**Honeypot Phone Server**

* Extending the same concept of the email honeypot, we want to create a mechanism to

create a 100+ line phone server.

* VoIP technology is expected to be the best method to build such a server at

scale, but note that the challenge will be in obtaining 100+ legitimate phone

numbers that will be able to ring when called

* This phone system can be receive only
* Ideal functions include [baseline] the capture of the calling phone number

(caller ID), [baseline] time and date of call, and [objective] recording of

voicemails if permitted to ring through.

* Explore whether there are existing functions and/or capabilities at VT (e.g., Avaya) that

are capable of supporting and/or other commercial solutions

* Note that buying actual cellular phones and/or anything with an extended

service plan is infeasible due to VT procurement practices

* A fallback is something like the Ethernet-connected MagicJack dongles, but will require
* We have a [negotiable] $3,000 budget planned for hardware components in the project

Research ------------------------------------------------------------------------------------------------------------------

# **Method and apparatus for simultaneous multiline phone and data services over a single access facility**

### **Abstract**

According to the invention, a method and apparatus are disclosed for providing multiline telephonic and data services over a single access facility. In one embodiment of the present invention, a wall unit is located at a customer premises which terminates a single analog phone line and adaptively encodes using Voice over Internet Protocol technology and multiplexes a plurality of telephonic and data calls over the single analog phone line. A corresponding gateway server (or a plurality of gateway servers), which supports one or a plurality of wall unit calls, is located in the public switched telephone network (“PSTN”), or possibly in a private telephone network. The gateway server communicates with one or more active wall units to extract one or more telephonic and data calls from the analog signal produced from a wall unit, and to appropriately route the telephonic calls over the PSTN and the data packets over the Internet or to other data services. The telephonic and data devices connected to the wall unit are each assigned individual virtual phone numbers by the provider of the service embodying this invention. To reach one of these devices, its respective virtual telephone number is used. The virtual phone numbers are published across the PSTN and therefore can be reached from anywhere on the PSTN. In another embodiment, virtual phone numbers are not required, as phone calls destined for subscribed telephone number are automatically routed through the gateway server.

<https://patents.google.com/patent/US6868081B1/en>

# **~~Method and apparatus for dynamic VoIP phone protocol selection~~**

### **~~Abstract~~**

~~A method and apparatus for dynamically selecting one of a plurality of VoIP phone protocols to establish a VoIP phone connection is provided. In one example, the method includes listening on a multiplicity of available IP ports associated with a first VoIP phone device for an incoming call utilizing the plurality of VoIP phone protocols, the plurality of VoIP phone protocols co-existing on the first VoIP phone device, detecting the incoming call originating from a second VoIP phone device, and determining which one of the plurality of VoIP phone protocols is associated the incoming call. The method further includes selecting one of the multiplicity of available IP ports on the first VoIP phone device to establish a VoIP phone connection with the second VoIP phone device utilizing the VoIP phone protocol associated with the incoming call.~~

[~~https://patents.google.com/patent/US7995611B2/en~~](https://patents.google.com/patent/US7995611B2/en)

# **~~Apparatus and method for sharing and assigning multiple numbers to a communication device~~**

### **~~Abstract~~**

~~A system that incorporates teachings of the present disclosure may include, for example, a communication device having a controller to associate two or more phone numbers with two or more phone bills, where the controller is adapted to send outgoing phone calls and receive incoming phone calls on multiple telephone numbers assigned to the mobile communication device in accordance with at least one user profile. Other embodiments are disclosed.~~

[~~https://patents.google.com/patent/US8620264B2/en~~](https://patents.google.com/patent/US8620264B2/en)

# **Multiple voicemail account support for a VoIP system**

### **Abstract**

In one embodiment, a method includes receiving, at an IP private branch exchange (IP PBX), an event notification message from a user agent corresponding to a voicemail system. The event notification message includes a Request-URI field identifying a Uniform Resource Identifier (URI) of the IP PBX and a header field identifying a target mailbox. The method also includes identifying a URI corresponding to the target mailbox and forwarding the event notification message with a Request-URI field identifying the URI corresponding to the target mailbox.

