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(54) **METHOD AND SYSTEM FOR DISTRIBUTING OUTBOUND TELEPHONE CALLS**

(58) **Field of Classification Search**
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(57) **ABSTRACT**

A method and system is provided for the distribution of outbound telephone calls. This method and system includes dialing devices receiving call records and providing telephone calls to one or more agents. Interfaced with the dialing device is a distribution module including pools and queues. The distribution module places the call records into the pools and transfers less than all of the call records to the queues to allow for calling by the dialing devices at peak efficiency. The distribution module transfers the queues to the dialing devices so that the dialing device can place telephone calls. The distribution module monitors the queues to determine when to send additional call records to the queues. In addition, distribution module monitors the results of the call records and updates the call records in the pools so that call records with unsuccessful outcomes can be safely called again later in the day.

U.S. Applications:

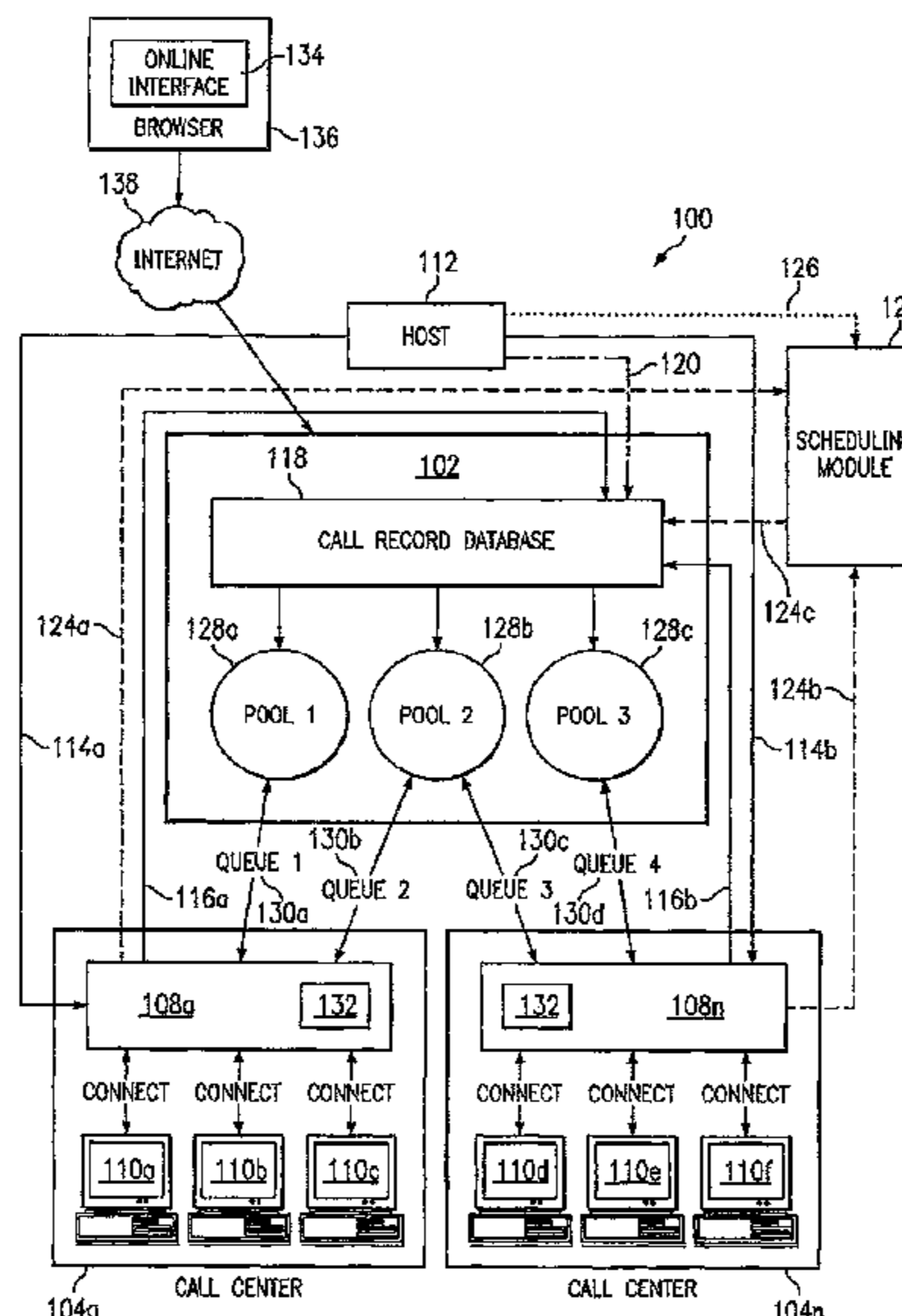
(63) Continuation of application No. 09/901,749, filed on Jul. 9, 2001, now Pat. No. 7,142,662.

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11 Claims, 5 Drawing Sheets



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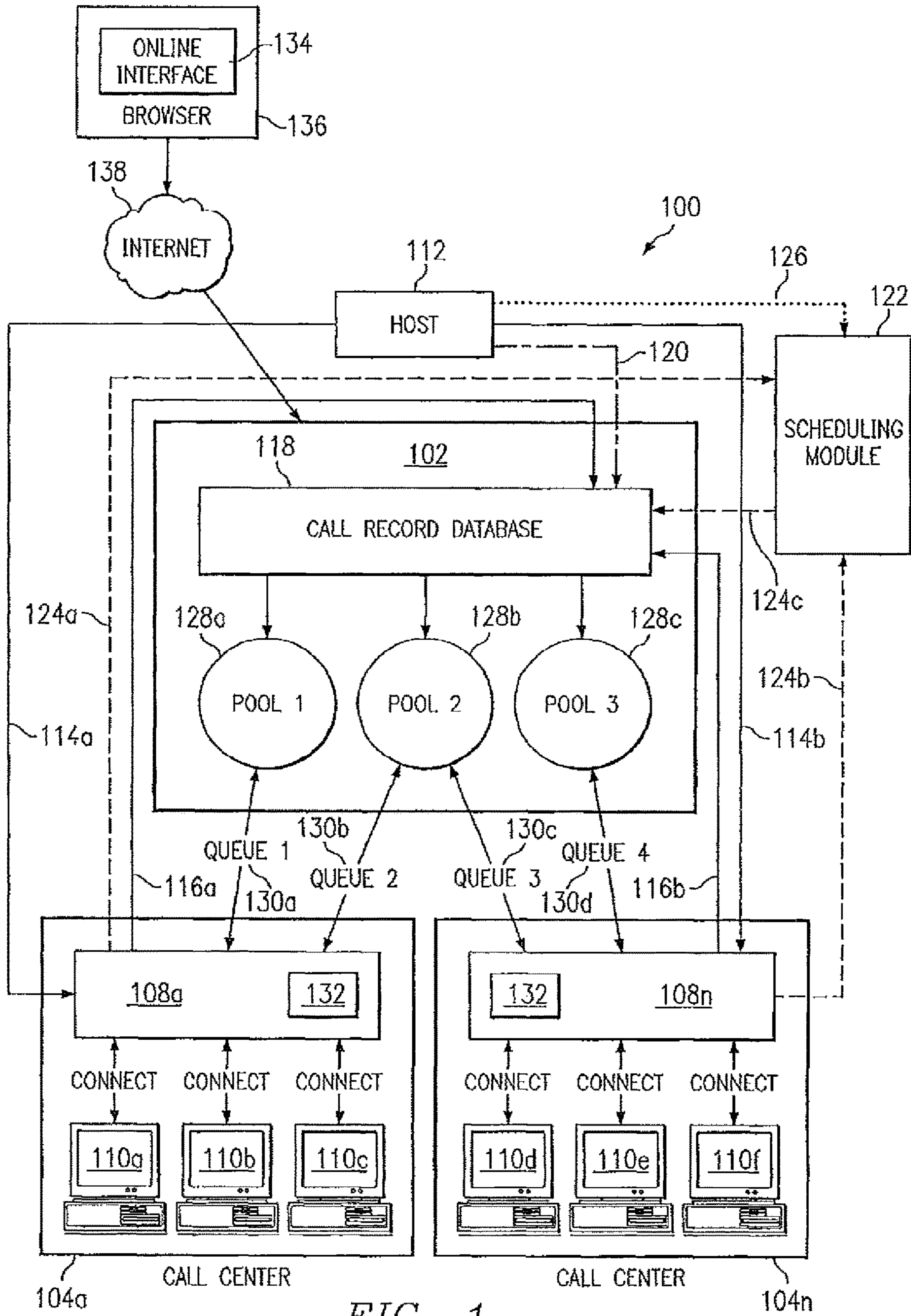


