A system, computer-implemented method, and computer program product for providing home management services over the Internet. The method includes receiving a request from a customer to perform an evaluation of a group of items, such as home appliances; collecting local information that describes conditions for a geographic area associated with the customer; evaluating the group of items based on the local information to produce a result; and providing the result to the customer. The local information can include climate information and energy cost information, and can be received from a local information provider such as a utility company. The evaluation can include operating information describing an environment in which the customer intends the item to operate.
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INTERNET-BASED HOME MANAGEMENT

Related Applications
This application claims the benefit of U.S. Provisional Application No. 60/125,973, filed March 24, 1999, the disclosure of which is incorporated herein by reference in its entirety.

BACKGROUND
The present invention relates generally to remote management of systems within the home.

The Internet is changing the way consumers get information, buy products and receive services. Consumers are now comfortable enough with the Internet to use it to make purchases on-line, conduct banking and brokerage transactions, and transfer sensitive communications. However, the demand for Internet-based home management services remains unfulfilled.

SUMMARY

The present invention is an apparatus, method, and computer program product for internet-based home management.

The present invention is a system, computer-implemented method, and computer program product for providing home management services over the Internet.

According to one implementation, the method includes receiving a request from a customer to perform an evaluation a group of items, such as home appliances; collecting local information that describes conditions for a geographic area associated with the customer; evaluating the group of items based on the local information to produce a result; and providing the result to the customer. The local information can include climate information and energy cost information, and can be received from a local information provider such as a utility company. The evaluation can include operating information describing an environment in which the customer intends the item to operate.

According to one aspect, the method includes offering the items to the customer for purchase; and receiving from the customer a request to purchase at least one of the items.
According to another aspect the method further includes offering a warranty for the item to the customer for purchase; and receiving from the customer a request to purchase the warranty.

According to another aspect the method includes scheduling a delivery appointment for the item using schedule information provided by the customer; updating a calendar associated with the customer to indicate the appointment; and scheduling an installation appointment based on the delivery appointment.

According to another aspect the method includes sending account information to the customer, the account information indicating at least one of account balance and balance due for an account associated with the customer; and receiving, from the customer, a payment on the account.

According to another implementation, a method for scheduling a service provider for a customer includes receiving a request to make appointments with one or more service providers, the request identifying one or more open time windows; selecting one or more service providers based on predefined criteria; assigning one or more of the selected service providers to one of the open time windows to create an appointment; and notifying the customer of the appointment. The predefined criteria can include selecting service providers previously used by the customer.

According to one aspect, the customer is located in a particular geographical area and the predefined criteria includes selecting service providers willing to provide service in the particular geographical area.

According to another aspect, the assigning step includes determining availability of the selected service providers; and assigning selected service providers based on their availability and the open time windows.

According to another aspect, the predefined criteria includes scheduling multiple service providers within a single time window.

According to another aspect, the predefined criteria includes performance ratings of service providers.

According to another aspect, the method includes collecting performance data describing the performance of local service providers; and calculating performance ratings
based on the performance data. The performance data can be collected from others who have used one of the service providers in the past.

According to another aspect, the method includes identifying an item to be serviced by the service provider; wherein the predefined criteria includes qualification to service the item.

According to another aspect, the method includes identifying a warranty associated with the item; wherein the predefined criteria includes qualification to perform service under the warranty.

According to another aspect, the method includes notifying the selected service providers of the appointment.

According to another aspect, a premises to be serviced by a service provider is protected by a security system having an access code, and the method includes providing a temporary access code to a service provider assigned a particular time window, the temporary access code operable to disarm the security system only during the particular time window.

According to another aspect, the method includes monitoring the status of home appliances associated with the customer; and alerting the customer when service of one of the home appliances is needed.

According to another aspect, the notifying step includes updating a calendar associated with the customer to indicate the appointment.

Implementations of the present invention allow customers to find, evaluate, and schedule home services for repair and upkeep. Customers can select specialists based on recommendations, schedule appointments at convenient times, and have these appointments integrated within a home calendar. Customers can remotely monitor and control the security and comfort of their homes using the Internet. Customers can also locate neighborhood and community information, such as little league games and homeowner’s association meetings, and integrate these events with their home calendars. Customers can find information and conduct transactions with utility providers. Customers can shop for home products from home or elsewhere using customized expert advice. Customers can also use the Internet to obtain services when moving, such as selecting utilities and changing addresses. In addition,
the present invention provides a new and valuable vertical portal for consumers to access the Internet.

