Title: METHOD AND SYSTEM FOR REMOTELY COMMUNICATING WITH AN ON-LINE STOREFRONT

Abstract: Coordination of sales leads between a potential customer (400, 410, 420) on a web-site (100) and a sale agent is performed in real-time and linked to a relational database (s10). The sales leads can be directed to a sales person (130, 132, 134) connected to the web-site or to a wireless or wired device of an off-site sales person. An authorized off-site sales person or manager can communicate with the web-site (100) through the wireless device (324, 326, 320) to change information such as prices and terms on the web-site.
Method and System for Remotely Communicating with an On-line Storefront

This application claims the benefit of a provisional application, entitled “Method and System for Remotely Communicating with an On-line Storefront,” that was filed on June 21, 2000 and assigned Provisional Application Number 60/212,823, which is hereby incorporated by reference.

Background of the Invention

Field of the Invention

The present invention relates to a method and system to coordinate sales information in real-time between an on-line business and potential buyers. The owner or manager of the on-line business can communicate with the potential buyers or traders in real-time and can change the on-line pricing to pre-empt a price move by other businesses.

Discussion of Related Art

Examples of known communication networks allow a trader to change prices of products in his inventory by accessing a terminal and filling out a pre-formatted HTTP document. The document is used to define the conditions that will trigger the promotion of a range of products when an on-line buyer selects one of the products. The pre-formatted document requires that a terminal be available. This communication network, however, does not allow for the on-line business owner to directly communicate with a potential on-line buyer.
Another example of known communication networks allow a telephone sales inquiry to be transferred to a salesperson. The network also allows call re-routing, depending on the location of the caller. This network, however, is a voice-based telephonic network and lacks real-time modification of terms or pricing of products being promoted over the telephone network.

Another example of a communication network allows a subscriber to store scheduling data and electronic mail on a wireless network server while also permitting retrieval of data by a cellular phone. This system, however, cannot be used to edit an on-line business or storefront. Moreover, there is no real-time coordination between the network and the user to permit a sales inquiry to be answered by a live sales person immediately after the inquiry is made to this network.

Such examples of known systems have a number of disadvantages wherein the communications are not in real-time, the communications are not forwarded to the proper recipient, and the communications can not be used to change sales data that can be broadcast over a network.

Thus, there is a strong need for a new method and system to coordinate communication between an on-line business and a sales staff in real-time, to allow an on-line business or storefront to quickly change pricing or promotions in real-time and to allow the generation of sales lead by the on-line business to be handled by a live person.

**Summary of the Invention**

Accordingly, the present invention is directed to a system and method to permit remote communication with an on-line business in real-time to substantially obviate the problems due to the limitations of the related art.
To achieve these and other advantages in accordance with the purpose of the present invention as embodied and broadly described, the present invention provides for an apparatus for coordinating communications in a distributed network. The apparatus comprises a network device being connected to a network and to a plurality of communication devices, each of the plurality of communication devices having a user interface enabling bi-directional communications with the network device; a plurality of memory storage devices, the memory storage devices storing data regarding items for broadcast through the network, being bi-directionally linked to the network device, the user interfaces capable of changing data regarding items stored in the memory storage devices through the network device; a plurality of user devices being bidirectionally coupled to the network; wherein the network device is programmed to receive queries from the user device about stored data regarding items in the memory storage devices; determine, as function of predetermined relationships, to which communication devices to forward said queries, transmit the queries to the communication device, transmit data from the communication devices to the user devices, receive instructions from the communication devices, determine if the received instructions are authorized, and change data regarding stored items in the memory storage device, and in the network device when the instructions are authorized.

In another aspect, the present invention further provides a system for coordinating communications in a plurality of networks. The system comprises at least one network server coupled to at least one network; at least one database that stores information, the at least one database being coupled to the at least one network server; a plurality of communication devices being coupled to the at least one network server; a plurality of transceivers being coupled to the at least one network server, the at least one network server receives queries from the transceivers regarding information stored in the at least one database, forwards real-time queries to at least one particular communication device as a function of predetermined
relationships; changes data in the at least one database if the changes are authorized, and broadcasts the changed data over the at least one network.

