

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
3 February 2005 (03.02.2005)

PCT

(10) International Publication Number
WO 2005/011241 A1

(51) International Patent Classification⁷: **H04M 3/436**,
3/533

(21) International Application Number:
PCT/IB2004/002414

(22) International Filing Date: 28 July 2004 (28.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/628,180 28 July 2003 (28.07.2003) US

(71) Applicant: **NORTEL NETWORKS LIMITED**
[CA/CA]; 2351 Boulevard Alfred-Nobel, St. Lau-
rent, Quebec H4S 2A9 (CA).

(72) Inventor: **CHRISTIE, Samuel, H., IV**; 309 Trappers Run
Drive, Cary, NC 27511 (US).

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

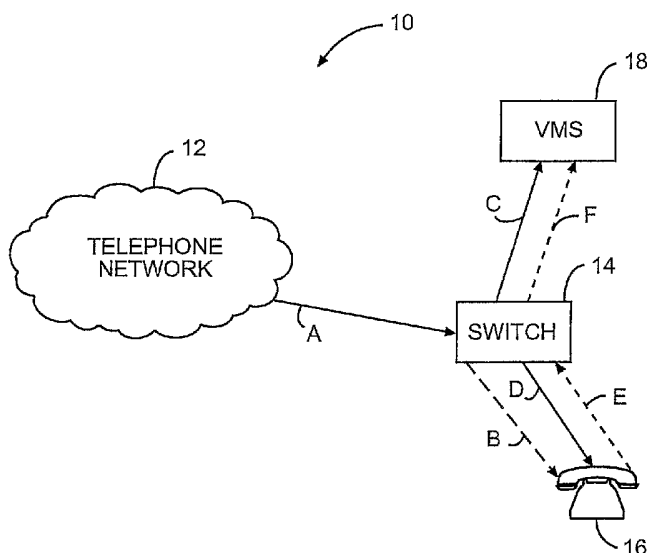
(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

[Continued on next page]

(54) Title: AUDIO CALL SCREENING FOR HOSTED VOICEMAIL SYSTEMS



(57) Abstract: The present invention allows a user to screen messages being left at a hosted voicemail system from a telephone terminal. Incoming calls intended for the telephone terminal are routed to the voicemail system immediately or after attempting to connect incoming call to the telephone terminal. As the caller is leaving a message at the voicemail system, a connection between the incoming call, voicemail system, and telephone terminal is established to allow the user to listen to the message and decide whether to take the call. The user may decide to take the call or let the caller finish leaving the message. In one embodiment, the telephone terminal is equipped to open only the speaker channel for monitoring the message and will provide a fully bi-directional connection if the user takes the call. The supporting switch and telephone terminal communicate with each other to facilitate the monitoring and taking of calls.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

AUDIO CALL SCREENING FOR HOSTED VOICEMAIL SYSTEMSField of the Invention

[0001] The present invention relates to telephony communications, and in particular to allowing a user to screen calls by listening to a voicemail message being left in a hosted voicemail system from a telephone device.

Background of the Invention

[0002] Telephone users with personal telephone answering devices can listen to callers leaving messages thereon, and during the call, decide to take the call. This highly desirable technique for screening calls is unavailable in hosted voicemail systems, because the voicemail system is a separate entity in the telephone network and is not directly associated with any individual's telephone device. In a hosted voicemail system, incoming calls that are not answered are forwarded to the voicemail system. Since many users, especially residential users, rely on the ability to screen calls, service providers with hosted voicemail systems are at a competitive disadvantage when trying to market hosted voicemail services to their subscribers. Accordingly, there is a need to provide call screening for users subscribing to hosted voicemail services.

Summary of the Invention

[0003] The present invention allows a user to screen messages being left at a hosted voicemail system from a telephone terminal. Incoming calls intended for the telephone terminal are routed to the hosted voicemail system immediately or after attempting to connect incoming call to the telephone terminal. As the caller is leaving a message at the hosted voicemail system, a connection between the incoming call, the hosted voicemail system, and the telephone terminal is established to allow the user to listen to the message and decide whether to take the call. The user may decide to take the call or let the caller finish leaving the message. In one embodiment, the telephone terminal is equipped to open only the speaker channel for monitoring the message and will provide a fully bi-directional connection using a microphone channel and the speaker channel if the user takes the call. Further, the

supporting switch and the telephone terminal may communicate with each other to facilitate the monitoring and taking of calls.

[0004] Those skilled in the art will appreciate the scope of the present invention and realize additional aspects thereof after reading the following
5 detailed description of the preferred embodiments in association with the accompanying drawing figures.

Brief Description of the Drawing Figures

[0005] The accompanying drawing figures incorporated in and forming a
10 part of this specification illustrate several aspects of the invention, and together with the description serve to explain the principles of the invention.

[0006] FIGURE 1 is a block representation of a communication environment according to the present invention.

[0007] FIGURE 2 illustrates an exemplary call flow according to a first
15 embodiment of the present invention.

[0008] FIGURE 3 illustrates an exemplary call flow according to a second embodiment of the present invention.

[0009] FIGURE 4 illustrates an exemplary call flow according to a third embodiment of the present invention.

20 [0010] FIGURE 5 illustrates an exemplary call flow according to a fourth embodiment of the present invention.

[0011] FIGURE 6 is a block representation of a voicemail system according to the present invention.

[0012] FIGURE 7 is a block representation of a telephone terminal
25 according to one embodiment of the present invention.

