

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 November 2007 (15.11.2007)

PCT

(10) International Publication Number
WO 2007/129225 A2

(51) International Patent Classification: Not classified

(21) International Application Number:
PCT/IB2007/002447

(22) International Filing Date: 4 May 2007 (04.05.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/798,041 5 May 2006 (05.05.2006) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- without international search report and to be republished upon receipt of that report
- the filing date of the international application is within two months from the date of expiration of the priority period

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SYSTEM AND METHOD FOR TELEPHONY USING INTERNET DOMAIN NAMES AND WEB ADDRESSES

(57) Abstract: A uniform resource locator (URL), or part of it, or an e-mail address are employed as an indicia for dialing a voice call from a cellular phone to a party associated with the specific URL or e-mail address. An automated name translation is performed from a URL, or part of it, or the e-mail address, to a contact target telephone number in response to requests initiated within the telephone system by a calling party. A party having a presence on the Internet achieves improved availability to the public via voice telephone calls because URL names and e-mail addresses are convenient, familiar, and meaningful to customers. The system and method receive the request when the request originates from a cellular telephone, and the system and method consult the WHOIS database, or a database especially established for this purpose, to discover the telephone number of the called party.



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SYSTEM AND METHOD FOR TELEPHONY USING INTERNET DOMAIN NAMES AND WEB ADDRESSES

1. FIELD OF THE INVENTION

This invention relates to telephony, and in particular to a system and method for
10 telephony using Internet domain names and web addresses.

2. BACKGROUND OF THE INVENTION

Until a few years ago, the existence and use of a URL to identify a company or
organization was rare. Physical addresses and telephone numbers were the most frequently
15 used means to promote and carry out contact between companies and their end-clients. The
defining moment that made it possible to publicize domain names into the market was the
introduction of the DNS systems that translates the IP number (that determines the server
where the site is hosted) into a domain name. The domain is alpha-numeric and therefore
end-clients find it much easier to remember.

20 As with many innovations originally associated with the Internet, DNS traces its
origins to ARPANET. Alphabetic hostnames were introduced shortly after its inception as a
means of allowing users greater functionality, since the numeric addresses proved difficult to
remember.

Originally, every site connected to ARPANET maintained a file called 'HOSTS.TXT'
25 which contained the mapping information for all of the numeric addresses used there. That
information was shared through ARPANET. Unfortunately, there were many problems that
arose from that setup. Errors were commonplace and it was inefficient to make changes
considering they needed to be made on each and every copy of the HOSTS.TXT file. In

December of 1973, a proposal was introduced in RFC 606 called "Host Names On-line" that went through several revisions until eventually, in 1974, RFC 625 came out, giving the Stanford Network Information Center (NIC) the official license to be the centralized location to host all of the hostname information. The centralized system worked well for almost a
5 decade. However, in the early 1980's the amount of dynamic data that was passing through the network made it difficult for a single source to be able to efficiently maintain and host all of the information. The host file was becoming too large and unwieldy. Many sites were downloading the entire file on a nightly basis. This was putting too large a strain on the Stanford NIC's resources. Something needed to change. By November of 1983, a plan was
10 laid out in RFCs 881, 882, and 883, also known as "The Domain Names Plan and Schedule," "Domain Names -- Concepts And Facilities," and "Domain Names -- Implementation And Specification." These three RFCs defined what has developed into DNS as we know it today.

The increase of domain registrations around the world occurred simultaneously with the introduction and expansion of cellular technology and telephones. One of the
15 characteristics of current models of cellular telephones is the possibility of sending text messages. These messages are called SMS or text messaging. SMS stands for short message service. It is a method of communication that sends text between cell phones, or from a PC or handheld to a cell phone. The term "short" refers to the maximum size of the text messages: 160 characters (letters, numbers or symbols in the Latin alphabet). For other
20 alphabets, such as Chinese, the maximum SMS size is 70 characters.

It is again noted that using the current system for completing a call using the cellular system, the caller must always dial a telephone number. The deposit of the current patent uses existing technology for the sending of an SMS from a cellular telephone, but it intends to create an auxiliary means so that the call can be carried out without having to know the
25 other party's telephone number.

Even if you are not talking on your cell phone, your phone is constantly sending and receiving information, referred to as chatter. It is talking to its cell phone tower over a pathway called a control channel. The reason for this chatter is so that the cell phone system
5 knows which cell your phone is in, and so that your phone can change cells as you move around. Periodically, your phone and the tower will exchange a packet of data that lets both of them know that everything is OK.

Your phone also uses the control channel for call setup. When someone tries to call you and vice-versa, the tower sends your phone a message over the control channel that tells
10 your phone to play its ring tone. The tower also gives your phone a pair of voice channel frequencies to use for the call.

The control channel also provides the pathway for SMS messages. When a friend sends you an SMS message, the message flows through the SMSC, then to the tower, and the tower sends the message to your phone as a little packet of data on the control channel. In the
15 same way, when you send a message, your phone sends it to the tower on the control channel and it goes from the tower to the SMSC and from there to its destination.

I have invented an automated system and method which employ a uniform resource locator (URL), or part of it, or an e-mail address, as an indicia for dialing a voice call from a cellular phone to a party associated with the specific URL or e-mail address.
20

BRIEF SUMMARY OF THE INVENTION

A uniform resource locator (URL), or part of it, or an e-mail address is employed as an indicia for dialing a voice call from a cellular phone to a party associated with the specific URL or e-mail address. An automated name translation is performed from a URL, or part of
25 it, or the e-mail address, to a target telephone number in response to requests initiated within

the telephone system by a calling party. A party having a presence on the Internet achieves improved availability to the public via voice telephone calls because URL names and e-mail addresses are convenient, familiar, and meaningful to customers. The system and method receive the request when the request originates from a cellular telephone, and the system and
5 method consult the Whois database, or a database especially established for this purpose, to discover the telephone number of the called party.

The present invention has the advantage of allowing a voice telephone call to be placed to an entity having a presence on the internet (owning a domain name or e-mail address), when the calling party does not know the telephone number of the called party.

10 The request for the start of the call is initiated by the sending of an SMS through the caller's cellular phone, and neither the caller nor the called party needs to be connected to the internet. The calling party provides the URL, part of it, or the email address of the other party through the sending of an SMS with the URL, or part of it, or e-mail address of the called party. The invention receives the request and processes it. The invention can
15 optionally take into account the calling party's current location, the location of the called party, whitelist, blacklist, office hours or other preferences stated by the called party so that the chosen telephone target is the most efficient for his or her operation. In addition, the current time and date of the placing of the call from the caller, as well as the time and date of the target telephone can be taken into account, as well as requests made and maintained by
20 the owner of the domain name to change its current telephone number, since these requests can have the date and time they are to begin or be immediately executed.

