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(54) Title: TRIGGERING EVENT PROCESSING

(57) Abstract: Systems, methods, and programs for processing extra data when a triggering event occurs. In one embodiment, an application, triggering event data, and extra data is stored on a wireless device. The wireless device monitors a triggering event parameter associated with an application, such as the expiration of the application. When the triggering event occurs, the wireless device processes the extra data in addition to processing associated with the triggering event data. The extra data may include URLs, scripts or other instructions that involve processing locally to the wireless device or requiring connection to a wireless network for remote processing on other devices.

TRIGGERING EVENT PROCESSING

Cross-Reference to Related Applications

[0001] The present Application for Patent claims priority to Provisional Application No. 60/435,085 entitled "Triggering Event Processing" filed December 19, 2002, and assigned to the assignee hereof and hereby expressly incorporated by reference herein.

BACKGROUND

I. Field of the Invention

[0002] The present invention generally relates to computer networks and communications across computer networks. More particularly, the invention relates to the initiation or continuation of processing based on a triggering event associated with an application or data on the wireless device.

II. Description of the Related Art

[0003] Wireless devices are being developed that allow for the execution of applications on these wireless devices. In addition, systems are being developed that allow the downloading of these applications, including data and other content, onto the wireless device using a wireless network. The ability to download applications onto a wireless device provides several advantages. One advantage includes the ability of a user to tailor their wireless device with the applications they want. Another advantage includes not requiring the wireless device manufacturer to load all the applications that may be wanted by the user prior to shipment. In addition, the carrier, who's network will be used by the wireless device, is not required to determine which applications the user will want to use prior to selling the wireless device for use on the network. The carrier can also dynamically determine which applications they will allow to execute on their network.

[0004] Carriers, in addition to allowing applications to execute on their network, also provide other features to users of the network. Features include additional functions and/or services associated with the wireless device. Such features may include access to special data transmission rates, caller identification and voice mail, access to GPS, MPEG or other functions supported by the wireless device.

[0005] Typically, the features available to a user of a wireless device are defined to the phone prior to receipt by the user. This is done in advance because, depending on the feature, the phone may require sophisticated instructions to activate the feature on the handset. Furthermore, the handset may not have an application that requires the feature and, therefore, the activation is not necessary. Some features require that the server associated with the carrier providing service to the wireless device update information allowing this feature to be used by the phone. For example, if the user wants a voice mail feature, a carrier server will be configured so that the wireless device has access to voice mail.

[0006] Currently, users who wish to include these features, or execute applications that will require access to these features, can only add these features using few methods. One method is having the features activated when the wireless device is purchased. This is sometimes, however, difficult for the user to anticipate all the features they may want. As described above, the user will be able to tailor their wireless devices with new applications as they become available. It will not necessarily be known by the user that an application available in the future uses a feature that they should have activated.

[0007] In addition, it is foreseeable that a user may only want a feature for a short period of time, such as during the time they intend to use an application that takes advantage of the feature or to use on a trial basis to see if they like the feature. This user would not want to have the manufacturer install or activate this feature if they only want to use for a short time.

[0008] Another method is to have the user contact a carrier operator. This is can be a cumbersome process where the user must call the carrier. The carrier is verbally instructed what feature the user wants. The carrier configures the server associated with that user to indicate the feature is active. The carrier also then verbally instructs the user to perform a sequence of complicated commands to activate the feature on the wireless device. This creates many problems. Not only is it cumbersome and complex for the user, it inhibits the user's desire to add features to the phone, thus limiting the carrier's ability to provide additional features to a current user.

[0009] Consequently, what is needed in the art are systems and methods to allow features be made accessible to phone in a dynamic nature so that the user may add

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features without cumbersome instructions. Furthermore, such systems and methods would provide a period of expiration to disable or remove the features.

SUMMARY OF THE INVENTION

According to a first aspect of the present invention, there is provided a method for processing a triggering event associated with information, including:

- receiving the triggering event parameter associated with the information;
- receiving extra data capable of being processed;
- monitoring the triggering event parameter; and
- in the event the triggering event occurs based on analysis of the triggering event parameter, processing the extra data and then processing the triggering event,
 - wherein processing the extra data includes:
 - placing the extra data in a queue;
 - determining a remote connection is available for processing of the extra data, if needed; and
 - retrieving the extra data from the queue and processing the extra data.

According to a second aspect of the present invention, there is provided a method of expiration processing for an application, including:

- 0 receiving the expiration parameter, a URL containing a script and an application at a wireless device;
- monitoring the wireless device to determine if the expiration parameter indicates the application has expired;
- processing the URL; and
- 25 processing the expiration of the application.

According to a third aspect of the present invention, there is provided a wireless device for processing a triggering event associated with information and extra data, including:

- the wireless device containing monitoring logic to monitor a triggering event parameter,
- 30 wherein the wireless device also selectively processes a triggering event and processes extra data upon occurrence of a triggering event, wherein processing extra data includes placing the extra data in a queue and determines if needed that a remote connection is available for processing of the extra data then retrieves the extra data from the queue and processes the extra data, and the wireless device selectively processes the triggering event after processing the extra data.

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According to a fourth aspect of the present invention, there is provided a computer readable medium containing computer instructions that when executed perform a method for processing a triggering event associated with information, according to the first aspect.

5 According to a fifth aspect of the present invention, there is provided an apparatus used to process a triggering event associated with information, including:
means for receiving the triggering event parameter associated with the information;
means for receiving extra data capable of being processed;
means for monitoring the triggering event parameter; and
0 means for processing the extra data and the triggering event, wherein in the event the triggering event occurs based on analysis of the triggering event parameter, the means for processing the extra data and the triggering event processes the extra data and then processes the triggering event, wherein processing the extra data includes:
means for placing the extra data in a queue;
5 means for determining a remote connection is available for processing of the extra data if needed; and
means for retrieving the extra data from the queue and processing the extra data.

