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(54) **PORTABLE VOIP SERVICE ACCESS MODULE**

(75) Inventors: **Robb Barkley**, Marietta, GA (US); **Mark Baker**, Alpharetta, GA (US)

Correspondence Address:
SMITH HOPEN, PA
180 PINE AVENUE NORTH
OLDSMAR, FL 34677 (US)

(73) Assignee: **i2TELECOM INTERNATIONAL, INC.**, Roswell, GA (US)

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(57) **ABSTRACT**

A voice over IP (V0IP) softphone access module (VSAM) comprises a softphone client installed on a portable memory device (PMD). The softphone client is installed in its own read-only partition. The softphone client is adapted to auto-run from the PMD when the PMD is connected to a computing device and to load an instance of the softphone client in the volatile memory of the computing device. When used with a computing device comprising a duplex audio system with analog-to-digital conversion and an Internet connection, the VSAM permits a VoIP service subscriber to send and receive VoIP telephone calls through a VoIP service provider gateway. The VSAM may be associated with an activation code that when sent to the VoIP service provider gateway associates a user with pro-paid softphone usage credits. Alternatively, the softphone client is installed on CD.

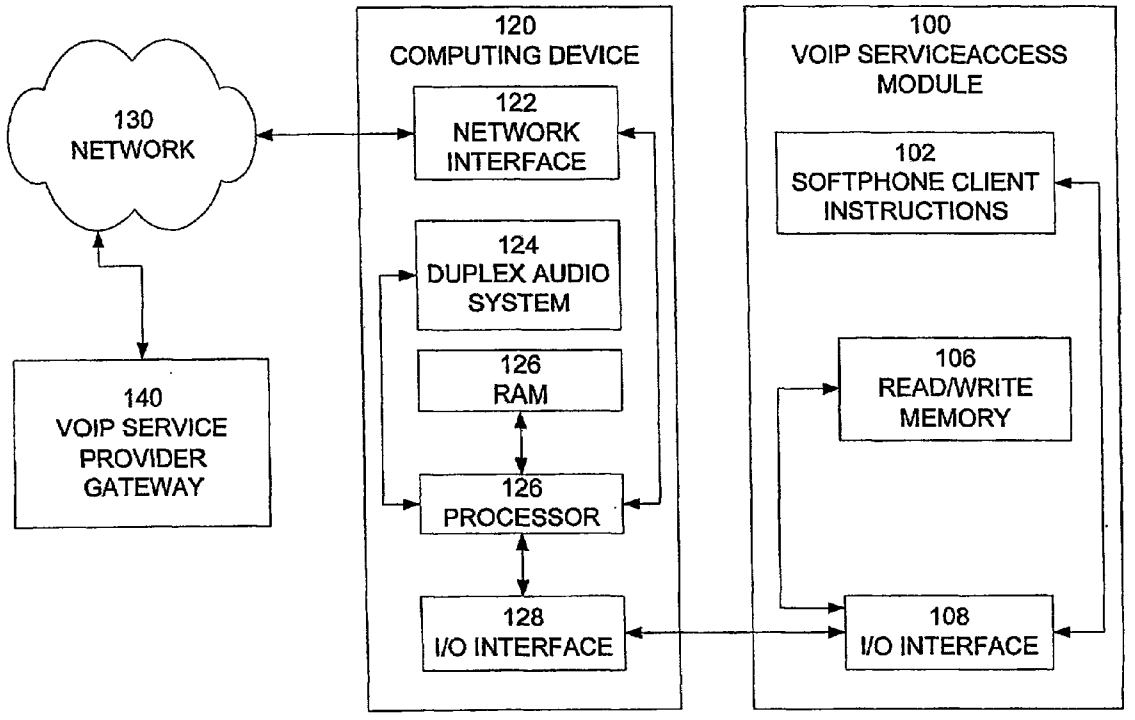
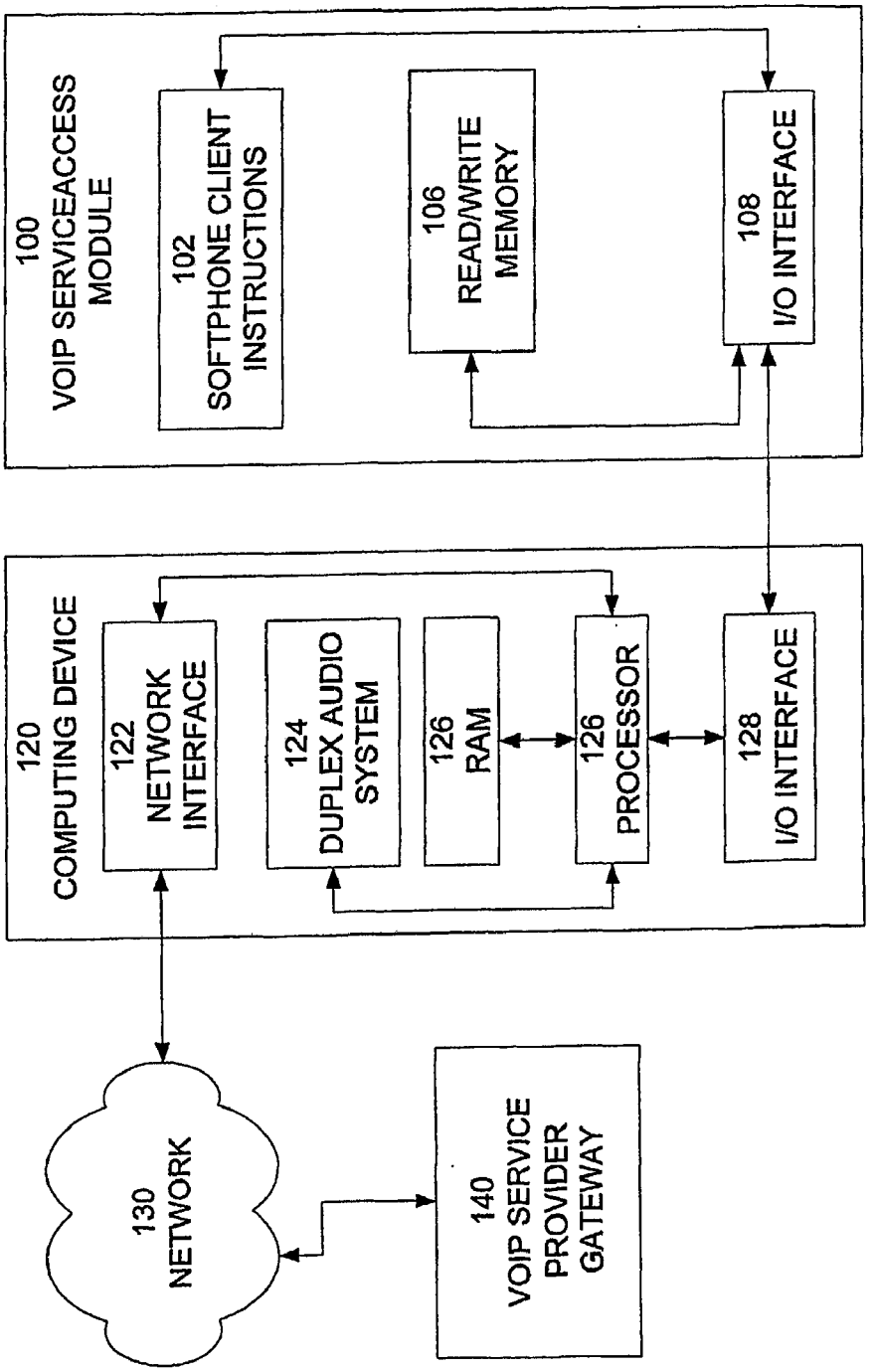