FIG. 1

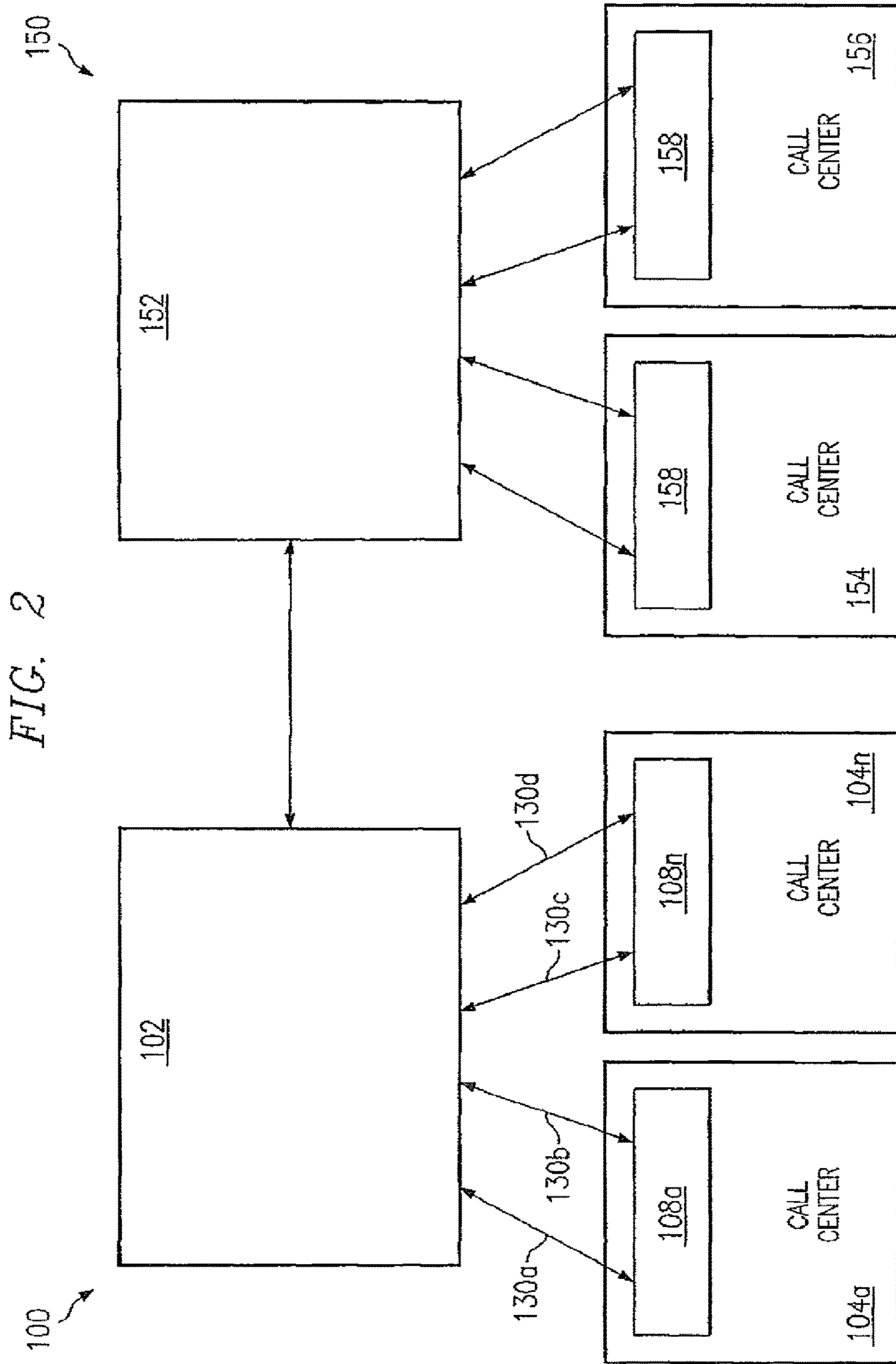


FIG. 3

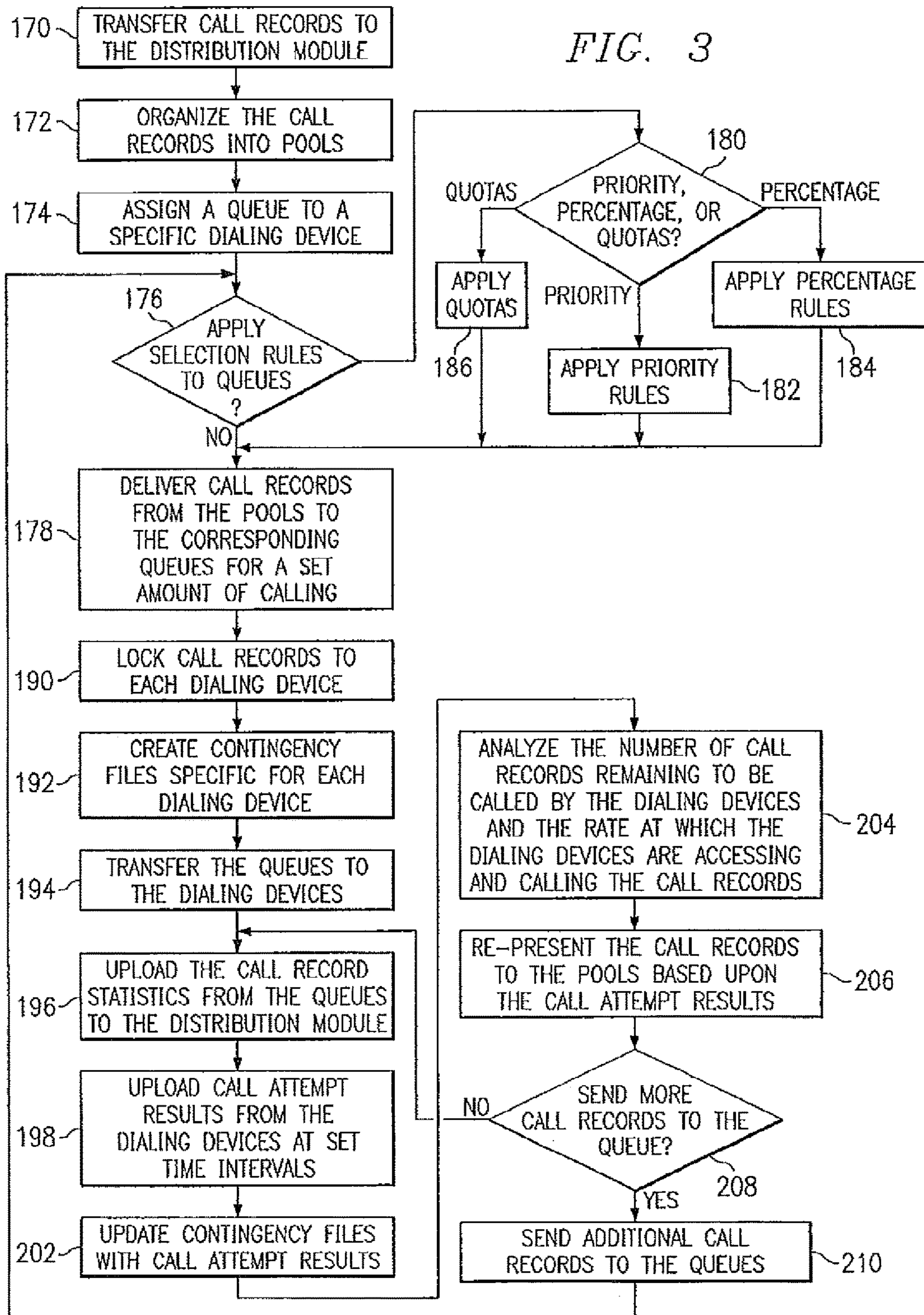
