzed by the offer server **122** and reports **134** created.

In one preferred embodiment, the offer entry system is a point of sale ("POS") terminal programmed to implement the logic described above. If the coupon, offer or promotion code is validated in real-time preventing fraud and providing for duplicate checking, it is possible to offer valuable coupons, offers and promotions that otherwise might not be economical to provide without such checks.

In an exemplary embodiment, the offer entry system **130** is a stand-alone computing device, for example a kiosk. The user enters the coupon, offer or promotion code in the offer entry system **130**, and the offer entry system prints out a paper coupon. The user can then redeem the paper coupon like regular paper coupons. In an exemplary embodiment, the offer entry system **130** locally stores each redemption, and the data can be uploaded on a regular basis, by means of a data network **132** to the offer application **122**. In an exemplary embodiment the offer entry device **130** is equipped with removable storage. On a regular basis the removable storage is replaced and the content is read on a compatible device and the data uploaded to the offer application **122**.

In one exemplary embodiment, the coupon, offer or promotion code has the same format as a payment number like a credit card number. The existing payment processing infrastructure is used to authorize and capture coupon redemption. The operator of the system described in this invention would request a unique bank id prefix to distinguish its offer numbers from credit or payment card numbers. In one exemplary embodiment, said payment processing infrastructure is configured to track coupon, offer and promotion redemption and credit the user for his coupon, offer and promotion.

The data network **132** is any data network or any means using any messaging protocol or data representation not necessarily always connected allowing for the transfer of data, in real-time or in batch mode, from the offer entry device **130** to the offer application **122**. In one preferred embodiment, the network is based on the Internet Protocol.

Turning to FIG. **4** there is shown a block diagram of an embodiment of the invention illustrating how follow-on messages can be sent at later dates to said user **100**. Messages, coupons, offers and promotions are delivered immediately upon the user activating the trigger system **102**. But the organization, can also decide to send further messages, coupons, offers and promotions to users that have participated previously. Under this scenario, during the initial communication, the message application server **106**, or the offer server **122** stores the mobile device **116** address. At a later date, when the organization wants to push out new messages, coupons, offers or promotions, the list of users that have participated is looked up. If the message includes a coupon, offer or promotion, it may be looked up by the offer application **122** using a mechanism similar to the one described above. The push message is then delivered to the user using the same system and method described earlier.

FIG. **5** illustrates the basic steps of the invention. In a typical usage of the invention, the user **100** is encouraged to trigger the system by a "call to action" message presented in

a traditional media format. The trigger system **102**. upon being triggered (step **200**) is designed to capture (step **202**) the unique identifier capable of identifying the user mobile device **116**, and optionally other data. The captured data is then forwarded (step **204**) to the message application server **106**. The message application server **106** then retrieves (step **206**) the mobile device address of the user based on the unique identifier. The message application server **106** then executes (step **208**) a programmed set of instructions whereby an appropriate response message is generated. Optionally, in step **210**, all the forwarded data, and any additional data generated by the execution of the instructions in step **208** are saved in the message application database **120**. The response message is then forwarded to the mobile service provider gateway **112** in step **212**, for delivery to the mobile device **116** by the mobile service provider. Said user can then read said response message on said mobile device **116** in step **214**.

In an alternative embodiment, step **206** is not performed in the message application server **106**, but instead in the trigger system **102**, and either the mobile address or both the mobile address and the unique identifier are forwarded to the message application server in step **204**.

FIG. **6** illustrates the basic steps of the invention described in FIG. **5** augmented by the delivery of a coupon, offer or promotion. The trigger steps **200**, **202**, **204** and **206** are the same as in FIG. **5**. Instead of directly generating the response message in the message application server **106**, all the user data available in the message application server including the unique identifier, the mobile device address, the optional user data is forwarded to the offer application **122** (step **220**). Based on all the available data, the offer server **122** generates an offer (step **222**). The generated offer and any other user data is stored in the offer database **124** (step **224**). The response message containing the coupon, offer or promotion is forwarded back to the message application server **106** for delivery to the mobile device **116** (step **226**). The message delivery steps **210**, **212** and **214** are the same as in FIG. **5**. Later on the user will redeem the coupon, offer or promotion message, for example in a store. The coupon, offer or promotion being redeemed is entered (step **228**) in the offer entry system **130**. Either in real-time or in batch the redemption data is forwarded to the offer application **122** (step **230**). The redemption data is then stored in (step **232**) in the offer database **124**. Based on the data stored in step **224** and step **232** in the offer database **124**, reports **134** can be generated that show redemption rates from which the effectiveness of the promotion can be measured.