Further features and advantages of the present invention as well as the structure and operation of various implementations of the present invention are described in detail below with reference to the accompanying drawings. In the drawings, like reference numbers indicate identical or functionally similar elements. Additionally, the left-most digit of a reference number identifies the drawing in which the reference number first appears.

DESCRIPTION OF DRAWINGS

The present invention will be described with reference to the accompanying drawings.

FIG. 1 is a context diagram of one implementation.
FIG. 2 depicts a home page provided by one implementation.
FIG. 3 depicts a Remote Home Monitoring And Control web page.
FIG. 4 depicts a Thermostat web page.
FIG. 5 depicts a Home Repair And Upkeep web page.
FIG. 6 depicts a Utility Services web page.
FIG. 7 is a flowchart for an on-line shopping implementation.
FIG. 8 is a flowchart for an service provider scheduling implementation.

Like reference symbols in the various drawings indicate like elements.

DETAILED DESCRIPTION

FIG. 1 is a context diagram of one implementation in a web-based system. A customer 102 uses a customer terminal 104 to access a server 106 over a network such as Internet 108. The customer terminal can be a personal computer, personal digital assistant (PDA), cell phone, or the like. The customer can interact with the server using web pages served by the server.

The server collects information for the customer's use from many sources, including, for example, a utility 110, such as an electric utility company; service providers 112, such as electricians and plumbers; merchants 114, such as home appliance dealers; local government 116; and local school 118. Utility companies, such as utility 110, are closely integrated into local communities, and are adept at gathering local information 120 of interest to the local
community, including customer 102. Such local information 120 includes climate data, names and schedules of local organizations, and the like. Utilities also manage various accounts and services for local customers, and so possess a large amount of useful customer information 122 such as name, address, phone numbers, and the like. Server 106 collects information from these sources and provides the information to the customer in the form of personal web pages.

FIG. 2 depicts a home page 200 provided by server 106. The home page can be password protected to authenticate the customer. The home page can include six sections each including one or more functionalities provided by server 106. In one implementation, utility 110 and the operator of server 106 have entered into a partnership, and home page 200 is "co-branded" with the brand names of both the operator and the partner utility.

Remote Home Monitoring And Control section 202 provides customers with the ability to view and monitor their thermostat and security systems. In addition, customers can grant their utility the ability to override the thermostat settings. FIG. 3 depicts a Remote Home Monitoring And Control web page 300.

One functionality included in page 300 is security system management. By selecting Security System Management button 302, a customer can control his home security system remotely. For example, a customer can enable or disable the security system, change security system access codes, and the like. Security system data can be exchanged directly between server 106 and the customer's security system. Alternatively, security system data can be exchanged indirectly via utility 110.

Another functionality included in page 300 is Alarms. Alarms can be generated by smoke detectors, carbon monoxide detectors, and the like. Alarms can also be generated by a home security system. Alarms can also be generated by smart home appliances. For example, a smart refrigerator can sense that maintenance is needed. Alarms can be relayed to the customer via the customer's web page, e-mail, cell phone, and the like. A customer can view detailed information concerning an alarm by selecting Alarm button 304.

Another functionality included in page 300 is a Calendar. A customer can use the calendar to schedule service providers automatically or to schedule a move, as discussed in detail below. The calendar can also be used to schedule regular home maintenance service providers, such as gardeners and chimney sweeps. A customer can also use the calendar to
schedule activities within the community, as discussed below. A customer can access the calendar by selecting Calendar button 306.

Page 300 also includes a thermostat functionality 308. The thermostat control functionality enables a customer to monitor and control his home thermostat remotely. For example, when the customer activates the Thermostat link, a Thermostat web page appears.

FIG. 4 depicts a Thermostat web page 400. The page displays the current temperature 402 and humidity 404 measured by the thermostat. The page can also display a program 406 of the thermostat, such as desired temperature and humidity and desired time periods for each setting. In addition, the customer can update the thermostat settings using the program button. This thermostat data can be exchanged directly between server 106 and the customer’s security system. Alternatively, thermostat data can be exchanged indirectly via utility 110.

Server 106 can also collect energy usage data, either directly from the customer's home or via utility 110. Energy usage data can be collected and transmitted by a "smart meter" installed at the customer's house. The energy usage data can be presented on the page 400 as a chart or histogram 408.