0 According to a sixth aspect of the present invention, there is provided a method of processing a triggering event associated with an application, including:
0 receiving a triggering event parameter and extra data before an occurrence of the triggering event;
associating the triggering event with a first set of actions to be performed;
associating the extra data with a second set of actions to be performed;
25 monitoring the triggering event parameter to determine whether the triggering event has occurred; and
processing the extra data by performing the second set of actions before performing the first set of actions, if the triggering event has occurred, wherein processing includes:
determining whether one or more of the second set of actions can be performed, if the 30 triggering event has occurred;
placing the extra data in a queue if it is determined that one or more of the second set of actions cannot be performed;
retrieving the extra data from the queue when each of the second set of actions can be performed; and
35 performing each of the second set of actions.

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According to a seventh aspect of the present invention, there is provided a wireless device configured to process a triggering event associated with an application, including:

means for receiving a triggering event parameter and extra data before an occurrence of the triggering event;

means for associating the triggering event with a first set of actions to be performed;

means for associating the extra data with a second set of actions to be performed;

means for monitoring the triggering event parameter to determine whether the triggering event has occurred; and

means for processing the extra data by performing the second set of actions before performing the first set of actions, if the triggering event has occurred, wherein processing the extra data includes:

determining whether one or more of the second set of actions can be performed, if the triggering event has occurred;

placing the extra data in a queue if it is determined that one or more of the second set of actions cannot be performed;

retrieving the extra data from the queue when each of the second set of actions can be performed; and

performing each of the second set of actions.

According to an eighth aspect of the present invention, there is provided a wireless device configured to process a triggering event associated with an application, including:

logic configured to receive a triggering event parameter and extra data before an occurrence of the triggering event;

logic configured to associate the triggering event with a first set of actions to be performed;

logic configured to associate the extra data with a second set of actions to be performed;

logic configured to monitor the triggering event parameter to determine whether the triggering event has occurred; and

logic configured to process the extra data by performing the second set of actions before performing the first set of actions, if the triggering event has occurred, wherein logic configured to process the extra data includes:

logic configured to determine whether one or more of the second set of actions can be performed, if the triggering event has occurred;

logic configured to place the extra data in a queue if it is determined that one or more of the second set of actions cannot be performed;

logic configured to retrieve the extra data from the queue when each of the second set of actions can be performed; and

logic configured to perform each of the second set of actions.

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According to a ninth aspect of the present invention, there is provided a computer readable medium containing computer instructions that when executed perform a method for processing a triggering event associated with information, including the steps of:

- 5 receiving a triggering event parameter and extra data before an occurrence of the triggering event;
- associating the triggering event with a first set of actions to be performed;
- associating the extra data with a second set of actions to be performed;
- monitoring the triggering event parameter to determine whether the triggering event has occurred; and
- 0 processing the extra data by performing the second set of actions before performing the first set of actions, if the triggering event has occurred, wherein processing the extra data includes:
 - determining whether one or more of the second set of actions can be performed, if the triggering event has occurred;
 - 5 placing the extra data in a queue if it is determined that one or more of the second set of actions cannot be performed;
 - retrieving the extra data from the queue when each of the second set of actions can be performed; and
 - performing each of the second set of actions.

0 **BRIEF DESCRIPTION OF THE DRAWINGS**

Objects, advantages, and features of the present invention will become apparent after review of the hereinafter set forth Brief Description of the Drawings, Detailed Description of the Invention, and the Claims.

Fig. 1 is a diagram depicting a wireless network and with several computer devices that communicate with each other across the network.

Fig. 2 is a block diagram of the hardware components of the wireless network providing communication between different wireless devices, an application download server, a carrier network server having a user profile database associated with wireless devices.

Fig. 3 depicts a component architecture of a system for activating a feature on a wireless device in an exemplary embodiment of the present invention.

[0016] Fig. 4 is a flowchart depicting the high-level steps associated with activating a feature for a wireless device in an exemplary embodiment of the present invention.

[0017] Fig. 5 is a flowchart depicting the steps to activate a feature on a wireless device in an exemplary embodiment of the present invention.

[0018] Fig. 6 is a block diagram of a system depicting the elements in processing a triggering event associated with an application on a wireless device in an exemplary embodiment of the present invention.

Fig. 7 is a flowchart depicting the high level steps associated with processing a triggering event in a wireless device in an exemplary embodiment of the present invention.

[0019] Fig. 8 is a flowchart depicting the processing associated with an application expiration triggering event and processing a URL upon the trigger of the expiration in an exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0020] With reference to the figures in which like numerals represent like elements throughout, Fig. 1 illustrates an embodiment of a system 10 for providing subscribed software applications to one or more wireless devices, such as cellular telephone 12, in communication across a wireless network 14 with at least one network server, such as application download server 16, that selectively downloads or provided access to software applications or other data to the wireless devices across a wireless communication portal or other data access to the wireless network 14. As shown here, the wireless device can be a cellular telephone 12, a personal digital assistant 18, a pager 20, which is shown here as a two-way text pager, or even a separate computer platform 22 that has a wireless communication portal, and may otherwise have a wired connection 24 to a network or the Internet. The system 10 can thus be performed on any form of remote computer module including a wireless communication portal, including without limitation, wireless modems, PCMCIA cards, access terminals, personal computers, access terminals, telephones without a display or keypad, or any combination or sub-combination thereof.

[0021] The application download server 16 is shown here on a local server-side network 26 with other computer elements in communication with the wireless network 14, such

as a database 28 with stored applications and data that contains software applications and data that are accessible and downloadable to the wireless devices 12,18,20,22. There is also shown other network servers, such as server 30 and stand-alone network server 32. The server 30 and 32 can be application or data download servers, or other types of servers that interact with the wireless devices 12,18,20,22 as are known in the art. The servers 16,30,32 may have software applications, patches, files, keys, graphics data, compression algorithms, and any type of general data, collectively referred to hereinafter as "datasets," resident thereupon that can be accessed by the wireless devices 12,18,20,22 as is further described herein. It should be noted that server-side functions as described herein can be performed on one server, such as application download server 16. Further, a computer server-side computer platform can provide separate services and processes to the wireless devices 12,18,20,22 across the wireless network 14.