<https://patents.google.com/patent/US8064367B2/en>

# **~~Contact server for call center for synchronizing simultaneous telephone calls and TCP/IP communications~~**

### **~~Abstract~~**

~~The present invention is a Contact Server that enables customers to submit call-back requests to a call center via the Internet, or virtually any other communications technology available. A call-back to the customer can be placed via any communications technology available. In its preferred embodiment, the Contact Server enables a call-back request to be submitted by a customer directly from an HTML page on a Web site, and have that same HTML page be presented to the agent that receives the call-back request. The agent can then place a telephone call to the number provided by the customer who submitted the call-back request, and at the same time, establish a TCP/IP communications session with the customer. This TCP/IP session can proceed between the agent's Web browser and the customer's Web browser, and the visible actions performed by the agent are transferred to the customer and displayed on the customer's browser. The TCP/IP session proceeds simultaneous with the telephone call between the agent and the customer.~~

[~~https://patents.google.com/patent/US6493447B1/en~~](https://patents.google.com/patent/US6493447B1/en)

# **Messaging system having multiple number, dual mode phone support**

### **Abstract**

A social messaging hub provides communication services for a data enabled device having Internet network access capabilities. The social messaging hub communicates with the data enabled device over the Internet or cellular data networks, and interfaces with a message infrastructure including mobile carriers, message aggregators, message exchanges and various specialized social messaging services to enable bi-directional messaging communication. The user is given a registered phone number and unique IP addressable identification which serve as a source and destination identifier of the associated data enabled device. Messages may originate in or be delivered to other users' mobile telephones or in similarly equipped and provisioned IP data enabled devices. An application operating on the IP enabled device determines in conjunction with the social messaging hub a mode of transmission as a function of parameters including device location and destination of a message.

<https://patents.google.com/patent/US9356907B2/en>

# **Shared Numbers in a Multi-Phone Environment**

### **Abstract**

A group of mobile phones can each be associated with a different personal phone number, and can also be associated with a common family phone number. When a call is received at the shared family phone number, an intermediate server routes a notification of the call to each phone in the group, and each phone can ring. If a first user answers a first phone of the group, a notification is sent by the first phone to the intermediate server, which in turn sends a notification to the remaining phones in the group that the call has been answered. The remaining phones then stop ringing. If no one answers the call, the caller is routed to a voicemail associated with the shared family phone number, and a notification of a voicemail message is routed to each of the group of phones.

<https://patents.google.com/patent/US20180054720A1/en>

# **~~Multi-dialing-number VOIP phone call connection method~~**

### **~~Abstract~~**

~~A multi-dialing-number VOIP phone call connection method, comprising the following steps: Firstly, registering by a first calling party with at least two proxy servers utilizing a network address, thus obtaining at least two dialing numbers; issuing by the calling party a calling invitation to the proxy server by making use of one of the dialing numbers; inquiring the address information of the second calling party by the proxy server according to the calling invitation; transmitting the calling invitation to the second calling party from the proxy server according to the address information; returning a confirmation message to the proxy server by the second calling party; transmitting and relaying such a confirmation message to the first calling party by the proxy server, thus realizing the phone call connection between the two parties; and establishing a real-time communication channel for transmitting data flow.~~

[~~https://patents.google.com/patent/US20080107101A1/en~~](https://patents.google.com/patent/US20080107101A1/en)

# **~~VoIP system, VoIP server and client, and multicast packet communication method~~**

### **~~Abstract~~**

~~A VoIP system has a VoIP server and plural clients. The client transmits paging data as multicast packets addressed at a specific multicast address, to other clients. In response to a request from the client, the VoIP server transmits multicast packets of MOH data to the other clients. At this time, whether the other clients can receive multicast packets is determined. To the clients that are determined to be capable of receiving multicast packets, transmission data is sent in the form of multicast packets. To the client which belongs to a router and is determined to be incapable of receiving multicast packets, the transmission data is sent as unicast packets. It is thus possible for the VoIP system to support paging and MOH in the form of multicast packets, with respect to clients incapable of receiving multicast.~~