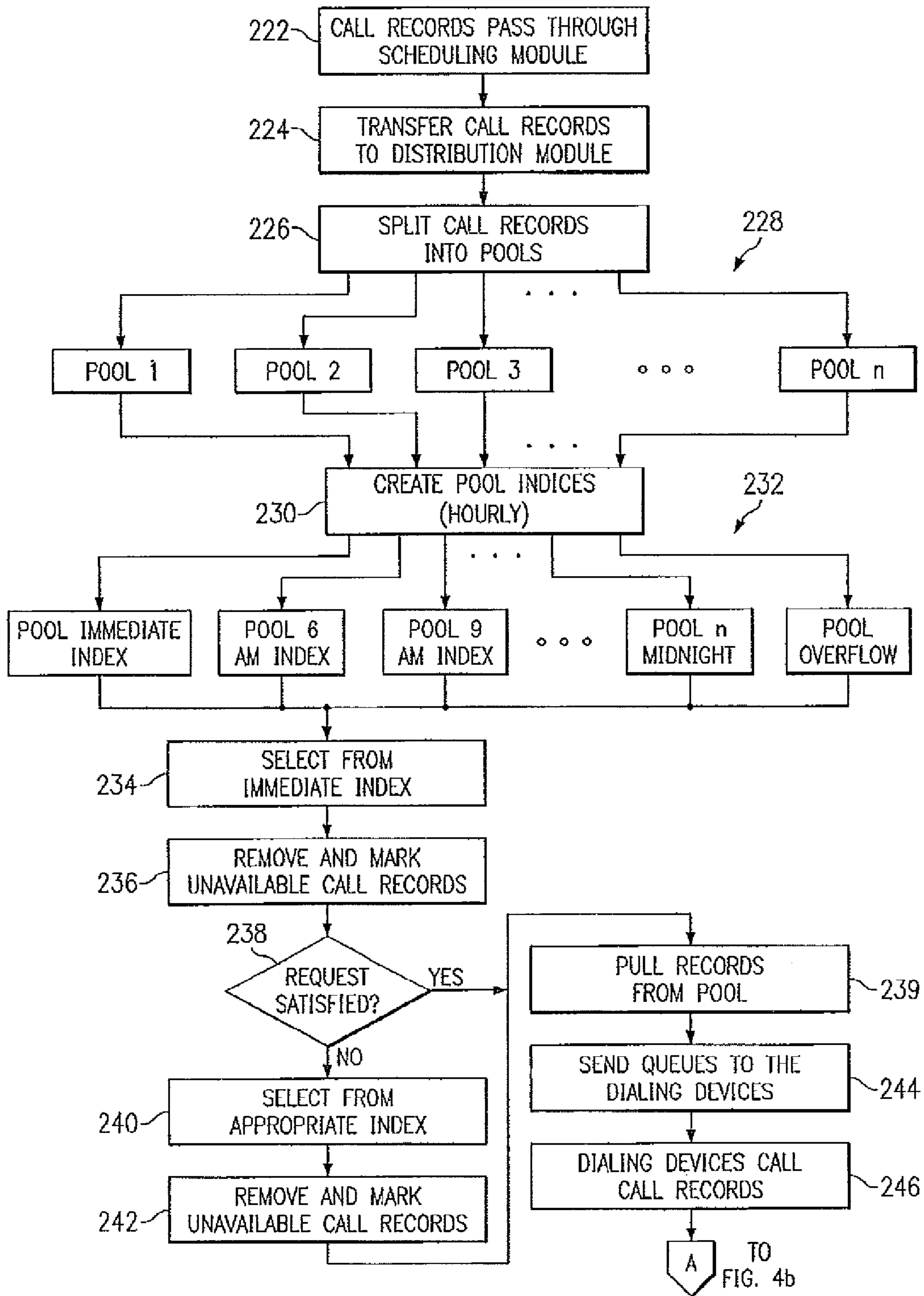
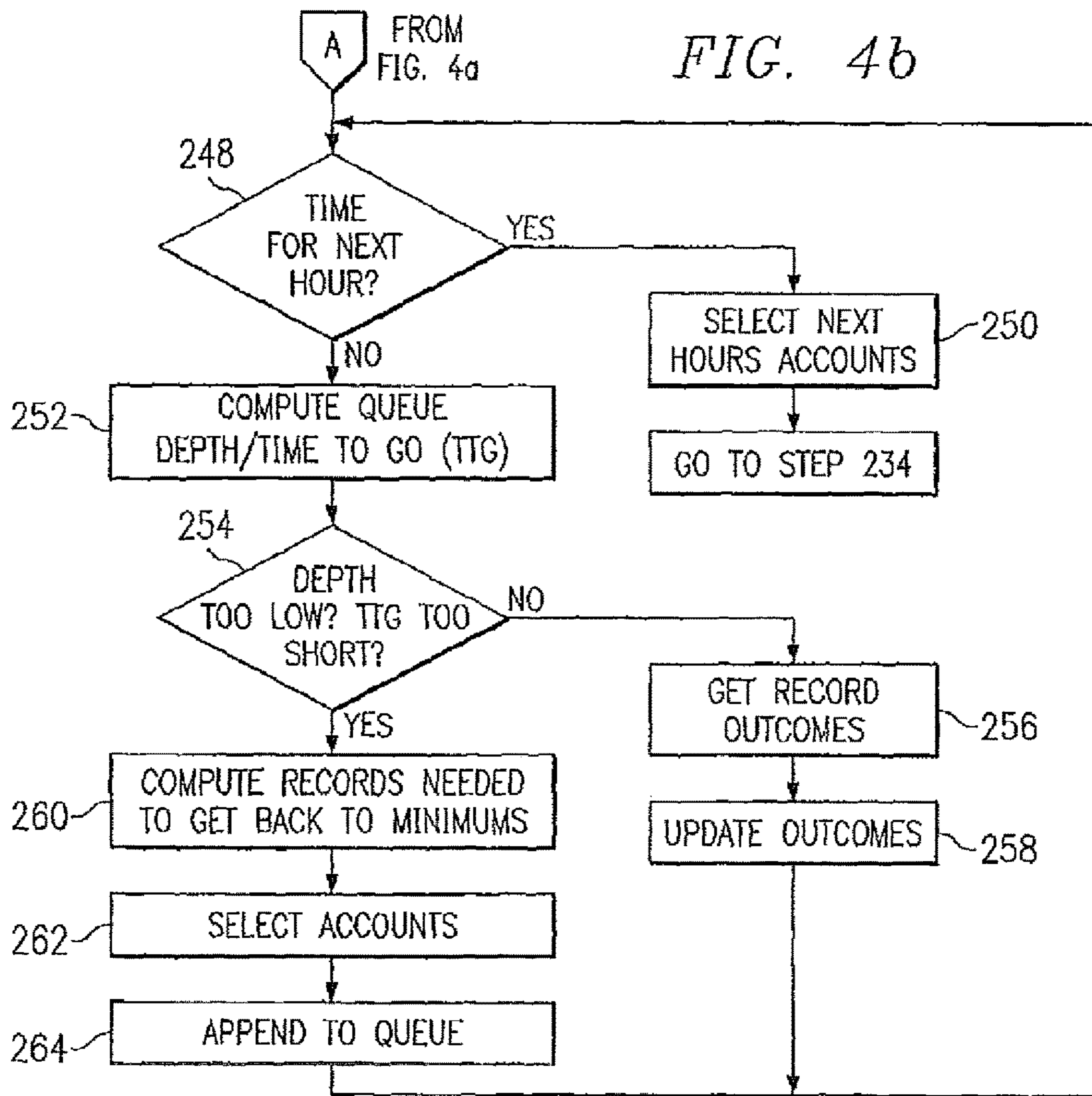