[0022] Fig. 2 is a block diagram that more fully illustrates the components of a wireless network 14 and interrelation of the elements of an exemplary embodiment. The wireless network 14 is merely exemplary and can include any system whereby remote modules, such as wireless devices 12,18,20,22, communicate over-the-air between and among each other and/or between and among components of a wireless network 14, including, without limitation, wireless network carriers and/or servers. The application download server 16 and the stored applications database 28, other server 30, will be present on the cellular data network with any other components that are needed to provide cellular telecommunication services. The application download server 16, and/or other server 30 communicate with a carrier network 40, through a data link, such as the Internet, a secure LAN, WAN, or other network. The carrier network 40 controls messages (generally being data packets) sent to a messaging service controller ("MSC") 42. The carrier network 40 communicates with the MSC 42 by a network, the Internet, and/or POTS ("plain ordinary telephone system"). Typically, the network or Internet connection between the carrier network 40 and the MSC 42 transfers data, and the POTS transfers voice information. The MSC 42 is connected to multiple base stations ("BTS") 44. In a similar manner to the carrier network, the MSC 42 is typically connected to the BTS 44 by both the network and/or Internet for data transfer and POTS for voice information. The BTS 44 ultimately broadcasts messages wirelessly to the

wireless devices, such as cellular telephone 12, by short messaging service ("SMS"), or other over-the-air methods known in the art.

[0023] Each wireless device, such as cellular telephone 12, has a computer platform 50 that can receive and execute software applications and display data transmitted from the application download server 16 or other network servers, such as the carrier server 30. The computer platform 50 also includes an application-specific integrated circuit ("ASIC") 52, or other processor, microprocessor, logic circuit, or other data processing device. The ASIC 52 is installed at the time of manufacture of the wireless device and is not normally upgradeable. The ASIC 52 or other processor executes the application programming interface ("API") layer 54 that interfaces with any resident programs in the memory 56 of the wireless device. The memory can be comprised of read-only or random-access memory (RAM and ROM), EPROM, EEPROM, flash cards, or any memory common to computer platforms. The computer platform 50 also includes a local database 58 that can hold the software applications, files, and/or data initially loaded onto the wireless device 12 by the manufacturer or downloaded from the application download server 16. The local database 58 is typically comprised of one or more flash memory cells, but can be any secondary or tertiary storage device as known in the art, such as magnetic media, EPROM, EEPROM, optical media, tape, or soft or hard disk.

[0024] Fig. 3 depicts a component architecture of a system for activating a feature on a wireless device in an exemplary embodiment of the present invention. The wireless device 300 may be manufactured and/or on a network that can potentially give it access to many features 310, including, but not limited to, voice recognition, GPS, voice mail, CDMA2000 1x data rates, caller ID, MP3 and others. Some of these features are activated on the wireless device itself, such as access to GPS, while others may require the use of a carrier server to activate the feature. For example, a user of a wireless device 300 may want voice mail associated with it, but the voice mail storage may be stored on the carrier's server. In either case, it may be desirable to inform the carrier server that a given feature is activated. While the wireless device 300 may have the potential to access these many features 310, they may not all be activated on the wireless device 300. For example, even though the wireless device may have a GPS feature built into the processing chip, it may not be activated because the user chose not

to pay for the functionality, the carrier chose not to support it, and/or applications were not developed at the time the wireless device 300 was manufactured that took advantage of the feature, as well as other reasons.

[0025] In an exemplary embodiment, a component 305 is stored on the download server 315. The download server may provide other applications accessible to the wireless device 300, such as applications or other content data. The wireless device 300 activates a feature 310 by requesting the component 305 from the download server. The component 305 is received by and stored in the wireless device 300. The wireless device then executes the component 305.

[0026] The component 305 contains the software logic to configure the wireless device so that the requested feature may be activated. Configuring the wireless device may include setting parameters, updating access tables or otherwise indicating to the wireless device or the platform on the wireless device that the feature may be accessed by the wireless device. The component may also contain other information, such as expiration data for when the feature is to be deactivated, as well as other licensing terms or other data that is useful in processing related to the activation of the feature.

[0027] The component 305 may also send a message to a carrier server 335, such as indicating that the feature being activated on the wireless device or requesting activation of the feature in the case where the carrier server 335 must also be configured. The carrier server 335 receives the message sent by the component and updates a profile associated with the wireless device indicating that the feature is activated. Updating the profile provides the carrier with knowledge that that feature is activated. This is useful so the carrier can account for which wireless devices are using what features. This is also useful for billing and performing tests or diagnostics. The carrier server 305 may also use the message retrieved from the component to configure its server to activate the feature requested by the wireless device. As stated above, some features may require a carrier server to be configured, such as voice mail. In the case where the activation requires additional actions by the carrier server other than just updating of profile for billing or other diagnostics, the carrier server will use the message and perform the necessary functions to configure the carrier server so that the user may access the feature requested.

[0028] Fig. 4 is a flowchart depicting the high-level steps associated with activating a feature for a wireless device in an exemplary embodiment of the present invention. The feature is requested on the wireless device (Step 400). This request may be performed by the user wanting additional services or functions associated with the wireless device. Alternatively, the request may be initiated by an application needing the feature in order to execute properly. For example, if a user of a wireless device wishes to execute a mapping program but the GPS feature is not activated on a wireless device. When the user executes the mapping application, the mapping application, or the platform on which the mapping application is being executed, may determine that the GPS feature does not exist and then initiate the request to activate the GPS function. In another alternative, a server may request that a feature be activated for a wireless device. Such features may be useful to the carrier in performing diagnostics or network optimization. The user of the wireless device may not be aware that such features are being activated.