After the called party's telephone number has been found in accordance with the invention, the telephone target will be passed on to the telephone company so that it may put the calling party in touch with the called party. This contact may occur through a call-back
25 system originated by either of the parties or by the telephone company, or through an SMS

reply with the telephone number of the other party, or through any other means that the telephone company believes to be most efficient and user-friendly for connecting the parties.

The use of the method and system of the invention is facilitated by the publicizing and increased availability of the domain registrations, email addresses connected to the
5 registration of domains and the use of cellular telephones capable of sending SMS. The widespread adoption of these technologies by the market has created the technological, cultural and economic critical mass that will achieve the beneficial results of this invention.

As used herein, the term "telephone" means any known communication device, including a cell phone, a laptop, a personal digital assistant (PDA), a pager, an Internet
10 communicating device, etc.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the invention are described hereinbelow with reference to the drawings wherein:

FIG. 1 is a schematic illustration of the system of the present invention;

15 FIG. 2 is a simplified flow diagram that illustrates interactions of the main components of FIG. 1;

FIG. 3 is a schematic that illustrates the processing of requests coming from the calling parties with the objective of making a telephone connection between the parties;

FIG. 4 is a schematic that illustrates the functioning of the process to determine the
20 location or area code of the target telephone; and

FIG. 5 is a schematic illustration of an alternative embodiment of the present invention for checking availability of a domain name and send the domain name owner's data in the WHOIS database or a database especially established for this purpose via SMS.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIGS. 1-5, the system and method of the present invention employ a uniform resource locator (URL), or part of it, or an e-mail address as an indicia for dialing a voice call from a cellular phone to a party associated with the specific URL or e-mail address.

5 As used herein, the following terms are defined as indicated:

AREA CODE OF THE TELEPHONE NUMBER

A telephone numbering plan is a plan for allocating telephone number ranges to countries, regions, areas and exchanges and to non-fixed telephone networks such as mobile
10 phone networks. The area code is only necessary for telephone connections dialed from outside the code area, from mobile phones, and (especially within North America) from within overlay plans. Area codes usually indicate geographical areas within one country that are covered by perhaps hundreds of telephone exchanges. It must usually be preceded in the dial string by either the national access code or the international access code and country
15 code.

ARPANET

The Advanced Research Projects Agency Network (ARPANET) developed by the Advanced Research Projects Agency (ARPA) of the United States Department of Defense
20 was the world's first operational packet switching network, and the progenitor of the global Internet.

COUNTRY CODE TOP LEVEL DOMAIN (CCTLD)

Country code domain extensions represent a specific country. ccTLDs allow you to
25 create an in-language Web site and display different site content to visitors from various

cultures around the world. You can also register ccTLDs to prevent unauthorized use of trademarks, brands and licensed names around the world.

COUNTRY CODE OF THE TELEPHONE NUMBER

5 Country codes are short numeric geographical codes (geocodes) developed to represent countries and dependent areas, for use in data processing and communications. The term country code frequently refers to international dialing codes, the E.164 country calling codes.

10 DNS

The domain name system (DNS) stores and associates many types of information with domain names, but most importantly, it translates domain names (computer hostnames) to IP addresses. It also lists mail exchange servers accepting e-mail for each domain. In providing a worldwide keyword-based redirection service, DNS is an essential component of
15 contemporary Internet use.

DOMAIN NAME

Domain names are hostnames that provide more memorable names to stand in for numeric IP addresses. They allow for any service to move to a different location in the
20 topology of the Internet (or an intranet), which would then have a different IP address, for example: `www.Microsoft.com`

By making possible the use of unique alphabetical addresses instead of numeric ones, domain names allow Internet users to easily find and communicate with web sites and other server-based services.

25

ENUM

ENUM unifies traditional telephony and next-generation IP networks, and provides a critical framework for mapping and processing diverse network addresses. It transforms the telephone number, the most basic and commonly-used communications address, into a universal identifier that can be used across many different devices and applications (voice, fax, mobile, email, text messaging, location-based services and the Internet).

GENERIC TOP LEVEL DOMAIN (GTLD)

A generic top-level domain (gTLD) is a top-level domain used by a particular class of organization. These are three or more letters long, and are named for the type of organization that they represent (for example, .com for commercial organizations). The following gTLDs currently exist:

- .aero - for the air transport industry
- .biz - for business use
- 15 .cat - for Catalan language/culture
- .com - for commercial organizations, but unrestricted
- .coop - for cooperatives
- .edu - for post-secondary educational establishments
- .gov - for governments and their agencies in the United States
- 20 .info - for informational sites, but unrestricted
- .int - for international organizations established by treaty
- .jobs - for employment-related sites
- .mil - for the US military
- .mobi - for sites catering to mobile devices
- 25 .museum - for museums

.name - for families and individuals

.net - originally for network infrastructures, now unrestricted

.org - originally for organizations not clearly falling within the other gTLDs, now unrestricted

5 .pro - for certain professions

.travel - for travel agents, airlines, hoteliers, tourism bureaus, etc.

GPS

The Global Positioning System (GPS), is currently the only fully-functional satellite
10 navigation system. More than two dozen GPS satellites are in medium Earth orbit,
transmitting signals allowing GPS receivers to determine the receiver's location, speed and
direction.

IP ADDRESS

15 An Internet Protocol (IP) address is a unique address that devices use in order to
identify and communicate with each other on a computer network utilizing the Internet
Protocol standard, or in simpler terms, a computer address. Any participating network device,
including routers, computers, time-servers, printers, Internet fax machines, and some
telephones, can have their own unique address. Also, many people can find personal
20 information through IP addresses.

RFC

In internetworking and computer network engineering, Request for Comments (RFC)
documents are a series of memoranda encompassing new research, innovations, and
25 methodologies applicable to Internet technologies. Through the Internet Society, engineers

and computer scientists may publish discourse in the form of an RFC memorandum, either for peer review or simply to convey new concepts and information. The Internet Engineering Task Force (IETF) adopts some of the proposals published in RFCs as Internet standards.

5 TOP LEVEL DOMAIN (TLD)

A top-level domain (TLD) is the last part of an Internet domain name; that is, the letters which follow the final dot of any domain name. For example, in the domain name www.website.com, the top-level domain is com. The Internet Assigned Numbers Authority (IANA) currently classifies top-level domains into three types:

- 10 A. Country code top-level domains (ccTLD): Used by a country or a dependent territory. It is two letters long, for example jp for Japan.
- B. Generic top-level domain (gTLD): used by a particular class of organizations, for example, .com for commercial organizations. It is three or more letters long. Most gTLDs are available for use worldwide, but for historical reasons mil (military) and gov
15 (governmental) are restricted to use by the respective U.S. authorities. gTLDs are subclassified into sponsored top-level domains (sTLD), e.g. .aero, .coop and .museum, and unsponsored top-level domains (uTLD), e.g. .biz, .info, .name and .pro.; and
- C. Infrastructure top-level domain: The top-level domain .arpa is the only confirmed one. Root has been known to exist without reason.