[0013] FIGURE 8 is a block representation of a telephony switch according to one embodiment of the present invention.

Detailed Description of the Preferred Embodiments

30 [0014] The embodiments set forth below represent the necessary information to enable those skilled in the art to practice the invention and illustrate the best mode of practicing the invention. Upon reading the following description in light of the accompanying drawing figures, those skilled in the art will understand the concepts of the invention and will

recognize applications of these concepts not particularly addressed herein. It should be understood that these concepts and applications fall within the scope of the disclosure and the accompanying claims.

[0015] The present invention provides for audio call screening for hosted voicemail systems. In essence, a user will subscribe to a hosted voicemail system, which is a voicemail system located remotely from her telephone terminal and generally supported or provided by her telephone service provider or other servicing entity. In these hosted voicemail systems, unanswered calls are directed to the hosted voicemail system, where messages for the user may be left. Unfortunately, the remote nature of the voicemail system does not allow the user to listen to the message being left and make a decision about whether to answer the call based thereon.

[0016] With reference to Figure 1, an exemplary communication environment 10 is shown centered about a telephone network 12, such as the Public Switched Telephone Networks (PSTN) or other wired or wireless telephony network, wherein a switch 14 supports a telephone terminal 16 through wired or wireless means. The switch 14 may be central to a central office exchange, private branch exchange, mobile switching center, or packet-based telephone system. A hosted voicemail system (VMS) 18 is shown in association with the telephone terminal 16 and is operatively coupled to the switch 14 directly or indirectly via the telephone network 12 in traditional fashion.

[0017] The following description highlights several embodiments wherein the user of the telephone terminal 16 can effectively screen incoming calls by listening to messages being left in the VMS 18 and have the option of answering the call while a voicemail message is being left by the caller in the VMS 18. A first embodiment is illustrated in Figure 2. Initially, an incoming call intended for the telephone terminal 16 is received by the switch 14 (step A), which takes the necessary steps to cause the telephone terminal 16 to ring (step B). If the call to the telephone terminal 16 is not answered after a select number of rings, the switch 14 will forward the call to the VMS 18 (step C). In this embodiment, the switch 14 will recognize that the user of the telephone terminal 16 has subscribed to a call screening service, and will create a conference or other appropriate connection to the telephone terminal

16, and send a message or signal to the telephone terminal 16 to open a speaker channel (step D). The conference connection effectively connects the caller, the VMS 18, and the telephone terminal 16, such that both the VMS 18 and the telephone terminal 16 receive any audio content provided by the caller. The speaker channel will effectively allow the telephone terminal 16 to provide any audio appearing on the connection to be presented at the telephone terminal speaker, such that the user may listen to the caller leaving a voicemail message.

5 [0018] If the user answers the telephone terminal 16 while the caller is leaving a voicemail message, the switch 14 will detect the telephone terminal 16 being answered through in-band or out-of-band signaling (step E), and send a message to the VMS 18 indicative of the call being answered by the user (step F). The message sent to the VMS 18 may be a Release message having a cause value that indicates why the Release message was sent. 15 Further, the Release message may provide additional information instructing the VMS 18 how to handle the voicemail message fragment that was recorded prior to the user answering the call. In the meantime, the caller and user may continue with the call over the conference connection with the telephone terminal 16. This embodiment is considered a passive call screening technique, because the user may screen the call without any 20 interaction with the telephone terminal 16.

[0019] Turning now to Figure 3, a second embodiment implementing passive call screening is illustrated. Initially, an incoming call intended for the telephone terminal 16 is received at the switch 14 (step A), which is 25 configured to forward all incoming calls directly to the VMS 18 (step B), without attempting to establish a connection to the telephone terminal 16. Upon answering the forwarded incoming call, the VMS 18 will initiate a call to the telephone terminal 16 (step C) and take the necessary steps to effectively connect the incoming call and the newly initiated call (step D). Such 30 connection may be any type of conferencing technique, which may include bridging the two calls in the VMS 18 or the switch 14, or instructing the switch 14 to establish a three-way call between the caller, VMS 18, and telephone terminal 16. During this period, the VMS 18 will answer the incoming call and take the necessary steps to prepare for recording a message from the caller.

[0020] The switch 14 will recognize that the call intended for the telephone terminal 16 is from the VMS 18, which is providing a call screening service, and instead of forwarding the call to the VMS 18 like all other incoming calls, will take the necessary steps to cause the telephone terminal 16 to ring (step E). The telephone terminal 16 will automatically answer calls after a set number of rings, and automatically open the speaker channel to allow the user to listen to a message being left by the caller on the VMS 18. If the user does not answer the telephone terminal 16, the VMS 18 will record the message in traditional fashion. If the user answers the telephone terminal 16, a signal or other message is directly or indirectly sent to the VMS 18 (step F) to alert the VMS 18 that the telephone terminal 16 has been answered. Further, the telephone terminal 16 will turn on any necessary microphones to allow full bi-directional communication. In one embodiment, the signal sent to the VMS 18 is an in-band signal generated by the telephone terminal 16 automatically in response to user interaction or an actual code entered by the user, wherein the code is recognized by the VMS 18 as a signal that the telephone terminal 16 has been answered. In response, the VMS 18 may stop recording, as well as communicate with the switch 14 to effectively transfer the call to a connection between the switch 14 and the telephone terminal 16 (step G). This avoids wasting resources of the VMS 18 by not connecting the call through the VMS 18 but directly through the switch 14. The caller and user will continue their call. In this embodiment, there is no need for the switch 14 and the telephone terminal 16 to have the ability to communicate with each other to trigger initiation of the speaker channel.