[0029] Next, the feature is activated for the wireless device (Step 405). Activating a feature for the wireless device may take multiple configuration steps, such as may be configured to indicate to the applications and other tasks accessing the wireless device that this feature is now available. Furthermore, the steps required to configure a wireless device so that a feature is activated will vary based on several factors specific to the wireless device, including the type of hardware, including processors, used by the wireless device, the mechanisms used by the controlling software or wireless device platform that expose the feature to the wireless device. Similarly, the steps used to configure a carrier server to activate a feature or update a profile will vary based on the individual characteristics of the carrier server. The steps necessary to activate a feature for a specific wireless device or carrier server, as well as updating the profile on the carrier server, will be recognized by those skilled in the art.

[0030] In one embodiment, the wireless device contains a platform that interfaces between the applications and data on the wireless device and the wireless device hardware. Such a platform, for example, the BREW™ platform developed by QUALCOMM®, Inc. headquartered in San Diego, California, was briefly described in Fig. 2. Activating the feature on the device in one embodiment includes indicating to the platform that this feature has been requested and the platform initiating the availability of that feature on the wireless device. This can be performed by having a

feature table and an indication in the table that the feature is now accessible. As described above, it will be recognized by those skilled in the art that there will be many variables and methods used to indicate and configure a wireless device for the given feature.

[0031] After configuring the wireless device in Step 405, a server is configured to activate the feature for the wireless device (Step 410). Some features as described above may use a server. For example, the use of voice mail or call waiting may require the need of a separate server to be used. The server is configured to indicate that this feature being requested be activated for the specific wireless device.

[0032] In addition, the server may be required to indicate in the profile that this feature is being activated for the wireless device. This may be the case even if the server is not being used for the feature. For example, if a feature is activated for a wireless device that only uses the wireless device resources, such as an MP3 feature or a GPS feature, the server may be notified of this so that it can track that the wireless device has this capability and can bill for this added feature. The server may provide additional access to functions of the network that are not accessible by the wireless device until the wireless device is configured to do so. For example, in a CDMA network, if the wireless device contains a CDMA2000 1x chip, but is not configured to transmit data at 1x data rates, the server will be configured to allow the wireless device to transmit 1x data rates.

[0033] The feature is then deactivated when an expiration is reached (Step 415). When a feature is requested by the wireless device, expiration parameters may be associated with the feature. For example, if the user is activating voice mail, the user may purchase the use of voice mail for three months. This expiration parameter may be associated with the activation of this feature so that the operating system, platform, or other monitoring application on the wireless device determine if the feature has expired and therefore be deactivated. In addition, the expiration parameter may be stored on the wireless device and/or on a server associated with the wireless device, and the request to deactivate based on expiration may be received from a server. Other methods, in addition to expiration described above, for deactivating the feature include initiating deactivation from a server or from the user requesting deactivation of the feature.

[0034] Fig. 5 is a flowchart depicting the steps to activate a feature on a wireless device in an exemplary embodiment of the present invention. The user selects a feature to activate for the wireless device (Step 500). As described above, a wireless device may have several features capable of being accessed but may be deactivated for various reasons such as the user not having purchased or activated these features at the time of receiving the wireless device. In one embodiment, the user may be presented with a menu on the wireless device which depicts a list of features that the wireless device can access and activate for its use. In addition, the applications that the wireless device may execute, whether already contained on the wireless device or otherwise downloaded to the wireless device, may require use of features that are not currently activated on the wireless device. In this case, the application may request the feature be activated.

[0035] In one embodiment, the user selects from a list of features associated with the wireless device to activate it. The user may also be given the option to select a time period for which this feature is activated (e.g., an expiration period). It is also within the scope of this invention that the user may also be presented with other licensing terms or parameters associated with the feature to accept or decline prior to activating the feature.

[0036] The wireless device downloads the component with the expiration date and executes the component (Step 505). In one embodiment, this component contains the configuring logic for the wireless device, and the expiration date associated with the feature and selected by the user. In addition, the component contains an indication of what to send a server associated with the wireless device to activate the feature.

[0037] Next, the component configures the handset and provides the handset access to the feature (Step 510). The component then sends a message to the server configuring the feature for the wireless device (Step 515). The server may use the receipt of this message to initiate the configuration steps necessary to activate this feature for the wireless device and/or update any profiles so that the appropriate billing or other desired functions may be performed (Step 520). The feature's expiration date is periodically checked to determine if it has expired (Step 525). This check may be performed by the component that was downloaded and installed on the wireless device, by the server, or other applications associated with the wireless device. If the feature has not expired, the feature will continue to be accessible by the wireless device. In the event that the

feature has expired, then processing proceeds to deactivate the feature (Step 530). After deactivating the feature, the component may be removed from the wireless device so as to free up memory storage for other programs.

[0038] Figure 6 is a block diagram of a system depicting the elements in processing a triggering event associated with an application on a wireless device in an exemplary embodiment of the present invention. In one embodiment, the system includes an application download server 605 having at least one application 610. Note that while "application" is used in this description, the present invention may be used with other information, such as content, or other data that can have a triggering parameter associated with it.

[0039] In one embodiment, the wireless device 600 requests to download the application 610 from the application download server 605. The application download server may process the application for the wireless device. For example, the user of the wireless device 600 may request the application be downloaded with the condition that the application will expire. An expiration date, or other expiration parameter may be associated with the application 610. It will be recognized by those skilled in the art that triggering events, other than an expiration, may be associated with information in implementing the present invention.

[0040] The application download server 605, may also include extra data associated with the application. This extra data, such as a URL, may contain scripts or other data that the wireless device can use for additional processing when the triggering event occurred. It will be recognized by those skilled in the art that the triggering event, and extra data need not be bound to the application by the application download server 605 but can be received by the wireless device through other systems or mechanisms or can be associated together at the wireless device.