20

PSTN

The public switched telephone network (PSTN) is the network of the world's public circuit-switched telephone networks, in much the same way that the Internet is the network of the world's public IP-based packet-switched networks. Originally a network of fixed-line
25 analog telephone systems, the PSTN is now almost entirely digital, and now includes mobile

as well as fixed telephones. The PSTN is largely governed by technical standards created by the ITU-T, and uses E.163/E.164 addresses (known more commonly as telephone numbers) for addressing.

5 ROAMING

Roaming is a general term in wireless telecommunications that refers to the extending of connectivity service in a location that is different from the home location where the service was registered. Roaming occurs when a subscriber of one wireless service provider uses the facilities of another wireless service provider.

10

SMS

Short Message Service (SMS) is a service available on most digital mobile phones, and other mobile devices, e.g. a Pocket PC, or occasionally even desktop computers, that permits the sending of short messages, also known as text messages, or more colloquially

15 SMSes, texts or even txts, between mobile phones, other handheld devices and even landline telephones.

SMS CENTER

An SMS center (SMSC) is responsible for handling the SMS operations of a wireless
20 network. When an SMS message is sent from a mobile phone, it will reach an SMS center first. The SMS center then forwards the SMS message towards the destination. An SMS message may need to pass through more than one network entity (e.g. SMSC and SMS gateway) before reaching the destination.

VOIP

Voice over Internet Protocol, also called VoIP, IP Telephony, Internet telephony, Broadband telephony, Broadband Phone and Voice over Broadband is the routing of voice conversations over the Internet or through any other IP-based network.

5

TELCO

Telco is a generic term for one or more telephone companies.

URL

10 Uniform Resource Locator (URL) is the address for a resource or site (usually a directory or file) on the World Wide Web and the convention that Web browsers use for locating files and other remote services.

WHOIS

15 WHOIS is a directory of domain name information. When a domain name is registered, the registrant's postal address, e-mail address and phone number are automatically published in the public WHOIS database. The Internet Corporation for Assigned Names and Numbers (ICANN), the nonprofit body responsible for accrediting domain name registrars, requires that this personal information be accurate and available for anybody to view on the
20 Internet.

THE SYSTEM AND METHOD OF THE INVENTION

As shown in FIGS. 1-5, the method of the invention is applied to establish a voice connection via telephone between the originating cellular telephone and another target

telephone, whether it is a cellular, fixed-line, ENUM or VOIP connection, without providing the originating cellular telephone with the telephone number of the target.

Referring to FIG. 1, the system 10 of the present invention has a first user 12 using an originating cell phone 14 to establish and conduct telephone calls. The first user 12 enters
5 Internet-based information, such as a URL, or part of it, or an e-mail address of a second user 36 into an input device 16 of the originating cell phone 14 to establish a telephone connection with the second user 36. The originating cell phone 14 generates and transmits an SMS message 18 through an SMS center 20 to a computer-based system 22 for processing to establish the desired telephone connection.

10 The input device 16 can include any type of input means, including known types of telephone and cell phone keypads, as well as a specialized key which is pushed to activate a function button created especially for this purpose to generate and output the SMS message 18 having the inputted Internet-based information. In addition, the input device 16 can incorporate touch screen technology to provide icons which are touched on a display to
15 function as the equivalent of keypad buttons. In addition, the input device 16 can include a voice recognition system, or any other means that facilitates the sending of the SMS message 18.

The computer-based system 22 includes a processor 24 for executing predetermined software 26 of the present invention to perform the various functions and features of the
20 present invention, as described herein. The computer-based system 22 also includes a memory 28 for storing data and various databases as described herein. Upon receiving the SMS message 18, the processor 24 of the computer-based system 22 determines the corresponding telephone number of the second user 36 associated with the URL, or part of it, or e-mail address inputted by the first user 12, and if a matching telephone number is found in
25 the memory 28, the computer-based system 22 subsequently generates and outputs a request

30 to the telephone company 32 to establish communication between the originating cell phone 14 and the target telephone or telco 34 corresponding to the matching telephone number associated with the second user and matching the inputted URL, or part of it, or e-mail address.

5 As shown in the simplified flow diagram of FIG. 2, for this call to be placed, the originating cellular telephone 14 must send an SMS message 18 to a telephone number or specific short number in which the body of the message will contain a URL, or part of a URL, or an e-mail, associated with the other party. Optionally, the cellular telephone can include a specific button or function, or an icon in its display, to make it easier to send the SMS
10 message 18, so that the owner 12 of the originating cellular telephone 14 need not know or dial a telephone number, whether or not it is a short number, to use the process of the invention. This SMS is received by SMS center 20 and is captured by computer-based system 22 of the present invention, which processes the request for a connection. The processing of the request for a connection is illustrated in FIG. 3, such that the computer-
15 based system generates a request to the telephone company, or telco, 32 to establish a connection to the target telephone 34, and once established, the connection between the originating cell phone 14 and the target telephone 34 is directly provide by the telco 32.

As shown in FIG. 3, the computer-based system 22 receives the SMS message 18 and analyzes it in step 37 by parsing the body of the SMS message 18. If it is an invalid message
20 as determined in step 38, for example, if the message has special characters not corresponding to a valid URL or e-mail address, the computer-based system 22 will send an error SMS message 39 back to the originating cellular telephone 14 to the first user 12. However, if the SMS message 18 is valid, but has an incomplete URL, as determined in step 40, or does not define the top level domain, for example, .com, .net, .org, .de, .co, .uk, etc., is

not at the end of the SMS message 18, the computer-based system 22 will complete the URL with the most appropriate top level domain in steps 41, 42 and 43.

Prior to performing step 46, the selection of the most appropriate top level domain can be done in one of two ways: either by using the ccTLD of the originating cell phone 14 in step 42, or by querying the telephone company 32 for the location of the originating cell phone 14 in step 43. The computer-based system 22 can be set in step 41 to use a predetermined method, for example, to simplify implementation without verification with the telephone company in steps 41 and 42, or to require greater accuracy by verifying with the telephone company in steps 41 and 43.

Through a question or request generated in step 43 to the telephone company 32, the computer-based system 22 receives a response from the telephone company 32 or any other telephone company indicating in which country the originating cellular telephone 14 is currently located. It is important to emphasize that the originating cellular telephone 14 can be in any country and in roaming mode. If the computer-based system 22 receives together with SMS 18 the information in which country the originating cellular telephone 14 is currently located, the step 43 can be eliminated.