In yet another aspect, the present invention also provides for a method of providing sales contact and pricing changes over at least a network, a method comprising: providing at least a network server in communication with a network, the server being coupled to a database and to user devices over the network, the server also being coupled to communication devices through another network; responding to queries from the user devices regarding data stored in the database, wherein the queries include a format of a response desired; selecting a particular communication device as a function of predetermined relationships stored in the database; transmitting an acknowledgment of the queries in the desired format; transmitting, substantially in real-time, the queries to the selected communication device; receiving commands from the communication device to change data stored in the database; verifying whether the commands are authorized; changing the data in the database according the authorized command; and broadcasting the changed data over the network.

Additional features and advantages of the invention will be set forth in the description which follows, and in part will be apparent from the description, or may be learned by practice of the invention. The objectives and other advantages of the invention will be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

It is to be understood that both the foregoing general description and the following detailed description are exemplary or explanatory and are intended to provide further explanation of the invention as claimed.
**Brief Description of the Drawings**

The accompanying drawings, which are incorporated herein and constitute part of this specification, illustrate preferred embodiments, and, together with the general description given above and the detailed description given below, serve to explain features of the preferred embodiments.

In the drawings:

Figure 1 is an overview of the system according to an embodiment of the present invention.

Figure 2 is a flow chart of the operation of an embodiment of the present invention.

**Detailed Description of the Preferred Embodiment**

Referring to Figure 1, a simplified overview of a preferred embodiment of the invention is shown having at least one wide area network server 100 connected to a wide-area-network or the Internet 200. The server 100 is connected to a data storage device 110. Data storage device 110 is a magnetic or an optical type device or any storage device known to those skilled in the art. The storage device 110 also is connected to an advanced-intelligent-network architecture (AIN) type telephone server 300. The telephone server 300 is an Intelligent Peripheral coupled to a Service-Switching-Point (SSP). The SSP is connected to a local telephone exchange network 310 that is also coupled to both a wireless service provider 320 and a wired service provider 330. The use of an Intelligent Peripheral server 300 allows access to Public-Packet-Switched-Network, Public-Switched-Telephone-Network, Integrated-Signaling-Digital-Networks, X.25 networks, TCP/IP, ATM and Frame Relay networks. The wireless service provider 320 is connected to a plurality of wireless devices via a wireless gateway 340. The wired-service provider 330 is used to connect to a phone 332, facsimile 334, or other communication devices known to those skilled in the art.
The wireless devices can be wireless devices such as a pager 322, a cellular phone 324, or a personal digital assistant 326. Other wireless devices will be known to those of ordinary skill in the art and are within the scope of the invention.

In a preferred embodiment, potential traders connect to server 100 through the Internet 200. Server 100 provides information to potential traders using any Web-browser that can utilize HTML or XML through protocols such as TCP/IP and SMTP. Any particular needs of the system can be handled by a system administrator 120. Moreover, the system administrator 120 can intervene in any ongoing transactions to modify, delete or forward any information to the on-line sales staff 130, 132, 134 or the mobile sales staff. Additionally, the sales staff is provided with sales terminals for on-line or even voice interaction with a potential trader. Each terminal of the sales operators may have a pop-up window (not shown) which can replicate the web-page as seen by the potential trader. Each sales operator’s terminal may also have a time line diagram (not shown) in another pop-up window that shows data duration of a visit, number of previous visits, the type of product queried or being queried and the number of times the potential trader purchased products or services through the system.

While the potential trader is browsing products being offered on the website, the server 100 can determine the location of the potential trader in case an on-site visit by a sales representative is requested. The server 100 can do this by coding the HTML with JavaScript such that the code is downloaded into the potential trader’s browser. Once the JavaScript is loaded, it queries the local operating system so as to determine the local IP address. Whenever the user posts a request, the JavaScript will send the IP address back to the server 100. If the top-level domain name happens to include DNS LOC information, the server 100 will generate a pop-up window of a map showing the location. Otherwise, the server 100 can perform a reverse IP lookup by querying reverse IP lookup server, such as
http://www.amnesi.com/hostinfo/ipinfo.jhtml or the proposed SRI geographical location
provider website, i.e. a geo-registrar, to determine the geographic location of the potential
trader. Alternatively, any off-the-shelf IP look-up engine can be used in place of the
JavaScript to perform the look up of the DNS LOC or the location from the geo-registrar.