FIG. 4a





**METHOD AND SYSTEM FOR
DISTRIBUTING OUTBOUND TELEPHONE
CALLS**

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue; a claim printed with strikethrough indicates that the claim was canceled, disclaimed, or held invalid by a prior post-patent action or proceeding.

RELATED PATENT APPLICATION

[This application claims the benefit of U.S. Provisional Application No. 60/217,292 filed on Jul. 11, 2000 and entitled "Method and System for Distributing Outbound Telephone Calls."]

This application is a *reissue of application Ser. No. 11/561,515, U.S. Pat. No. 7,239,692, which in turn is a continuation of application Ser. No. 09/901,749, filed on Jul. 9, 2001 now U.S. Pat. No. 7,142,662 entitled "Method and System for Distributing Outbound Telephone Calls" and naming Richard Rodenbusch and Daniel N. Duncan as inventors.*

This application is a continuation of U.S. patent application Ser. No. 09/901,749, filed on Jul. 9, 2001, now U.S. Pat. No. 7,142,662 and entitled "Method and System for Distributing Outbound Telephone Calls," which claims the benefit of U.S. Provisional Patent Application 60/217,292, filed Jul. 11, 2000, and entitled "Method and System for Distributing Outbound Telephone Calls."

TECHNICAL FIELD OF THE INVENTION

This invention relates to the field of telephony and computer networks, and more particularly to a system and method for distributing outbound telephone calls.

BACKGROUND OF THE INVENTION

Telephone call centers represent the front line for customer service, marketing operations, and debt collection for many businesses. Typical call centers receive or make hundreds of telephone calls per day with the aid of automated telephony equipment. For instance, predictive dialers such as the MOSAIX Predictive Dialing System ("PDS") manufactured by Avaya Incorporated automatically dial outbound telephone calls to contact individuals and then transfer the contacted individuals to agents so the agent can talk with the individual.

Dialing devices such as predictive dialers save time for the agent placing the call because the dialing device and not the agent dials the telephone number and agents' time is not wasted with unanswered calls or answering machines. Predictive dialers also spread the outbound telephone calls evenly among all the agents working from the dialing device so that the agents share the workload equally and no agents sit idle while others have too many telephone calls to place.

Many businesses are increasing their marketing efforts, customer service programs, and bad debt collection efforts by having multiple telephone call centers or multiple dialing devices located at a single call center to serve more customers. Typically, when businesses have multiple call centers, the call centers are located in different geographic locations which makes coordination of dialing strategies difficult.

Thus businesses generally manage call centers individually, with separate staffing, calling strategies, goals, and functions. Generally, a calling list is divided into as many parts as there are call centers or dialers with each call center receiving its own section of the calling list. Although this segmentation distributes work, coordination of strategy for outbound calling is difficult since each call center is responsible for its own section of the calling list and has no knowledge of the other call centers' progression with their own calling lists. For instance, if a call center goes down and cannot make outbound telephone calls, the other call centers cannot typically address the downed call center's calling list goals and priorities because the other call centers do not have access to the calling list including the telephone numbers actually called.

A similar problem occurs with a single call center having multiple dialers. Calling list segmentation typically occurs at a host level, where each dialing device is assigned a portion of the calling list. A host downloads the segmented calling list to the individual dialing devices. If one dialing device fails, the other dialing devices do not know the status of telephone numbers in the failed dialing device's segment.

Another difficulty associated with multiple call centers or single call centers with multiple dialing devices is inefficient use of dialing devices due to small lists of call records. Dialing devices function most efficiently when processing large volumes of accounts in call records and utilizing a certain number of agents. However, accounts are often logically grouped into smaller groups so that the dialing devices are not at an optimal performance level.

SUMMARY OF THE INVENTION

Therefore, a need has arisen for a system and method which coordinates outbound call attempts between plural dialing devices.

A further need has arisen for a system and method which transfers call records seamlessly between multiple call centers and dialing devices located within a single call center.

A further need has arisen for a system and method which efficiently operates plural dialing devices with sets of generally small accounts of call records.

In accordance with the present invention, a system and method for distributing outbound call records is provided which substantially eliminates or reduces disadvantages and problems associated with previously developed systems and methods for distributing outbound telephone calls. A distribution module distributes outbound calls for processing by one or more than one dialing device to level the call load across the dialing devices by transferring call records and tracking call attempt results for the dialing devices on a real-time basis.

More specifically, distribution of outbound call attempts between plural dialing devices is accomplished by a distribution module interfaced with the dialing devices. The distribution module controls the flow of call records to the dialing devices, arranges the call records so as to determine the order the dialing devices provide telephone calls to the agents, and monitors the call attempts of the dialing devices.

In one embodiment, the dialing device transfers call records to the distribution module. The distribution module organizes the call records into a plurality of pools. The distribution module transfers less than all of the call records from the pools to a plurality of queues. The distribution module transfers the queues containing the call records to the dialing devices after each queue has been assigned to a specific dialing device. The queues contain enough call

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records to ensure that the dialing devices operate at peak efficiency. As the dialing device calls the call records in the queues, the distribution module transfers additional call records from the pools to the queues.

The distribution module monitors the calling status of the queues as a calling campaign to determine when to transfer additional call records to the queues. The distribution module spreads out the calling load among the plural dialing devices and enables the dialing devices to reattempt call records where the first call was unsuccessful without risk of reattempting successful contacts.

The present invention provides a number of important technical advantages. One important technical advantage is the coordination of outbound call records to plural dialing devices that are co-located or located in geographically distributed call centers. This allows a business to optimize calling resources with a unified strategy.

Another important technical advantage of the present invention is that call records and call attempt results are coordinated through the distribution module. Therefore, unsuccessful call attempts are available for redistribution without stopping the current calling campaign so that later in the day the same or a different dialing device can attempt to call the same call record.

Another important technical advantage of the present invention is that it allows for seamless transfers of call records between multiple dialing devices. If one of the dialing devices has a problem, the distribution module transfers call records from that dialing device to one or more other dialing devices. Seamless transfers also improve efficiency where dialing devices operate at different rates. Call records are simply transferred to the dialing device having greater capacity. Thus, the ability to seamlessly transfer call records among the dialing devices improves productivity, list penetration, and call results.

Another important technical advantage of the present invention is that it allows the leveraging of resources across multiple dialing devices. The distribution module monitors and manages calling campaigns across the entire enterprise of dialing devices. The distribution module adjusts to many different calling situations and dynamically assigns work on an as-needed basis without stopping the calling campaign. Based on call attempt results, time of day, prior call results, or user input, the distribution module can take an active set of accounts and change the call order of the call records without shutting down the dialing devices or starting a new job.