Otherwise, in a simplified way in step 42 using only the telephone country code of the telephone number of the originating cellular telephone 14, the computer-based system 22 determines the location of the originating cellular telephone from the ccTLD. For example, if the number of the originating cellular telephone is +55 11 9999-9999, and 55 is the telephone country code for Brazil, then the computer-based system 22 will determine the country to be Brazil, even if the originating cellular telephone is in roaming mode and in another country.

After determining what country code the computer-based system 22 will use, whether using in the more complete method in step 43, or in the simplified method in step 42, the system 22 then verifies what type of domain name registration is most common in the

selected country to complete step 40 and proceed to step 46. For example, completion of the URL can depend on the ccTLD, which is to say, if the most common type of domain name registration is with the extension of two letters that represent each country, for example, .FR for France, .DE for Germany, .BR for Brazil, etc., or if the majority of registrations are done
5 with gTLDs, which is to say, top level domains that have an extension with three or more characters, for example, .COM, .NET, .ORG, etc. Accordingly, the URL input by the user 12 via the input device 16 is completed in step 40 with the most common type of top level domain in that country.

For example, if the country has a greater ratio of ccTLD domains than gTLDs, then
10 the computer-based system 22 will choose the ccTLD of that country to complete the incomplete URL contained in the SMS message 18. Alternately the computer-based system 22 can be pre-configured to override this decision with other defined Top Level Domains to complete the URL.

With continuing reference to FIG. 3, the computer-based system 22 verifies in step 46
15 whether the domain is listed in a specific database 45 in the memory 28, with definitions inserted by the owner or user 36 of the target telephone 34 into the customer definition database 45. The targeted user 36, such as an individual or company, can register with the system 10 of the present invention, allowing the user 36 to populate the customer definition database 45 used by the system 10 of the present invention in order to facilitate being able to
20 be easily connected by cell phone users, such as user 12 and other potential contacts, using the system 10 of the present invention. The targeted user 36 is allowed to insert various alternative contact telephone numbers in a database 50, associated with the URL, part of it or e-mails, for the purpose of better meeting the contact expectations of the originating cellular telephone 12. For example, the targeted user 36 can specify alternative telephone numbers by
25 date and time of his availability (user 36), e-mails associated with his domain name (user 36),

and further: user 36 can also insert a whitelist of telephone numbers of users which the computer-based system will answer and a blacklist of telephone numbers of users which the computer-based system will not answer.

In addition, the current time and date of the placing of the call from the caller as well
5 as the time and date of the target telephone can be included in the process, as well as requests made and maintained by the owner of the domain name, or e-mails associated with a domain, to change its current telephone number, since these requests may have the date and time they are to begin or be immediately executed.

If the user 36 such as a company never registers with the system 10 or never populates
10 the customer definition database 45, the system 10 in step 46 proceeds to step 57, described below.

Otherwise, the system 10 proceeds to consult the database 45, to allow the owner 36 of the target telephone 34 to be connected to by the user 12. If the computer-based system 22 determines in step 48 that there are special or predetermined definitions involving the current
15 geographic location or country and area code of the originating cellular telephone 12, then the first step will be to determine the location or use of the country code and area code of the originating cellular telephone 14 in step 49 and is described in greater detail in FIG. 4 in connection with a subsystem 49 for finding a country code and area code or geographic location of the originating cell phone 14.

Referring to FIGS. 3-4, if a definition exists in the memory 28 for the chosen target
20 telephone 34 in relation to its country code and area code as determined in step 51, then there are two possibilities: verify or do not verify the location of the originating cell phone 14. The subsystem 49 can have a predetermined setting which is checked in step 52 whether to verify or not verify the location of the originating cell phone 14, with verification being
25 more accurate while non-verification being simpler to implement.

If the subsystem 49 is set to verify with the telephone company 32, then a request is generated and sent in step 53 to the telephone company 32, or any other telephone company that has this information, to determine the location of the originating cell phone 14, in the form of the current country code and area code of the originating cellular telephone 14. In other words, if the originating cellular telephone 14 is roaming, the telephone company 32 will provide the country code and area code where the originating cellular telephone 14 is at that exact moment.

Such country codes and area codes of the originating cellular telephone 14 are generated and sent by the telephone company 32 to select the alternative phone number in step 50.

If the subsystem 49 is set in step 52 to not verify with the telephone company 32, then the subsystem 49 automatically uses the country code and area code of the originating cell phone 14 in step 54, which is then sent to select the alternative phone number in step 50. When an SMS message 18 is sent, the SMS message 18 carries the sender's complete telephone number, including the country code and area code, and so step 54 is simpler to implement.

Referring back to step 51, if no definition existed, then a the choice of the target telephone 34 is done through the current geographic location of the originating cellular telephone 14, and the telephone company 32 of the originating cellular telephone 14, or any other telephone company that has the current location of the originating cellular telephone 14, is consulted in step 55 by generating a request to the telephone company 32 for the present geographic location of the originating cellular telephone 14.

The telephone company 32 will determine the geographic location of the originating cellular telephone 14 through the identification of the antennas/radio bases where the originating cellular telephone 14 is located, or by the use of the Global Positioning System

(GPS) installed in the originating cellular telephone 14 or any other method that allows for the determination of its geographic location.

Then, in step 50, the computer-based system 22 verifies whether the owner of the target telephone 34 made other specifications, described above, according to the following
5 criteria:

A. The identification of the target telephone 34 should be retrieved as a function of time, in other words, that the target telephone 24 better serves the contact expectations of the originating cellular telephone 14 taking into account, for example, the day of the week, month, holidays, and the time of day at the moment in which the system 10 of the present
10 invention is processing the call initiated by the SMS message 18. A common use of this option is the definition of telephones that will be active, for example, during a weekend.

B. A list of prohibited or accepted telephone numbers. The owner of the target telephone 34 can register a whitelist, protected or not by a password, or a blacklist of originating telephone numbers 14 from which he accepts or does not accept calls.

C. If there is a specific target telephone 34 for the e-mail input by the user 12
15 through the input device 16. If the originating cellular telephone 14 has sent an SMS message 18 with an e-mail address in its body, the specific customer definition database 45 must contain identification of which target telephone 34 is the correct one to be provided for the corresponding e-mail address. If there are not specific target telephones 34 registered for
20 the inputted e-mail address, the system 10 will choose the default target telephone 34 associated with the domain with which the e-mail is associated.