FIGURE 1


100
VOIP SERVICEACCESS
MODULE
102
SOFTPHONE CLIENT
INSTRUCTIONS
106
READ/WRITE
MEMORY
108
I/O INTERFACE
120
COMPUTING DEVICE
122
NETWORK
INTERFACE
124
DUPLEX AUDIO
SYSTEM
126
RAM
126
PROCESSOR
128
I/O INTERFACE
130
NETWORK
140
VOIP SERVICE
PROVIDER
GATEWAY

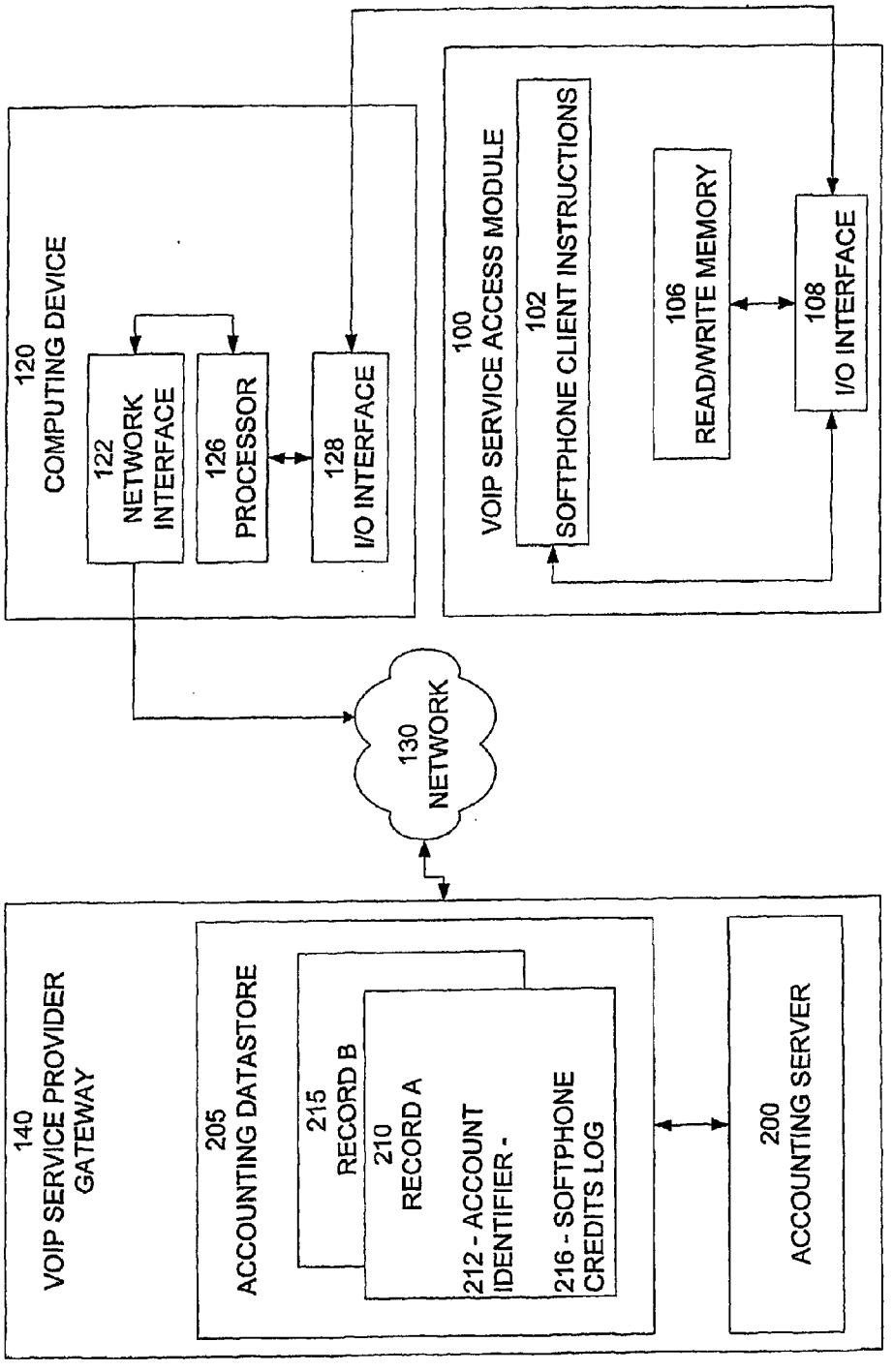

120
COMPUTING DEVICE
122
NETWORK
INTERFACE
126
PROCESSOR
128
I/O INTERFACE
100
VOIP SERVICE ACCESS MODULE
102
SOFTPHONE CLIENT INSTRUCTIONS
106
READ/WRITE MEMORY
108
I/O INTERFACE
130
NETWORK
140
VOIP SERVICE PROVIDER
GATEWAY
205
ACCOUNTING DATASTORE
215
RECORD B
210
RECORD A
212 - ACCOUNT
IDENTIFIER -
216 - SOFTPHONE
CREDITS LOG
200
ACCOUNTING SERVER