The customer can enable the utility to override the thermostat settings to achieve load balancing by selecting thermostat override button 410. The utility can offer a discount to the customer for enabling this utility override function.

A Home Repair And Upkeep section 204 provides on-line access to emergency and routine service providers as well as do-it-yourself information. FIG. 5 depicts a Home Repair And Upkeep web page 500.

One functionality included in page 500 is Diagnosis of service needs. In general, this process runs continuously, diagnosing service needs within the home, such as the refrigerator maintenance discussed above. However, a customer can access this functionality to modify settings, get more information, and the like, by selecting Diagnosis button 502.

Another functionality included in page 500 is On-line Service Scheduling of service providers such as plumbers, electricians, and delivery and installation services. This functionality can be launched automatically when an alarm is generated indicating service is required. A customer can launch this functionality by selecting button 504.
A history function permits the customer to view service providers he has used in the past. A search function permits the customer to search for service providers using search keys such as specialty, zip code, availability, qualification to perform service under the customer's warranties, performance ratings assigned by other customers, and the like. After selecting one or more service providers, the customer can use the calendar to select one or more time windows within which the customer is willing to schedule an appointment with the service providers.

Server 106 collects the information submitted by the customer and contacts the selected service providers. If the customer has selected multiple service providers, the server attempts to schedule them within a single time window for the customer's convenience. For example, if the customer has purchased a garbage disposal, the customer may desire to schedule a plumber and an electrician simultaneously. The server then presents the proposed appointments to the customer for acceptance. After service is complete, the customer can pay the service provider on-line.

Another functionality included in page 500 is Do-It-Yourself repair information. By selecting button 506, a customer can be connected to various on-line resources for the home handyman.

Another functionality included in page 500 is Warranty information. For example, server 106 maintains information regarding the appliance owned by the customer, and the warranties that apply to each appliance. By selecting button 508, the customer can view this information.

Referring again to FIG. 2, section 206 is devoted to Neighborhood and Community Interaction. This section provides a collaborative environment for neighborhood and community interaction. As mentioned above, utilities are uniquely capable of gathering and disseminating information of local concern. For example, a Bulletin Board is provided for serving this information to the public. Bulletin boards are also provided for listing community groups and clubs, school groups, local government information, and the like. Chat rooms for discussing this information are also provided. Customers can exchange files, photographs, and the like. Community groups can maintain calendars of activities, and send e-mail notifications of events using section 206. Local entertainment offerings are also listed.
Utility Services section 208 provides consumer services while enhancing the electronic commerce presence of the partner utility. FIG. 6 depicts a Utility Services web page 600.

One functionality included in page 600 is Energy Usage Analysis and Recommendation and Utility Rate Analysis. A customer can access this function by selecting button 602. This functionality allows a customer to comparison shop for utility rate plans. This analysis can include factors such as the customer's energy usage history, the make and model of the customer's appliances, the degree of insulation in the customer's house, and the like.

Another functionality included in page 600 is Bill Presentment and Payment. A customer can access this function by selecting button 604. This functionality allows a customer to view and pay utility bills, and other bills, while on-line. Account information including account balance and balance due is sent to the customer. The customer can then make a payment on the account.

Page 600 also includes a link to the partner utility's web site. A customer can access this site by selecting button 606.

Referring again to FIG. 2, section 210 is devoted to Home Products. This section provides the customer the opportunity to research and purchase a variety of home products including home appliances and central systems.

One functionality included in the Home Products section is a Home Products Web Store. This functionality allows a customer to comparison shop for home products, including central systems and major appliances.

The web store also includes an "Expert" to assist in product research and selection. For example, the expert can evaluate appliances based on the energy usage and efficiency ratings of the appliances. The expert can also factor in local conditions, such as local climate and local energy costs, and customer information, such as room size and degree of home insulation. For example, if the customer is shopping for a new air conditioner, the expert could present the customer with an annual operating budget for each make and model of air conditioner compared. The expert can also provide a rating for a make and model of appliance based on opinions submitted by purchasers of the appliance.
The web store permits customers to purchase home products on-line, as well as warranties, service contracts, and other products related to the purchase. The web store also enables the customer to arrange for delivery and installation of purchases, in conjunction with Home Repair and Upkeep page 500. The web store also provides links to the manufacturers of each appliance, and to affiliate sites offering additional products for sale.