FIG. **7** illustrates another preferred embodiment, where the coupon, offer or promotion is verified after step **228**, by interrogating the offer application **122**. Started from step **214** of FIG. **6**, the offer is entered in the offer entry system **130** in step **228**. The offer is then forwarded to the offer application **122** for verification by means of data network **132** (step **240**). The offer is verified by the offer application **122** (that is the offer application verifies it's a valid offer, and has not been already redeemed if duplicate checking is configured) (step **242**). If the offer is valid, then the redemption proceeds (**246**) and the following steps are the same as in FIG. **6**. If the offer is invalid, the status is made available to the offer entry device **130** (step **244**). In the case of an invalid offer, the offer may be re-entered since the offer may have been rejected due to an input error. If the offer has already been redeemed, there is no benefit in re-entering the offer.

FIG. **8** illustrates step **202** in an exemplary embodiment where the trigger system **102** is implemented using an IVR system. The user calls the IVR number. The PSTN delivers the call to the IVR system in Step **300**. The IVR system is then programmed to retrieve the user calling number, using the PSTN caller id support (step **302**). If the user calling number is available, the system spells out the number to the user and asks for a confirmation in step **306**. If the user confirms positively, the user calling number is then forwarded to the message application server **106** as described in step **204**. If the user confirms negatively (step **306**), or the IVR system does not detect the user calling number in step **302** (for example if the user is blocking caller id), then the IVR is programmed (step **304**) to ask the user to enter his cell phone number. The phone number can either be entered using the telephone key pad, and the IVR system will detect the Dual Tone Multiple Frequency ("DTMF") tones, or alternatively using a voice recognition system. The details on how to program an IVR system to perform the steps described above are well known to those skilled in the art.

FIG. **9** is an alternative embodiment of step **202** that builds upon FIG. **7**. In FIG. **8** the initial steps **300**, and **302** are the same as in FIG. **8**. The calling number supplied by the PSTN, or entered by the user is analyzed in step **320** to see if it corresponds to a cell phone number. There are multiple ways to perform this operation which are know to those skilled in the art. One possible implementation is to lookup the first six digits of the phone number in a database called the Local Exchange Routing Guide ("LERG") that contains information on all the PSTN switches. If the phone number corresponds to a cell phone number, the IVR is programmed to proceed to step **306**. If the number does not correspond to a cell phone number, then the IVR is programmed in step **304** to prompt for a cell phone number as described before. In this alternative embodiment, step **322** was also added prompting the user for additional data, for example for a choice of an offer of interest or from a store of interest. Once all the additional data is captured, the user cell phone and the additional data is forwarded to the message application server **106** as described in step **204**.

Having now described one or more exemplary embodiments of the invention, it should be apparent to those skilled in the art that the foregoing is illustrative only and not limiting, having been presented by way of example only. All the features disclosed in this specification (including any accompanying claims, abstract, and drawings) may be replaced by alternative features serving the same purpose, and equivalents or similar purpose, unless expressly stated otherwise. Therefore, numerous other embodiments of the modifications thereof are contemplated as falling within the scope of the present invention as defined by the appended claims and equivalents thereto.

For example, the techniques may be implemented in hardware or software, or a combination of the two. In one embodiment, the techniques are implemented in computer programs executing on programmable computers that each include a processor, a storage medium readable by the processor (including volatile and non-volatile memory and/or storage elements), at least one input device and one or more output devices. Program code is applied to data entered using the input device to perform the functions described and to generate output information. The output information is applied to one or more output devices.

Each program may be implemented in a high level procedural or object oriented programming language to communicate with a computer system, however, the programs can be implemented in assembly or machine language, if desired. In any case, the language may be a compiled or interpreted language.

Each such computer program may be stored on a storage medium or device (e.g., CD-ROM, hard disk or magnetic

diskette) that is readable by a general or special purpose programmable computer for configuring and operating the computer when the storage medium or device is read by the computer to perform the procedures described in this document. The system may also be considered to be implemented as a computer-readable storage medium, configured with a computer program, where the storage medium so configured causes a computer to operate in a specific and predefined manner.