The server 100 also uses this information to store information, such as the duration of the
visit by the trader, the number of times visited, the items purchased, and other useful
information. The information can be used to generate a sales account or to correlate such
information with an existing account. Of course, an interested trader can always give the area
code or the zip code as part of a sales inquiry. The system can then reverse match the area
code or the zip code with a respective pre-stored database to determine the location of the
trader.

In order to determine which sales representative should handle the on-site visit
request, the server 100 queries the data storage 110 and performs a relational search based on
a variety of predetermined parameters. For example, as shown in Table I, the database stores
the various parameters in a two-dimensional array. Each point defined by two parameters is
given a specific weighting number Nn (where n=1, 2, 3, 4…) by the administrator of the
system. As an example, where a trader is known to spend, cumulatively, at least $10,000,
and the trader purchased products or services from a specific sales representative, the server
100 returns a weight of N4. The weighting factors Nn determine which sales representative
should receive the call. It should be noted here that the assignment of weight to each number
N is entirely arbitrary, and can be set based on a company’s own internal procedures for
handling sales calls.
<table>
<thead>
<tr>
<th></th>
<th>Trader within X miles of sales representative?</th>
<th>Duration of Trader visit to website</th>
<th>Trader Previously Purchased At least $XXX</th>
<th>Trader Previously Purchased At least $XXXXX</th>
<th>Trader Previously Purchased from a Specific salesperson</th>
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<tbody>
<tr>
<td>Trader within 20 miles</td>
<td>N1</td>
<td>N2</td>
<td>N2</td>
<td>N3</td>
<td>N4</td>
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<tr>
<td>Trader Previously Purchased At least $XXX</td>
<td>N1</td>
<td>N2</td>
<td>N2</td>
<td>N1</td>
<td>N4</td>
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<tr>
<td>Trader Previously Purchased At least $XXXXX</td>
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<td>N5</td>
<td>N2</td>
<td>N3</td>
<td>N4</td>
</tr>
<tr>
<td>Trader Previously Purchased from a Specific salesperson</td>
<td>N3</td>
<td>N1</td>
<td>N2</td>
<td>N3</td>
<td>N4</td>
</tr>
<tr>
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<td>Nn</td>
<td>Nn</td>
<td>Nn</td>
<td>Nn</td>
</tr>
<tr>
<td>Trader Given Rebate …</td>
<td>Nn</td>
<td>Nn</td>
<td>Nn</td>
<td>Nn</td>
<td>Nn</td>
</tr>
<tr>
<td>Trader Given….</td>
<td>Nn</td>
<td>Nn</td>
<td>Nn</td>
<td>Nn</td>
<td>Nn</td>
</tr>
</tbody>
</table>

The preferred embodiment discussed above also allows the sales staff or any authorized person, while on the road, to change information regarding any products or services for sale on-line. To perform this while on the road, a wireless Personal-Digital-Assistant (PDA) 326, pager 322, digital cell phone 324 or any wireless communicator is linked to the server 100 via a wireless gateway 340. The gateway 340 can include a WAP gateway; a 3G gateway or any wireless gateway to allow the wireless user to communicate with a network server. Alternatively, the wireless gateway 340 can be integrated as a part of the server 100.
Using buttons or voice interface on the wireless device, an authorized person can access the server 100, enter a password when queried by the server 100, and change the prices or promotions on the website. The change would be displayed the next time there is a request for the webpage.

Accordingly, the preferred embodiment will allow an authorized person to change prices or promotions in response to any price move or promotions by other competitors. Moreover, the same person, using the same wireless device, will be able to follow up any solid leads generated by the website.

As an illustrative example, an interaction between a trader 400 and an on-line site could be as follows. A manufacturer or a trader 400 (who is in need of a specific component for her own product) logs onto the website of the preferred embodiment at S1. While browsing, the trader 400 desires to get more information on a particular component that she sees on the site at S2. In fact, the trader wants a real sample for inspection. Trader 400 notices that the website or storefront has a folder for “MORE INFORMATION” so she clicks on it at S3. Here, the server 100 allows trader 400 to type in pertinent information and other queries at S4. The trader selects, at S5, whether the response should be by voice, e-mail, an on-line live interaction, or by an office visit.

