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(54) Title: SYSTEM AND METHOD FOR PUSHING INFORMATION FROM A HOST SYSTEM TO A MOBIEL DATA COMMUNICATION DEVICE IN A WIRELESS DATA NETWORK
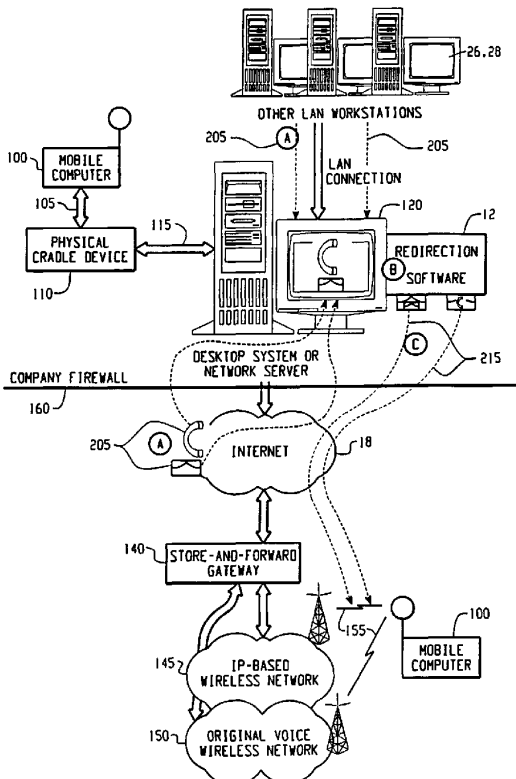
(57) Abstract: A system and method for redirecting data from a host system (or messaging server) to one or more mobile data communication devices via a wireless packet data network is provided in which the wireless packet data network dynamically assigns addresses to the one or more mobile data communication devices on an as-needed basis. A redirector application operating at the host system is configured by each user to continuously redirect certain data to the wireless packet data network, as the data is received (or otherwise altered) at the host system. Two methods are provided for communicating the redirected data from the network to the mobile device. In a first method, the mobile device is configured to periodically contact a store-and-forward server within the wireless network, which, when contacted, assigns a network address to the mobile device and then transmits the stored, redirected data to the mobile device. In a second method, the network transmits a connection request command to the mobile device via a parallel voice network, or via a command channel, or other type of low-bandwidth data channel. The mobile device then contacts the data network and requests a network address so that the store-and-forward server can send the redirected data to the mobile device.

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System and Method for Pushing Information from a
Host System to a Mobile Data Communication Device
in a Wireless Data Network

5   CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority from United States Provisional Applications S/N 60/268,824, filed on February 14, 2001, S/N 60/237,616, filed on October 3, 2000, and S/N 60/233,501, filed on September 19, 2000. This

10   application also claims priority from, and is a continuation-in-part of, United States Patent Application S/N 09/528,495, filed on March 17, 2000 which is a continuation of S/N 09/087,623, filed on May 29, 1998, now United States Patent No. 6,219,694. The complete disclosure of each of these provisional and utility applications, and the issued patent, including drawings and claims, is hereby

15   incorporated into this application by reference.

BACKGROUND

1.   Field of the Invention

The present invention is directed to the field of data communications in a

20   wireless network. More specifically, the invention relates to a system and method for communicating information to a mobile communication device ("mobile device") within a wireless data network (such as an IP based wireless data network) and also for replicating information between a host system (or a host system with an associated messaging server) and the mobile device via the

25   wireless data network.

2.   Description of the Related Art

Wireless data networks are known in this field. Early wireless data networks include the Mobitex network and the Datatac network. These early

30   networks provided limited data capacity and also required to have fixed addresses for each mobile device. Such a fixed address is also known as a "static" network address. Recently, however, new types of wireless data networks have emerged

having much greater data bandwidth. These new data networks, such as the
GPRS network, may utilize the Internet Protocol (IP) for routing data to a mobile
device. The inherent addressing limitations of the IP protocol (and other similar
packet protocols) typically limit the use of have static addressing in these types of
5   data networks, thus leading to a dynamic addressing scheme. In this type of
addressing scheme, a pool of available network addresses is dynamically
assigned to a much greater pool of user devices depending on which devices are
accessing the network at a given instant.

As described in more detail in the co-pending, and co-owned application
10   S/N, a wireless data network can be coupled to one or more redirector
applications for enabling real-time mirroring (or redirection) of user data items
from a user's office computer (or corporate server) to the user's mobile device.
In such a redirector application, user data items, such as e-mail messages,
calendar events, etc., are received at the user's office computer, which then
15   redirects (or mirrors) the data items to the user's mobile device via the wireless
data network. It would be advantageous to extend this redirection system to
operate with newer wireless data networks such as the General Packet Radio
Service ("GPRS") network, or other networks that may utilize a packet protocol,
such as IP, in which the wireless data network dynamically assigns network
20   addresses on an as-needed basis.

<div align="center">SUMMARY</div>

A system and method for redirecting data to one or more mobile data
communication devices via a wireless packet data network is provided in which
the network dynamically assigns network addresses to the mobile data
25   communication devices on an as-needed basis. A redirector program preferably
operating at a host system continuously redirects data to the wireless packet data
network, as the data is received (or altered) at the host system. Two methods are
provided for communicating the redirected data from the wireless network to the
mobile device. In a first method, the mobile device is configured to periodically
30   contact a store-and-forward server (or gateway) operating in conjunction with the
wireless network, which, when contacted, transmits the data to the mobile device.
In a second method, the wireless network transmits a connection request

command to the mobile device via a parallel voice network, or via a control channel on the data network, or via some other type of low-bandwidth data channel. The mobile device then contacts the wireless data network and requests a network address so that the store-and-forward server can send the data to the

5   mobile device. In this second embodiment the presence of a 'push bearer' channel is preferred. A push bearer network is defined as a network that can provide an address for the wireless device that is statically defined and always reachable. The push bearer network can have low capacity and very limited bandwidth, as is the case with the Short Message Service (SMS) messaging, used

10   on many wireless networks.

The redirector program enables a user to redirect (or mirror) certain user-selected data items (or parts of data items) from the host system to the user's mobile data communication device upon detecting that one or more user-defined triggering events has occurred. Also operating at the host system are various sub-

15   systems that can be configured to create triggering events, such as a screen saver sub-system or a keyboard sub-system, as well as sub-systems for repackaging the user's data items for transparent delivery to the mobile device, such as a TCP/IP sub-system or one or more E-Mail sub-systems. Other sub-systems for creating triggering events and repackaging the user's data items could also be present at

20   the host system.

Using the redirector program, the user can select certain data items for redirection, such as E-mail messages, calendar events, meeting notifications, address entries, journal entries, personal reminders, etc. Having selected the data items for redirection, the user can then configure one or more event triggers,

25   which are sensed by the redirector program to initiate redirection of the user's data items. These user-defined triggers (or event triggers) may include external events, internal events and networked events. Examples of external events include: receiving a message from the user's mobile data communication device to begin redirection; receiving a similar message from some external computer;

30   sensing that the user is no longer in the vicinity of the host system; or any other event that is external to the host system. Internal events could be a calendar alarm, screen saver activation, keyboard timeout, programmable timer, or any

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