

116. The data processor 202 enables processor 102 to locate data on, read data from, and write data to, these components.

Application interface 204 enables processor 102 to take some action with respect to a separate software application or entity. For example, application interface 204 may take the form of a windowing user interface, as is commonly known in the art.

Media interface 200 may be a web-enabled call interface. In some embodiments, the media interface 200 may be a stand-alone program, or a web-browser window. An example of such a media interface window is shown in FIG. 4. Media interface window 200 comprises title bar 401, window control buttons 402A–C, menu bar 404, button bar 406, address bar 408, phone-list frame 410, main frame 420, status frame 412, and control frame 414.

In some embodiments, main frame 420 displays a picture of the current caller retrieved from a caller database 244. In such embodiments, using the mouse pointer 418, users may either click control buttons 416A–H, or “drag-and-drop” callers listed in the phone list frame 410, or pictures of the caller in the main frame 420 to control buttons 416A–H in the control frame 414. Media interface 200 then selects the appropriate structure to execute the functionality specified by the control button 416. In some embodiments, the phone list frame 410 may represent the caller database 244. As such, the caller database 244 may be easily manipulated through media interface 200. For example, caller identification information may be added to or removed from a list of blocked calls in the phone list frame 410.

Returning to FIG. 3, call manager 210 may further comprise a passive call block assistant 212, an audio/video call processor 214, an electronic mail notification generator 216, and a voice mail manager 218.

Passive call block assistant 212 determines which callers are subject to passive call blocking. For example, suppose party A places a call to party B. The passive call block assistant 212 will compare the caller identification information provided by A to the caller database 244. If the caller database 244 indicates that the caller should be blocked, passive call block assistant 212 will cause a passive call block to be returned to party A. If the call is conducted over an ordinary telephone network 110, the passive call block response may be a continuous telephone ring.

Audio/video call processor 214 allows media interface 200 to utilize video input 122, microphone 112, speaker 118 and display 106 for audio or multimedia-video-based calls. Electronic mail notification generator 216 allows media interface 200 to communicate through text-based messaging systems, such as electronic mail or, in some embodiments, instant-messaging programs. Voice mail manager 218 communicates with media interface 200 and stores messages in a voice mail database 242. These components of the call manager 210 interact with a voice mail database 242 and a caller database 244, and may best be understood with respect to the flowcharts of FIGS. 5–8, as described below.

FIGS. 5–8 flowchart several processes that facilitate passive call blocking, constructed and operative in accordance with embodiments of the present invention. These processes are easily applied to telephone networks, Internet telephony, and other forms of communication over a network.

Following FIG. 5, in one embodiment, process 600, a passive call block device 135, such as a telephone or personal computer, receives a call, at block 602.

Typically, caller identification information is received shortly after the call, at block 604. In the PSTN environment, caller identification information is transmitted to the caller between the first and second ring signals. Hence, in

one embodiment, a passive call block device 135 receiving a call via the PSTN environment will suppress the ringing signals until the caller identification information has been processed as disclosed herein. In alternate embodiments, caller identification information may be received simultaneously with or even preceding a call.

Upon receiving the caller identification information, the call manager 210 compares this information with the caller database, at block 606, to determine whether the caller should be passively blocked, at decision block 608. If the caller identification information does not match a blocked caller in the caller database 244, the call manager 210 will accept the call, at block 612. For incoming calls, the call may be accepted by alerting the callee of the call. For outgoing calls, the call may be accepted by transmitting the call to the intended callee. Other means of accepting calls are well known to those of skill in the art.

If the caller identification information matches information for a blocked caller in the caller database 244, the call manager 210 sends a ringing indication to the caller, at block 610, but the callee’s telephone does not ring. Such a ringing indication is considered “false.” After being subjected to a false ring without response, a caller will typically terminate the call. Hence, in this embodiment, calls that match a list of blocked callers are passively blocked. In alternate embodiments, the same result may be achieved regardless of when the ringing indication is sent to the caller upon receiving the call. For example, a ringing indication may be sent to a caller prior to checking the caller database. If the caller is subsequently determined to be an unblocked caller, the false ringing indication may be replaced with a “true” ring.

The ringing indication may take alternate forms. For example, in an Internet telephony system, the ringing indication may be a visual notification in the form of a text message displayed on a computer screen. In text- or video-based communications, the ringing indication may be replaced with a message such as “server busy,” “unable to connect at this time,” or “waiting for response.”

FIG. 6 illustrates process 700. This embodiment allows the call manager 210 to confirm that a caller should not be blocked. If the caller identification information does not match a blocked caller in the caller database 244, at decision block 708, the call manager 210 will prompt the callee that a call has been made, at block 712, and confirm whether the callee wishes to block the call, at decision block 714. If so, a false ringing indication is sent to the caller, at block 710. If not, the call manager 210 will accept the call, at block 716.

FIG. 7 illustrates process 800. In this embodiment, the call manager 210 compares caller identification information with a list of acceptable callers in the caller database 244, at block 806. If the call manager 210 determines a match, at decision block 808, the call is accepted, at block 812. If not, the call manager 210 causes a false ringing indication to be sent to the caller, at block 810. Hence, in this embodiment, only calls that do not match a list of acceptable callers in the caller database are passively blocked.

FIG. 8 illustrates process 900. This embodiment allows the call manager 210 to confirm that a caller should not be accepted. If the caller identification information does not match a acceptable caller in the caller database 244, at decision block 908, the call manager 210 will cause the callee to be prompted that a call has been made, at block 912, and confirm whether the callee wishes to accept the call, at decision block 914. If so, the call manager 210 will accept the call, at block 910. If not, a false ringing indication is sent to the caller, at block 916.