FIGURE 2

FIGURE 3A

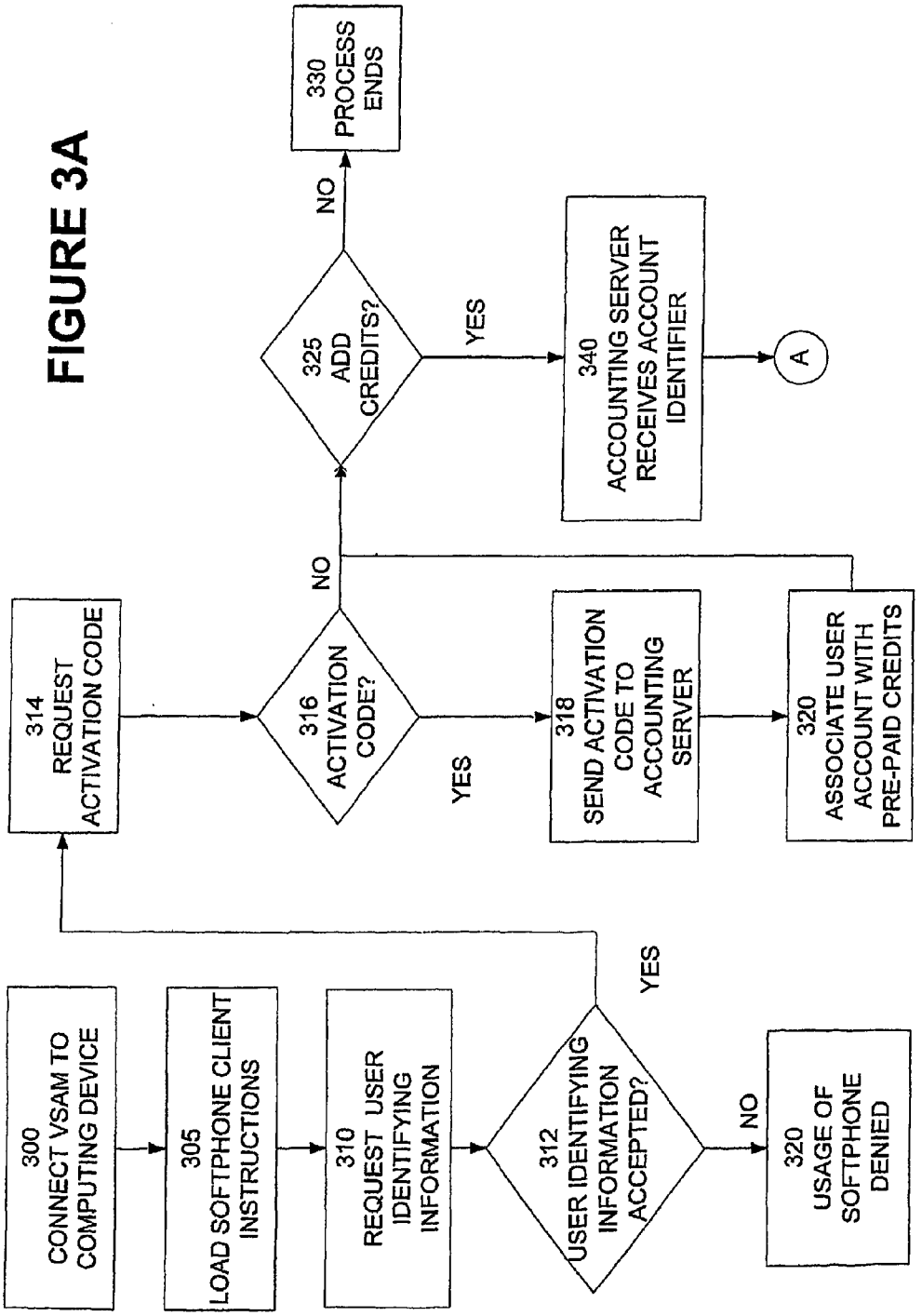

300
CONNECT VSAM TO COMPUTING DEVICE
305
LOAD SOFTPHONE CLIENT INSTRUCTIONS
310
REQUEST USER IDENTIFYING INFORMATION
312
USER IDENTIFYING INFORMATION ACCEPTED?
NO
320
USAGE OF SOFTPHONE DENIED
YES
314
REQUEST ACTIVATION CODE
316
ACTIVATION CODE?
NO
YES
318
SEND ACTIVATION CODE TO ACCOUNTING SERVER
320
ASSOCIATE USER ACCOUNT WITH PRE-PAID CREDITS
325
ADD CREDITS?
NO
330
PROCESS ENDS
YES
340
ACCOUNTING SERVER RECEIVES ACCOUNT IDENTIFIER
A

FIGURE 3B

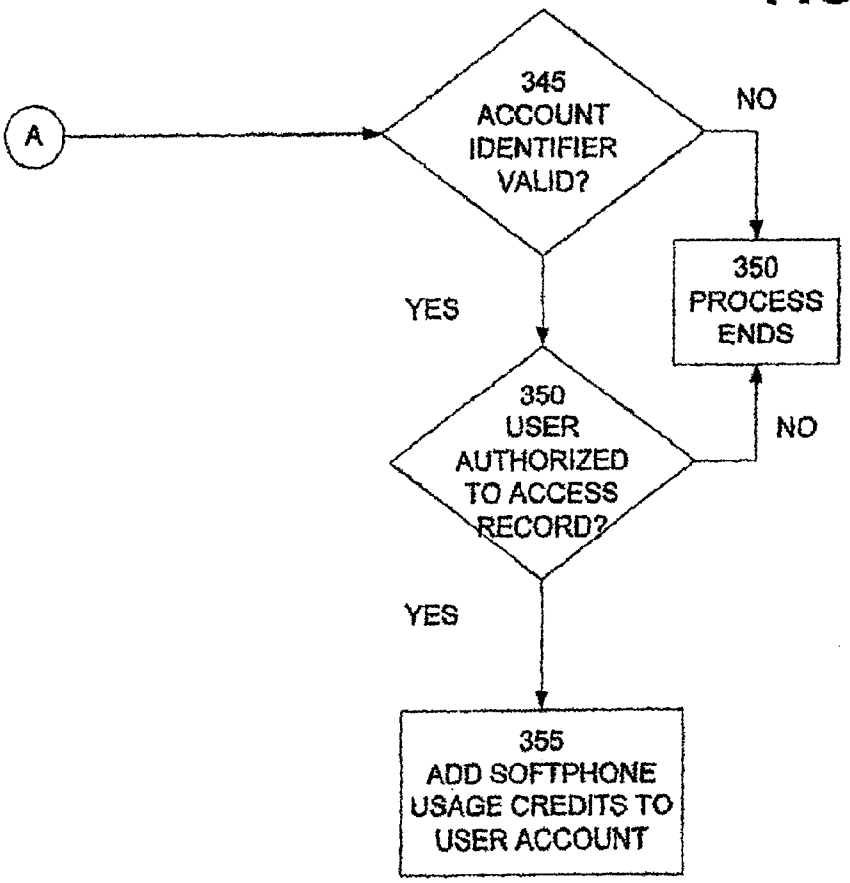

A
345
ACCOUNT
IDENTIFIER
VALID?
NO
YES
350
PROCESS
ENDS
350
USER
AUTHORIZED
TO ACCESS
RECORD?
NO
YES
355
ADD SOFTPHONE
USAGE CREDITS TO
USER ACCOUNT