[0021] Alternatively, the switch 14 does not have to recognize that the call intended for the telephone terminal 16 is from the VMS 18. The telephone terminal 16 may be configured to recognize calls from the VMS 18, and automatically open the speaker channel upon receiving calls from the VMS 18. Further, the telephone terminal 16 will ignore incoming calls that are not from the VMS 18, and as such, the switch 14 will forward such incoming calls to the VMS 18. In this alternative embodiment, the VMS 18 may be configured to provide additional caller identification information pertaining to the originator of the incoming call, in addition to any identifying information for the VMS 18, such that the telephone terminal 16 can recognize the call from

the VMS 18 while providing caller identification information for the original caller.

[0022] With reference to Figure 4, an active call screening technique is illustrated, wherein a user must interact with the telephone terminal 16 prior to being able to listen to messages being left in the VMS 18. Initially, the switch 14 receives an incoming call intended for the telephone terminal 16 (step A) and attempts to connect the call to the telephone terminal 16 (step B). After a prescribed number of rings, the call is forwarded to the VMS 18 by the switch 14 (step C). At this point, the user will know that the incoming call is likely being forwarded to the VMS 18, which is concurrently taking the necessary steps to answer the forwarded call and record a voicemail message. If the user wishes to activate call screening in this embodiment, she will activate the telephone terminal 16 and, upon receipt of a dial tone, dial a service activation code (or feature code) such as *33 for call screening (step D). The switch 14 will recognize the service activation code as well as the telephone terminal 16 from which the code was received, and establish a conference between the call forwarded to the VMS 18 and the telephone terminal 16 in response to the service activation code being dialed. If the user decides to take the call based on listening to the message being left, a signal (in-band or out-of-band) is sent to the switch 14 (step E), which will release the connection for the forwarded call to the VMS 18. The switch 14 will also send a message, such as a cause value message, to the VMS 18 indicating why the connection was released (step F), and the VMS 18 can take the necessary steps to handle any message fragment left by the caller. Again, the message sent to the VMS 18 may provide instructions for handling the message fragment, or the VMS 18 may be configured to handle the message fragment in a defined manner without input from the switch 14. The caller and user will continue their call via the conference previously established by the switch 14 until the call is ended. Alternatively, the telephone terminal 16 may be configured to automatically dial the service activation code on behalf of the user upon receiving any indication that the user has decided to initiate call screening.

[0023] In yet another embodiment as illustrated in Figure 5, an incoming call intended for the telephone terminal 16 is received by the switch 14 (step A), which takes the necessary steps to ring the telephone terminal 16 (step

B). After a prescribed number of rings, the incoming call is forwarded to the VMS 18 by the switch 14 (step C). While the call is being answered by the VMS 18, the user may activate the telephone terminal 16, and upon receiving a dial tone, can dial a directory number to initiate call screening (step D). The directory number is a number assigned to the VMS 18. The switch 14 will receive the dialed number and initiate a call to the VMS 18 (step E). The VMS 18 will answer the user's call and recognize that it is currently answering the original incoming call intended for the user, as well as recognizing that the current call is being received from the user, preferably using associated caller ID information from the user and called party information for the original incoming call. In this circumstance, the VMS 18 will effect a conference between the original incoming call and the call from the user, directly or indirectly, within the VMS 18 or through the switch 14, such that a connection between the calls is effected (step F). During this time, it is preferred that the microphone of the telephone terminal 16 be turned off or otherwise muted, and the speaker channel be open, such that the user may listen to the message being left in the VMS 18. Alternatively, the telephone terminal 16 may be configured to automatically dial the directory number to initiate call screening upon receiving any indication that the user desires the same.

[0024] If the user decides to take the call, such as by providing an in-band or out-of-band signal such as a special activation code (step G), the VMS 18 will receive the signal and take the necessary steps to bridge the two calls internally or externally, preferably by instructing the switch 14 to provide the necessary connection in order to avoid wasting resources of the VMS 18 (step H). At this point, the VMS 18 will have dropped out of the respective calls if the VMS 18 is not providing the bridge, and will handle any message fragment as desired. The user and caller may then continue with their call.

[0025] With reference to Figure 6, a block representation of the VMS 18 is illustrated. In general, the VMS 18 will include a control system 20 associated with sufficient memory 22 to store the requisite software 24 to provide the functionality described above. The control system 20 will also be associated with one or more telephony interfaces 26 to provide voice and signaling between the telephone network 12, the switch 14, and any other necessary call processing or serving entities.

[0026] Figure 7 provides a block representation of a telephone terminal 16 according to one embodiment of the present invention. The telephone terminal 16 will preferably include a communication interface 28 capable of directly or indirectly establishing communications with the switch 14. The communication interface 28 is operably associated with a control system 30 having the requisite memory 32 and software 34 to facilitate operation as described above. The control system 30 will operate to control a microphone 36, speaker 40, keypad 42, and display 44 to effectively facilitate calls and allow any necessary user input to initiate calls, answer calls, or provide special feature activation codes as described. In select embodiments, the control system 30 will operate to activate the speaker 40 independently of the microphone 36, such that the user can listen to voicemail messages being left at the VMS 18 without concern for the caller hearing the user, since the microphone 36 is deactivated. If a call is taken, the microphone 36 is then activated to support bi-directional communications. The speaker channel is formed by any necessary electronics to provide information to the telephone terminal's connection to be amplified and provided to the user via the speaker 40. Those skilled in the art will recognize the various control techniques for providing the above-described functionality.