Referring again to FIG. 2, section 212 is devoted to Move Management. This section allows customers to arrange a variety of on-line moving services. One such service is the transfer or initiation of home services such as electric, cable TV, gas, satellite, internet service provider, local and long distance telephone, paging, wireless telephone, and the like. Another service provided is the transfer or initiation of subscriptions to local newspapers, national newspapers, and magazines. Another service includes notification of the address change to friends, family, and the United States Postal Service. The move management section also provides links to other moving services, such as realtors and movers.

FIG. 7 is a flowchart for an on-line shopping implementation. In this example, a customer is shopping for a home appliance, such as a window unit air conditioner. Server 106 receives, from a customer, a request to evaluate a type of home appliance based on, for example, a particular geographic area and operating environment (step 702). The particular geographic area can be described by the customer's home zip code and the like. Alternatively, the geographic information can be extracted from customer information maintained by the utility. The operating environment can be described by room size, degree of insulation, and the like. Information describing the geographic area and operating environment can be supplied by the customer, or can be extracted from customer information maintained by the utility or other sources.

The server collects local information for the specified geographic area (step 704). The local information can include climate information and energy cost information particular to the specified geographic area. The local information can be collected from the utility company, or from other sources.

The server evaluates the group of home appliances based on the local information to produce a result (step 706). The evaluation can also include relevant characteristics of the appliance. In the current example, the server evaluates a group of window unit air conditioners based on factors such as the local climate, the size of the room where the air...
conditioner will be installed, the degree of insulation in the customer's home, local energy costs, and the energy efficiency rating of the air conditioners. The result of the evaluation is provided to the customer (step 708). The result can be displayed to the customer in many ways, including a table featuring individual and composite scores indicating the suitability of each appliance to the customer's particular situation. Alternatively, the server can simply inform the customer of the best choice.

The server can also offer the appliances for sale to the customer. For example, the evaluation result can include the price of each appliance. The customer can select one of the appliances for purchase from the evaluation results. The selection causes the server to receive, from the customer, a request to purchase one of the evaluated home appliances (step 710). The server then arranges for the purchase of the appliance by the customer.

The server allows the customer to arrange for the delivery and installation of the purchased appliance. The server suggests the required service providers based on the type of appliance purchased. For example, if the customer purchased a gas hot water heater, the server suggests a delivery service, a plumber, and a gas technician. The server allows the customer to schedule the delivery and installation appointments using schedule information provided by the customer (step 712). The server updates a calendar associated with the customer to indicate the appointments (step 712).

FIG. 8 is a flowchart for a service provider scheduling implementation. The customer sends to the server a request to make appointments with one or more service providers. For example, the customer wishes to schedule a technician to repair a washing machine and a carpenter to repair a stairway banister. The server receives the request (step 802). The request identifies one or more open time windows in the customer's schedule. These windows can be derived from the customer's calendar or specified by the customer.

The server or utility maintains a database of local service providers. Based on the customer's request and certain predefined criteria, the server selects one or more technicians and carpenters (step 804). The predefined criteria can include selecting service providers previously used by the customer, selecting service providers willing to provide service in the customer's geographical area, performance ratings of service providers, qualification to service the item, and qualification to perform service under warranty.
The server then determines the availability of the selected service providers (step 806). For example, the server can consult on-line schedules maintained by the selected service providers to determine which of them are available during the open time windows submitted by the customer. In order to maximize customer convenience, the server attempts to schedule all of the service providers within a single time window. In our example, the server attempts to find a technician and a carpenter that are available within the same one of the open time windows submitted by the customer.

The server then assigns one or more of the available selected service providers to one of the open time windows to create an appointment (step 808). The server then notifies the customer and service providers of the appointment (step 810). As part of the notification, the server can enter the appointments on the customer's calendar.

The customer may wish to have the service performed while the customer is away from home. For example, the customer may wish to have noisy carpentry work performed while the customer is away on vacation. If the customer's home is protected by a security system, the server can generate temporary access code and provide the temporary access code to the assigned service providers. The temporary access code is operable to disarm the security system only during the particular time window for which the service providers are scheduled. The service providers can use the temporary access code to enter the customer's home while the customer is away.