FIGURE 4

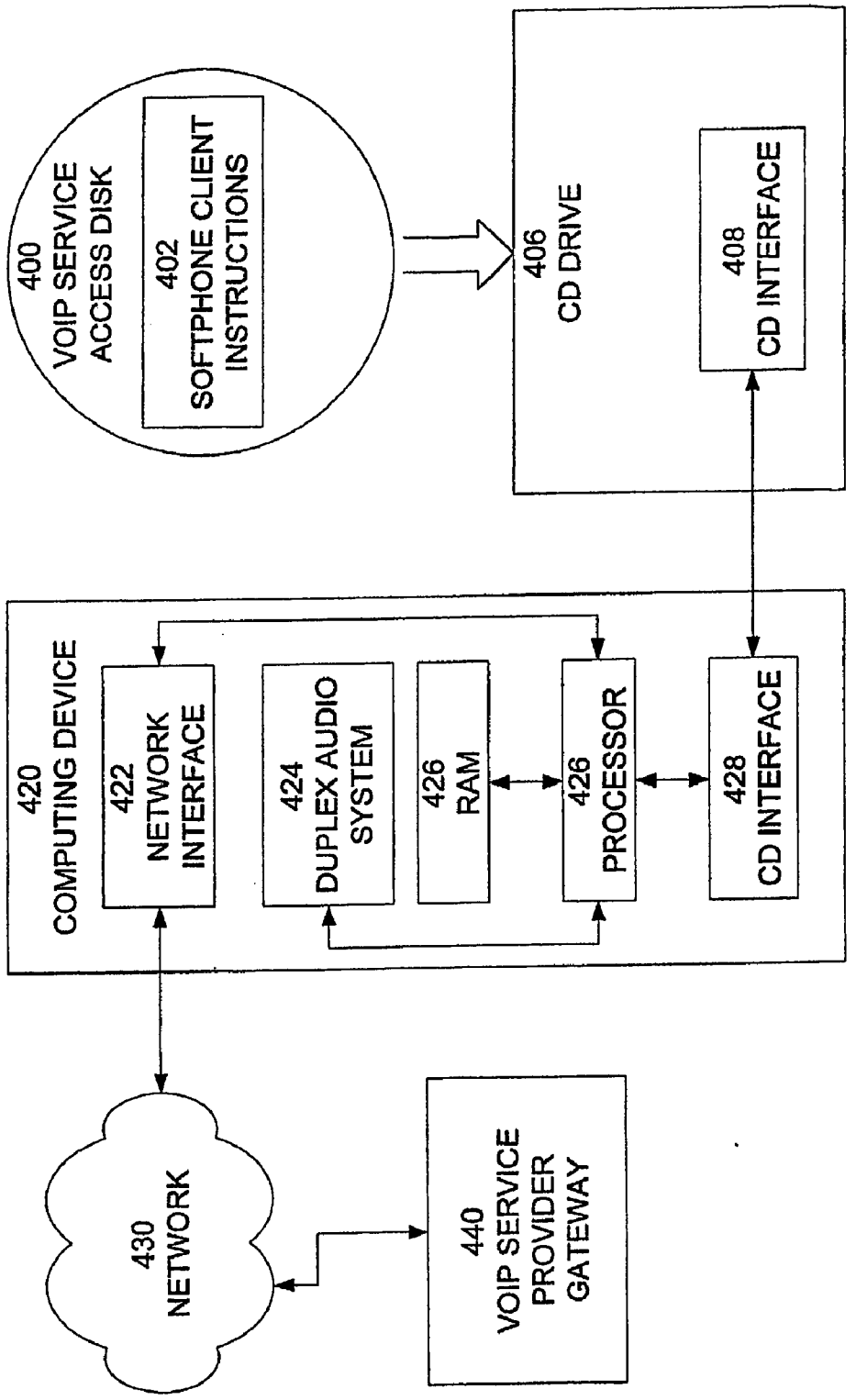
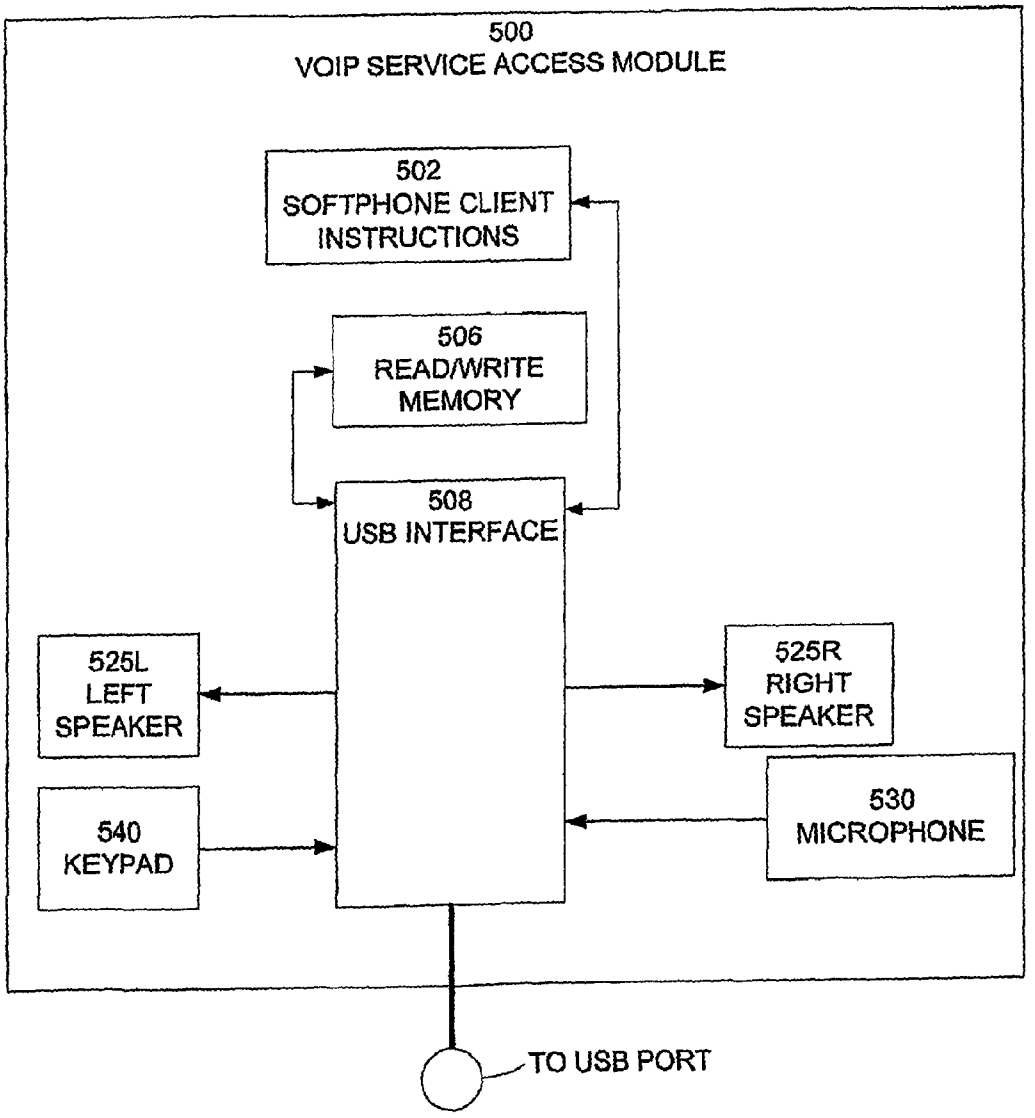