[0027] Turning now to Figure 8, a block representation of a switch 14 is illustrated. The switch 14 is represented generically and is intended to cover the logical functionality of land-based and mobile switching systems, packet-based or circuit-switched, which include all control for call server-based functions. These switches 14 may be implemented in a variety of ways using different equipment types, such as Nortel Networks Limited's DMS-100 local switching system. The switch 14 typically includes a switching fabric module 46, a computing module 48, including storage software 50, a subscriber/base station interface 52, a network interface 54, and an operations/administration and maintenance (OA & M) module 56. The switching fabric 46 may comprise logical and physical switches for interconnecting the subscriber/base station interface 52 with the remainder of the telephone network 12 or VMS 18 through the network interface 54. Depending on a land-based or wireless embodiment, the subscriber/base station interface 52 will either directly support subscribers through subscriber lines or will support

base stations, which facilitate wireless communications with mobile devices.

As illustrated, the computing module 48 controls circuit-switched communications via the switching fabric 46 and is capable of providing traditional intelligent network monitoring and functions. The functionality of

5 the switch 14 may be provided in various levels of integration. In select embodiments, the software 50 of the computing module 48 is modified to facilitate the above-described functionality, by cooperating directly or indirectly with the telephone terminal 16 and VMS 18.

[0028] From the above, the present invention allows a user to effectively
10 screen calls when using a hosted voicemail system, and accept those calls as desired. The various embodiments provide viable alternatives depending on the desires of the service provider and willingness of the user to participate in or initiate call screening. Those skilled in the art will recognize the applicability of the present invention to both circuit-switched and packet-based
15 telephone systems, in both wired and wireless environments.

[0029] Those skilled in the art will recognize improvements and modifications to the preferred embodiments of the present invention. All such improvements and modifications are considered within the scope of the concepts disclosed herein and the claims that follow.

Claims

What is claimed is:

- 5 1. A method for allowing call screening in a hosted voicemail system environment comprising:
 - a) directing a call to a hosted voicemail system, which serves as a voicemail system for a telephone terminal; and
 - b) allowing the telephone terminal to monitor a message being left in the hosted voicemail system.
- 10 2. The method of claim 1 further comprising allowing a user of the telephone terminal to take the call while the message is being left in the hosted voicemail system.
- 15 3. The method of claim 2 wherein the call is directed to the hosted voicemail system by a telephony switch supporting the telephone terminal after a select number of rings and further comprising:
 - a) establishing a first connection to connect the call to the hosted voicemail system;
 - 20 b) establishing a second connection with the telephone terminal; and
 - c) connecting the first and second connections.
- 25 4. The method of claim 3 further comprising sending a first signal to the telephone terminal to open a speaker channel.
5. The method of claim 4 further comprising receiving a second signal from the telephone terminal indicative of the user taking the call.
- 30 6. The method of claim 5 further comprising sending a third signal to the hosted voicemail system indicative of the user taking the call.
7. The method of claim 2 further comprising:
 - a) forwarding incoming calls, including the call, from callers to the hosted voicemail system;

- b) establishing a second call from the hosted voicemail system to the telephone terminal upon the hosted voicemail system receiving the call; and
- c) connecting the call and the second call,
- 5 wherein the telephone terminal will open a speaker channel upon receiving the second call to allow monitoring of the message.
8. The method of claim 7 further comprising receiving a signal at the hosted voicemail system indicating the user is taking the call.
- 10 9. The method of claim 8 further comprising effecting transfer of the call to the telephone terminal upon receiving the signal.
- 15 10. The method of claim 7 wherein the hosted voicemail system provides caller identification information related to the call with the second call.
11. The method of claim 2 further comprising:
- a) attempting to connect the call to the telephone terminal prior to directing the call to the hosted voicemail system;
- 20 b) receiving a feature code from the telephone terminal; and
- c) establishing a connection between the call, the hosted voicemail system, and the telephone terminal to allow monitoring of the message via a speaker channel.
- 25 12. The method of claim 11 further comprising receiving a signal from the telephone terminal indicating the user is taking the call and establishing a connection to the telephone terminal to facilitate the call.
13. The method of claim 2 further comprising:
- 30 a) attempting to connect the call to the telephone terminal prior to directing the call to the hosted voicemail system;
- b) establishing a second call from the telephone terminal to the voicemail system; and

- c) establishing a connection between the call and the second call to allow monitoring of the message via a speaker channel.

5 14. The method of claim 13 further comprising receiving a signal from the telephone terminal indicating the user is taking the call and establishing a connection to the telephone terminal to facilitate the call.

10 15. The method of claim 1 wherein the telephone terminal is adapted to automatically open a speaker channel for call screening.

16. The method of claim 1 further comprising sending a message to the hosted voicemail system to control processing of fragments of the messages resulting from call screening.

15 17. A system for allowing call screening in a hosted voicemail system environment comprising:

- a) means for directing a call to a hosted voicemail system, which serves as a voicemail system for a telephone terminal; and
- b) means for allowing the telephone terminal to monitor a message
20 being left in the hosted voicemail system.

25 18. The system of claim 17 further comprising means for allowing a user of the telephone terminal to take the call while the message is being left in the hosted voicemail system.

30 19. The system of claim 18 wherein the call is directed to the hosted voicemail system by a telephony switch supporting the telephone terminal after a select number of rings and further comprising:

- a) means for establishing a first connection to connect the call to the hosted voicemail system;
- b) means for establishing a second connection with the telephone terminal; and
- c) means for connecting the first and second connections.