The invention can be implemented in digital electronic circuitry, or in computer hardware, firmware, software, or in combinations of them. Apparatus of the invention can be implemented in a computer program product tangibly embodied in a machine-readable storage device for execution by a programmable processor; and method steps of the invention can be performed by a programmable processor executing a program of instructions to perform functions of the invention by operating on input data and generating output. The invention can be implemented advantageously in one or more computer programs that are executable on a programmable system including at least one programmable processor coupled to receive data and instructions from, and to transmit data and instructions to, a data storage system, at least one input device, and at least one output device. Each computer program can be implemented in a high-level procedural or object-oriented programming language, or in assembly or machine language if desired; and in any case, the language can
be a compiled or interpreted language. Suitable processors include, by way of example, both
general and special purpose microprocessors. Generally, a processor will receive instructions
and data from a read-only memory and/or a random access memory. Generally, a computer
will include one or more mass storage devices for storing data files; such devices include
magnetic disks, such as internal hard disks and removable disks; magneto-optical disks; and
optical disks. Storage devices suitable for tangibly embodying computer program
instructions and data include all forms of non-volatile memory, including by way of example
semiconductor memory devices, such as EPROM, EEPROM, and flash memory devices;
magnetic disks such as internal hard disks and removable disks; magneto-optical disks; and
CD-ROM disks. Any of the foregoing can be supplemented by, or incorporated in, Asics
(application-specific integrated circuits).

To provide for interaction with a user, the invention can be implemented on a
computer system having a display device such as a monitor or LCD screen for displaying
information to the user and a keyboard and a pointing device such as a mouse or a trackball
by which the user can provide input to the computer system. The computer system can be
programmed to provide a graphical user interface through which computer programs interact
with users.

While various implementations of the present invention have been described above, it
should be understood that they have been presented by way of example, and not limitation. It
will be apparent to persons skilled in the relevant art that various changes in form and detail
can be placed therein without departing from the spirit and scope of the invention. Thus the
present invention should not be limited by any of the above-described example
implementations, but should be defined only in accordance with the following claims and
their equivalents.

A number of embodiments of the invention have been described. Nevertheless, it will
be understood that various modifications may be made without departing from the spirit and
scope of the invention. For example, Example of Variation . Accordingly, other
embodiments are within the scope of the following claims.
WHAT IS CLAIMED IS:

1. A computer-implemented method comprising:
   receiving a request from a customer to perform an evaluation a group of items;
   collecting local information that describes conditions for a geographic area associated
   with the customer;
   evaluating the group of items based on the local information to produce a result; and
   providing the result to the customer.
2. The computer-implemented method of claim 1, wherein the local information
   includes climate information.
3. The computer-implemented method of claim 1, wherein the local information
   includes energy cost information.
4. The computer-implemented method of claim 1, wherein the local information
   is received from a local information provider.
5. The computer-implemented method of claim 4, wherein the local information
   provider is a utility company.
6. The computer-implemented method of claim 5, wherein the items are home
   appliances.
7. The computer-implemented method of claim 1, further comprising:
   receiving operating information describing an environment in which the customer
   intends the item to operate; and
   evaluating the group of items based on the local information and the operating
   information to produce a result.
8. The computer-implemented method of claim 1, further comprising:
   offering the items to the customer for purchase; and
   receiving from the customer a request to purchase at least one of the items.
9. The computer-implemented method of claim 8, further comprising:
   offering a warranty for the item to the customer for purchase; and
   receiving from the customer a request to purchase the warranty.
10. The computer-implemented method of claim 8, further comprising:
    scheduling a delivery appointment for the item using schedule information provided
    by the customer.
11. The computer-implemented method of claim 10, further comprising:
   updating a calendar associated with the customer to indicate the appointment.
12. The computer-implemented method of claim 10, further comprising:
   scheduling an installation appointment based on the delivery appointment.
13. The computer-implemented method of claim 5, further comprising:
   sending account information to the customer, the account information indicating at
   least one of account balance and balance due for an account associated with the customer.
14. The computer-implemented method of claim 13, further comprising:
   receiving, from the customer, a payment on the account.
15. A computer-implemented method for scheduling a service provider for a
   customer, comprising:
       receiving a request to make appointments with one or more service providers, the
       request identifying one or more open time windows;
       selecting one or more service providers based on predefined criteria;
       assigning one or more of the selected service providers to one of the open time
       windows to create an appointment; and
       notifying the customer of the appointment.
16. The computer-implemented method of claim 15, wherein the predefined
   criteria includes selecting service providers previously used by the customer.
17. The computer-implemented method of claim 16, wherein the customer is
   located in a particular geographical area and the predefined criteria includes selecting service
   providers willing to provide service in the particular geographical area.
18. The computer-implemented method of claim 16, wherein the assigning step
   comprises:
       determining availability of the selected service providers; and
       assigning selected service providers based on their availability and the open time
       windows.
19. The computer-implemented method of claim 16, wherein the predefined
   criteria includes scheduling multiple service providers within a single time window.
20. The computer-implemented method of claim 16, wherein the predefined
   criteria includes performance ratings of service providers.
21. The computer-implemented method of claim 19, further comprising:
collecting performance data describing the performance of local service providers;
and
calculating performance ratings based on the performance data.