400
VOIP SERVICE
ACCESS DISK
402
SOFTPHONE CLIENT
INSTRUCTIONS
406
CD DRIVE
408
CD INTERFACE
420
COMPUTING DEVICE
422
NETWORK
INTERFACE
424
DUPLEX AUDIO
SYSTEM
426
RAM
426
PROCESSOR
428
CD INTERFACE
430
NETWORK
440
VOIP SERVICE
PROVIDER
GATEWAY

FIGURE 5


500
VOIP SERVICE ACCESS MODULE
502
SOFTPHONE CLIENT INSTRUCTIONS
506
READ/WRITE MEMORY
508
USB INTERFACE
525L
LEFT SPEAKER
525R
RIGHT SPEAKER
540
KEYPAD
530
MICROPHONE
TO USB PORT

PORTABLE VOIP SERVICE ACCESS MODULE

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of International Application No. PCT/US 2005/037790 entitled, filed Oct. 20, 2005, which is a continuation in part of application Ser. No. 10/972,726, flied Oct. 25, 2004, which is a continuation in part of application Ser. No. 10/969,516 filed Oct. 20, 2004. The 10/969,516 and the 10/972,726 applications are incorporated herein in their entirety for all purposes.

BACKGROUND OF THE INVENTION

[0002] Embodiments of the present invention are generally directed to enabling digital telephony and more particularly to systems and methods for providing digital telephone services via a portable media.

[0003] Packet switched networks (PSNs), most notably the Internet, have become increasingly accessible on a worldwide scale. Digital telephony service offers the promise of relatively inexpensive and feature-rich telephone service to users of PSNs.

[0004] One form of digital telephony, voice over Internet protocol or "VoIP," has attracted significant market attention. A typical VoIP environment comprises a telephone that is connected to an analog-to-digital converter (ADC). The ADC converts analog voice signal from a plain old telephone (POT) phone and converts it into a compressed audio data stream. The ADC may be a standalone device that is connected to a computing device (e.g., a desktop computer, a laptop computer, or a personal digital assistant) or a component of a computing device (e.g., a sound card).

[0005] The computing device runs a software client (sometimes referred to as a "soft-phone client"). The soft-phone client presents the user a graphical interface that provides access to various telephone functions, for example, dialing, answering machine, call log, and number directory. The soft-phone client generates telephone-signaling information and converts the signaling information and compressed audio stream into packets. The soft-phone client may also use the sound card of the computer to provide two-way voice communication thereby dispensing with the need for the POT.

[0006] The softphone clients typically use the session initiation protocol (SIP) to establish call "sessions." The softphone client also comprises one more audio compression codecs. Having more codecs allows the audio compression scheme to optimally utilize the network bandwidth.

[0007] What would be useful is a portable digital telephone softphone access module that may be operated from a computing device without significant reconfiguration of the operating system of the computing device.

SUMMARY OF THE INVENTION

[0008] In an embodiment of the present invention, a digital telephony softphone access module comprises a softphone client installed on a portable memory device (PMD). The softphone client is installed in its own read-only partition. The softphone client is adapted to autorun from the PMD when the PMD is connected to a computing device and to load an instance of the softphone client in the volatile memory of the computing device. Use of the VSAM is protected by a login process that is known in the art.

[0009] In an exemplary embodiment of the present invention, the digital telephony service is a VoIP service and the digital telephony softphone access module is a VoIP softphone access module (VSAM). When used with a computing device comprising a duplex audio system with analog-to-digital conversion and an Internet connection, the VSAM permits a VoIP service subscriber to send and receive VoIP telephone calls.

[0010] While embodiments of the present invention will be described in terms of a VoIP service, the present invention is not so limited. As will be appreciated by those skilled in the art, a softphone access module used in conjunction with other digital telephony services provided over a packet network are within the scope of the present invention.

[0011] In an embodiment of the present invention, the PMD further comprises read/write memory that is accessible to the computing device. In this embodiment, the read/write memory comprises a telephone directory file and user preference information file. When the softphone client is loaded, the VSAM locates the files and loads the directory and user preference information into the volatile memory of the computing device.

[0012] In an alternate embodiment of the present invention, softphone client resides on a CD. The softphone client is installed in a closed session. The softphone client is adapted to autorun from the CD ROM when the CD is inserted in an appropriate reader and to load an instance of the softphone client in the volatile memory of the computing device. In yet another embodiment of the present invention the softphone client resides on a mini-disk (MD).

[0013] It is therefore an aspect of the present invention to provide a VoIP service subscriber with a portable VSAM that may be operated from different computing devices.

It is another aspect of the present invention to load a softphone client from a portable VSAM into the volatile memory of a computing device when the VSAM is connected to the computing device.

[0014] It is still another aspect of the present invention to unload the softphone client if the portable VSAM is disconnected from the computing device.

[0015] It is another aspect of the present invention to account for usage of the softphone from a central location.

[0016] It is an aspect of the present invention to provide a VoIP subscriber a VSAM comprising pre-paid softphone usage credits.

[0017] It is still another aspect of the present invention to allow a subscriber using a VSAM with pre-paid softphone usage to add additional softphone usage credits to the VSAM.

[0018] It is yet another aspect of the present invention to permit a subscriber to add additional softphone usage credits to a VSAM from a home computer and a retailer computer.

[0019] It is another aspect of the present invention to permit a subscriber to add additional softphone usage credits to a VSAM from a telephone.

[0020] It is an aspect of the present invention to integrate a VSAM with a USB headset.

[0021] It is yet another aspect of the present invention to integrate a keypad with a USB headset for mouse-free dialing.

[0022] These and other aspects of the present invention will become apparent from a review of the general and detailed descriptions that follow.

[0023] In an embodiment of the present invention, a VSAM comprises a portable memory device and a softphone client. The portable memory device comprises a read-only memory partition and is adapted to operate when installed in a computing device comprising a duplex audio system. By way of illustration and not as a limitation, the computing device may be a desktop computer, a laptop computer and a personal data assistant.

[0024] The softphone client is stored in the read-only memory partition of the portable memory device and comprises instructions for auto-running the softphone client upon detection of the portable memory device by the computing device, and performing the functions of a plain old telephone.

[0025] In another embodiment of the present invention, the portable memory device further comprises read/write memory. In this embodiment, the computer instructions further comprise instructions for reading and writing a telephone directory file to the read/write memory, reading and writing a user preference file to the read/write memory, and recording a telephone conversation and saving the recording as a file in the read/write memory.