Any combination of the factors (A)-(C) above, and of the location data determined by the subsystem 49, providing geographic or country code/area code data, of the originating cellular telephone 14, will also be valid. For example, as specified by a definition of the best
25 target telephone 34, in the form of a telephone number, output in step 56 in FIG. 3, to be

provided as a function of time, the location provided by the subsystem 49, and whether the originating cellular telephone 14 is not on a blacklist.

Referring back to step 46 in FIG. 3, if the domain name or URL input by the user 12 is not in the specific customer definition database 45, the target telephone 34 must be
5 retrieved from the WHOIS database. The computer-based system 22 determines in step 57 if the domain name data is available from the WHOIS database. If not available in the WHOIS database, the system 22 will send an error SMS message in step 39 back to the originating cellular telephone 14, and the user 12 must enter a new input to attempt to establish a connection with the user 36 and/or the target telephone 34.

10 However, in step 46, if the target telephone 34 associated with the inputted domain name is determined in step 57 to be available in the WHOIS database, the telephone number in the WHOIS database is retrieve and output in step 56 to be defined as the telephone number that will be used.

After the telephone number of the target telephone 34 to be contacted has been
15 identified, whether through consulting the WHOIS database in step 57 or through consulting the customer definition database 45 created especially for this purpose, the next step is for the computer-based system 22 to generate a request in step 30 to a telephone company to complete the call between the originating cellular telephone 14 and the target telephone 34, either to inform the telephone company of the originating cellular telephone 14, or the
20 telephone company associated with the telephone target 34, or a telephone company or an alternative communication company, to place the originating cellular telephone 14 in contact with the target telephone 34.

The telephone company 32 can put the originating cellular telephone 14 and the target telephone 34 in contact through alternative processes:

- A. Through a call-back system originated by either of the parties or by the telephone company 32.
- B. By sending an SMS message to the originating cellular telephone 14 with the telephone number of the target telephone 34.
- 5 C. By any other means that the telephone company 32 finds most convenient to place the originating cellular telephone 14 and the target telephone 34 in contact.

ALTERNATIVE EMBODIMENT FOR DOMAIN NAME AVAILABILITY

10 In an alternative embodiment, shown in FIG. 5, another feature of the present invention is the verification of the availability of a domain registration, or checking the information regarding the owner of a domain in the WHOIS database, via use of the SMS message 18. For this use it will only be necessary to create a specific telephone number, to which the originating cellular telephone must send the SMS message 18.

15 The operations of the computer-based system 22 and the flow of data in the alternative embodiment of FIG. 5 are basically the same as the system and steps described in connection with FIG. 3.

Referring to FIG. 5, the originating cellular telephone 14 sends an SMS message 18 which will contain a URL or part of a URL in the body of the message 18. This SMS
20 message 18 will be received by the computer-based system 22, which will analyze and process the request for information for that domain by parsing the SMS message body in step 37, and determining in step 38 if the message 18 is valid.

If it is an invalid message, the computer-based system 24 will send an error SMS message in step 39 to the originating cellular telephone 14.

In step 37, if the SMS message 18 is determined to be valid, the computer-based system 22 determines if the URL in the SMS message 18 is complete in step 40. If the URL is not incomplete as inputted by the user 12, the system 22 does not complete the URL, as in FIG. 3, but instead proceeds to step 58 in FIG. 5 to determine if the domain inputted by the user 12 is available, as described below.

However, if the URL is determined in step 40 to be incomplete, the selection of the most appropriate top level domain is performed, which can be done in two distinct ways: either by using the ccTLD of the originating cell phone 14 in step 42, or by querying the telephone company 32 for the location of the originating cell phone 14 in step 43. The computer-based system 22 can be set in step 41 to use a predetermined method, for example, to simplify implementation without verification with telephone company in steps 41 and 42, or to require greater accuracy by verifying with the telephone company in steps 41 and 43.

Through a question or request generated in step 43 to the telephone company 32, the computer-based system 22 receives a response from the telephone company 32 or any other telephone company indicating in which country the originating cellular telephone 14 is currently located. It is important to emphasize that the originating cellular telephone 14 can be in any country and in roaming.

Otherwise, in a simplified way in step 42 using only the telephone country code of the telephone number of the originating cellular telephone 14, the computer-based system 22 determines the location of the originating cellular telephone from the ccTLD. For example, if the number of the originating cellular telephone is +55 11 9999-9999, and 55 is the telephone country code for Brazil, then the computer-based system 22 will determine the country to be Brazil, even if the originating cellular telephone is in roaming and in another country.

After determining what country code the computer-based system 22 will use, whether using the more complete method in step 43, or the simplified method in step 42, the system

22 then verifies what type of domain name registration is most common in this country to complete step 40 and proceeds to step 58. For example, completion of the URL can depend on the ccTLD, which is to say, if the most common type of domain name registration is with the extension of two letters that represent each country, for example, .FR for France, .DE for
5 Germany, .BR for Brazil, etc., or if the majority of registrations are done with gTLDs, which is to say, top level domains that have an extension with three or more characters, for example, .COM, .NET, .ORG, etc. Accordingly, the URL input by the user 12 via the input device 16 is completed in step 40 with the most common type of domain in that country.

For example, if the country has a greater ratio of ccTLD domains than gTLDs, then
10 the computer-based system 22 will choose the ccTLD of that country to complete the incomplete URL contained in the SMS message 18. Alternately the computer-based system 22 can be pre-configured to override this decision with other defined Top Level Domains to complete the URL.

Referring back to step 58, after steps 40-43 are performed, the computer-based system
15 22 consults in step 58 the availability of the domain name input by the user 12. If the domain name is registered in the WHOIS database, the system 22 consults the information in step 57 regarding who owns the domain in the WHOIS database. If there is no domain data available for the specified domain in the WHOIS database, as determined in step 57, the computer-based system 22 sends an SMS message back to the user 12 with an error message. This can
20 indicate that the WHOIS database is incomplete, or the domain owner bought a privacy protection service which will hide his contact information in the WHOIS database, or that the domain owner supplied incorrect information.

However, in step 57, if domain data is available for the specified domain in the WHOIS database, the computer-based system 22 determines a phone number defined by the
25 WHOIS data in step 56, and generates and sends an SMS message with the WHOIS data in

step 60 to the first user 12 indicating who owns the domain name and what is the owner's phone number.

Returning to step 58, if the domain is available for registration but is not yet registered, the computer-based system 22 invention will generate and send an SMS message in step 59 to the originating cellular telephone 14 stating the availability of the domain name.

Accordingly, using the same infrastructure, the system 10 and methods of the present invention are capable of receiving a domain name or e-mail address and either connecting the first user 12 with the appropriate user 36 associated with the domain name or e-mail address to either establish a telephone connection or determining the availability of the domain name or e-mail address for registration by the first user 12.