22. The computer-implemented method of claim 20, wherein the performance
data is collected from others who have used one of the service providers in the past.

23. The computer-implemented method of claim 16, further comprising:
identifying an item to be serviced by the service provider;
wherein the predefined criteria includes qualification to service the item.

24. The computer-implemented method of claim 22, further comprising:
identifying a warranty associated with the item;
wherein the predefined criteria includes qualification to perform service under the
warranty.

25. The computer-implemented method of claim 16, further comprising:
notifying the selected service providers of the appointment.

26. The computer-implemented method of claim 16, wherein a premises to be
serviced by a service provider is protected by a security system having an access code,
further comprising:
providing a temporary access code to a service provider assigned a particular time
window, the temporary access code operable to disarm the security system only during the
particular time window.

27. The computer-implemented method of claim 16, further comprising:
monitoring the status of home appliances associated with the customer; and
alerting the customer when service of one of the home appliances is needed.

28. The computer-implemented method of claim 16, wherein the notifying step
comprises:
updating a calendar associated with the customer to indicate the appointment.

29. A web-based computer system comprising:
means for receiving a request from a customer to perform an evaluation a group of
items;
means for collecting local information that describes conditions for a geographic area
associated with the customer;
means for evaluating the group of items based on the local information to produce a
result; and
means for providing the result to the customer.
30. The web-based system of claim 29, wherein the local information includes
climate information.
31. The web-based system of claim 29, wherein the local information includes
energy cost information.
32. The web-based system of claim 29, wherein the local information is received
from a local information provider.
33. The web-based system of claim 32, wherein the local information provider is
a utility company.
34. The web-based system of claim 33, wherein the items are home appliances.
35. The web-based system of claim 29, further comprising:
means for receiving operating information describing an environment in which the
customer intends the item to operate; and
means for evaluating the group of items based on the local information and the
operating information to produce a result.
36. The web-based system of claim 29, further comprising:
means for offering the items to the customer for purchase; and
means for receiving from the customer a request to purchase at least one of the items.
37. The web-based system of claim 36, further comprising:
means for offering a warranty for the item to the customer for purchase; and
means for receiving from the customer a request to purchase the warranty.
38. The web-based system of claim 36, further comprising:
means for scheduling a delivery appointment for the item using schedule information
provided by the customer.
39. The web-based system of claim 38, further comprising:
means for updating a calendar associated with the customer to indicate the
appointment.
40. The web-based system of claim 38, further comprising:
means for scheduling an installation appointment based on the delivery appointment.
41. The web-based system of claim 33, further comprising:
means for sending account information to the customer, the account information indicating at least one of account balance and balance due for an account associated with the customer.
42. The web-based system of claim 41, further comprising:
means for receiving, from the customer, a payment on the account.
43. A web-based system for scheduling a service provider for a customer, comprising:
means for receiving a request to make appointments with one or more service providers, the request identifying one or more open time windows;
means for selecting one or more service providers based on predefined criteria;
means for assigning one or more of the selected service providers to one of the open time windows to create an appointment; and
means for notifying the customer of the appointment.
44. The web-based system of claim 43, wherein the predefined criteria includes selecting service providers previously used by the customer.
45. The web-based system of claim 44, wherein the customer is located in a particular geographical area and the predefined criteria includes selecting service providers willing to provide service in the particular geographical area.
46. The web-based system of claim 44, wherein the assigning step comprises:
means for determining availability of the selected service providers; and
means for assigning selected service providers based on their availability and the open time windows.
47. The web-based system of claim 44, wherein the predefined criteria includes scheduling multiple service providers within a single time window.
48. The web-based system of claim 44, wherein the predefined criteria includes performance ratings of service providers.
49. The web-based system of claim 47, further comprising:
means for collecting performance data describing the performance of local service providers; and
means for calculating performance ratings based on the performance data.
50. The web-based system of claim 48, wherein the performance data is collected from others who have used one of the service providers in the past.
51. The web-based system of claim 44, further comprising:
means for identifying an item to be serviced by the service provider;
wherein the predefined criteria includes qualification to service the item.
52. The web-based system of claim 50, further comprising:
means for identifying a warranty associated with the item;
wherein the predefined criteria includes qualification to perform service under the warranty.
53. The web-based system of claim 44, further comprising:
means for notifying the selected service providers of the appointment.
54. The web-based system of claim 44, wherein a premises to be serviced by a service provider is protected by a security system having an access code, further comprising:
means for providing a temporary access code to a service provider assigned a particular time window, the temporary access code operable to disarm the security system only during the particular time window.
55. The web-based system of claim 44, further comprising:
means for monitoring the status of home appliances associated with the customer; and means for alerting the customer when service of one of the home appliances is needed.
56. The web-based system of claim 44, wherein the notifying step comprises:
means for updating a calendar associated with the customer to indicate the appointment.
57. A computer program product, tangibly stored on a computer-readable medium and comprising instructions operable to cause a programmable processor to:
receive a request from a customer to perform an evaluation a group of items;
collect local information that describes conditions for a geographic area associated with the customer;
evaluate the group of items based on the local information to produce a result; and provide the result to the customer.

