Automatic Call Distribution, AC

DESCRIPTION

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TRADEMARKS

1 GENERAL

1.1 DESCRIPTION

Automatic Call Distribution is an automated solution to distribute a large quantity of incoming calls to predetermined services which are requested by the caller. Each service shall principally be connected to an ACD group which consists of one or more agents who handles the calls. In this way it is possible to handle a large number of incoming calls without the corresponding need for PBX operators to route the calls.

The agents are assigned as members and can answer calls from one or more ACD groups. The selection of a free member can be based on the selection priority and the type of selection. The selection priority makes it possible to route the calls to the most skilled members within a group. Between members with the same selection priority different types of selection can be made either in sequential order, i.e. the members are selected in the order they were initiated into the groups, or by load selection, that is, the member who has been free the longest time is selected first.

In addition to this ACD basic feature, there are a number of other extra facilities, which can be added in order to build up a complete call center solution:

- Recorded voice announcement.
- Estimated waiting time announcement for ACD.
- Automatic Network Call Distribution.
- DNIS for ACD.

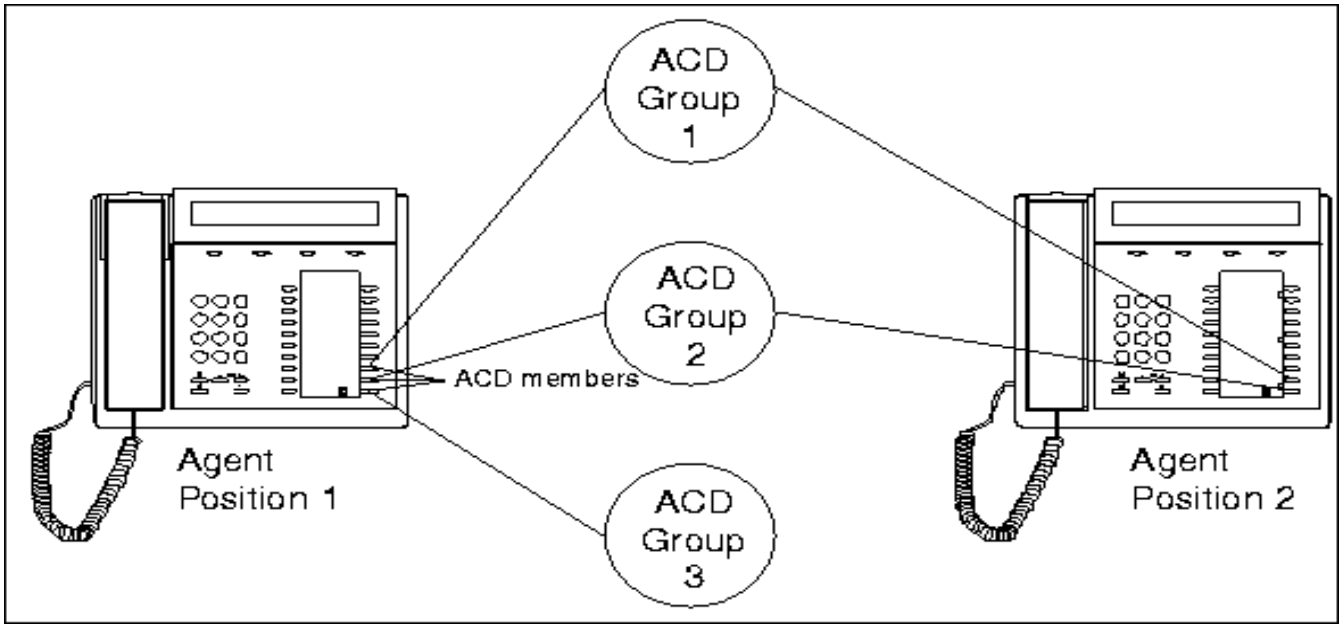
When all agent positions are busy, ACD places incoming calls in queue and a call progress message is provided. Depending on the selected options the callers can be provided with a recorded voice announcement, be connected to music-on-wait, be overflowed to another destination or any combination that best suits the needs of an organization application.

An ACD group can use another ACD group as a back-up group to prevent losses of ACD calls when the LIM, where the ACD group resides, becomes unavailable, that is, blocked or isolated, or that it restarts.