In an alternative embodiment, the communications involving the system 10 and its components can also include devices capable of voice over IP (VOIP) using the Internet.

While the preferred embodiments of the present invention have been illustrated and described herein, it will be apparent to one of ordinary skill in the art that each such embodiment is provided by way of example only. Numerous variations, changes and substitutions will occur to those of ordinary skill in the art without departing from the invention disclosed. Accordingly, it is intended that the invention be determined with reference to the appended claims.

CLAIMS

I CLAIM:

1. A system for establishing a telephone connection with a contact party using Internet-based information, the system comprising:
 - means for receiving the Internet-based information from a caller;
 - a database of telephone numbers, with each telephone number associated with corresponding Internet-based information;
 - means for processing the Internet-based information to retrieve a specific telephone number associated with the contact party from the database; and
 - means for establishing the telephone connection between the caller and the contact party using the telephone number.
2. The system of claim 1, wherein the Internet-based information includes at least a portion of a Uniform Resource Locator (URL).
3. The system of claim 1, wherein the Internet-based information includes an e-mail address.
4. A method that establishes a telephone connection between two parties with telephones, comprising:
 - placing a call from a caller using a first telephone by inputting only Internet-based information associated with the other party;
 - sending a Short Message Service (SMS) message with the Internet-based information of the other party to a processor;

using the processor to search for the Internet-based information from a database that relates Internet-based information to the telephone numbers of the owners of the Internet-based information;

obtaining a corresponding telephone number of the other party from the database;

providing the other party's telephone number to a telephone system; and

using the telephone system to establish a connection between the caller and the other party.

5. The method of claim 4, wherein the first telephone of the caller is a cellular telephone.

6. The method of claim 4, wherein the step of using the telephone system to establish a connection includes the action selected from the group consisting of: placing the call, transferring the call to voicemail if a telephone line is busy, making a callback connection, sending an SMS with the other party's telephone number to the caller, or connecting the caller to the other party using communication networks.

7. The method of claim 4, wherein the database is a WHOIS database.

8. The method of claim 4, wherein the database is a predetermined database of telephone numbers with corresponding domain names and/or e-mail addresses.

9. The method of claim 4, wherein the step of using the processor to search for the domain name from a database includes searching the database using the date and time that

the call is made by the caller and/or the local time of the other party, a whitelist of telephone numbers, a blacklist of telephone numbers, or a combination of the foregoing to determine the other party's telephone number.

10. The method of claim 4, wherein the Internet-based information includes at least a portion of a Uniform Resource Locator (URL).

11. The method of claim 4, wherein the Internet-based information includes at least a portion of a domain name.

12. The method of claim 4, wherein the Internet-based information includes at least a portion of an e-mail address.

13. The method of claim 4, wherein the step of using the processor to search for the Internet-information includes using a current geographical location of the caller to determine which of the other party's telephone numbers is to be used.

14. The method of claim 13, wherein the current geographical location of the caller is supplied by the telephone system using cell location verification.

15. The method of claim 13, wherein the current geographical location of the caller is supplied by the telephone system using the Global Positioning System (GPS).

16. A method that determines the availability of a Uniform Resource Locator (URL), comprising:

placing a call from a caller using a first telephone by inputting only at least part of the URL;

5 sending a Short Message Service (SMS) message with the part of the URL to a processor;

using the processor to search for the Internet-information from a database that relates URLs to the telephone numbers of the owners of the Internet-based information to verify the availability of the URL;

10 if the URL is unavailable, obtaining a corresponding telephone number of an owner of the URL from the database, with the telephone number as status data;

if the URL is available, generating an availability message as status data; and

sending the status data in a Short Message Service (SMS) message to the caller using an SMS.