Another important technical advantage of the present invention is that it allows for a dialing device to efficiently operate on small groups of calling records. The system and method allows a business to take small groups of accounts and pool them together to create a larger calling campaign on the dialing devices. Therefore, the dialing device remains active and efficient.

Another technical advantage of the present invention is that it allows skill-based routing of call records. This allows for the efficient use of constrained resources across call centers. The system can be configured to route call records to the agents most likely to generate a favorable outcome to the call while ensuring that all agents have sufficient calls to work efficiently.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present invention and the advantages thereof, reference is now made to the following description taken in conjunction with the

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accompanying drawings in which like reference numbers indicate like features, and wherein:

FIG. 1 depicts a block diagram of plural dialing devices interfaced with a distribution module;

FIG. 2 illustrates a block diagram of another embodiment of the present invention employing two distribution modules;

FIG. 3 depicts a flow diagram of a method for distribution outbound telephone calls; and

FIGS. 4a and 4b illustrate a flow diagram for the population of the pools and queues with call records.

DETAILED DESCRIPTION OF THE INVENTION

Preferred embodiments of the present invention are illustrated in the figures, like numeral being used to refer like and corresponding parts of the various drawings.

Under previous systems and methods for distributing outbound telephone calls, the redistribution of call records among the dialing devices or the changing of the call order of the call records required the shutting down of the dialing devices or starting a new job on the dialing device. The present invention allows the management of call records across one or more than one dialing device which allows for the leveraging of resources across multiple dialing devices. The enterprise management allows for dynamically reindexing or changing the order of the call records on an as-needed basis, changing the composition of call records within the pools, and redistribution of unsuccessful call attempts without having to shut down the dialing devices or start a new job on the dialing device.

FIG. 1 depicts a block diagram for an outbound distribution system 100 for distributing outbound telephone calls. A distribution module 102 interfaces with a first call center 104a and a second call center 104n. *For simplicity, reference is made hereafter to "call center 104" in a generic sense to refer to any instance of a call center, 104a-104n.* System 100 allows call centers 104a and 104n to operate as a single group of resources rather than two decentralized units, with distribution module 102 controlling the strategy, workload, and calling efforts for call centers 104 from a single, central location. In alternative embodiments, distribution module 102 interfaces with multiple dialing devices at one or more call centers, or one dialing device located in one call center.

Call centers 104 are geographically distributed, each having one or more dialing devices that place telephone calls using information in the call records. Distribution module 102 operates on a SOLARIS, Linux, or any other appropriate operating system server and communicates with call centers 104 via standardized communications links such as Ethernet, the Internet with protocols such as FTP, CORBA, API, and sockets over TCP/IP, asynchronous transfer mode ("ATM"), or any other appropriate communication link.

Call centers 104 each have one or more dialing devices [108] 108a-108n. *For simplicity, reference is made hereafter to "dialing devices 108" in a generic sense to refer to any instance of a dialing device 108a-108n.* Dialing devices 108 are predictive dialers such as the MOSAIX PDS manufactured by Avaya Incorporated or other appropriate predictive dialers. In the embodiment shown in FIG. 1, interfaced to dialing device 108a in call center 104a are three agents 110a, 110b, and 110c with dialing device 108n of call center 104n also having three agents 110d, 110e, and 110f interfaced to it. *For simplicity, reference is made hereafter to "agents 110" in a generic sense to refer in any instance 110a-110f of an agent.* Agents 110 are workstations where operators or

agents speak to the individuals whose telephone numbers are called by dialing devices **108**.

Dialing device **108** dials telephone numbers extracted from the call records. If an individual answers the telephone, dialing device **108** transfers the telephone call to one of agents **110** so that the agent can speak with the individual. Dialing devices **108** therefore improve telephone calling efficiency by dialing the telephone number and transferring the call to an agent only if an individual answers the telephone.

System **100** functions by first having distribution module **102** acquire the call records that dialing devices **108** will call. There are several different ways that distribution module **102** acquires the call records.

For instance, host **112**, which is associated with dialing devices **108**, stores raw call records. The raw call records contain information including telephone number, account number, individual name and address, and any other appropriate personal information. For example, a raw call record for Joe Smith includes Joe Smith's telephone number, mailing address, account status, account number, account passwords, gender, marital status, number of children, employment status, and yearly income.

Host **112** transfers the raw call records for that day along path **114a** to call center **104a** and dialing device **108a** and along path **114b** to call center **104n** and dialing device **108n**. Distribution module **102** contacts dialing device **108a** within call center **104a** via path **116a** and dialing device **108n** within call center **104n** via path **116b**. Distribution module **102** downloads from dialing devices **108** to call record database **118** the call records. The call records may contain some but not all of the information from the raw call records. Downloading less than all of the information from the raw call records saves bandwidth and allows for efficient operation of distribution module **102** because it handles smaller amounts of data. For instance, distribution module **102** downloads as the call record an individual's name, telephone number, and account number. So the call record for Joe Smith contains Joe Smith's name, his telephone number, and account number.

In an alternative embodiment, host **112** stores the raw call records. Instead of transferring the raw call records to dialing devices **108**, distribution module **102** downloads the call records from host **112** to call record database **118** via path **120**.

Alternatively, dialing devices **108** store the raw call records. Therefore, distribution module **102** contacts call center **104a** and dialing device **108a** via path **116a** and call center **104n** and dialing device **108n** via path **116b** to download the call records to call record database **118**.

Scheduling module **122** operates to develop and provide optimal calling strategies for the call records including resource optimization, automated statistical modeling and flexible strategy management. For instance, one such scheduling module **122** is described in U.S. Pat. No. 5,802,161, entitled "Method and System for Optimized Scheduling" issued Sep. 1, 1998, and is hereby incorporated by reference.

The integration of scheduling module **122** is not required for the operation of distribution module **102** but it affects how distribution module **102** downloads the call records and what information is contained in the call records. For instance, host **112** transfers the raw call records to call center **104a** and dialing device **108a** via path **114a** and call center **104n** and dialing device **108n** via path **114b**. Scheduling module **122** downloads from dialing device **108a** in call center **104a** via path **124a** and from dialing device **108n** in call center **104n** via path **124b** the raw call records. Sched-

uling module **122** develops call schedules for the raw call records. Distribution module **102** downloads the call records including the call schedule from scheduling module **122** via path **124c** and stores the call records in call record database **118**.

Alternative embodiments also employ scheduling module **122** in the delivery of call records to distribution module **102**. Scheduling module **122** downloads the raw call records from host **112** via path **126**. As before, scheduling module **122** adds call schedules to the raw call records before distribution module **102** downloads the call records from scheduling module **122** via path **124c** to call record database **118**.

Once distribution module **102** stores the call records in call record database **118**, distribution module **102** organizes and transfers the call records from call record database **118** to pools **[128]** *128a, 128b, and/or 128c*, which are interfaced with distribution module **102**. *For simplicity, reference is made hereafter to "pool 128" in a generic sense to refer to any instance of a pool 128a-128c.* The pools are sets of callable call records specified by distribution module **102**. Each pool **128** represents a specific and ordered group of call records. In the embodiment shown in FIG. **1**, there are three pools **128a, 128b, and 128c**. In alternative embodiments there can be more than three or less than three pools.