[~~https://patents.google.com/patent/US7801134B2/en~~](https://patents.google.com/patent/US7801134B2/en)

# **Managing visual voicemail from multiple devices**

### **Abstract**

A network device may include a memory to store a database including voicemail message information associated with a voicemail mailbox, a transmitter, and a receiver. The transmitter may send a notification to each of a plurality of communication devices, the notification including an indication of a number of new voicemail messages in the voicemail mailbox, an indication of a total number of voicemail messages in the voicemail mailbox, and an identifier of a most recent voicemail message in the voicemail mailbox, where each of the plurality of communication devices uses the notification signal to determine whether to request a list of voicemail messages. The receiver may receive, from one of the communication devices in response to the notification, a request for the list of voicemail messages associated with voicemail message information stored in the database. The transmitter may sends, to the one of the plurality of communications devices, the list of voicemail messages.

<https://patents.google.com/patent/US8774374B2/en>

# **Multiple visual voicemail mailboxes**

### **Abstract**

A network device may include a memory to store an aggregate database. The aggregate database may store aggregate voicemail message information, the aggregate voicemail message information including voicemail message information associated with a first device number and voicemail message information associated with a second device number. The network device may include a receiver to receive, over a network, updated voicemail message information associated with the first device number and stored in a first database different from the aggregate database, and to receive, over the network, updated voicemail message information associated with the second device number and stored in a second database different from the first database and the aggregate database. The network device may include a processor to update the aggregate voicemail message information stored in the aggregate database based on the received updated voicemail message information associated with the first device number and based on the received updated voicemail message information associated with the second device number. The network device may include a transmitter to send the updated aggregate voicemail message information to a user device associated with the first device number.

<https://patents.google.com/patent/US8270577B2/en>

# **Synchronizing voicemail among multiple client access points**

### **Abstract**

A set of servers connect to a group of voicemail systems and to a group of client access points. The set of servers may receive a request to perform a transaction relating to a voicemail mailbox of a particular voicemail system; cause the transaction to be performed with regard to the voicemail mailbox of the particular voicemail system; and receive a notification that the transaction was performed with regard to the voicemail mailbox of the particular voicemail system. The set of servers may perform synchronization processes to synchronize the client access points with regard to the transaction that was performed with regard to the voicemail mailbox of the particular voicemail system, where each of the client access points contains a same view of the voicemail mailbox as a result of the synchronization processes.

<https://patents.google.com/patent/US8284908B2/en>

# **Cellular mobile phone with a plurality of accessing telephone numbers for allowing access to the mobile phone by any one of the telephone numbers**

### **Abstract**

An adapter for a cellular mobile phone unit which converts the unit to include a plurality of telephone numbers. A main circuit board is coupled to a microprocessor of the unit, which board includes a plurality of number assignment modules, or NAM's (ROM's), each NAM having its own unique telephone number code. The NAM's are connected such that fifteen of the sixteen pin-connections of each NAM are correspondingly and respectively connected in series, for coupling to the fifteen pin-connections of a plug at one end of a ribbon cable, the other end of the ribbon cable being coupled to the microprocessor of the unit via the conventional NAM connection therefor. Each remaining pin of each NAM, which is not connected in series, is connected to a unique stop of a multi-position switch, so that a selected one of the NAM's may be coupled to the microprocessor in order to change the telephone number from one to another. A secondary relay printed circuit board may also be provided to allow for remote switching from one NAM to another. The principles are also applicable to a personal computer's expansion slots, where a plurality of dedicated ROM chips may be selectively accessed by the microprocessor via the same address location.