[0041] The wireless device 600 contains the information, triggering event parameter and extra data. Or as depicted in figure 6, the application has the extra data, and triggering event, such as an expiration date, associated with the application. The wireless device may have a platform, such as the BREW™ platform developed by QUALCOMM Incorporated, headquartered in San Diego California, which may be used to monitor the execution and/or the triggering event parameter. It will be recognized

that other monitoring programs or paradigms may be used to monitor for the triggering event.

[0042] The platform 625 may be used to interface between the hardware 630 on the wireless device and the application and other data associated with the application (collectively 620). In one embodiment, the platform monitors the triggering event parameter and initiates the triggering event processing based on the parameter. For example, if the triggering event parameter is an expiration date, the platform checks the date in the system against the expiration date parameter and determines if the application has expired. If the application has expired the platform begins the processing described herein.

[0043] Fig. 7 is a flowchart depicting the high level steps associated with processing a triggering event in a wireless device in an exemplary embodiment of the present invention. The method begins with downloading the application (or other information), the triggering event parameter, and extra data (Step 700). As described above, any information that can have a triggering event parameter associated with it may be used, not just an application.

[0044] The process continues to monitor the triggering event parameter (Step 705). The triggering event parameter is any function, value or piece of data that can be evaluated to determine if a triggering event occurred. It may be date or time related. It may also be number of uses, or accesses associated with the information, for example. Furthermore, the triggering event parameter may have no direct relation to the underlying information it is associated with. For example, the triggering event may be to evaluate when another application executes, and when it does, start the termination of a different application.

[0045] When the evaluation of the triggering event parameter indicates that the triggering event should be processed (Step 710), the "Yes" branch is followed and the extra data, such as a Uniform Resource Locator (URL) associated with the application is processed (Step 715). The extra data may contain a script, instructions, a pointer to instructions, or some data that may be processed. In one embodiment, the URL contains a script that directs the a wireless device to process some functions either locally, i.e., within the wireless device, and/or remotely, involving, in part or in total, other systems outside the wireless device.

[0046] After the extra data is processed, the triggering event is processed (step 720). In this manner, additional processing associated with the triggering event may be associated with an application without having to alter the triggering event processing. When the trigger event occurs, the extra data is processed in addition to the triggering event.

[0047] Fig. 8 is a flowchart depicting the processing associated with an application expiration triggering event and processing a URL upon the trigger of the expiration in an exemplary embodiment of the present invention. The method receives an indication that the triggering event associated with an application, such as an expiration, occurred (Step 800). Prior to processing the expiration, extra data, such as a URL also associated with the application is placed in a queue (Step 805). Because the extra data may involve remote tasks, one advantage of placing it in a queue is that if the extra data requires connection to a network to perform the tasks, such as send instructions or data to a remote system, the processing of the extra data will not be lost if the wireless device processing the extra data does not have coverage (i.e., not connected to the network). Therefore, when the wireless device has coverage, it can retrieve the extra data from the queue and process the extra data.

[0048] The URL is retrieved from the queue and the wireless device's registry is checked to see if it has the corresponding handler (Step 810). It will be recognized by those skilled in the art that the URL may be formatted in a manner such that it can be determined to have a specific handler or be processed in a specific manner, such as different MIME types. If the handler is found (Step 815), then it is launched (Step 820). The handler then parses the URL (Step 825). Based on the results of parsing the URL, the handler, or other process, processes local actions (Step 830) and/or processes remote actions (Step 835). Following the processing associated with parsing the URL, the process proceeds to Step 840 where the triggering event associated with the application, such as the application's expiration, is processed (Step 840). Note that if no extra data was associated with the application, this above process would continue to process the triggering event. In this manner, systems implementing these embodiments, can devise one triggering event processing and modify the actions that take place when the triggering event occurs for specific information using the extra data.

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Note that if the handler was not found in Step 815, the "No" branch is followed and the process proceeds to process the triggering event.

The present invention includes a program resident in a computer readable medium, where the program directs a wireless device having a computer platform to perform the inventive steps of the method. The computer readable medium can be the memory 56 of the computer platform 50 of the cellular telephone 12, or other wireless device 18, 20, 22, or can be in a local database, such as local database 58 of the cellular telephone 12. Further, the computer readable medium can be in a secondary storage media that is loadable onto a wireless device computer platform, such as a magnetic disk or tape, optical disk, hard disk, flash memory, or other storage media as is known in the art.

The present invention may be implemented, for example, by operating portion(s) of the wireless network 14 to execute a sequence of machine-readable instructions, such as wireless platform 50, the application download server 16, and any other network server 30, 32. The instructions can reside in various types of signal-bearing or data storage primary, secondary, or tertiary media. The media may comprise, for example, RAM (not shown) accessible by, or residing within, the components of the wireless network 14. Whether contained in RAM, a diskette, or other secondary storage media, the instructions may be stored on a variety of machine-readable data storage media, such as DASD storage (e.g., a conventional "hard drive" or a RAID array), magnetic tape, electronic read-only memory (e.g., ROM, EPROM, or EEPROM), flash memory cards, an optical storage device (e.g. CD-ROM, WORM, DVD, digital optical tape), paper "punch" cards, or other suitable data storage media including digital and analog transmission media.

While the foregoing disclosure shows illustrative embodiments of the invention, it should be noted that various changes and modifications could be made herein without departing from the scope of the invention as defined by the appended claims. Furthermore, although elements of the invention may be described or claimed in the singular, the plural is contemplated unless limitation to the singular is explicitly stated.

The reference to any prior art in this specification is not, and should not be taken as, an acknowledgement of any form of suggestion that such prior art forms part of the common general knowledge.

It will be understood that the term "comprise" and any of its derivatives (eg. comprises, comprising) as used in this specification is to be taken to be inclusive of features to which it refers, and is not meant to exclude the presence of any additional features unless otherwise stated or implied.