Distribution module **102** then transfers less than all of the call records from pools **128** to queues **[130]** *130a, 130b, 130c, and 130d*. *For simplicity, reference is made hereafter to "queue 130" in a generic sense to refer to any instance of a queue 130a-130d.* Interfaced with pools **128** are queues **130a, 130b, 130c, and 130d**. A queue is a set of rules for selecting call records from pools having the necessary and sufficient information describing the exact method of transferring call records to dialing devices **108** and any call records assigned to but not yet transferred to dialing devices **108** for dialing devices **108** to call. Distribution module **102** attaches each queue **130** to a particular dialing device **108** and monitors each dialing device. As necessary, distribution module **102** transfers call records from pools **128** in accordance with the configuration of queues **130** which includes selection rules, time of day, time of week, number of calls completed, and number of call records sent. Queues **130** then transfer the call records to their assigned dialing devices **108**. For instance, distribution module **102** transfers call records according to the configuration of queues **130a** and **130b** to dialing device **108a** of call center **104a** and according to the configuration of queues **130c** and **130d** to dialing device **108n** of call center **104n**.

In addition, each queue **130** is associated with a single campaign for the dialing device to which it is assigned. A campaign is an outbound job calling on dialing device **108** that can receive additional call records for calling while the outbound calling job is active. Normally, a campaign on dialing device **108** continues to run until manually stopped.

Pools **128** can satisfy transfer requests for call records for one or more than one queue **130**. For example, pool **128a** transfers call records to queue **130a**, pool **128b** transfers call records to queues **130b** and **130c**, and pool **128c** transfers call records to queue **130d**. In addition, distribution module **102** can change the queues which request call records from pools **128** throughout the day and in the middle of outbound calling campaigns. For instance, if dialing device **108n** located in call center **104n** calls all the call records in pool **128c**, then distribution module **102** can request that pools **128a** and **128b** transfer call records to queue **130d**.

Distribution module **102** transfers the call records to pools **128**, transfers less than all of the call records from pools **128**

to queues 130, and transfers queues 130 to dialing devices 108 before dialing devices 108 begin their daily calling routines. At the beginning of the day, distribution module 102 transfers enough call records from pools 128 to queues 130 to allow for dialing devices 108 to place calls for fifteen, thirty, sixty minutes, or an appropriate amount of time to place calls. Distribution module 102 monitors the calls placed by dialing devices 108 as well as the number of call records remaining to be called to determine how busy dialing devices 108 are and when and how many additional call records to transfer from pools 128 to queues 130. The monitoring of queues 130 and the transferring of additional call records from pools 128 to queues 130 allows for real-time movement of call records from distribution module 102 to dialing devices 108 throughout the day. For instance, as soon as dialing device 108a is about to finish calling the call records in the campaign assigned to queue 130a, distribution module 102 transfers additional call records from pool 128a to queue 130a so that dialing device 108a maintains a steady and level flow of work.

Dialing devices 108 also track the call attempt results of every call placed by dialing devices 108. The call attempt results include whether or not a call resulted in a right party contact, a wrong party contact, no answer, or an answering machine. For example, the goal of a call record for Joe Smith is to talk with Joe Smith. If agent 110 speaks with Joe Smith, that is a right party contact and a successful call attempt result. If Joe's babysitter answers the phone and Joe is not home, that is a wrong party contact and an unsuccessful call attempt result. If no one answers the phone or an answering machine answers the phone, that is an unsuccessful call attempt result since the desired party was not contacted. Therefore throughout the day, distribution module 102 queries dialing devices 108 for call attempt results and uploads the call attempts results. If a call attempt result is unsuccessful, then distribution module 102 updates the call record in pools 128 so that a dialing device 108 may call the call record again at a later time in the day.

An advantage to system 100 is that distribution module 102 controls the transfer of the call records which results in a level work flow for dialing devices 108. To enable better work flow control, queues 130 include selection rules that determine how distribution module 102 transfers call records from pools 128 to queues 130. The selection rules include priority rules and percentage rules which can be modified on an as needed basis.

Priority rules result in distribution module 102 transferring call records from pools 128 to queues 130 based upon an assigned priority for each pool 128. For example, queue 130a receives call records from pools 128a and 128b with pool 128a having priority over pool 128b. Queue 130b receives call records from pools 128a and 128b with pool 128b having priority over pool 128a. Assume that pool 128a arrives at 8:00 AM while pool 128b arrives at 9:00 AM. Initially, both queues 130a and 130b receive call records from pool 128a. At 9:00 AM when pool 128b arrives, queue 130a continues to receive call records from pool 128a while queue 130b receives call records is 15 from pool 128b.

Percentage rules result in distribution module 102 simultaneously transferring call records from pools 128 to queues 130. For example, queue 130c has a percentage configuration with pools 128b and 128c and queue 130d has a percentage configuration with pools 128b and 128c. In this configuration, queue 130c and 130d receive call records simultaneously from pools 128b and 128c. With pool 128b arriving at 8:00 AM and pool 128c arriving at 9:00 AM, at 8:00 AM both queues 130c and 130d receive call records

from pool 128b. At 9:00 AM, queues 130c and 130d alternatively receive call records from pools 128b and 128c. The percentages are variable for instance so that queue 130c receives 80% of its call records from pool 128b and 20% of its call records from pool 128c while queue 130d receives 60% of its call records from pool 128b and 40% of its call records from pool 128c.

The selection rules can also incorporate pool quotas which are limits set on each pool controlling a maximum activity level such as number of records transferred, number of successful call attempts, and other appropriate indicators of call record activity. When distribution module 102 transfers call records to pools 128, distribution module 102 can also set quotas on how many call records dialing devices 108 will call from pools 128. In the percentage rule example above, distribution module 102 can place a quota on pool 128b. When dialing devices 108 satisfy the quota for pool 128b, queues 130c and 130d no longer receive call records from pool 128b and only receive call records from pool 128c.

The selection rules can also be a combination of the percentage rules and the priority rules. For example, queue 130b receives call records from all three pools 128a, 128b, and 128c. Queue 130b receives call records from pool 128b until dialing device 108a calls all the call records in pool 128b. At that time, queue 130b then alternately receives call records from pools 128a and 128c. As with the percentage rules above, queue 130b can receive call records from pools 128a and 128c in any percentage breakdown. Therefore, pool 128b has priority over pools 128a and 128c while pools 128a and 128c transfer call records using percentage rules.

In addition, these selection rules allow for skills-based routing between pools 128. For example, distribution module 102 allows pool 128a to initially transfer call records to queue 130a and pool 128c to initially transfer call records to queue 130d. If pool 128c becomes depleted and has no more call records to transfer to queue 130d, then pool 128a can begin transferring call records to both queues 130a and 130d. This allows distribution module 102 to transfer call records for easy to moderate difficulty customers to the best agents while the less skilled agents work the more difficult customers. And once the easy to moderate difficulty customers call records are depleted, the best agents can begin working the more difficult customer call records.

In case of a communication, dialing device, or call center outage, system 100 employs contingency modules 132 for each dialing device 108. Contingency modules 132 are associated with dialing devices 108. Contingency modules 132 secure the call records within their respective dialing devices 108 in case of an outage. Before distribution module 102 transfers the call records to pools 128, distribution module 102 creates call record accounts for dialing devices 108, locks the call record accounts to dialing devices 108, creates a contingency download file, and stores the contingency download file in contingency modules 132. Distribution module 102 updates the contingency download file with call attempt results which prevents dialing devices 108 from calling call records already successfully called.

Users of system 100 control the functionality of distribution module 102 through a user interface. The user interface is shown as online interface 134 in FIG. 1 but can be any appropriate type of user interface. Online interface 134 is a graphical user, platform-independent, password-protected World Wide Web ("WWW") browser-based interface. Users use online interface 134 to control the settings for distribution module 102 including application of the selection rules, number of pools, and number of call records to initially

transfer to the queues, generate reports, and create and modify enterprise parameters. Users access online interface **134** by using browser **136** to access Internet **138** to reach a specific web address. Once at the specific web address, the users enter the appropriate passwords to gain access to online interface **134**.