1.2 GLOSSARY AND ACRONYMS

For a complete list of abbreviations and glossary, see the description for *ACRONYMS, ABBREVIATIONS AND GLOSSARY*.

1.3 DEFINITIONS



1.3.1 ACD GROUP

An ACD group consists of a number of ACD members.

1.3.2 ACD MEMBER

An ACD member is an ADN with ACD class of service and assigned as a member in an ACD group. An ACD member can be called by the ACD groups' directory number. The ACD member can optionally be called directly by the ADNs directory number, in direct call.

1.3.3 ACD BACK-UP GROUP

Any ACD group can be a back-up group for another ACD group provided the two groups are in different LIMs.

1.3.4 AGENT POSITION

An agent position is any digital extension (ODN) with ACD class of service, which has at least one of its ADNs assigned as an ACD member.

1.3.5 SUPERVISOR POSITION

The supervisor position is any digital extension with ACD supervisor class of service. It allows the supervisor to do:

- Silent intrusion on an ACD member,
- ACD group Follow-Me (internally or externally),
- ACD group do-not-disturb.

For Silent intrusion on an ACD member, the corresponding party and the supervisor position may be located in different exchanges provided that ISDN QSIG with MX-ONE proprietary UUI is used.

2 FACILITIES

2.1 AVERAGE CONVERSATION TIME, AVCT

The conversation time for the ACD group is calculated based on the call duration time (ringing time plus talking time plus clerical time) for each answered call to the ACD group.

2.2 AGENT UNAVAILABLE INDICATION

An agent position can at unavailable state present a visual indication to illuminate for the agent that a certain ACD member is unavailable and the corresponding LED is then lit. When the agent marks the ACD member available the light is extinguished from the LED.

2.3 MULTI MEMBER BUSY, MMB

If another ACD member on the same ACD agent position is busy with an ACD call, all other free members on the same ACD agent position are marked as MMB in the own ACD groups.

Optionally if the ACD agent position is busy, all other free ACD members belonging to this ACD agent position for which MMB is set are marked as MMB in the own ACD groups.

When an ACD member is marked as MMB, the ACD member is not able to receive new calls.

Optionally if an ACD member is busy, the ACD agent position that the ACD member belongs to, is marked as MMB. Call waiting will not be allowed for ACD agent positions having this option.

When the ACD agent position is marked as MMB, the ACD agent is not able to receive new calls to the ACD agent position when an ACD member is busy. The calling party will receive a busy tone, and will only be able to perform call back, camp-on (if PBX operator), or intrusion (if ACD supervisor). Call back can be performed if the calling party has the proper class of service.

The following priority is used when an ACD agent position and all the ACD members assigned to the ACD agent position become free:

1) Call camped on to the ACD agent position
2) Clerical time, if last cleared call was an incoming ACD group call
3) Call back mission to ACD agent position
4) New or queued call to ACD member

The following priority is used when clerical time expires and the ACD agent position and all the ACD members assigned to the ACD agent position are free:

1) Call back mission to ACD agent position
2) New or queued call to ACD member

A camp-on by a PBX operator to an ACD agent position will interrupt clerical time, and immediately ring the ACD agent position, provided the ACD agent position is free and no ACD member assigned to the ACD agent position is busy.

2.4 CLERICAL TIME

The clerical time is a programmable time, to delay free marking of an agent position after a completed ACD call. If there is more than one available ACD member represented on the telephone, and a clerical time is running for one of them, none of the other ACD members on the telephone can receive new ACD calls. This is to allow agents time to make notes of the previous call before the next ACD call is received.

2.5 CLERICAL TIME TERMINATION KEY

The clerical time for an agent position can be terminated prematurely by pressing a dedicated key (CLT) on the telephone instrument, and all ACD members on the agent position is immediately available to receive new ACD calls.

2.6 SELECTION OF A FREE MEMBER

The selection principle of a free member depends on:

- **Selection priority**
- **Type of selection**

The selection priority of an ACD member can either be common (equal to the selection priority of the group) or individual (for example, a skilled member has a higher priority than normal).

The selection priority overrides the type of selection. Type of selection is used when selecting between members with the same selection priority.