It will be appreciated by those skilled in the art that the invention is not restricted in its use to the particular application described. Neither is the present invention restricted in its preferred embodiment with regard to the particular elements and/or features described or depicted herein. It will be appreciated that various modifications can be made without departing from the principles of the invention. Therefore, the invention should be understood to include all such modifications in its scope.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A method for processing a triggering event associated with information, including:
5 receiving the triggering event parameter associated with the information;
receiving extra data capable of being processed;
monitoring the triggering event parameter; and
in the event the triggering event occurs based on analysis of the triggering event parameter,
processing the extra data and then processing the triggering event,
wherein processing the extra data includes:
0 placing the extra data in a queue;
determining a remote connection is available for processing of the extra data, if
needed; and
retrieving the extra data from the queue and processing the extra data.
- 5 2. The method as claimed in claim 1, further including the step of storing the extra data
associated with the triggering event.
3. The method as claimed in any one of claims 1 to 2, wherein the extra data is a Uniform
Resource Locator (URL).
- 0 4. The method as claimed in any one of claims 1 to 3, wherein the triggering event parameter is
an expiration date and the triggering event is the expiration of the information.
- 5 5. The method as claimed in any one of claims 1 to 4, wherein the extra data is modified and the
25 step of processing extra data includes processing the modified extra data.
6. The method as claimed in any one of claims 1 to 5, wherein the triggering event occurs in a
wireless device and the step of processing the extra data includes connecting to a wireless network.
- 30 7. The method as claimed in claim 6, wherein processing the triggering event includes
processing independent to the information associated with the triggering event.
8. A method of expiration processing for an application, including:
35 receiving the expiration parameter, a URL containing a script and an application at a wireless
device;
monitoring the wireless device to determine if the expiration parameter indicates the
application has expired;

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means for receiving the triggering event parameter associated with the information;
means for receiving extra data capable of being processed;
means for monitoring the triggering event parameter; and
means for processing the extra data and the triggering event, wherein in the event the
triggering event occurs based on analysis of the triggering event parameter, the means for processing
the extra data and the triggering event processes the extra data and then processes the triggering event,
wherein processing the extra data includes:
 means for placing the extra data in a queue;
 means for determining a remote connection is available for processing of the extra
 data if needed; and
 means for retrieving the extra data from the queue and processing the extra data.

18. A method of processing a triggering event associated with an application, including:
 receiving a triggering event parameter and extra data before an occurrence of the triggering
 event;
 associating the triggering event with a first set of actions to be performed;
 associating the extra data with a second set of actions to be performed;
 monitoring the triggering event parameter to determine whether the triggering event has
 occurred; and
 processing the extra data by performing the second set of actions before performing the first
 set of actions, if the triggering event has occurred, wherein processing includes:
 determining whether one or more of the second set of actions can be performed, if the
 triggering event has occurred;
 placing the extra data in a queue if it is determined that one of more of the second set
 of actions cannot be performed;
 retrieving the extra data from the queue when each of the second set of actions can be
 performed; and
 performing each of the second set of actions.

19. The method of claim 18, wherein the extra data corresponds to a Uniform Resource Locator
(URL), and the second set of actions include one or more location actions based on the URL and/or
one or more remote actions based on the URL.

20. A wireless device configured to process a triggering event associated with an application,
including:
 means for receiving a triggering event parameter and extra data before an occurrence of the
 triggering event;

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means for associating the triggering event with a first set of actions to be performed;
means for associating the extra data with a second set of actions to be performed;
means for monitoring the triggering event parameter to determine whether the triggering event has occurred; and

means for processing the extra data by performing the second set of actions before performing the first set of actions, if the triggering event has occurred, wherein processing the extra data includes:

- determining whether one or more of the second set of actions can be performed, if the triggering event has occurred;
- placing the extra data in a queue if it is determined that one of more of the second set of actions cannot be performed;
- retrieving the extra data from the queue when each of the second set of actions can be performed; and
- performing each of the second set of actions.

21. A wireless device configured to process a triggering event associated with an application, including:

- logic configured to receive a triggering event parameter and extra data before an occurrence of the triggering event;
- logic configured to associate the triggering event with a first set of actions to be performed;
- logic configured to associate the extra data with a second set of actions to be performed;
- logic configured to monitor the triggering event parameter to determine whether the triggering event has occurred; and
- logic configured to process the extra data by performing the second set of actions before performing the first set of actions, if the triggering event has occurred, wherein logic configured to process the extra data includes:

 - logic configured to determine whether one or more of the second set of actions can be performed, if the triggering event has occurred;
 - logic configured to place the extra data in a queue if it is determined that one of more of the second set of actions cannot be performed;
 - logic configured to retrieve the extra data from the queue when each of the second set of actions can be performed; and
 - logic configured to perform each of the second set of actions.

22. A computer readable medium containing computer instructions that when executed perform a method for processing a triggering event associated with information, including the steps of:

- receiving a triggering event parameter and extra data before an occurrence of the triggering event;

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5 23. A method as claimed in claim 1 substantially as herein described with reference to the accompanying drawings.

24. A method as claimed in claim 8 substantially as herein described with reference to the accompanying drawings.

0 25. A wireless device as claimed in claim 14 substantially as herein described with reference to the accompanying drawings.

25 26. A computer readable medium as claimed in claim 16 substantially as herein described with reference to the accompanying drawings.

27. An apparatus as claimed in claim 17 substantially as herein described with reference to the accompanying drawings.

30 28. A method as claimed in claim 18 substantially as herein described with reference to the accompanying drawings.

29. A wireless device as claimed in claim 20 substantially as herein described with reference to the accompanying drawings.

35 30. A wireless device as claimed in claim 21 substantially as herein described with reference to the accompanying drawings.

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31. A computer readable medium as claimed in claim 22 substantially as herein described with reference to the accompanying drawings.

5 32. A method substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings.

0 33. A wireless device substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings.

0 34. A computer readable medium substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings.

5 35. An apparatus substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings.