20. The system of claim 19 further comprising means for sending a first signal to the telephone terminal to open a speaker channel.
21. The system of claim 20 further comprising means for receiving a
5 second signal from the telephone terminal indicative of the user taking the call.
22. The system of claim 21 further comprising means for sending a third
10 signal to the hosted voicemail system indicative of the user taking the call.
23. The system of claim 18 further comprising:
- a) means for forwarding incoming calls, including the call, from
callers to the hosted voicemail system;
 - 15 b) means for establishing a second call from the hosted voicemail system to the telephone terminal upon the hosted voicemail system receiving the call; and
 - c) means for connecting the call and the second call,
wherein the telephone terminal will open a speaker channel upon
20 receiving the second call to allow monitoring of the message.
24. The system of claim 23 further comprising means for receiving a signal at the hosted voicemail system indicating the user is taking the call.
25. The system of claim 24 further comprising means for effecting transfer
25 of the call to the telephone terminal upon receiving the signal.
26. The system of claim 23 further comprising means for the hosted
voicemail system to provide caller identification information related to
30 the call with the second call.
27. The system of claim 18 further comprising:
- a) means for attempting to connect the call to the telephone terminal
prior to directing the call to the hosted voicemail system;

- b) means for receiving a feature code from the telephone terminal;
and
c) means for establishing a connection between the call, the hosted voicemail system, and the telephone terminal to allow monitoring of the message via a speaker channel.
- 5
28. The system of claim 27 further comprising receiving a signal from the telephone terminal indicating the user is taking the call and means for establishing a connection to the telephone terminal to facilitate the call.
- 10
29. The system of claim 18 further comprising:
- a) means for attempting to connect the call to the telephone terminal prior to directing the call to the hosted voicemail system;
- b) means for establishing a second call from the telephone terminal to the voicemail system; and
- 15
- c) means for establishing a connection between the call and the second call to allow monitoring of the message via a speaker channel.
- 20
30. The system of claim 29 further comprising means for receiving a signal from the telephone terminal indicating the user is taking the call and means for establishing a connection to the telephone terminal to facilitate the call.
- 25
31. The system of claim 17 further wherein the telephone terminal connected to the system is adapted to automatically open a speaker channel for call screening.
32. The system of claim 17 further comprising means for sending a message to the hosted voicemail system to control processing of fragments of the messages resulting from call screening.
- 30