Suppose the trader selects an office visit. At this point, the server 100 performs several background processes at S7-S11 to determine which salesperson should receive the potential sales lead. Once the server 100 decides on the specific salesperson, the trader’s query is translated into a suitable medium, such as text or voice, to be forwarded to the salesperson. In most cases, the salesperson is on the road and the query is a text query accompanied by contact
information or the geographical location of the trader. Conceivably, the salesperson, along with a sample of the merchandise, could show up on the door of the trader’s office within a few minutes of the trader’s request.

Suppose the trader selects on-line interaction. At this point, the server automatically routes the request or query to the next available on-line staff, which in this case could be staff person at terminal 130. To prepare the on-line staff person, a pop-up window, replicating the trader’s screen appears on the staff’s person graphical user interface 130. Another pop-up window also appears on the screen to give more detailed information regarding the trader, such as past visits, duration of shortest or longest visits, any account information with the on-line storefront, type of products previously purchased, number of visits per purchase, or any type of presorted-data helpful in expediting a deal. Should the trader 400 be equipped with a web-camera, the staff 130 can interact with the trader 400 by video or audio streaming. Of course, an administrator or manager can participate as an observer or an overseer of the on-line interaction and intercede, if necessary, to close a deal.

Suppose the trader 400 selects e-mail response. The server 100 automatically routes the request or query to a staff person. The staff person can respond immediately and provide a prompt to the trader for on-line interactions or an actual visit as described above.

In cases where the trader 400 is physically located at a trade conference and desires to know more about a product or component offered at the on-line site, a sales person can meet up with the trader 400 at the trade show.

Another benefit of the preferred embodiment occurs when a salesperson learns that a competitor is offering the same products at a deep discount. The salesperson can pre-empt such a price move not only to close the deal but to increase sales volume through the on-line site. The salesperson does this by accessing the server 100 through a wireless communication device or even a telephone, at S12-S14, to change his own products’ on-line
prices. This ability to change prices or information on the on-line store may mean the
difference between stocking a warehouse full of old products or generating sufficient profits
for the quarter.

Thus, the preferred embodiments of the invention lend itself to more efficient

methods of generating sales leads and actual sales. Moreover, connections between traders
on-line can be coordinated in real-time, thereby permitting live interactions between a trader
and a sales representative on the trader’s site. Finally, the ability of the sales person or
manager to change information on a website allows the website owner to be more responsive
to changing conditions of the marketplace.

While the preferred embodiments have been disclosed with reference to certain
embodiments, numerous modifications, alterations, and changes to the described
embodiments are possible without departing from the sphere and scope of the present
invention, as defined in the appended claims. Accordingly, it is intended that the present
invention not be limited to the described embodiments, but that it have the full scope defined

by the language of the following

claims, and equivalents thereof.
What Is Claimed Is:

1. An apparatus for coordinating communications in a distributed network, the apparatus comprising:

   a network device being connected to a network and to a plurality of communication devices, each of said plurality of communication devices having a user interface enabling bi-directional communications with said network device;

   a plurality of memory storage devices, said memory storage devices storing data regarding items for broadcast through said network, said memory storage devices being bi-directionally linked to said network device, said user interfaces capable of changing data regarding items stored in said memory storage devices through said network device;

   a plurality of user devices being bidirectionally coupled to the network, wherein said network device is programmed to:

   receive queries from said user devices regarding stored data in the memory storage devices;

   determine, as function of predetermined relationships, to which communication devices to forward said queries;

   transmit the queries to the determined communication device;

   transmit data from the communication devices to the user devices;

   receive instructions from said communication devices;

   determine if the received instructions are authorized; and

   change data regarding stored items in said memory storage device and in said network device when the instructions are authorized.
2. The apparatus as claimed in claim 1, wherein the network device includes a gateway to perform media translations of a response to and from the communication device.

3. The apparatus as claimed in claim 2, wherein formats of the response include at least one of e-mail, telephonic or a human sales operator.

4. The apparatus as claimed in claim 1, wherein the predetermined relationships include at least one of a plurality of selectable communication medium, geographical locations, technical expertise, legal expertise, experience, seniority of a user, or past contacts of the user.