The principles for type of selection are:

- Individual selection. Individual selection implies that the search for a free member starts at a specific member and follows a predefined sequence. The search is started at the first member affiliated to the group and continues in the order of affiliation.
- Load selection. Using the load selection principle the member which has been free the longest is selected. The sequence in which members are searched is initially that in which they where affiliated to the group.

2.7 DELAY CALL SELECTION

A delayed call can be selected when an agent position becomes free after a completed ACD call. There are two methods to choose from:

- Individual selection. A delayed call will be selected by the queue priority.
- Load selection. The delayed call with the highest number of queue cycles will be selected. The time for a queue cycle is shorter with a higher queue priority.

If two or more delayed calls have the same priority or equal number of queue cycles, the call with the longest waiting time will be selected.

2.8 DYNAMIC QUEUE LENGTH

At dynamic queue, the current queue length will depend on the number of the available members within the ACD group and a queue constant. The queue constants value divided by ten will give the factor between the current queue length and the number of the available members. The current queue length will alter when a single ACD member becomes available or unavailable in the group. The result can never be lower than the value of the minimum queue length or higher than the value of the maximum queue length. Summarizing:

Minimum queue length < available members x queue constant / 10 < Maximum queue length

2.9 ESTIMATED WAITING TIME, EWT

The EWT is the estimated time a call, put in an active queue, has to wait before it will be presented to an agent. The calculation of EWT is based on AVQTV (Average Queuing Time Value) which is the average value of how long time it takes to advance one queue position.

To calculate a particular calls estimated waiting time the present AVQTV is multiplied with the particular calls position number in the queue.

EWT = AVQTV x DELAYED CALLS

Calls that are abandoned in queue will not affect the AVQTV calculation.

2.10 SUPERVISOR INTRUSION

The supervisor has the ability to monitor any ACD call in progress, by using existing intrusion procedures. It can be done with or without warning tones being sent to the involved parties. The ACD member and the supervisor position can be located in different exchanges provided that ISDN QSIG with MX-ONE proprietary UUI is used.

The intruded agent can be allowed to park the call, if it is categorized for that, but then the intrusion is ended, so the supervisor would have to request intrusion again, if continued monitoring is wanted.

2.11 TRANSFER ON INTRUSION

The supervisor with transfer permission set, has the ability to transfer an intruded ACD member call to a third party, by using existing transfer procedures. The supervisor is then disconnected and intrusion changes to a conference call.

2.12 OVERFLOWED CALLS

Each ACD group can be programmed by a command whether or not to overflow its traffic under one or both of the following conditions: - either there are no available queue positions, or - all members are unavailable.

The calls will then be overflowed to a different answering position which can be either an internal number (for example, another ACD group), a network number, or an external destination. The external destination is stored as a common abbreviated

number which is used as overflow destination for the ACD group. When the call is overflowed to an external destination the call will be charged to the overflowed ACD group.

2.13 ACD GROUP FOLLOW-ME

An Answering position for an ACD group can be changed from a supervisor position using the follow-me procedure, for example, all calls for ACD groups can be diverted to a night answering position. An external destination is also allowed in this case.

A PBX operator is allowed to activate or cancel Group Follow Me for ACD groups.

2.14 ACD GROUP DO NOT DISTURB

An ACD supervisor can prevent the agents from receiving any new calls from a particular ACD group by using the group do not disturb procedure. When the feature is activated all ACD members on all agent positions serving in this group will be unavailable marked and all calls to the ACD group will be presented at the overflow destination.

2.15 GROUP NAME DISPLAY

The ACD groups can be assigned names which are displayed on the digital telephone instruments besides the ACD group directory numbers. The ACD group names are shown only on calling and connected parties. The name can be up to twenty characters in length, and special characters can be programmed by digital extension command in place of standard characters, although only the first ten characters are available on digital telephone instruments display.

Only the first five characters are shown for an ACD group name in place of the ACD group directory number with Member/Queue display.

The ACD group name display is only applicable on digital telephone with three or four rows alphanumerical display or graphical display, for example, on the DBC 213, DBC 662 and DBC 225.