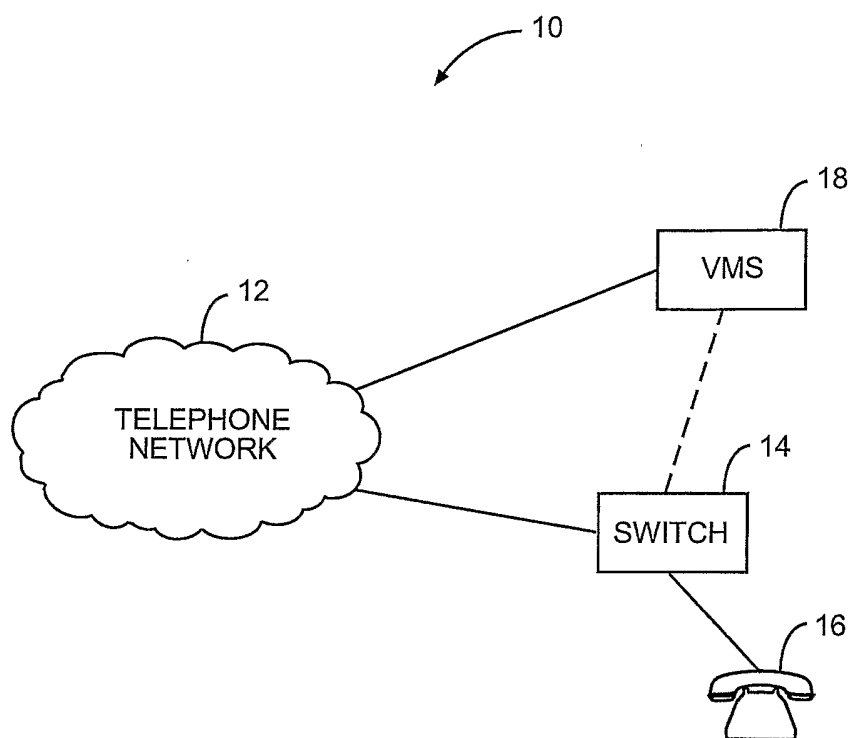


FIG. 1

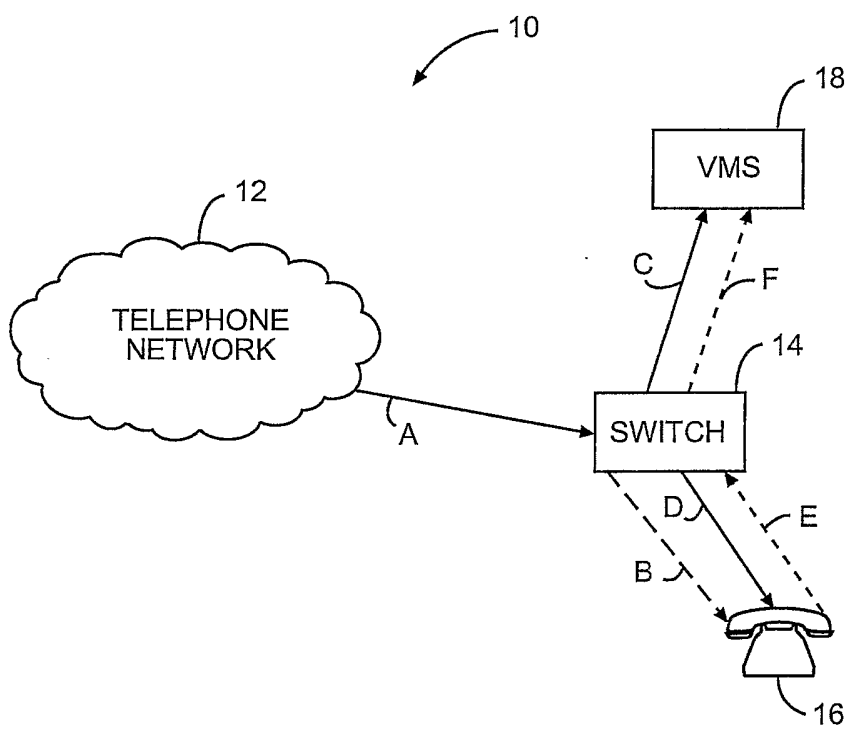


FIG. 2

3/8

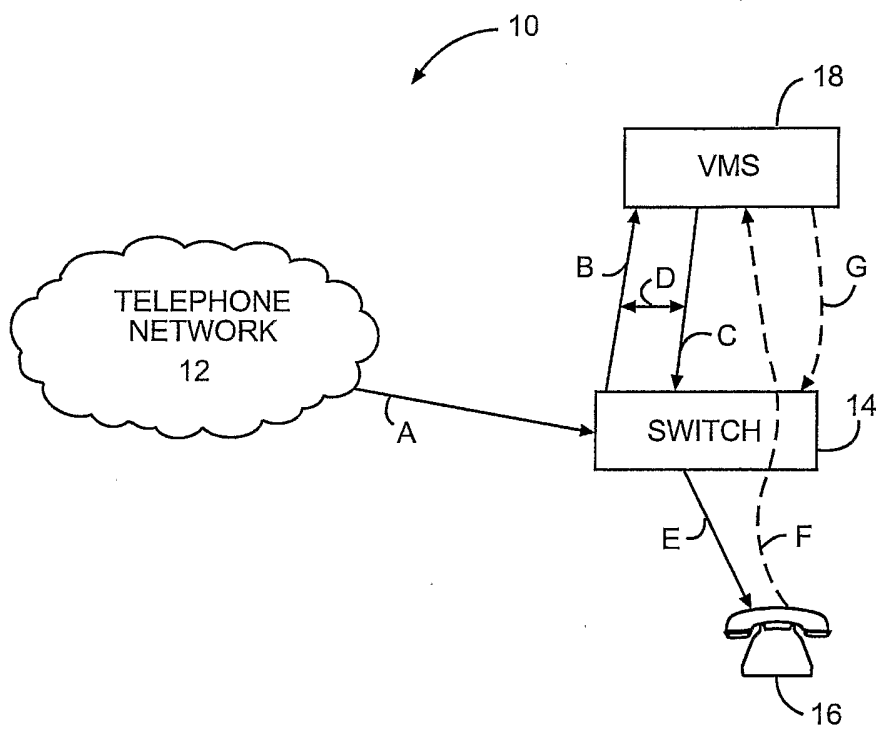


FIG. 3

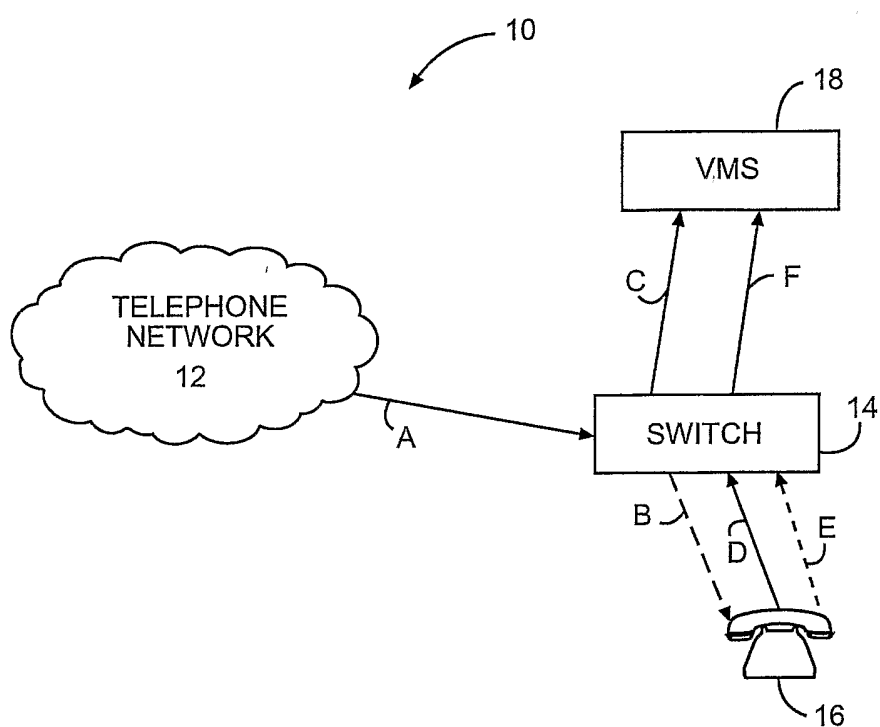


FIG. 4

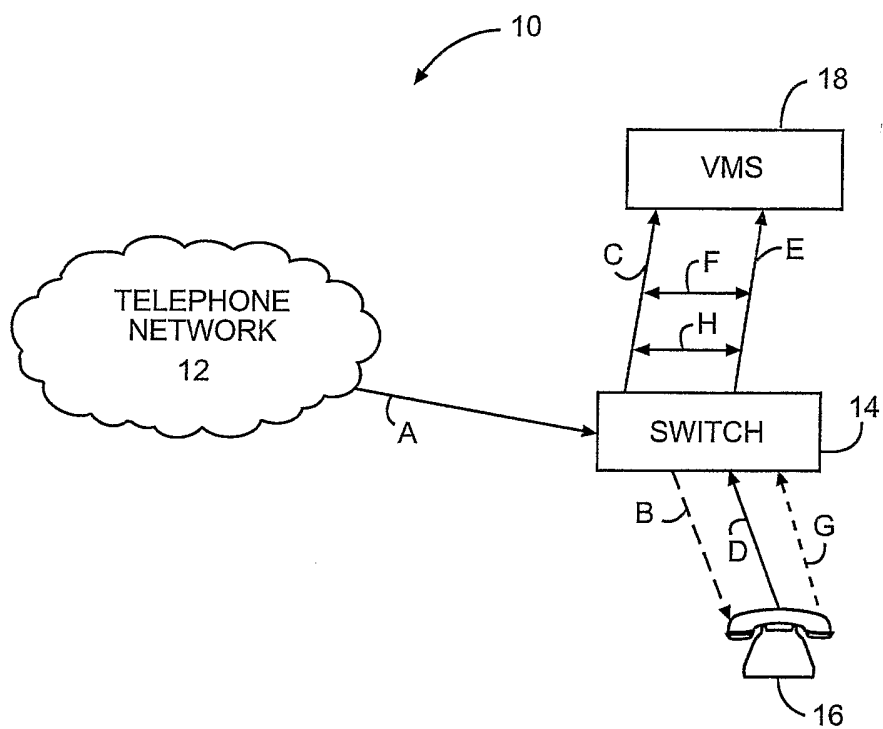


FIG. 5

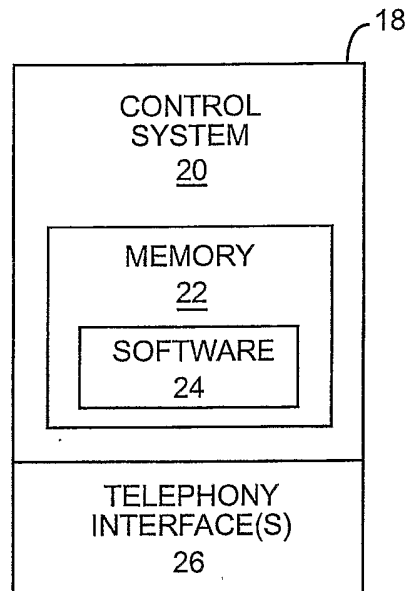


FIG. 6

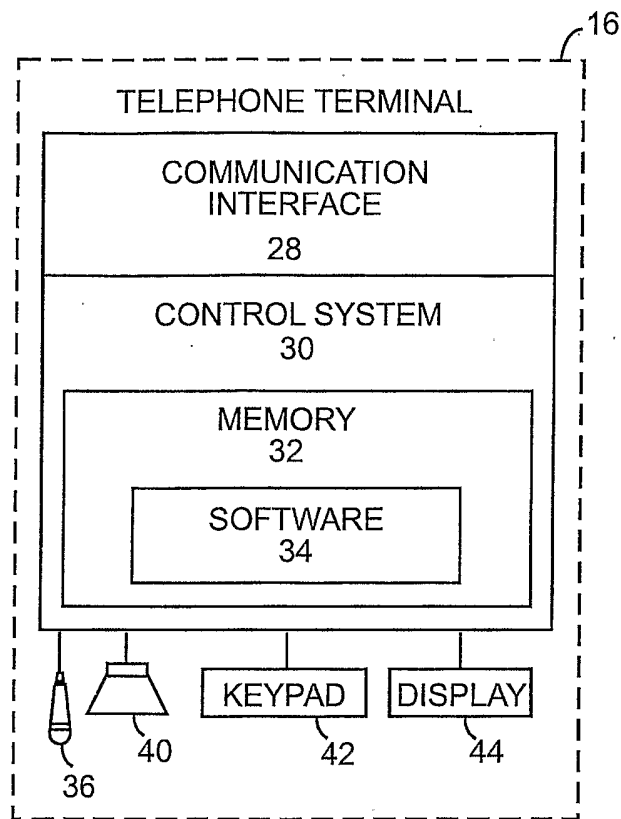


FIG. 7

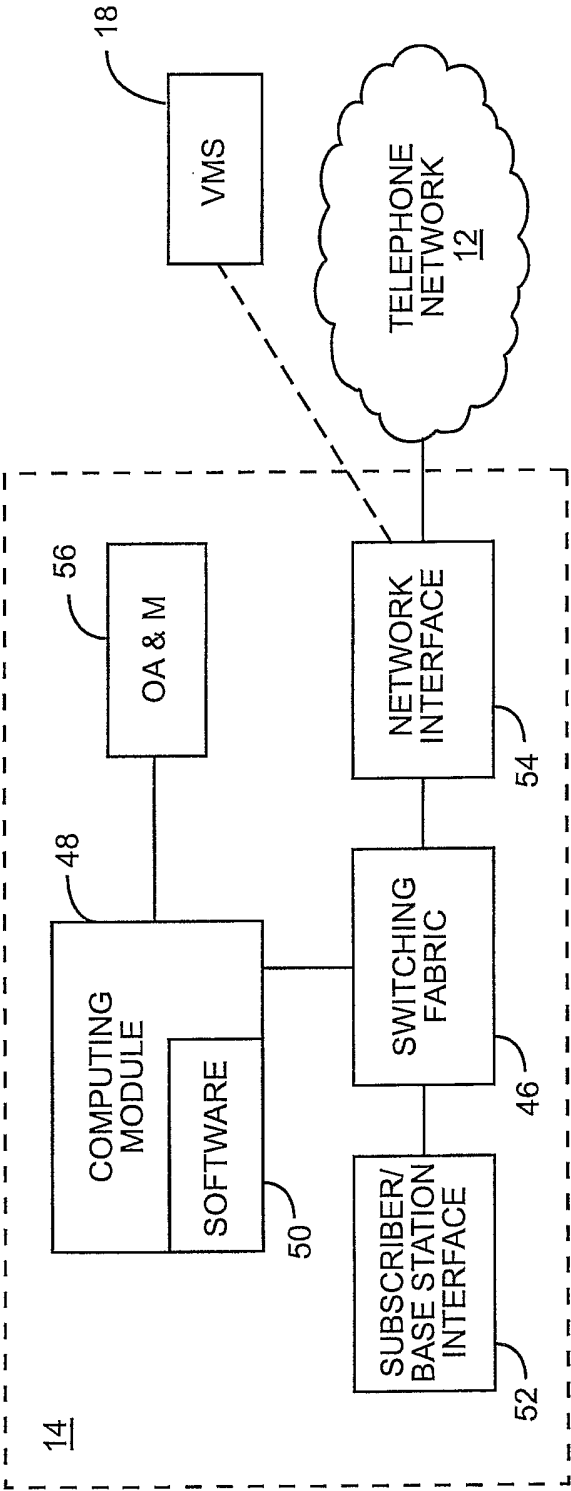


FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2004/002414

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04M 3/436
H04M 3/533

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 H04M 3 (all subclasses; using keywords)

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

Electronic data base consulted during the international search (name of data base, and, where practicable, search terms used)
Delphion (keywords and classification) : call screening, voicemail, audio, vms, message, monitor
Canadian Patent Database (keywords and classification)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,529,587 (CANNON, J. M. et al.) 04-March-2003 col 1, line 50 - line 63 col 2, line 35 - col 3, line 9 col 3, line 49 - col 4, line 31 abstract	1-15, 17-31
Y	col 2, line 35 - col 3, line 9	16, 32
X	US 6,389,293 (CLORES, S. J. et al) 14-May-2002 col 4, line 4 - line 62 col 5, line 36 - line 40	1, 3, 4, 17, 19, 20 2, 18