<https://patents.google.com/patent/US4677653A/en>

**Registration for Multiple Phone Numbers in the Session Initiation Protocol (SIP)**

**Abstract**

This document defines a mechanism by which a Session Initiation

Protocol (SIP) server acting as a traditional Private Branch Exchange

(PBX) can register with a SIP Service Provider (SSP) to receive phone

calls for SIP User Agents (UAs). In order to function properly, this

mechanism requires that each of the Addresses of Record (AORs)

registered in bulk map to a unique set of contacts. This requirement

is satisfied by AORs representing phone numbers regardless of the

domain, since phone numbers are fully qualified and globally unique.

This document therefore focuses on this use case.

<https://www.hjp.at/doc/rfc/rfc6140.html>

# **System and method for VoIP honeypot for converged VoIP services**

### **Abstract**

Disclosed herein are systems, methods, and computer-readable storage media for a honeypot addressing cyber threats enabled by convergence of data and communication services in an enterprise network. Suspicious incoming VoIP calls from the Internet to the enterprise network are intercepted and directed to a VoIP honeypot that acts as a network decoy and responds automatically during call sessions for the suspicious incoming VOIP calls while tracing the suspicious incoming VOIP calls. Suspicious outgoing VoIP calls from the enterprise network to the Internet are also intercepted and directed to the VoIP honeypot. Moreover, an unsolicited VoIP call is redirected to the VoIP honeypot when the unsolicited VoIP call has been received by a user agent in the enterprise network and a human user of the user agent confirms that the unsolicited VoIP call was unsolicited.

<https://patents.google.com/patent/US8752174B2/en>

# **Multi-user display proxy server**

### **Abstract**

A multi-user host computer system comprises processor blades combined with terminal services blades to provide acceleration and proxy server functions for supporting a variety of remote terminals. For each remote terminal, the terminal services blade and proxy server functions may improve the video and graphics performance. This allows the multi-user host computer system to more efficiently support multiple users. The terminal services blade may include a graphics processor that manages a virtual display for each remote terminal and provides selective updates of sub frame data. Where appropriate, the sub frame data is encoded and transmitted over the network to the remote terminals. The terminal services processor also offloads and optimizes video data streams for the intended remote terminals and their respective network connections. Processor blades may include a baseboard management controller that utilizes advanced features for supporting remote KVM administration.

<https://patents.google.com/patent/US8112513B2/en>

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The most difficult part of this project will likely be the design and plan behind how we will connect 100+ non-paid-for phone numbers to the same device. At the same time, this device will ring when called at any number, voicemail will be recorded and caller ID should be supported. Above are the beginnings of some preliminary research into how this can be achieved. Current issues I can clearly see: how can we access multiple phone lines of that magnitude if we aren't purchasing them?, how can we connect all those lines to the same VOIP server?, how can we separately allow them to ring and record voicemail?, and lastly, how can we sort between all of this information for the parts we are looking for?

Further research is required. At the moment, there is much confusion to be had and I, like Dr. Michaels, am at a loss for how this can be done. Alas, the job is not done. Therefore, I will continue my search for information regarding these issues.

KEY WORDS

SIP trunk, VOIP server, Honeypot, multiline, voicemail, PBX, Asterisk, Google Voice Business.

This link shows the pricing for the google voice service. From what I have seen, the standard option offers a way to solve our issues albeit at a cost. For $20 per user we would be able to virtually store voicemail, SMS records and receive calls. Using this service as the central server could prove useful.

<https://cloud.google.com/voice#pricing>

As a fallback, MagicJack dongles were discussed. At $40 for a year of service this method is much cheaper per user but lacks the ease and simplicity of the above option.

<https://www.magicjack.com/index.html?gclid=EAIaIQobChMI_4GMudXC6QIVionICh3PRA1qEAAYASAAEgKH-PD_BwE>

Ring Central is another service that could be used. Similar to google voice it has all of the features we are looking for but has a steep price point. At $23 per user per year.

<https://www.ringcentral.com/aff/office.html?BMID=CJUS_GETVOIP&PID=1101214574&CID=AFF&AID=1101l17691&SID=#ring-1>

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Josh - burner.