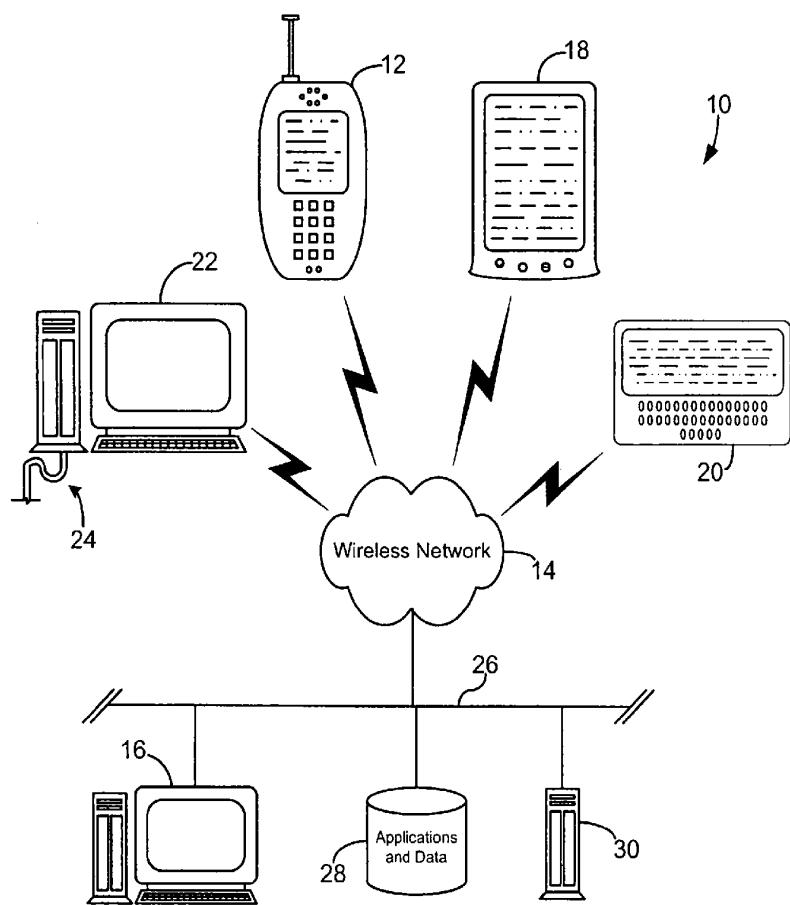


Figure 1

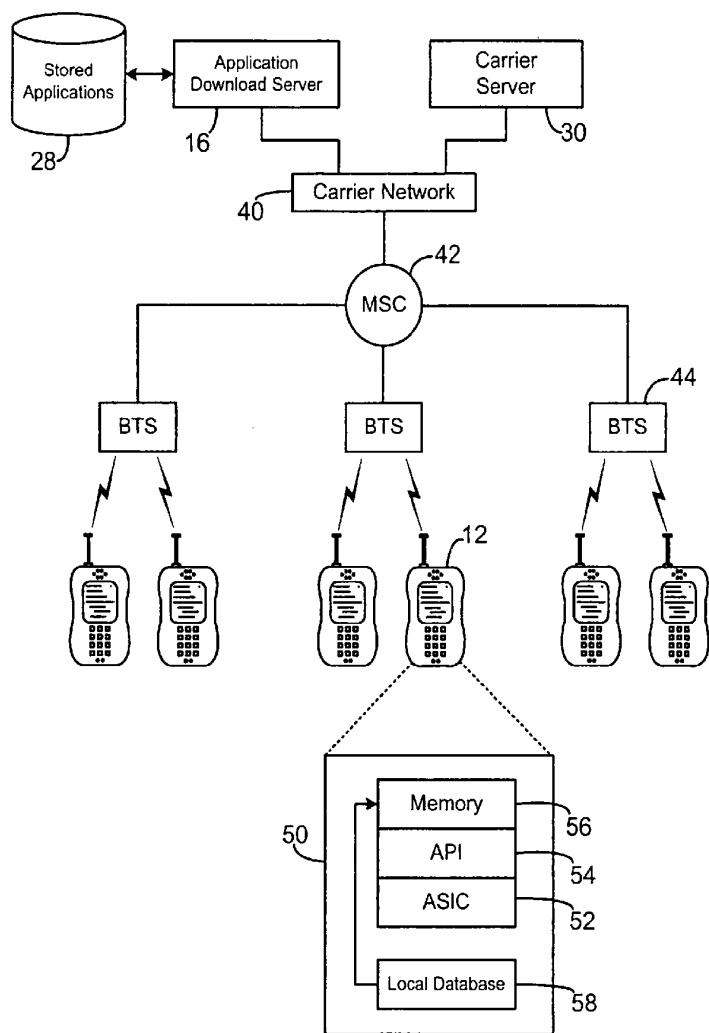


Figure 2

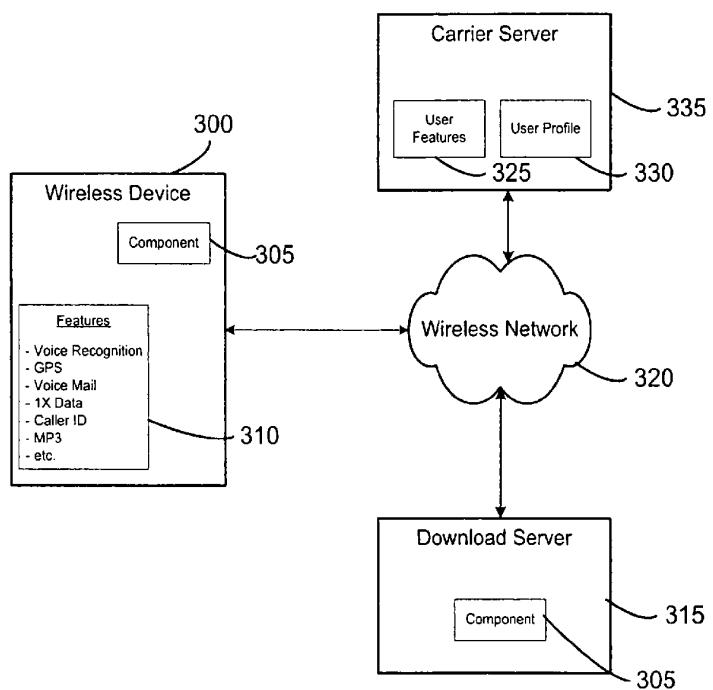


Figure 3

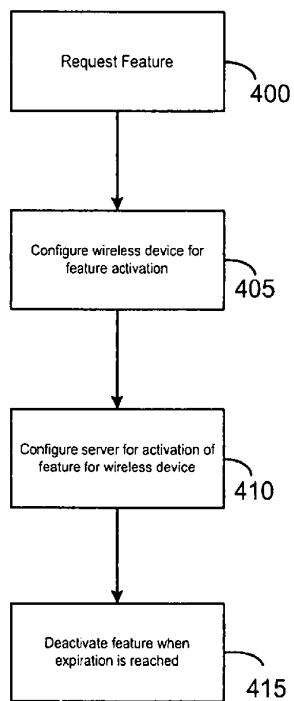


Figure 4