In a most preferred embodiment, the various components, such as the trigger system, the message application server, the offer application, etc., are implemented on one or more computer systems. The multiplicity of the computer system allow for the distribution of the workload in accordance with, e.g., the number of computer systems available and enables the system to function even is a subset of the computer systems experience one or more faults. The computers should be connectable to each other, for example, by means of 100 Base-T Ethernet interfaces and corresponding 100 Base-T Ethernet switches. In the most preferred implementation, each computer contains dual UltraSPARC® III processors, 1024 MB RAM, two 9 GB disk drives, and operates using the Unix™ compatible Solaris™ operating system. As will be appreciated, the specific hardware utilized can be varied in accordance with need, required capacity, and the preferred programming and operating environment, as well as in response to other factors.

What is claimed is:

1. A system for enabling targeted content delivery to a mobile device user, said mobile device having a device address, said device address having associated therewith at least one unique identifier, said system comprising:

a message application server; and

a trigger system in communication with said message application server, said trigger system comprising:

a trigger client component configured to generate a trigger signal comprising a trigger action, user content request data and said at least one unique identifier;

a trigger server component in communication with said trigger client component, said trigger server component configured to:

receive said trigger signal,

send to said message application server said trigger signal for processing by said message application server;

wherein said message application server is configured to:

receive from said trigger system said trigger signal, and in response thereto:

derive said mobile device address from said at least one unique identifier,

generate content based on said user request data, and

send said generated content to said device address of said mobile device,

wherein said generated content comprises one or more graphical images representing a promotional offer.

2. A system as in claim **1** wherein said message application server further includes a message application database for storing transaction information comprising said user request data and said device address.

3. A system as in claim **1** wherein said trigger client component is said mobile device.

4. A system as in claim **1** wherein said trigger system comprises:

a client application residing on said trigger client component for generating said trigger signal; and

a server application residing on said trigger server component in communication with said client application and said message application server, said server application for receiving and processing said trigger signal sent by said client application.

5. A system as in claim **4** wherein said client application is a WEB or WAP browser client component and said server application is a WEB or WAP server application component.

6. A system as in claim **1**, wherein said trigger client component further comprises at least one input device.

7. A system as in claim **6**, wherein said at least one input device is selected from the group consisting of a magnetic card reader, bar code reader, keyboard, keypad, touch pad, sensors, and any combination thereof.

8. A system as in claim **7**, wherein said sensors include a wireless sensor and a biometric sensor.

9. A system as in claim **1** wherein said trigger client component is an account card and a reader and wherein said trigger signal is generated by swiping said account card through said reader and having said trigger system identify said unique identifier based on account card information.

10. A system as in claim **1**, wherein said trigger system comprises an IVR system, said mobile device is a cellular phone, said device address is a cellular phone number and said trigger action is a voice call;

said IVR system configured to process said trigger signal to acquire said cellular phone number of said cellular phone.

11. system as in claim **1**, wherein said trigger system comprises a PSTN and a Phone Switch connected to said PSTN, said mobile device is a cellular phone, said mobile device address is a cellular phone number and said trigger action is a voice call;

said trigger system configured to detect incoming call establishment requests from said PSTN and to process said trigger signal to acquire said cellular phone number of said cellular phone.

12. A system as in claim **1** wherein said mobile device is a network-enabled device.

13. A system as in claim **1** wherein said mobile device is a cellular phone having a cellular phone number as said device address.

14. A system as in claim **1** wherein said device address is a calling number, a cellular phone number, an instant messaging address, an e-mail address or other addressing type.

15. A system as in claim **1** further comprising:

an offer application component;

an offer entry system in communication with said offer application component, and

an offer database in communication with said offer application component for storing said generated content and said user request data, wherein said offer entry system is configured to:

redeem said generated content,

generate content redemption information comprising said redeemed content, and

send said content redemption information to said offer application component for storage in said offer database.

16. A system as in claim **15**, wherein said offer application component is further configured to:

receive said content redemption information and

check for and process valid redeemed content using a validation code.

17. A system as in claim **16** wherein said offer entry system is further configured to generate a physical representation of said generated content.

18. A system as in claim **17** wherein said physical representation of said generated content includes paper, cardstock, plastic or any other tangible medium.

19. A system as in claim **18** wherein said offer entry system is a point of sale (POS) terminal for redeeming and providing a physical representation of said generated content.

20. A system as in claim **18** wherein said offer entry system is a kiosk for redeeming and providing a physical representation of said generated content.