[0026] In yet another embodiment of the present invention, a VoIP provisioning system comprises a network, a VoIP service provider gateway connected to the network and comprising a user record, and a VSAM. The VSAM comprises a portable memory device. The portable memory device comprises a read-only memory partition and is adapted to operate when installed in a computing device comprising a duplex audio system. By way of illustration and not as a limitation, the computing device maybe a desktop computer, a laptop computer and a personal data assistant. The portable memory device comprises a read-only memory partition, and wherein the portable memory device is adapted to operate when installed in a computing device comprising a duplex audio system. The user record comprises softphone usages credits indicative of minutes of use of the softphone client. In one embodiment of the present invention, the softphone usage credits are pre-assigned to a purchaser of a VSAM. In another embodiment of the present invention, the softphone further comprises instructions for communicating with VoIP service provider gateway to add softphone usage credits to the user record.

[0027] A softphone client is stored in the read-only memory partition. The softphone client comprises instructions for auto-running the softphone client upon detection of the portable memory device by the computing device, performing the functions of a plain old telephone, and communicating with the VoIP service provider gateway to initiate and receive telephone calls over the network. In an embodiment of the present invention, the telephone call terminates with a VoIP service subscriber. In another embodiment of the present invention, the telephone call terminates with a public switched network subscriber.

[0028] In another embodiment of the present invention, the portable memory device further comprises read/write memory. In this embodiment, the computer instructions further comprise instructions for reading and writing a telephone directory file to the read/write memory, reading and writing a user preference file to the read/write memory, and recording a telephone conversation and saving the recording as a file in the read/write memory.

BRIEF DESCRIPTION OF DRAWINGS

[0029] FIG. **1** illustrates a block diagram of the components of a VoIP service access module (VSAM) according to embodiments of the present invention.

[0030] FIG. **2** illustrates a block diagram of a process for associating VoIP service access credits with a VSAM **100** according to embodiments of the present invention.

[0031] FIGS. **3**A and **3**B illustrate the flow of a process in which a VSAM acquires softphone usage credits according to embodiments of the present invention.

[0032] FIG. **4** illustrates a block diagram of the components of a VoIP service access disk (VSAD) according to embodiments of the present invention.

[0033] FIG. **5** illustrates a block diagram of a VoIP service activation module integrated with a USB-compliant headset and keypad according to an embodiment of the present invention.

DETAILED DESCRIPTION

[0034] In an embodiment of the present invention, a VoIP softphone access module (VSAM) comprises a softphone client installed on a portable memory device (PM])). The softphone client is installed in its own read-only partition. The softphone client is adapted to autorun from the PM]) when the PMD is connected to a computing device and to load an instance of the softphone client in the volatile memory of the computing device. When used with a computing device comprising a duplex audio system with analog-to-digital conversion and an Internet connection, the VSAM permits a VoIP service subscriber to send telephone calls to, and receive telephone calls from, VoW clients and PSTN clients.

[0035] FIG. **1** illustrates a block diagram of the components of a VSAM according to embodiments of the present invention. Referring to FIG. **1**, VoIP service access module **100** connects to a computing device **120** via compatible I/O ports **108** and **128**. In an embodiment of the present invention, computing device **120** is a desktop computer. However, as will be appreciated by those skilled in the art, this is not meant as a limitation. Other computing devices may be used without departing from the scope of the present invention. By way of illustration, computing device **120** may be a laptop computer or a personal data assistant (PDA) having a duplex audio system.

[0036] In an embodiment of the present invention, I/O interfaces **108** and **128** are USB ports. As will be appreciated by those skilled in the art, other interfaces may be used to connect VSAM **100** and computing device **120** so long as the interfaces are compatible.

[0037] VoIP service access module **100** further comprises softphone client instructions **102**. Softphone client instruc-

tions **102** comprise code executable by the operating system of computing device **120**. The softphone client instructions **102** enable computing device **120** to perform the functions of a plain old telephone including dialing, sending voice information, and receiving voice communications.

[**0038**] In an embodiment of the present invention, softphone client instructions **102** reside in a read-only memory partition. The read-only memory is adapted to auto-run upon detection of the installation of VSAM **100**. In an embodiment of the present invention, the read-only memory partition is identified by computing device **120** as a bootable device.

[**0039**] In yet another embodiment of the present invention, VSAM **100** further comprises read/write memory **106**. In this embodiment, the read/write memory **106** comprises a telephone directory file and user preference information file. When the softphone client is loaded, the softphone client instructions **102** locate the files and loads the directory and user preference information into the volatile memory of the computing device. In yet another embodiment of the present invention, softphone client instructions **102** comprise a conversation recording/playback feature for recording a telephone conversation and storing the recording as a file in the read/write memory **106** for later playback by the user.

[**0040**] Computing device **120** further comprises processor **126**, which controls communications over I/O interfaces **128** and **108**, the loading of softphone client instructions **102** in random access memory **126**, and the execution of those instructions. In an embodiment of the present invention, processor **126** detects the presence of VSAM **100** at **110** interface **128**, loads softphone client instructions **102** into RAM **126**, and executes those instructions.

[**0041**] When processor **126** detects the presence of VSAM **100** at I/O interface **128**, the softphone client instructions prompts the user of VSAM **100** for identifying information. The identifying information is sent to VoIP service gateway **140** for authentication. If the user of VSAM **100** provides the correct identifying information, processor **126** then continues to loads softphone client instructions **102** as previously described. Additionally, the softphone client instructions **102** provide information to VoIP service provider gateway **140** that identifies the network location of the computing device **120** on which the softphone client instructions are located, thereby facilitating telephone calls to and from the VSAM **100**. In still another embodiment of the present invention, processor **126** continues to monitor the presence of service access module **100**. If service module **100** is removed, the softphone client instructions are unloaded from RAM **126**.

[**0042**] Optionally, the user of VSAM **100** is further prompted for an activation code. A user without an activation code declines the prompt and the softphone client instructions **102** are loaded as previously described. A user with an activation code enters the activation code, and the code is reported to VoIP service gateway **140**. The activation code is reported to an accounting server **200** (see FIG. **2**) and is used to associate pre-paid softphone usage credits with the user of VSAM **100**.

[**0043**] Computing device **120** further comprises network interface **122** that permits computing device **120** to send and receive VoIP packets to VoIP service provider gateway **140** via network **130**. In an embodiment of the present invention, network **130** is the Internet, however this is not meant as a limitation. Network **130** may be any IF network through which computing device **120** may communicate with VoIP service provider gateway **140**. By way of illustration, and not as a limitation, network **130** is a cable network. In this embodiment, network interface **122** connects to network **130** through a cable modem (not illustrated but known to those skilled in the art).

[**0044**] Network interface **122** may be a wired interface or a wireless interface. Where network interface **122** is a wireless interface, network **130** is a wireless network that can communicate with the network on which VoIP service provider gateway **140** is located.