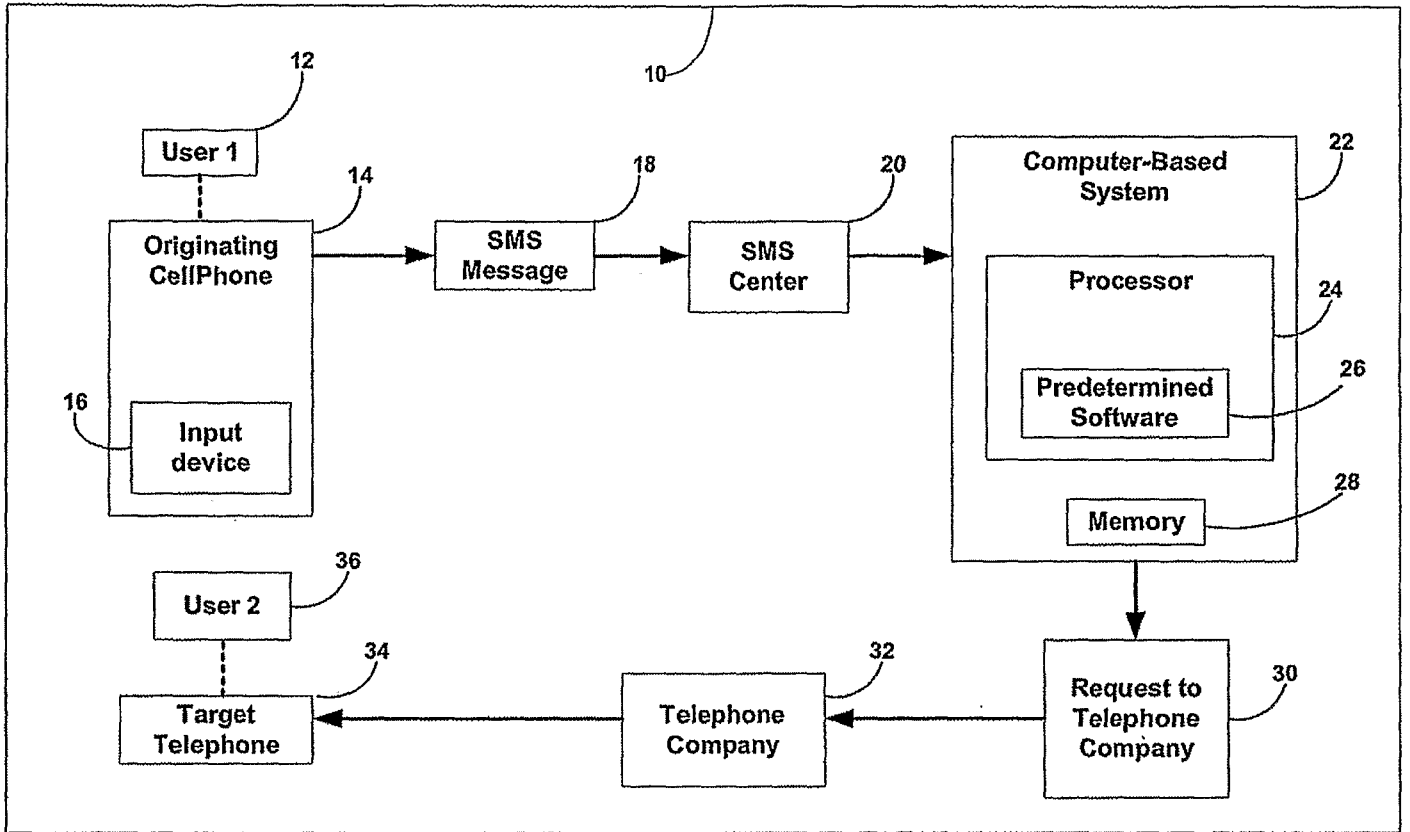


FIG. 1

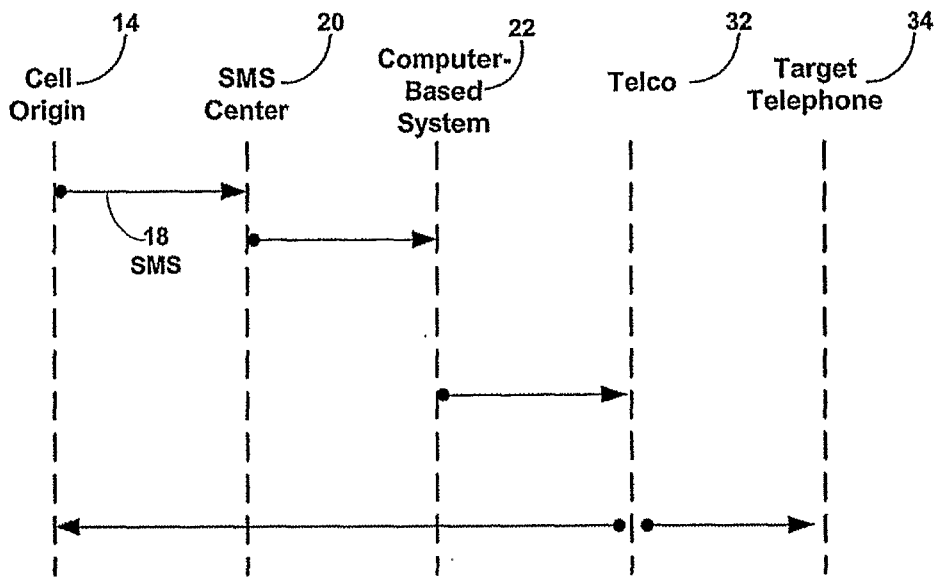


FIG. 2

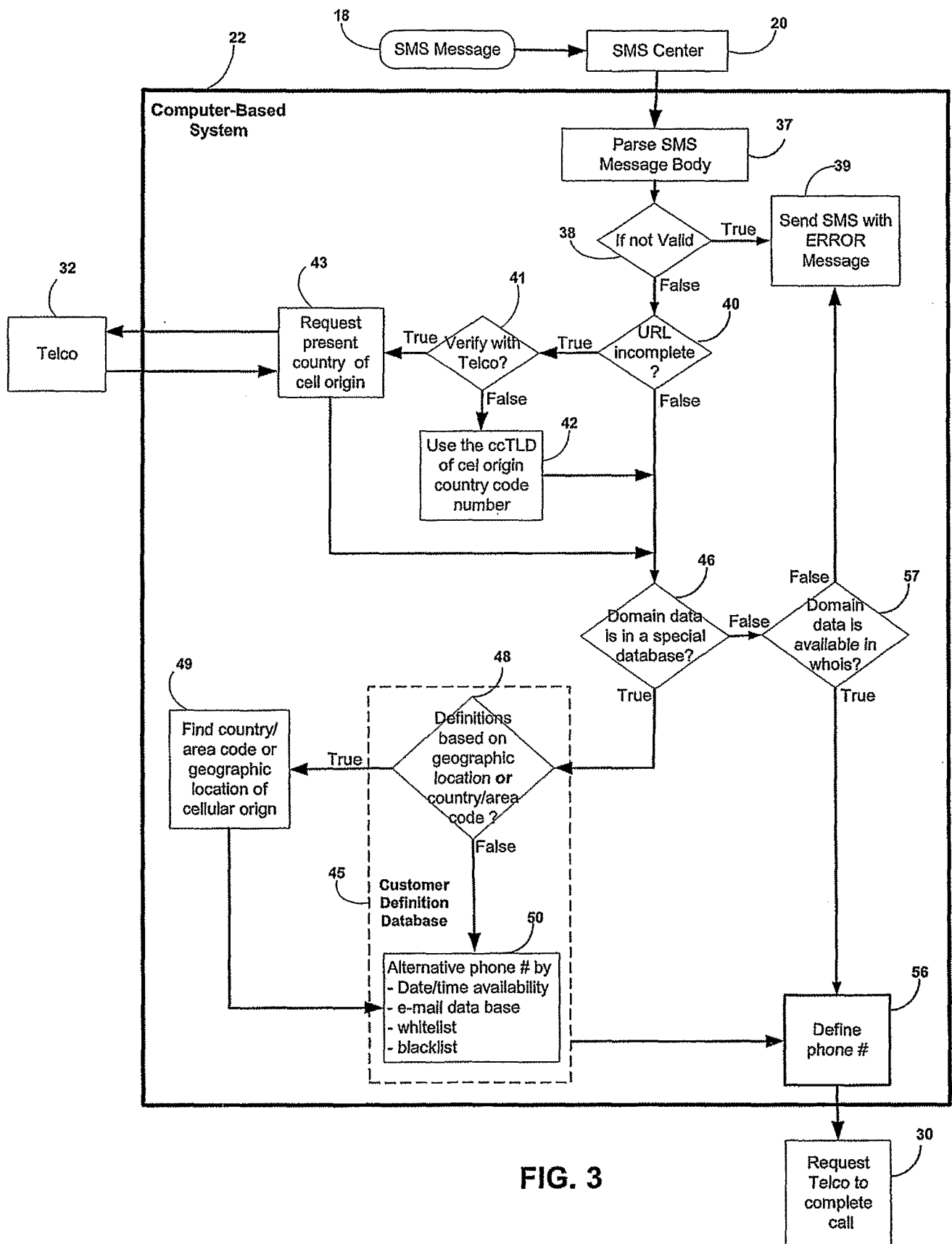