* * * * *

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

NOTICE OF ASSIGNMENT TO UNITED STATES MAGISTRATE JUDGE FOR DISCOVERY

This case has been assigned to District Judge John Kronstadt and the assigned discovery Magistrate Judge is Andrew J. Wistrich.

The case number on all documents filed with the Court should read as follows:

CV12- 4227 JAK (AJWx)

Pursuant to General Order 05-07 of the United States District Court for the Central District of California, the Magistrate Judge has been designated to hear discovery related motions.

All discovery related motions should be noticed on the calendar of the Magistrate Judge

NOTICE TO COUNSEL

A copy of this notice must be served with the summons and complaint on all defendants (if a removal action is filed, a copy of this notice must be served on all plaintiffs).

Subsequent documents must be filed at the following location:

[X] Western Division
312 N. Spring St., Rm. G-8
Los Angeles, CA 90012

[ ] Southern Division
411 West Fourth St., Rm. 1-053
Santa Ana, CA 92701-4516

[ ] Eastern Division
3470 Twelfth St., Rm. 134
Riverside, CA 92501

Failure to file at the proper location will result in your documents being returned to you.

ORIGINAL

Robert Steinberg (Bar No. 126407)
Ryan E. Hatch (Bar No. 235577)
LATHAM & WATKINS LLP
355 South Grand Avenue
Los Angeles, CA 90071-1560
Tel: (213) 485-1234

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

m-QUBE, Inc., a Delaware Corporation PLAINTIFF(S) v. DELTA AIRLINES, INC., a Delaware Corporation DEFENDANT(S).	CASE NUMBER CV12 04227 JAK AJWx **SUMMONS**

TO: DEFENDANT(S):

A lawsuit has been filed against you.

Within 21 days after service of this summons on you (not counting the day you received it), you must serve on the plaintiff an answer to the attached ☑ complaint ☐ _____ amended complaint ☐ counterclaim ☐ cross-claim or a motion under Rule 12 of the Federal Rules of Civil Procedure. The answer or motion must be served on the plaintiff's attorney, Bob Steinberg, whose address is Latham & Watkins, 355 South Grand Avenue, Los Angeles, CA 90071. If you fail to do so, judgment by default will be entered against you for the relief demanded in the complaint. You also must file your answer or motion with the court.

Clerk, U.S. District Court

Dated: 5/15/12

By: _____
Deputy Clerk

(Seal of the Court)

[Use 60 days if the defendant is the United States or a United States agency, or is an officer or employee of the United States. Allowed 60 days by Rule 12(a)(3)].

UNITED STATES DISTRICT COURT, CENTRAL DISTRICT OF CALIFORNIA
CIVIL COVER SHEET

I (a) PLAINTIFFS (Check box if you are representing yourself ☐)
m-QUBE, INC., a Delaware Corporation

DEFENDANTS
DELTA AIRLINES, INC., a Delaware Corporation

(b) Attorneys (Firm Name, Address and Telephone Number. If you are representing yourself, provide same.)

Robert Steinberg (Bar No. 126407)
Latham & Watkins LLP
355 South Grand Avenue, Los Angeles, CA 90071, Tel: (213) 485-1234

Attorneys (If Known)

II. BASIS OF JURISDICTION (Place an X in one box only.)

☐ 1 U.S. Government Plaintiff ☑ 3 Federal Question (U.S. Government Not a Party)

☐ 2 U.S. Government Defendant ☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES - For Diversity Cases Only
(Place an X in one box for plaintiff and one for defendant.)

	PTF	DEF		PTF	DEF
Citizen of This State	☐ 1	☐ 1	Incorporated or Principal Place of Business in this State	☐ 4	☐ 4
Citizen of Another State	☐ 2	☐ 2	Incorporated and Principal Place of Business in Another State	☐ 5	☐ 5
Citizen or Subject of a Foreign Country	☐ 3	☐ 3	Foreign Nation	☐ 6	☐ 6

IV. ORIGIN (Place an X in one box only.)

☑ 1 Original Proceeding ☐ 2 Removed from State Court ☐ 3 Remanded from Appellate Court ☐ 4 Reinstated or Reopened ☐ 5 Transferred from another district (specify): ☐ 6 Multi-District Litigation ☐ 7 Appeal to District Judge from Magistrate Judge