5. The apparatus as claimed in claim 4, wherein one of a plurality of selectable formats is a format selected by the user device.

6. The apparatus as claimed in claim 1, wherein the queries are transmitted to the communication devices substantially in real-time.

7. The apparatus as claimed in claim 5, wherein the queries are transmitted by the network device by at least one of a wireless, optical, or wired network.

8. The apparatus as claimed in claim 1, wherein the communication devices include at least one computer terminal.
9. The apparatus as claimed in claim 7, wherein the instructions are transmitted to the network device by at least one of a wireless, optical, or wired network.

10. A system for coordinating communications in a plurality of networks, the system comprising:

   at least one network server coupled to at least one network;

   at least one database that stores information, the at least one database being coupled to the at least one network server;

   a plurality of communication devices being coupled to the at least one network server;

   a plurality of transceivers being coupled to the at least one network server, the at least one network server receives queries from the transceivers regarding information stored in the at least one database, forwards real-time queries to at least one particular communication device as a function of predetermined relationships; changes data in the at least one database if the changes are authorized, and broadcasts the changed data over the at least one network.

11. The system as claimed in claim 10, wherein the predetermined relationships include at least one of geographical locations, technical expertise, experience, seniority of a user, or a number of contacts of the user.

12. The system as claimed in claim 9, wherein the at least one network includes at least one of a wireless, optical or wired network.

13. The system as claimed in claim 9, wherein the queries include at least sales queries.
14. The system as claimed in claim 11, wherein the communication devices include at least one of a personal digital assistant, wireless telephony, or a modem device.

15. The system as claimed in claim 9, where the data includes at least one of prices, quantities, and availability.

16. A method of providing sales contact and pricing of items over at least a network, the method comprising:
   providing at least a network server in communication with a network, the server being coupled to a database and to user devices over the network, the server also being coupled to communication devices through another network;
   responding to queries from the user devices regarding data stored in the database, wherein the queries include a format of a response desired;
   selecting a particular communication device as a function of predetermined relationships stored in the database;
   transmitting an acknowledgment of the queries in the desired format;
   transmitting, substantially in real-time, the queries to the selected communication device; receiving commands from the communication device to change data stored in the database;
   verifying whether the commands are authorized;
   changing the data in the database according the authorized command; and
   broadcasting the changed data over the network.
17. The method according to claim 16, wherein the transmitting of the queries to the selected communication device further comprises translating the queries to a different medium of communication.

18. The method according to claim 16, wherein the desired format includes at least one of e-mail, telephonic, or a human operator.

19. The method according to claim 16, wherein the predetermined relationships include at least one of geographical location, technical expertise, legal expertise, experience, seniority or the number of previous queries.

20. The method according to claim 16, wherein the network includes at least one of a wireless, an optical, or a wired network.
# INTERNATIONAL SEARCH REPORT

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : G06F 17/60, 11/30, 15/16
US CL. : 713/201, 709/203, 705/35

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : G06F 17/60, 11/30, 15/16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST IEEE Online
stream terms: authorization, server, seller, customer,

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tr>
<td>A</td>
<td>US 5,933,816 A (ZEANAH et al.) 03 August 1999, abstract, fig 11</td>
<td>1-20</td>
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<tr>
<td>X</td>
<td>US 6,052,785 A (LIN et al.) 18 April 2000, col. 2, 5-6</td>
<td>1, 6,8, 16</td>
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<td>A</td>
<td>US 5,970,475 A (BARNES et al.) 19 October 1999, figures 1-2</td>
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</table>

* Special categories of cited documents:
  *A* document defining the general state of the art which is not considered to be of particular relevance
  *E* earlier document published on or after the international filing date
  *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  *O* document referring to an oral disclosure, use, exhibition or other means
  *P* document published prior to the international filing date but later than the priority date claimed

**T** later document published after the international filing date or priority date and in conflict with the application but cited to understand the principle or theory underlying the invention

**X** document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

**Y** document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

**&** document member of the same patent family

Further documents are listed in the continuation of Box C. See patent family annex.

Date of the actual completion of the international search

17 SEPTEMBER 2001

Date of mailing of the international search report

30 OCT 2001

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Form PCT/ISA/210 (second sheet) (July 1998)