Although the embodiment shown in FIG. 1 contains more than one dialing device, in alternative embodiments distribution module **102** interfaces with a single dialing device. A single dialing device interfacing with distribution module **102** allows for variable control over similar lists of call records. For instance, call records may be divided into geographies such as states or time zones. Calling can be stopped automatically by distribution module **102** when a quota is reached for a particular geography. Distribution module **102** presents the similar lists of call records for different geographies as different pools but the similar lists of call records for different geographies would represent one calling job within the single dialing device.

FIG. 2 illustrates a block diagram of system **150** employing two distribution modules in an alternative embodiment of the present invention. System **100** as shown in FIG. 2 is shown with less detail than in FIG. 1.

System **150** employs two distribution modules **102** and **152**. Distribution module **152** is associated with two call centers **154** and **156**. Call centers **154** and **156** each have one dialing device **158**. Distribution module **152** provides the same functionality to call centers **154** and **156** that distribution module **102** provides to call centers **104** as described above in the discussion regarding FIG. 1.

Distribution module **152** provides redundancy and prevents distribution module **102** from being overburdened by too many dialing devices. Distribution module **102** functions effectively with more than one dialing device interfaced with it but performance and efficiency suffers when too many dialing devices are attached. Therefore, additional distribution module **152** allows for both it and distribution module **102** to achieve optimal performance and efficiency when adding additional call centers **154** and **156** with additional dialing devices **158**.

In system **150**, distribution modules **102** and **152** are in communication with each other including communicating which call records are in the pools and the call attempt results. Distribution modules **102** and **152** transfer call records and call attempt results between themselves just as distribution module **102** transfers call records and call attempt results between dialing devices **108**. Therefore, if dialing devices **158** are idle while dialing devices **108** are overburdened, distribution module **102** transfers call records to distribution module **152** for dialing devices **158** to call. In addition, if distribution module **152** experiences an outage, distribution module **102** transfers the high priority calls from distribution module **152** to dialing devices **108** without worry of calling the same call record a second time in the same day when the first call resulted in a right party contact.

Referring now to FIG. 3, a flow diagram depicts a process for distributing outbound call records. The process begins at step **170** with the transfer of call records from host **112**, dialing devices **108**, or scheduling module **122** to distribution module **102**. In step **172**, distribution module **102** organizes and arranges the call records into pools **128**. Based upon user inputs distribution module **102** assigns queues **130** to specific dialing devices in step **174**.

In step **176**, distribution module **102** checks to see if the selection sides are to be applied to pools **128** and queues **130**. If the selection rules are not to be applied, then the process continues in step **178**. If selection rules are to be

applied, then in step **180** distribution module **102** determines if priority, percentage, or quota rules are applied to pools **128**. If priority rules are applied, then in step **182** distribution module **102** applies the priority rules to pools **128** and queues **130** and the process continues on to step **178**. If percentage rules are applied, then in step **184** distribution module **102** applies the percentage rules to pools **128** and queues **130** and the process continues in step **178**. If the quota rules are applied, then in step **186** distribution module **102** applies the quotas to pools **128** and queues **130** and the process continues to step **178**.

Distribution module **102** then delivers enough call records to queues **130** for dialing devices **108** to place telephone calls for fifteen, thirty, sixty minutes, or an appropriate amount of time to place calls in step **178**. In step **190**, distribution module **102** locks the call records assigned to dialing devices **108** and creates a contingency file specific for each dialing device **108** in step **192**.

In step **194**, distribution module **102** transfers queues **130** containing the set number of call records to dialing devices **108**. Every few minutes, distribution module **102** uploads call record statistics from each queue **130** in step **196**. Call record statistics include such information as how many call records remain to be called and the rate at which dialing devices **108** are depleting the call records in queues **130**. In addition to uploading call record statistics, in step **198** distribution module **102** also uploads call attempt results. Call attempt results include whether a right party contact or wrong party contact was made or whether an answering machine was reached when dialing devices **108** place a telephone call.

In step **202** distribution module **102** updates the contingency file with the call attempt results specific for dialing devices **108**. In step **204**, distribution module **102** uses the call record statistics gathered in step **196** to analyze the number of call records remaining to be called and the depletion rate of the call records within queues **130**. Based upon the call attempt results, distribution module **102** represents to pools **128** call records where the first attempt to make a right party contact was unsuccessful so that the call record can be called later in the day in step **206**. In addition, the call record can be made unavailable for the remainder of the day if a right party contact was made.

Based upon the call record statistics, distribution module **102** determines in step **208** if more call records need to be sent from pools **128** to queues **130**. If more call records are needed, then in step **210** distribution module **102** sends additional call records from pools **128** to queues **130** and the process repeats beginning with step **176** until manually stopped. But if distribution module **102** determines that no additional call records need to be sent from pools **128** to queues **130** in step **208**, then the process repeats beginning with step **196** until manually stopped or until there are no call records remaining to be called.

FIGS. 4a and 4b illustrate a flow diagram for the population of pools **128** and queues **130** with call records. The call records in FIGS. 4a and 4b include scheduling information provided by scheduling module **122**.

Referring to FIG. 4a, In step **222** the call records pass through scheduling module **122** from either dialing devices **108** or host **112**. Scheduling module **122** adds call scheduling information to each call record as it passes through it. In step **224**, scheduling module **122** transfers the call records containing call scheduling information to call record database **118** within distribution module **102**. Distribution module **102** then arranges the call records into pools **128** in step **226**. When distribution module **102** places the call records

into pools 128, distribution module 102 examines each call record to determine how to extract the scheduling information, account number and telephone number from the call record. In addition, distribution module 102 flags any call records where the scheduling information or telephone number is stripped from the end of the call record before placing it in the pools 128.

In step 228, distribution module 102 splits the call records into a plurality of pools 128. Each pool 128 holds the call record as a data string and the call records are in the same format within pools 128. In addition, distribution module 102 arranges the call records within pools 128 so that each call record is selectable by its account number.

The call scheduling information provided by scheduling module 122 allows for an optimum order to call the call records. Using the call scheduling information, distribution module 102 creates hourly indices for pools 128 in step 230. The hourly indices allow for pools 128 to take advantage of the fact that the call order and call priority of each call record changes based upon the time of day. For example, a call record might be scheduled to be the first call at 8:00 AM and if not successfully called at 8:00 AM then rescheduled to be the tenth call made at 6:00 PM. There is a hourly index created for each hour of the calling day and the hourly indices are shown in step 232. Distribution module 102 creates an index for each hour for each pool 128.

In addition to the hourly indices, distribution module 102 also creates an immediate index and an overflow index. The immediate index contains call records that are always the first to be called at the beginning of every hourly index. The call records within the immediate index allow real time call record insertion based upon previous call attempts and are often call records that resulted in no contact when called the first time. Call records contained in the overflow index are call records which were not scheduled to be called or call records that do not have call scheduling information.

Once the call records are arranged into pools 128 and the hourly indices are created, the process of transferring the call records from pools 128 to queues 130 begins. In step 234, distribution module 102 selects the call records contained in the immediate index. Distribution module 102 also removes any call records that are unavailable to be called and marks the call records as unavailable in step 236. In step 238, distribution module 102 determines if it is ready to transfer the call records from pools 128 to queues 130 for this hour and if there are a sufficient number of call records to be transferred from the immediate index to allow for fifteen, thirty, sixty minutes, or an appropriate amount of time for calling. If there are sufficient call records, then in step 239, distribution module 102 transfers the call records from the pool immediate index to queues 130.