V. REQUESTED IN COMPLAINT: **JURY DEMAND:** ☑ Yes ☐ No (Check 'Yes' only if demanded in complaint.)

CLASS ACTION under F.R.C.P. 23: ☐ Yes ☑ No ☐ **MONEY DEMANDED IN COMPLAINT: $**

VI. CAUSE OF ACTION (Cite the U.S. Civil Statute under which you are filing and write a brief statement of cause. Do not cite jurisdictional statutes unless diversity.)
Patent Infringement under 35 U.S.C. Section 100, et. seq. and 35 U.S.C. Section 271(a) (b) and (c)

VII. NATURE OF SUIT (Place an X in one box only.)

OTHER STATUTES
☐ 400 State Reapportionment
☐ 410 Antitrust
☐ 430 Banks and Banking
☐ 450 Commerce/ICC Rates/etc.
☐ 460 Deportation
☐ 470 Racketeer Influenced and Corrupt Organizations
☐ 480 Consumer Credit
☐ 490 Cable/Sat TV
☐ 810 Selective Service
☐ 850 Securities/Commodities/ Exchange
☐ 875 Customer Challenge 12 USC 3410
☐ 890 Other Statutory Actions
☐ 891 Agricultural Act
☐ 892 Economic Stabilization Act
☐ 893 Environmental Matters
☐ 894 Energy Allocation Act
☐ 895 Freedom of Info. Act
☐ 900 Appeal of Fee Determination Under Equal Access to Justice
☐ 950 Constitutionality of State Statutes

CONTRACT
☐ 110 Insurance
☐ 120 Marine
☐ 130 Miller Act
☐ 140 Negotiable Instrument
☐ 150 Recovery of Overpayment & Enforcement of Judgment
☐ 151 Medicare Act
☐ 152 Recovery of Defaulted Student Loan (Excl. Veterans)
☐ 153 Recovery of Overpayment of Veteran's Benefits
☐ 160 Stockholders' Suits
☐ 190 Other Contract
☐ 195 Contract Product Liability
☐ 196 Franchise

REAL PROPERTY
☐ 210 Land Condemnation
☐ 220 Foreclosure
☐ 230 Rent Lease & Ejectment
☐ 240 Torts to Land
☐ 245 Tort Product Liability
☐ 290 All Other Real Property

TORTS
PERSONAL INJURY
☐ 310 Airplane
☐ 315 Airplane Product Liability
☐ 320 Assault, Libel & Slander
☐ 330 Fed. Employers' Liability
☐ 340 Marine
☐ 345 Marine Product Liability
☐ 350 Motor Vehicle
☐ 355 Motor Vehicle Product Liability
☐ 360 Other Personal Injury
☐ 362 Personal Injury-Med Malpractice
☐ 365 Personal Injury-Product Liability
☐ 368 Asbestos Personal Injury Product Liability

IMMIGRATION
☐ 462 Naturalization Application
☐ 463 Habeas Corpus-Alien Detainee
☐ 465 Other Immigration Actions

TORTS
PERSONAL PROPERTY
☐ 370 Other Fraud
☐ 371 Truth in Lending
☐ 380 Other Personal Property Damage
☐ 385 Property Damage Product Liability

BANKRUPTCY
☐ 422 Appeal 28 USC 158
☐ 423 Withdrawal 28 USC 157

CIVIL RIGHTS
☐ 441 Voting
☐ 442 Employment
☐ 443 Housing/Accommodations
☐ 444 Welfare
☐ 445 American with Disabilities - Employment
☐ 446 American with Disabilities - Other
☐ 440 Other Civil Rights

PRISONER PETITIONS
☐ 510 Motions to Vacate Sentence Habeas Corpus
☐ 530 General
☐ 535 Death Penalty
☐ 540 Mandamus/ Other
☐ 550 Civil Rights
☐ 555 Prison Condition

FORFEITURE / PENALTY
☐ 610 Agriculture
☐ 620 Other Food & Drug
☐ 625 Drug Related Seizure of Property 21 USC 881
☐ 630 Liquor Laws
☐ 640 R.R. & Truck
☐ 650 Airline Regs
☐ 660 Occupational Safety /Health
☐ 690 Other

LABOR
☐ 710 Fair Labor Standards Act
☐ 720 Labor/Mgmt. Relations
☐ 730 Labor/Mgmt. Reporting & Disclosure Act
☐ 740 Railway Labor Act
☐ 790 Other Labor Litigation
☐ 791 Empl. Ret. Inc. Security Act