2.16 MEMBER/QUEUE DISPLAY

The agent position can display number of delayed calls and number of available members for the ACD groups served by the agent position. It is only applicable for agent positions with three or four rows alphanumeric display. When activating the display on a four rows display the ODN number is moved to row two regardless of how many ACD groups there are to display.

The display function is invoked by pressing the soft key QUE on the agent position. If the agent position is assigned to more than four ACD groups and the presentation of the first four ACD groups is active, the member/queue information of the remaining ACD groups is displayed by pressing the soft key QUE once again.

2.17 CALL QUALIFICATION

The Call qualification is a mean to distinguish the nature of an ACD call. It is manually requested by the agent by pressing a soft-key on the agent position while in speech or in clerical time. It can be repeated as many times as necessary.

2.18 FALSE B-ANSWER

A false B-answer can be sent to the cooperating exchange for calls in queue/ringing towards an ACD group to prevent time out condition. It is also possible to configure a time duration before the false B-answer shall be sent, that is, the calling party will then not be charged immediately when the call is queued.

A false B-answer can only be sent when the incoming route has at least clear-forward availability.

2.19 HELP LINE

The supervisors directory number can be programmed on a free TNS key as a help line on an agent position. The help line is used when an agent needs to call the supervisor.

2.20 RE-ENTER QUEUE

When an ACD call to a free ACD member is presented, an ACD ring time supervision is started. If the time elapses the ACD member will be released and all free ACD members on the agent position will be marked as unavailable towards their ACD groups. The call will then either be presented to another free ACD member on a different agent position or be put first in the queue of the called ACD group even though there are other calls in the queue.

2.21 CTI GROUPS

The CTI group is a class of service for the ACD. To the PBX the CTI group is a CSTA monitored ACD group without any members. The CTI groups provide a possibility to use an external computer application, CSTA, to do the routing of the call in queue, using call deflection.

2.21.1 DISPLAY HANDLING FOR CALLING/CONNECTED PARTY

2.21.1.1 Call to CTI group, the call is queued

The group number and name (if any) will be used as connected number and name for the calling party.

2.21.1.2 Call to CTI group, call deflected to an agent

If the agent number and name or the CTI group number and name shall be used as connected number and name for the calling party is controlled by a COS of the group.

The COS is only valid if the selected agent is a generic extension. For non-generic extension the selected agent's number and name are always used.

2.21.1.3 *Direct call to CTI group agent*

If the called CTI group agent is a non-generic extension, the agent's number and name will be used as connected number and name.

If the called CTI group agent is a generic extension, the agent's number and name or selected CTI group number and name (extension COS and service code) will be used as connected number and name.

Set/select/activate which CTI group the agent shall represent:

***FC*group_number#**

Note: The setting/activating above has no influence if the agent does not have the right extension COS.

Remove/de-select/de-activate representing of group:

#FC#

2.21.1.4 *Call from CTI group agent terminal*

If the calling CTI group agent is a non-generic extension, the agent's number and name will be used as connected number and name.

If the calling CTI group agent is a generic extension, the agent's number and name or selected CTI group number and name (extension COS and service code) will be used as connected number and name.

Set/select/activate which CTI group the agent shall represent:

***FC*group_number#**

Note: The setting/activating above has no influence if the agent does not have the right extension COS.

Remove/de-select/de-activate representing of group:

#FC#

2.22 ACD BACK-UP GROUP

When a LIM is blocked, isolated, or restarts and there is an ACD group in it that has a back-up group, the following applies:

- Delayed calls for the ACD group are deflected to the back-up group
- New incoming calls are diverted to the back-up group

2.23 ALARM HANDLING

When LIM isolation, LIM restart, LIM reload, or data reload occurs in the system, an alarm will be sent.

2.24 TONE BURST

ACD agent is provided with a tone for 1 sec, when the call is answered from an external application like CSTA. The provision of this tone can be controlled by the administrator using I/O commands.

2.25 LOG-ON AND LOG-OFF PROCEDURES

Before an agent position is allowed to receive ACD calls, the ACD system requests an authentication process from the user. Two numbers must be dialed, the first one is the authorization code (user identification) and the second one is the PIN code (the agent's secret code).

3 HARDWARE

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3.1 CAPACITY

For capacity figures, see the description for *CAPACITIES*.