[**0045**] FIG. **2** illustrates a block diagram of a process for associating VoIP service access credits with a VSAM **100** according to embodiments of the present invention. Referring to FIG. **2**, an accounting datastore **205** within service provider gateway **140** stores VoW service credits associated with an account identifier. Accounting server **200** provides secured access to the accounting datastore **205** by computing device **120**. Computing device **120** comprises network interface **122**, processor **126** and **110** interface **128**. Computing device **120** accesses accounting server **200** via network **130** through network interface **122**. Computing device **120** also accesses the **110** interface **108** of VSAM **100** via **110** interface **128**.

[**0046**] In an embodiment of the present invention, a VoIP service subscriber operates the computing device **120**. However, the present invention is not so limited. In another embodiment of the present invention, a third party trusted by the VoIP service provider operates the computing device **120**.

[**0047**] Referring to FIG. **1**, when processor **126** detects the presence of VSAM **100** at JIO interface **122**, the softphone client instructions prompts the user of VSAM **100** for identifying information. The identifying information is sent to VoIP service gateway **140** for authentication. If the user of VSAM **100** provides the correct identifying information, the softphone client instructions **102** provide information to VoIP service provider gateway **140** that identifies the network location of the computing device **120** on which the softphone client instructions are located, thereby permitting the VoIP service subscriber to send telephone calls to, and receive telephone calls from, VoIP clients and PSTN clients.

[**0048**] Referring again to FIG. **2**, VoIP service provider gateway **140** associates the VoIP service subscriber identifying information and the network location information with a subscriber record (e.g., record A **210**) in accounting datastore **205**. Optionally, usage accountant further comprises instructions to permit the VSAM **100** to obtain current usage data from the accounting datastore **205** for display to the subscriber.

[**0049**] Accounting datastore **205** comprises a record A **210** and a record B **215**. While only two records are illustrated, the present invention is not so limited. It is anticipated that accounting datastore **205** will store a large number of records potentially numbering in the millions. Record A **210** comprises an account identifier **212** associated with the VoIP service subscriber using the VSAM and a softphone usage

log **216**. At a minimum, softphone usage log **216** comprises the number of softphone usage credits currently available to the account identifier **212** associated with the current VoIP service subscriber using VSAM **100**.

[**0050**] Optionally, the user of VSAM **100** is further prompted for an activation code. A user without an activation code declines the prompt and the softphone client instructions **102** are loaded as previously described. A user with an activation code enters the activation code, and the code is reported to VoIP service gateway **140**. The activation code is reported to an accounting server **200** and is used to associate pre-paid softphone usage credits with the user of VSAM **100**.

[**0051**] FIGS. **3**A and **3**B illustrate the flow of a process in which a VSAM acquires softphone usage credits according to embodiments of the present invention. Referring to FIG. **3**A, a computing device connects to a VSAM **300**. Softphone client instructions are loaded into the volatile memory of the computing device **305**. The computing device displays a prompt for user identifying information **310**. A determination is made whether the information provided matches the identifying information stored at the service provider gateway **312**. If the identifying information does not match the information stored on the service provider gateway, the process ends and usage of the softphone is denied **320**. If the supplied identifying information matches that held by the server provider gateway, the user of the VSAM is further prompted for an activation code **314**. A user without an activation code declines the prompt and the user is offered an opportunity to add softphone usage credits **325**. A user with an activation code enters the activation code and the code is reported to an accounting server **316**. The activation code is used to associate pre-paid softphone usage credits with the user **318**. The user is then offered an opportunity to add additional softphone usage credits **325**.

[**0052**] A user without an activation code declines the prompt and the user is offered opportunity to add softphone usage credits **325**. If the user declines, the add-credit process ends **330**. If the user accepts, the service provider gateway receives a user account identifier **340**.

[**0053**] In an embodiment of the present invention, the account identifier is provided from the user of the computing device in response to prompt from the accounting server. In this embodiment, the accounting server associates the rights of the user with the account identifier provided in response to the prompt. The accounting server uses the account identifier to determine the records (**210** and **215** in FIG. **2**) that the user of the computing device may access and modify. This embodiment is particularly useful to a retailer that offers additional softphone usage credits to subscribers of VoIP services provided by a VoIP service provider. Additionally, the VoIP service provider may reserve account identifiers for a particular retailer so as to create an exclusive customer relationship between the retailer and a purchaser of a VSAM. In yet another embodiment of the present invention, the account identifiers are reserved for members of an organization and made accessible only to an authorized individual within that organization.

[**0054**] In an alternate embodiment, access to the accounting datastore is limited to the record associated with the account identifier as determined during the verification of the user identifying information. The account identifier is provided to the accounting server by the service provider gateway. This embodiment provides a subscriber limited access to the accounting database to purchase additional softphone usage credits.

[**0055**] Referring to FIG. **3**B, a determination is made whether the account identifier matches the account identifier stored on the accounting server **345**. If the account identifier does not match the account identifier stored on the accounting server, the add-credits process ends **350**. If the supplied account identifier matches that held by the accounting server but the account identifier is associated with a record that the user is not authorized to access, the process ends **350**. If the supplied account identifier matches that held by the accounting server and the account identifier is associated with a record that the user is authorized to access, the accounting server initiates a transaction by which the user may acquire additional softphone usage credits for the account identified by the account identifier **355**.

[**0056**] In an alternate embodiment of the present invention, the PMD comprises a CD ROM. The softphone client is installed in its own closed session. The softphone client is adapted to autorun from the CD ROM when the CD is inserted in an appropriate reader and to load an instance of the softphone client in the volatile memory of the computing device.

[**0057**] FIG. **4** illustrates a block diagram of the components of a VoIP service access disk (VSAD) according to embodiments of the present invention. Referring to FIG. **4**, CD drive **406** connects to a computing device **420** via compatible CD interfaces **408** and **428**. In an embodiment of the present invention, computing device **420** is a desktop computer. However, as will be appreciated by those skilled in the art, this is not meant as a limitation. Other computing devices maybe used without departing from the scope of the present invention. By way of illustration, computing device **420** may be a laptop computer or a personal data assistant (PDA) having a duplex audio system.

[**0058**] In an embodiment of the present invention, CD interfaces are Intelligent Drive Electronics (IDE; also referred to as Integrated Drive Electronic) interfaces. In another embodiment of the present invention, CD interfaces **408** and **428** are USB ports. As will be appreciated by those skilled in the art, other interfaces may be used to connect CD drive **406** and computing device **420** so long as the interfaces are compatible.

[**0059**] VoIP service access disk (VSAD) **400** comprises softphone client instructions **402**. Softphone client instructions **402** comprise code executable by the operating system of computing device **420**. The softphone client instructions **402** enable computing device **420** to perform the functions of a plain old telephone including dialing, sending voice information, and receiving voice communications.

[**0060**] In an embodiment of the present invention, the softphone client instructions **402** are adapted to auto-run upon detection of the installation of VSAD **400**.