PROPERTY RIGHTS
☐ 820 Copyrights
☑ 830 Patent
☐ 840 Trademark

SOCIAL SECURITY
☐ 861 HIA (1395ff)
☐ 862 Black Lung (923)
☐ 863 DIWC/DIWW (405(g))
☐ 864 SSID Title XVI
☐ 865 RSI (405(g))

FEDERAL TAX SUITS
☐ 870 Taxes (U.S. Plaintiff or Defendant)
☐ 871 IRS-Third Party 26 USC 7609

FOR OFFICE USE ONLY: Case Number: CV12 04227

AFTER COMPLETING THE FRONT SIDE OF FORM CV-71, COMPLETE THE INFORMATION REQUESTED BELOW.

UNITED STATES DISTRICT COURT, CENTRAL DISTRICT OF CALIFORNIA
CIVIL COVER SHEET

VIII(a). IDENTICAL CASES: Has this action been previously filed in this court and dismissed, remanded or closed? ☑ No ☐ Yes
If yes, list case number(s): _____

VIII(b). RELATED CASES: Have any cases been previously filed in this court that are related to the present case? ☑ No ☐ Yes
If yes, list case number(s): _____

Civil cases are deemed related if a previously filed case and the present case:
(Check all boxes that apply) ☐ A. Arise from the same or closely related transactions, happenings, or events; or
☐ B. Call for determination of the same or substantially related or similar questions of law and fact; or
☐ C. For other reasons would entail substantial duplication of labor if heard by different judges; or
☐ D. Involve the same patent, trademark or copyright, and one of the factors identified above in a, b or c also is present.

IX. VENUE: (When completing the following information, use an additional sheet if necessary.)

(a) List the County in this District; California County outside of this District; State if other than California; or Foreign Country, in which **EACH** named plaintiff resides.
☐ Check here if the government, its agencies or employees is a named plaintiff. If this box is checked, go to item (b).

County in this District:*	California County outside of this District; State, if other than California; or Foreign Country
Los Angeles	

(b) List the County in this District; California County outside of this District; State if other than California; or Foreign Country, in which **EACH** named defendant resides.
☐ Check here if the government, its agencies or employees is a named defendant. If this box is checked, go to item (c).

County in this District:*	California County outside of this District; State, if other than California; or Foreign Country
Los Angeles	

(c) List the County in this District; California County outside of this District; State if other than California; or Foreign Country, in which **EACH** claim arose.
Note: In land condemnation cases, use the location of the tract of land involved.

County in this District:*	California County outside of this District; State, if other than California; or Foreign Country
Los Angeles	

*** Los Angeles, Orange, San Bernardino, Riverside, Ventura, Santa Barbara, or San Luis Obispo Counties**
Note: In land condemnation cases, use the location of the tract of land involved

X. SIGNATURE OF ATTORNEY (OR PRO PER): _____ Date May 15, 2012

Notice to Counsel/Parties: The CV-71 (JS-44) Civil Cover Sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law. This form, approved by the Judicial Conference of the United States in September 1974, is required pursuant to Local Rule 3-1 is not filed but is used by the Clerk of the Court for the purpose of statistics, venue and initiating the civil docket sheet. (For more detailed instructions, see separate instructions sheet.)

Key to Statistical codes relating to Social Security Cases:

Nature of Suit Code	Abbreviation	Substantive Statement of Cause of Action
861	HIA	All claims for health insurance benefits (Medicare) under Title 18, Part A, of the Social Security Act, as amended. Also, include claims by hospitals, skilled nursing facilities, etc., for certification as providers of services under the program. (42 U.S.C. 1935FF(b))
862	BL	All claims for "Black Lung" benefits under Title 4, Part B, of the Federal Coal Mine Health and Safety Act of 1969. (30 U.S.C. 923)
863	DIWC	All claims filed by insured workers for disability insurance benefits under Title 2 of the Social Security Act, as amended; plus all claims filed for child's insurance benefits based on disability. (42 U.S.C. 405(g))
863	DIWW	All claims filed for widows or widowers insurance benefits based on disability under Title 2 of the Social Security Act, as amended. (42 U.S.C. 405(g))
864	SSID	All claims for supplemental security income payments based upon disability filed under Title 16 of the Social Security Act, as amended.
865	RSI	All claims for retirement (old age) and survivors benefits under Title 2 of the Social Security Act, as amended. (42 U.S.C. (g))