58. The computer program product of claim 57, wherein the local information includes climate information.

59. The computer program product of claim 57, wherein the local information includes energy cost information.

60. The computer program product of claim 57, wherein the local information is received from a local information provider.

61. The computer program product of claim 60, wherein the local information provider is a utility company.

62. The computer program product of claim 61, wherein the items are home appliances.

63. The computer program product of claim 57, further comprising: receive operating information describing an environment in which the customer intends the item to operate; and evaluate the group of items based on the local information and the operating information to produce a result.

64. The computer program product of claim 57, further comprising: offer the items to the customer for purchase; and receive from the customer a request to purchase at least one of the items.

65. The computer program product of claim 64, further comprising: offer a warranty for the item to the customer for purchase; and receive from the customer a request to purchase the warranty.

66. The computer program product of claim 64, further comprising: schedule a delivery appointment for the item using schedule information provided by the customer.

67. The computer program product of claim 66, further comprising: update a calendar associated with the customer to indicate the appointment.

68. The computer program product of claim 66, further comprising: schedule an installation appointment based on the delivery appointment.

69. The computer program product of claim 61, further comprising:
send account information to the customer, the account information indicating at least
one of account balance and balance due for an account associated with the customer.
70. The computer program product of claim 69, further comprising:
receive, from the customer, a payment on the account.
71. A computer program product for scheduling a service provider for a customer,
the computer program product tangibly stored on a computer-readable medium and
comprising instructions operable to cause a programmable processor to:
receive a request to make appointments with one or more service providers, the
request identifying one or more open time windows;
select one or more service providers based on predefined criteria;
assign one or more of the selected service providers to one of the open time windows
to create an appointment; and
notify the customer of the appointment.
72. The computer program product of claim 71, wherein the predefined criteria
includes selecting service providers previously used by the customer.
73. The computer program product of claim 72, wherein the customer is located
in a particular geographical area and the predefined criteria includes selecting service
providers willing to provide service in the particular geographical area.
74. The computer program product of claim 72, wherein the assigning step
comprises:
determine availability of the selected service providers; and
assign selected service providers based on their availability and the open time
windows.
75. The computer program product of claim 72, wherein the predefined criteria
includes scheduling multiple service providers within a single time window.
76. The computer program product of claim 72, wherein the predefined criteria
includes performance ratings of service providers.
77. The computer program product of claim 75, further comprising:
collect performance data describing the performance of local service providers; and
calculate performance ratings based on the performance data.
78. The computer program product of claim 76, wherein the performance data is collected from others who have used one of the service providers in the past.

79. The computer program product of claim 72, further comprising:
identify an item to be serviced by the service provider;
wherein the predefined criteria includes qualification to service the item.

80. The computer program product of claim 78, further comprising:
identify a warranty associated with the item;
wherein the predefined criteria includes qualification to perform service under the warranty.

81. The computer program product of claim 72, further comprising:
notify the selected service providers of the appointment.

82. The computer program product of claim 72, wherein a premises to be serviced by a service provider is protected by a security system having an access code, further comprising:
provide a temporary access code to a service provider assigned a particular time window, the temporary access code operable to disarm the security system only during the particular time window.