Y	col 4, line 4 - col 5, line 41	5-15, 21-31
Y	WO 02 32091 A2 (WILSON, J.) 18-April-2002 page 4, line 5 - line 18 page 5, line 10 - line 26 page 7, line 10 - line 16	1-3, 17-19 16, 32

Further documents are listed in the continuation of Box C. X

Patent family members are listed in annex. X

* Special categories of cited documents :	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international-type search
22 November 2004 (22-11-2004)Date of mailing of the international-type search report
17 December 2004 (17-12-2004)Name and mailing address of the ISA/
Commissioner of Patents
Canadian Patent Office - PCT
Ottawa/Gatineau K1A 0C9
Facsimile No. 1-819-953-9358Authorized officer
Kristy Head (819) 934-2673

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2004/002414

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	US 6,639,972 (CANNON, J. M. et al) 28-October-2003 col 2, line 55 - line 65 col 3, line 29 - line 65 abstract	1-3, 7-12, 17-29, 23-28
A	US 6,310,939 (VARNEY, D. W. et al.) 30-October-2001 entire document	1-32

INTERNATIONAL SEARCH REPORTInternational application No.
PCT/IB2004/002414**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons :

1. ☐ Claims Nos. :
 because they relate to subject matter not required to be searched by this Authority; namely:

2. ☐ Claims Nos.:
 because they relate to parts of the international application that do not comply with the prescribed requirements to such
 an extent that no meaningful international search can be carried out, specifically :

3. ☐ Claims Nos. :
 because they are dependant claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observation where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows :

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all
 searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite
 payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report
 covers only those claims for which fees were paid, specifically claims Nos. :

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is
 restricted to the invention first mentioned in the claims; it is covered by claims Nos. :

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IB2004/002414

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
US6529587	04-03-2003	US6529587 B1	04-03-2003
US6389293	14-05-2002	AU5928201 A US6389293 B1 WO0186916 A2	20-11-2001 14-05-2002 15-11-2001
WO0232091	18-04-2002	AU9213601 A EP1325607 A2 GB0024730D D0 US2004043757 A1 WO0232091 A2	22-04-2002 09-07-2003 22-11-2000 04-03-2004 18-04-2002
US6639972	28-10-2003	US6639972 B1	28-10-2003
US6310939	30-10-2001	CA2273445 A1 EP0981240 A2 JP2000092214 A US6310939 B1	14-02-2000 23-02-2000 31-03-2000 30-10-2001