FIG. 3

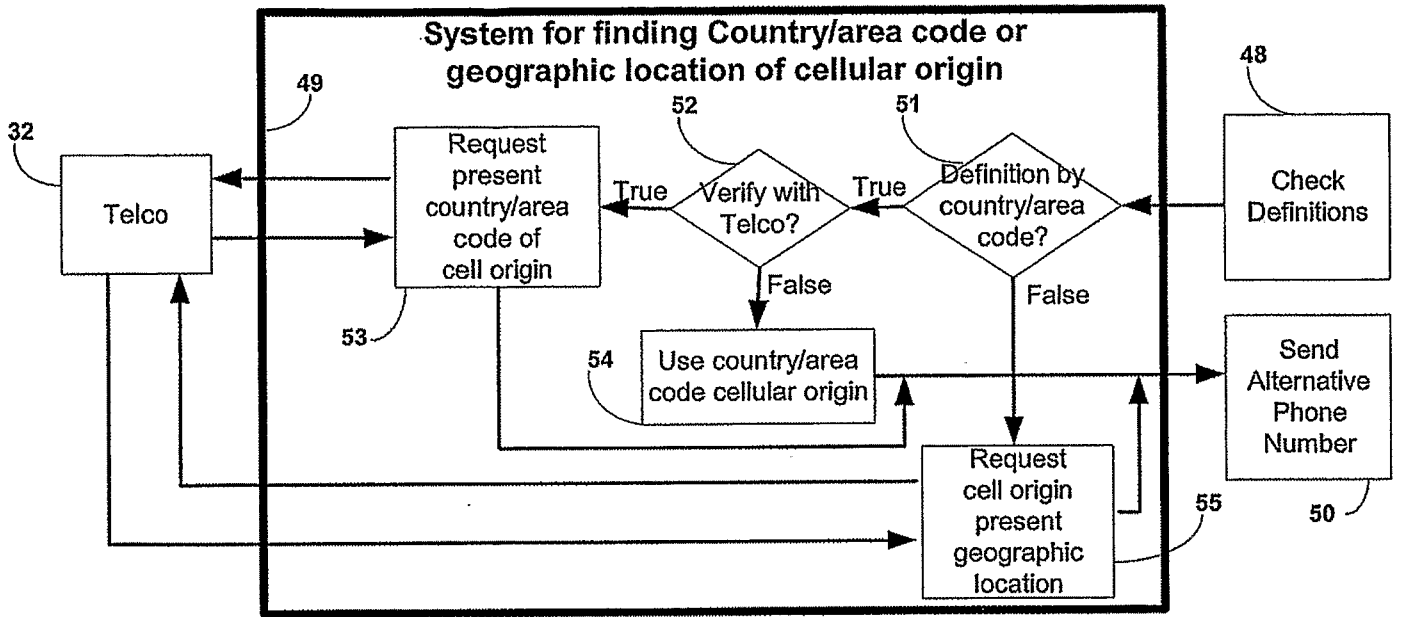


FIG. 4

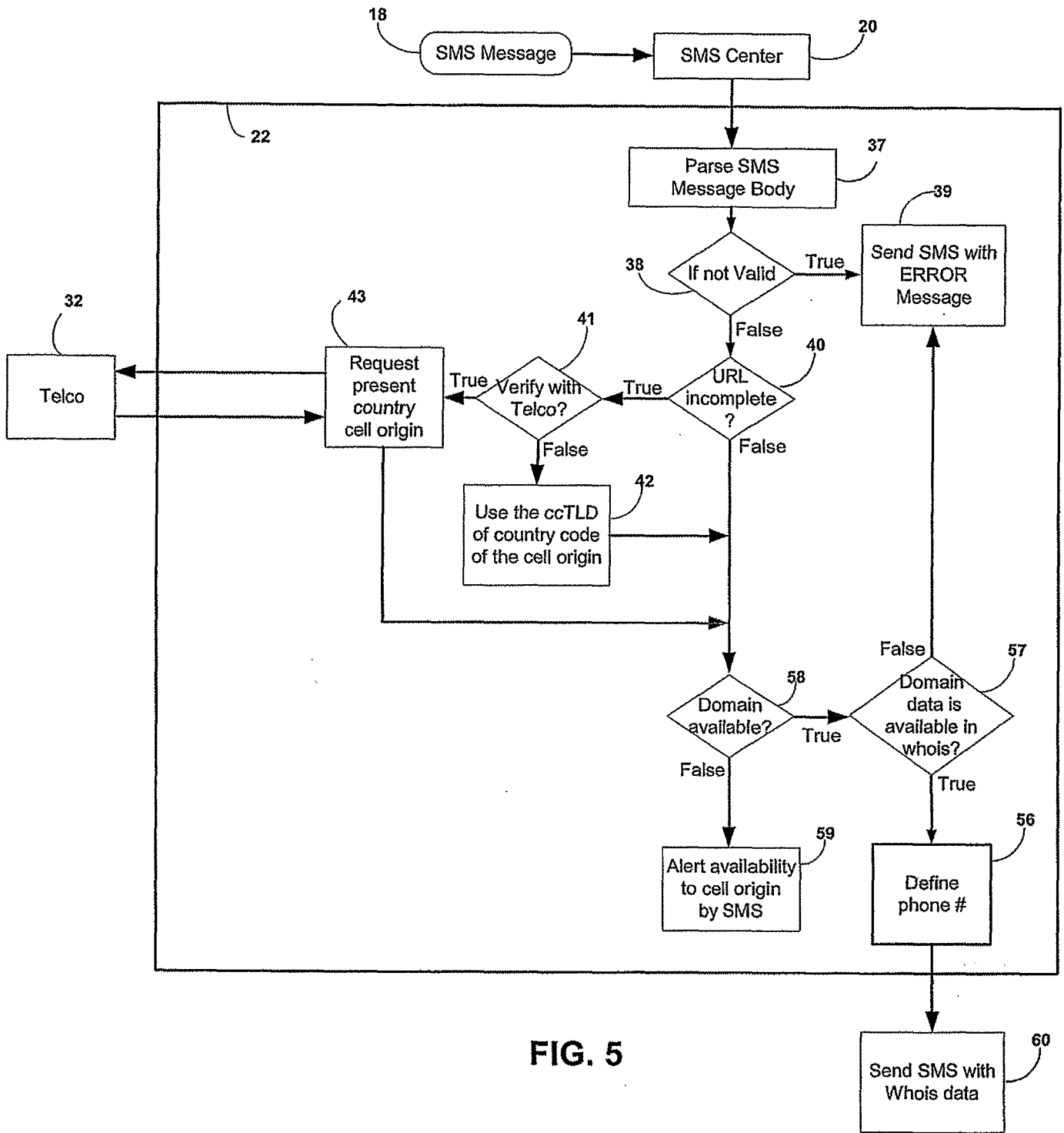


FIG. 5