83. The computer program product of claim 72, further comprising:
monitor the status of home appliances associated with the customer; and
alert the customer when service of one of the home appliances is needed.

84. The computer program product of claim 72, wherein the notifying step comprises:
update a calendar associated with the customer to indicate the appointment.

85. A computer-implemented method for providing home management services over the Internet, comprising:
providing a remote home monitoring and control function that permits a customer to remotely control a home thermostat and home security system, the remote home monitoring and control function providing an electronic calendar for the customer;
providing a home repair and upkeep function that permits the customer to schedule service providers on the calendar;
providing a neighborhood and community interaction function that permits the customer to schedule local activities on the calendar;

providing a utility services function that allows the customer to shop for utility services based on local information that describes conditions for a geographic area associated with the customer and customer information that describes the customer;

providing a home products function that allows a customer to evaluate home products based on the local information and the customer information; and

providing a move management section that allows the customer to schedule moving services on the calendar.
FIG. 2

REMOTE HOME MONITORING AND CONTROL
- Security Systems
- Utility Override to Load Balance
- Alarms
- Calendar
- Thermostat Control

HOME REPAIR AND UPKEEP
- On-Line Service Scheduling
- Diagnosis
- Emergency Services List
- Service Providers: Plumbing, Electric, HVAC, Appliances, Do-It-Yourself, Search/Find Service Providers

NEIGHBORHOOD AND COMMUNITY INTERACTION
- Bulletin Board
- Chat rooms
- Community Groups

UTILITY SERVICES
- Energy Usage Analysis and Recommendation and Utility Rate Analysis
- Bill Presentation and Payment
- Link To The Partner Utility's Web Site

HOME PRODUCTS
- Home Products Web Store
- Shopping Expert
- Affiliates

MOVE MANAGEMENT
- Transfer Or Initiation Of Home Services
- Transfer Or Initiation Of Subscriptions
- Notification Of Address Change
- Links To Other Moving Services
FIG. 3

FIG. 4

SUBSTITUTE SHEET (RULE 26)
FIG. 5

- 502 DIAGNOSIS
- 504 ON-LINE SERVICE SCHEDULING AND PAYMENT
- 506 DO-IT-YOURSELF
- 508 WARRANTYS

FIG. 6

- 602 ENERGY USAGE ANALYSIS AND RECOMMENDATION AND UTILITY RATE ANALYSIS
- 604 BILL PRESENTMENT AND PAYMENT
- 606 UTILITY'S WEB SITE
RECEIVE, FROM A CUSTOMER, A REQUEST TO EVALUATE A TYPE OF HOME APPLIANCE BASED ON A PARTICULAR GEOGRAPHIC AREA AND OPERATING ENVIRONMENT

COLLECT CLIMATE INFORMATION AND ENERGY COST INFORMATION FOR THE GEOGRAPHIC AREA FROM A UTILITY COMPANY

EVALUATE THE GROUP OF HOME APPLIANCES BASED ON THE LOCAL INFORMATION TO PRODUCE A RESULT

PROVIDE THE RESULT TO THE CUSTOMER

RECEIVE, FROM THE CUSTOMER, A REQUEST TO PURCHASE ONE OF THE EVALUATED HOME APPLIANCES

SCHEDULE DELIVERY AND INSTALLATION APPOINTMENTS FOR THE ITEM USING SCHEDULE INFORMATION PROVIDED BY THE CUSTOMER

UPDATE THE CUSTOMER'S CALENDAR TO INDICATE THE APPOINTMENTS

FIG. 7
RECEIVE A REQUEST TO MAKE APPOINTMENTS WITH ONE OR MORE SERVICE PROVIDERS, THE REQUEST IDENTIFYING ONE OR MORE OPEN TIME WINDOWS

SELECT ONE OR MORE SERVICE PROVIDERS BASED ON PREDEFINED CRITERIA

DETERMINE THE AVAILABILITY OF THE SELECTED SERVICE PROVIDERS

ASSIGN ONE OR MORE OF THE AVAILABLE SELECTED SERVICE PROVIDERS TO ONE OF THE OPEN TIME WINDOWS TO CREATE AN APPOINTMENT

NOTIFY THE CUSTOMER AND SERVICE PROVIDERS OF THE APPOINTMENT

PROVIDE A TEMPORARY SECURITY SYSTEM ACCESS CODE TO THE SERVICE PROVIDERS FOR THE PARTICULAR TIME WINDOW

FIG. 8