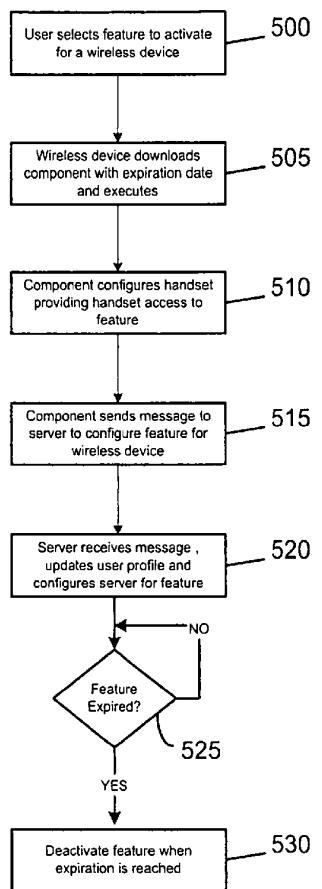


Figure 5

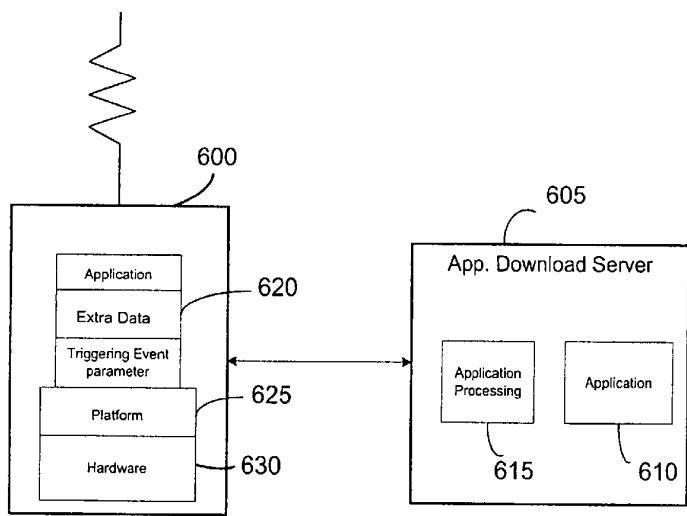


Figure 6

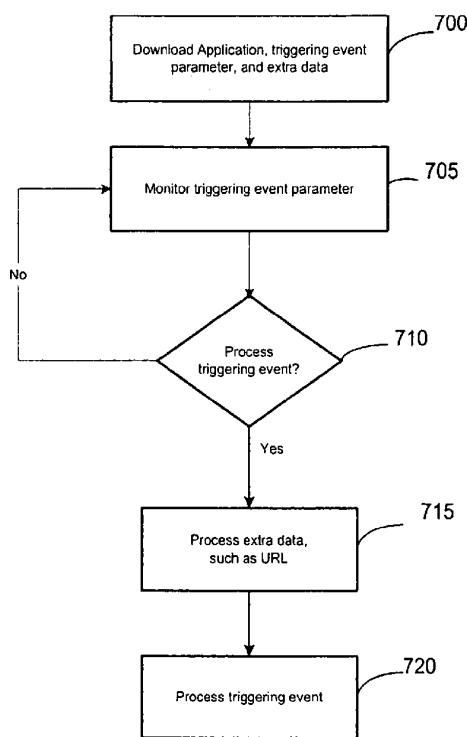


Figure 7

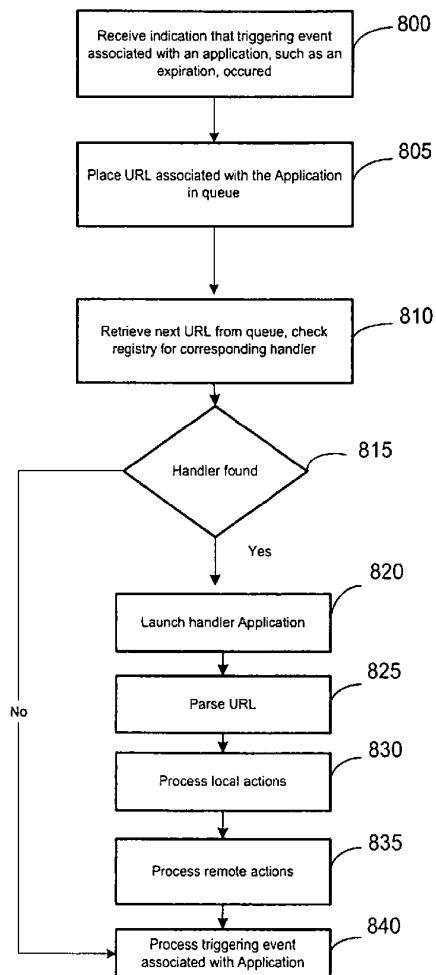


Figure 8