[**0061**] In yet another embodiment of the present invention, VSAD **400** further comprises readlwrite media and CD drive **406** is adapted to both read from and write to this media. In this embodiment of the present invention, VSAD **400** comprises a multi-session CD. The softphone client instructions **102** are written to a closed session. A writable

portion of VSAD **400** comprises an open session. In this embodiment, the writable portion of the CD comprises, a telephone directory file and user preference information file. When the softphone client is loaded, the softphone client instructions **402** locates the files and loads the directory and user preference information into the volatile memory of the computing device. In yet another embodiment of the present invention, softphone client instructions **402** comprise a conversation recording/playback feature for recording a telephone conversation and storing the recording as a file in the readlwrite memory **406** for later playback by the user.

[**0062**] Computing device **420** further comprises processor **426**, which controls communications over CD interfaces **428** and **408**, the loading of softphone client instructions **402** in random access memory **426**, and the execution of those instructions. In an embodiment of the present invention, processor **426** detects the presence of VSAD **400** at CD interface **428**, loads softphone client instructions **402** into RAM **426**, and executes those instructions.

[**0063**] When processor **426** detects the presence of VSAD **400** at CD interface **428**, the softphone client instructions prompts the user of VSAI) **400** for identifying information. The identifying information is sent to VoIP service gateway **440** for authentication. If the user of VSAD **400** provides the correct identifying information, processor **426** then continues to loads softphone client instructions **402** as previously described. Additionally, the softphone client instructions **402** provide information to VoIP service provider gateway **440** that identifies the network location of the computing device **420** on which the softphone client instructions are located, thereby facilitating telephone calls to and from the VSAM **400**. In still another embodiment of the present invention, processor **426** continues to monitor the presence of service access module **400**. If VSAD **400** is removed, the softphone client instructions are unloaded from RAM **426**.

[**0064**] Optionally, the user of VSAM **400** is further prompted for an activation code. A user without an activation code declines the prompt and the softphone client instructions **402** are loaded as previously described. A user with an activation code enters the activation code, and the code is reported to VoIP service gateway **440**. The activation code is reported to an accounting server **200** (see FIG. **2**) and is used to associate pre-paid softphone usage credits with the user of VSAM **400**.

[**0065**] Computing device **420** further comprises network interface **422** that permits computing device **420** to send and receive VoIP packets to VoIP service provider gateway **440** via network **430**. In an embodiment of the present invention, network **430** is the Internet, however this is not meant as a limitation. Network **430** may be any IP network through which computing device **420** may communicate with VoIP service provider gateway **440**. By way of illustration, and not as a limitation, network **430** is a cable network. In this embodiment, network interface **422** connects to network **430** through a cable modem (not illustrated but known to those skilled in the art).

[**0066**] Network interface **422** may be a wired interface or a wireless interface. Where network interface **422** is a wireless interface, network **430** is a wireless network that can communicate with the network on which VoIP service provider gateway **440** is located.

[**0067**] FIG. **5** illustrates a block diagram of a VoIP service activation module integrated with a USB-compliant headset and keypad according to an embodiment of the present invention. Referring to FIG. **5**, VoIP service access module (VSAM) **500** connects to computing device **120** (see FIG. **1**) via USB port **508**. VSAM **500** comprises softphone client instructions **502**. Softphone client instructions **502** comprise code executable by the operating system of computing device **120**. The softphone client instructions **502** enable computing device **120** to perform the functions of a plain old telephone including dialing, sending voice information, and receiving voice communications.

[**0068**] In an embodiment of the present invention, softphone client instructions **502** reside in a read-only memory partition. The read-only memory is adapted to auto-run upon detection of the installation of VSAM **500**. In an embodiment of the present invention, the read-only memory partition is identified by computing device **520** as a bootable device.

[**0069**] In yet another embodiment of the present invention, VSAM **500** further comprises read/write memory **506**. In this embodiment, the read/write memory **506** comprises a telephone directory file and user preference information file. When the softphone client is loaded, the softphone client instructions **502** locate the files and loads the directory and user preference information into the volatile memory of the computing device. VSAM **500** further comprises a USB-compliant headset comprising speaker **525**R and speaker **525**L and a microphone **530**, which are connected to USB interface **508**.

[**0070**] As will be appreciated by those skilled in the art, the root USB hub at the computer senses the presence of a new device and initially communicates with the device on "pipe **0**," the default physical device communications channel. Pipes are the data sub bands of the hub architecture that maintain the physical connections of devices. Once a device is recognized, the root hub interrogates the device for its configuration. All of the devices on the USB ports are then enumerated and each is assigned a unique device number, which also includes a corresponding pipe number for physical device communications. The computer loads the software needed to control the device and handles its information flow. The hubs are then running and information is passed in and out of the computer over the signal leads. In this embodiment, the configuration of VSAM **500** comprises interfaces for both the memory components and the audio components. As the audio components are managed by the USB system, the duplex audio system **124** of computing device **120** (see FIG. **1**) is not used.

[**0071**] In another embodiment of the present invention, VSAM **500** further comprises keypad **540**. In this embodiment, keypad **540** permits a user to enter data without a mouse or similar pointing device. By way of illustration and not as a limitation, keypad **540** may be used to enter telephone numbers and to respond to make voice menu selections.

[**0072**] A portable VoIP service access module has been described. It will be understood by those skilled in the art that the present invention may be embodied in other specific forms without departing from the scope of the invention disclosed and that the examples and embodiments described herein are in all respects illustrative and not restrictive. Those skilled in the art of the present invention will recognize that other embodiments using the concepts described

herein are also possible. Further, any reference to claim elements in the singular, for example, using the articles "a,""an," or "the" is not to be construed as limiting the element to the singular.

What is claimed is:

1. A voice over IP service access module (VSAM) comprising:

an audio transducer adapted to convert a first analog audio signal to a first digital signal; and

an actuator adapted to convert a second digital signal to a second analog audio signal; a portable memory device, wherein the portable memory device comprises a read-only memory partition, and wherein the portable memory device is adapted to operate when installed in a computing device comprising a universal serial bus and random access memory (RAM);

a softphone client stored in the read-only memory partition and comprising instructions for:

upon detection of the portable memory device by the computing device, installing the instructions in the RAM;

auto-running the instructions; and

controlling the first and second digital signals to perform the functions of a plain old telephone.

2. The VSAM of claim 1, wherein the computing device is selected from the group consisting of a desktop computer, a laptop computer and a personal data assistant.

3. The VSAM of claim 1, wherein the portable memory device further comprises read/write memory and wherein the computer instructions further comprise instructions for:

reading and writing a telephone directory file to the read/write memory;

reading and writing a user preference file to the read/write memory; and recording a telephone conversation and saving the recording as a file in the read/write memory.

4. The VSAM of claim 1 further comprising a keypad adapted to send a selected an alphanumeric character to the softphone client, wherein the softphone client further comprises instructions for:

receiving the alphanumeric character; and

converting the alphanumeric character into telephone signaling tones.

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