If there are not enough call records in the immediate index, then in step 240 distribution module 102 selects call records from the appropriate hourly index. These additional call records in combination with call records from the immediate index will allow for fifteen, thirty, sixty minutes, or an appropriate amount of time for calling. In step 242, distribution module 102 removes any call records unavailable to be called and marks the call records as unavailable. Distribution module 102 then transfers the call records from the immediate index and the appropriate hourly index to queues 130 in step 239.

In step 244, distribution module 102 transfers queues 130 containing the call records to dialing devices 108. After queues 130 are transferred to dialing devices 108, in step 246 dialing devices 108 begin calling the call records.

Referring to FIG. 4b, as dialing devices 108 call the call records, distribution module 102 monitors dialing devices 108 and queues 130 for when it is time to send the next hourly index of call records from pools 128 to queues 130 in step 248. In determining when to send the next hourly index, distribution module 102 cannot start morning hour queues before the actual hour of the hourly index and must stop evening hour queues before the hourly index hour expires. For instance, the pool morning hourly index for 10:00 AM cannot be sent from pools 128 to queues 130 before 10:00 AM and the evening hourly index for 7:00 PM must stop calling at 8:00 PM. This is in part to due to telemarketing regulations that regulate the times of day that telemarketing calls may be placed.

If in step 248 it is time for the next hourly index, then in step 250 distribution module 102 selects the next hourly index to be called and begins the process of transferring the call records from the appropriate hourly index to queues 130. The process of selecting the next hourly index repeats steps 234 through 244 by first taking call records from the immediate index and adding call records from the appropriate hourly index as explained above.

If in step 248 it is not time for the next hour, then distribution module 102 determines queue depth and the time to go in step 252. Queue depth is the amount of call records remaining to be called in the queue while time to go is the amount of time remaining in the hour for the hourly index. In step 254 if the depth is not too low and the time to go is not too short so that there are a sufficient amount of call records to call for the remaining time left in the hour, then additional call records are not needed in queue 130. So in step 256, the call attempt results regarding a right or wrong party contact are uploaded from dialing devices 108 and sent back to distribution module 102 in step 258. The process then returns to step 248 to determine if it is time for the next hour.

If in step 254 distribution module 102 determines that the depth is too low or the time to go is too short, then in step 260 distribution module 102 calculates the number of call records needed to finish out the hour for the hourly index. In step 262, distribution module 102 selects additional call records to call by repeating steps 234 through 239 above and transferring the call records from the pools 128 to queues 130 in step 264 so that dialing devices 108 do not sit idle but finish out the hour placing telephone calls. The process then returns to step 248 to determine if it is time for the next hour.

Although the present invention has been described in detail, it should be understood that various changes, substitution, and alterations can be made hereto without parting from the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. A system for distributing outbound telephone calls, the system comprising:

a [distribution module] server having a plurality of call records, the [distribution module operable] server configured to place [the] respective subsets of the plurality of call records into plural queues [and] associated with a single campaign, the server further configured to transfer each of the plural queues to a respective one of [plural] a plurality of dialing devices, wherein each of the plurality of dialing [device operable to support] devices comprises a predictive dialer in a respective contact center that is configured to originate plural contacts for plural agents [with the] using one of the respective subsets of the plurality of call records, wherein the server is further configured to:

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monitor each of the plurality of dialing devices to determine contact results comprising at least one of right party contacts, wrong party contacts, no answers, and detection of answering machines associated with the plural contacts originated using the one of the respective subsets of the plurality of call records, and automatically transfer additional call records from the plurality of call records to one or more of the plural queues based on at least one of the right party contacts, the wrong party contacts, the no answers, and the detection of answering machines.

2. The system of claim 1 wherein the [distribution module] server is further [operable] configured to transfer the additional call records to [the] one or more of the plural queues [if] upon determining the contact results indicate the respective one of the plurality of dialing devices [have] has contacted a predetermined number of the call records.

3. The system of claim 1 wherein the distribution module comprises a server that supports TCP/IP, the distribution module transferring the queues with TCP/IP.]

4. The system of claim 1 wherein the dialing devices comprise predictive dialers.]

5. The system of claim 1 wherein the distribution module is further operable to monitor the dialing devices to determine contact results associated with the call records and to transfer additional call records to the queues based at least in part on the contact results.]

6. The system of claim 1 wherein the [distribution module] server is further [operable] configured to redistribute one of the respective subsets of the plurality of call records between the plural queues based at least in part [upon] on the contact [attempt] results associated with the one of the respective subsets of the plurality of call records [at the] of the respective one of the plurality of dialing devices.

7. The system of claim 1 further comprising a scheduling module interfaced with the distribution module, the scheduling module operable to schedule call records for ordered contact attempts by the dialing devices according to one or more factors.]

8. The system of claim 1 wherein the [distribution module manages] server is configured to manage the plurality of call records in plural pools, the [distribution module] server further [operable] configured to transfer a first subset of the plurality of call records to a first queue of the plural queues from a first pool and [transfers] transfer a second subset of the plurality of call records to the first queue from a second pool when the first subset of the plurality of call records in the first pool are depleted.

9. A method for distributing outbound telephone calls, the method comprising:

organizing call records at a [distribution module] server into a plurality of queues associated with a single campaign, wherein each of the plurality of queues is associated with a respective subset of the call records; distributing each [queue] of the plurality of queues to a respective one of a plurality of dialing devices; [attempting] originating outbound telephone calls [with] using the respective subset of the call records of one of the [queue] plurality of queues at [each dialing device] the respective one of the plurality of dialing devices; [and]

providing each of the outbound telephone [call] calls to one of plural agents associated with [each dialing device] the respective one of the plurality of dialing devices;

communicating call attempt results from the respective one of the plurality of dialing devices to the server;

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monitoring the call attempt results comprising at least one of right party contacts, wrong party contacts, no answers, and detection of answering machines by the server of the outbound telephone calls at the respective one of the plurality of dialing devices; and automatically distributing an additional subset of the call records by the server to the one of the plurality of queues of the respective one of the plurality of dialing devices based on at least one of the right party contacts, the wrong party contacts, the no answers, and the detection of answering machines.

[10. The method of claim 9 further comprising: monitoring the results of outbound telephone calls at each dialing device;

communicating the results to the distribution module; and distributing additional call records to the queues based in part on the results.]

11. The method of claim 9 wherein organizing the call records at the [distribution module] server further comprises:

determining a priority between the call records based on one or more factors; and

ordering the call records in the plurality of queues based on [the] priority.

12. The method of claim 11 wherein the priority is based on [the] a likelihood of a successful contact for [the] a respective call record.

13. The method of claim 11 wherein the priority is based on a location associated with each [call record] of the call records.

14. The method of claim 11 further comprising: uploading a plurality of the call attempt results from the one of the plurality of dialing devices to the [distribution module] server; and

analyzing the call attempt results to determine [the] a number of call records remaining to be called in the one of the plurality of queues and a depletion rate at which the respective one of the plurality of dialing devices [call the] is calling call records in the one of the plurality of queues.

15. The method of claim 14 further comprising: determining a number of additional call records for [each queue] the one of the plurality of queues of the respective one of the plurality of dialing devices based upon the number of call records remaining to be called and the depletion rate; and distributing the determined number of additional call records to [each queue] the one of the plurality of queues of the respective one of the plurality of dialing devices.

16. The method of claim [11] 9 further comprising redistributing the call records between [the queues] a first queue associated with a first one of the plurality of dialing devices and a second queue associated with a second one of the plurality of dialing devices based on the call attempt results associated with [each dialing device] the first one of the plurality of dialing devices and the second one of the plurality of dialing devices.

[17. The method of claim 11 wherein distributing the queues to a plurality of dialing devices comprises:

locking the call records to each dialing device;

creating a plurality of contingency files specific for each dialing device; and

updating the contingency files with call attempt results.]